DENR USE ONLY: ☐ Paper Report ☐ Electronic Data - Email CD (data loaded: Yes / No) Doc/Event #:

NC DENR
Division of Waste Management - Solid Waste

Environmental Monitoring Reporting Form

Notice: This form and any information attached to it are "Public Records" as defined in NC General Statute 132-1. As such, these documents are available for inspection and examination by any person upon request (NC General Statute 132-6).

Instructions:

- Prepare one form for each individually monitored unit.
- Please type or print legibly.
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i).
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

Solid Waste Monitoring Data Submittal Information

Name of entity submitting data (laboratory, consultant, facility owner):

Richardson Smith Gardner and Associates, Inc.

Contact for questions about data formatting. Include data preparer's name, telephone number and E-mail address:

Name: Joan A. Smyth, P.G. Phone: 919-828-0577 x 221

E-mail: joan@rsgengineers.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Davidson Co. Closed Phase 1 MSW Landfill	220 Landfill Road Lexington, NC	29-06	.1600	March 16 - 17, 2011

Environmental Status: (Check all that apply)

☐ Initial/Background Monitoring ☒ Detection Monitoring ☐ Assessment Monitoring ☐ Corrective Action

Type of data submitted: (Check all that apply)

☒ Groundwater monitoring data from monitoring wells
☐ Groundwater monitoring data from private water supply wells
☒ Leachate monitoring data
☒ Surface water monitoring data
☐ Methane gas monitoring data
☐ Corrective action data (specify)
☐ Other(specify)

Notification attached?

☐ No. No groundwater or surface water standards were exceeded.
☒ Yes, a notification of values exceeding a groundwater or surface water standard is attached. It includes a list of groundwater and surface water monitoring points, dates, analytical values, NC 2L groundwater standard, NC 2B surface water standard or NC Solid Waste GWPS and preliminary analysis of the cause and significance of any concentration.
☐ Yes, a notification of values exceeding an explosive methane gas limit is attached. It includes the methane monitoring points, dates, sample values and explosive methane gas limits.

Certification

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. Furthermore, I have attached complete notification of any sampling values meeting or exceeding groundwater standards or explosive gas levels, and a preliminary analysis of the cause and significance of concentrations exceeding groundwater standards. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of a fine and imprisonment.

Joan A. Smyth, P.G. — Facility Representative Name (Print)

Senior Hydrogeologist — Title

919-828-0577 x 221 — (Area Code) Telephone Number

Joan A. Smyth — Signature

5/19/11 — Date

Affix NC Licensed/ Professional Geologist Seal

NORTH CAROLINA LICENSED SEAL 1369 GEOLOGIST JOAN A. SMYTH

5/19/11

14 N. Boylan Avenue Raleigh, NC 27603

Facility Representative Address

C0828

NC PE Firm License Number (if applicable effective May 1, 2009)

Revised 6/2009

Ground Water Monitoring Report

Spring 2011 Monitoring Event

Davidson County
Phase 1 Lined MSW Landfill
Lexington, North Carolina
NC Solid Waste Permit # 29-06

Prepared for:

Davidson County Integrated Solid Waste
1242 Old Highway 29
Thomasville, NC 27360-0024

May 2011

RICHARDSON SMITH GARDNER
& ASSOCIATES
ENGINEERING & GEOLOGICAL
SERVICES

PRINTED ON 100% RECYCLED PAPER

Ground Water Monitoring Report
Davidson County Lined MSW Landfill
Spring 2011 Semi - Annual Report

Prepared for:

Davidson County Integrated Solid Waste
1242 Old Highway 29
Thomasville, NC 27360

RSG Project No. **DAVDCO - 4**

Joan A. Smyth, P.G.
Senior Hydrogeologist

May 2011

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

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Davidson County Lined MSW Landfill

Ground Water Monitoring Report
Spring 2011 Monitoring Event

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1.0 Introduction

On March 15th and 16th, 2011, Richardson Smith Gardner & Associates (RSG) personnel performed the required semi-annual ground water monitoring event at the Davidson County Phase 1 Lined Landfill. This sampling event satisfies the requirements of the monitoring programs for this site under 15A NCAC 13B.1600 (et. seq).. The following report summarizes the monitoring event, sampling procedures, field and laboratory results, statistical analysis, and ground water characterization as required by NC Solid Waste Regulations.

2.0 Site Geology

The Davidson County Landfill facility is located in the Piedmont Physiographic Province of North Carolina. More specifically, the Geologic Map of North Carolina (1985) indicates that the site lies within, but at the western margin of, the Carolina Slate Belt. This belt includes predominantly volcanic and sedimentary rocks of Late Proterozoic to Cambrian age that have been metamorphosed and intruded by numerous igneous plutons. The boundary zone between the Carolina Slate Belt and the adjacent Charlotte Belt is known as the Gold Hill/Silver Hill shear zone.

The most detailed mapping of the area was published by the US Geological Survey in the Geologic Map of Charlotte by Goldsmith, Milton and Horton (1988). This mapping indicates that the site vicinity is underlain by two stratigraphic units: metavolcanic rocks (mv), and metamorphosed granodiorite (mgd).

The metavolcanic rocks include mafic, intermediate and felsic volcanic rocks, rocks from the Flat Swamp Member of the Cid Formation, and metavolcanic rocks of the Battleground Formation. The Battleground Formation is characterized as a quartz-sericite schist and phyllite. It contains subordinate beds of quartz-pebble conglomerate, quartzite, kyanite or sillmanite quartzite and manganiferous schist.

3.0 Davidson County Lined MSW Landfill

3.1 Sampling Procedures

Ground water sampling was performed at 12 well locations shown on **Figure 1**. Monitoring well MW-2 was not sampled because the well had insufficient water. It should be noted that prior to this sampling event, monitoring well MW-9a was installed to replace MW-9 which had previously been broken. Sampling procedures followed the protocols set forth in the site's Water Quality Monitoring Plan[1]. Each well was gauged to determine ground water depth and then purged of a minimum of three well volumes or until dry. Ground water elevations are summarized in **Table 1**. The wells were purged and allowed to stabilize prior to sample collection. Ground water purging and sample collections were performed using a factory sealed Teflon™ bailer.

[1] Davidson County Landfill Sampling and Analysis Plan. G.N. Richardson and Associates, June 1999.

Field measurements of temperature, pH, and conductivity were taken at each well and surface water sampling location. Field measurements are summarized in **Table 2**. Additionally, each well was inspected to determine if any maintenance is required at the wellhead. No damage was noted. Field data sheets are included in **Appendix A**. Monitoring well boring logs are included in **Appendix B**. Samples were collected in laboratory containers provided by Environment 1, Inc. (NC Laboratory Certification # 10). Upon collection, the samples were sealed, placed on ice, and transported to the laboratory. A trip blank was also analyzed for quality control purposes.

Samples from surface water points SW-1 and SW-2, located upstream and downstream of the landfill on Jimmy's Creek, were collected. The surface water locations are shown in **Figure 1**.

3.2 Field and Laboratory Results

All samples were transported to the laboratory facility under proper chain of custody analyzed at the specified DWM Practical Quantitation Limits for Appendix I constituents[2]. The laboratory analysis is included in **Appendix C**.

Ground water and field measurements are included as **Tables 1 and 2,** respectively. Eight (8) inorganic constituents (total alkalinity, chloride, barium, copper, total chromium, iron, vanadium and zinc) were detected above the Solid Waste Section Practical Quantitation Limits (SWSLs) in five (5) wells (MW-1s, MW-3, MW-7S, MW-9A & MW-11). Two inorganic constituents:

- iron (MW-1s); and
- vanadium (MW-11)

were detected above their 15A NCAC 2L.0200 (2L) / Ground Water Protection (GWP) standards. Measurement of turbidity in the samples from MW-3, MW-7S, MW-9A & MW-11indicated elevated turbidity in each of these samples. Presence of elevated concentrations of inorganic constituents in monitoring well MW-1s indicates naturally occurring concentrations as this is the upgradient well for the site.

Laboratory analysis of ground water indicated no detectable levels of organic constituents in any of the wells. The laboratory results are summarized in **Table 3**, and are included in **Appendix C**. A time versus concentration graph for vanadium is included in **Appendix D**. This graph indicates that concentrations of vanadium are decreasing at the site.

A leachate sample was also collected from the lined landfill. This sample was analyzed for Appendix I constituents as well as BOD, COD, nitrate, and total phosphorus. Analysis of this sample indicated detectable concentrations of total phosphorus, BOD and COD above the SWSLs. No organic constituents were detected. The laboratory report is included in **Appendix C** and results are provided in **Table 4**.

2 New guidelines for electronic submittal of environmental monitoring data memo, NCDENR DWM, Solid Waste Section, October 27, 2006.

3.3 Statistical Analysis

No statistical analyses were performed on the analytical data as allowed in the latest version of 15A NCAC 13B.1632 and .1633 effective April 1, 2011.

4.0 Site Ground Water Characterization

A potentiometric surface map was prepared for the entire site from ground water elevation data collected during this sampling event. Ground water velocity was calculated for each monitoring well on-site using the equation V = (KI)/n where:

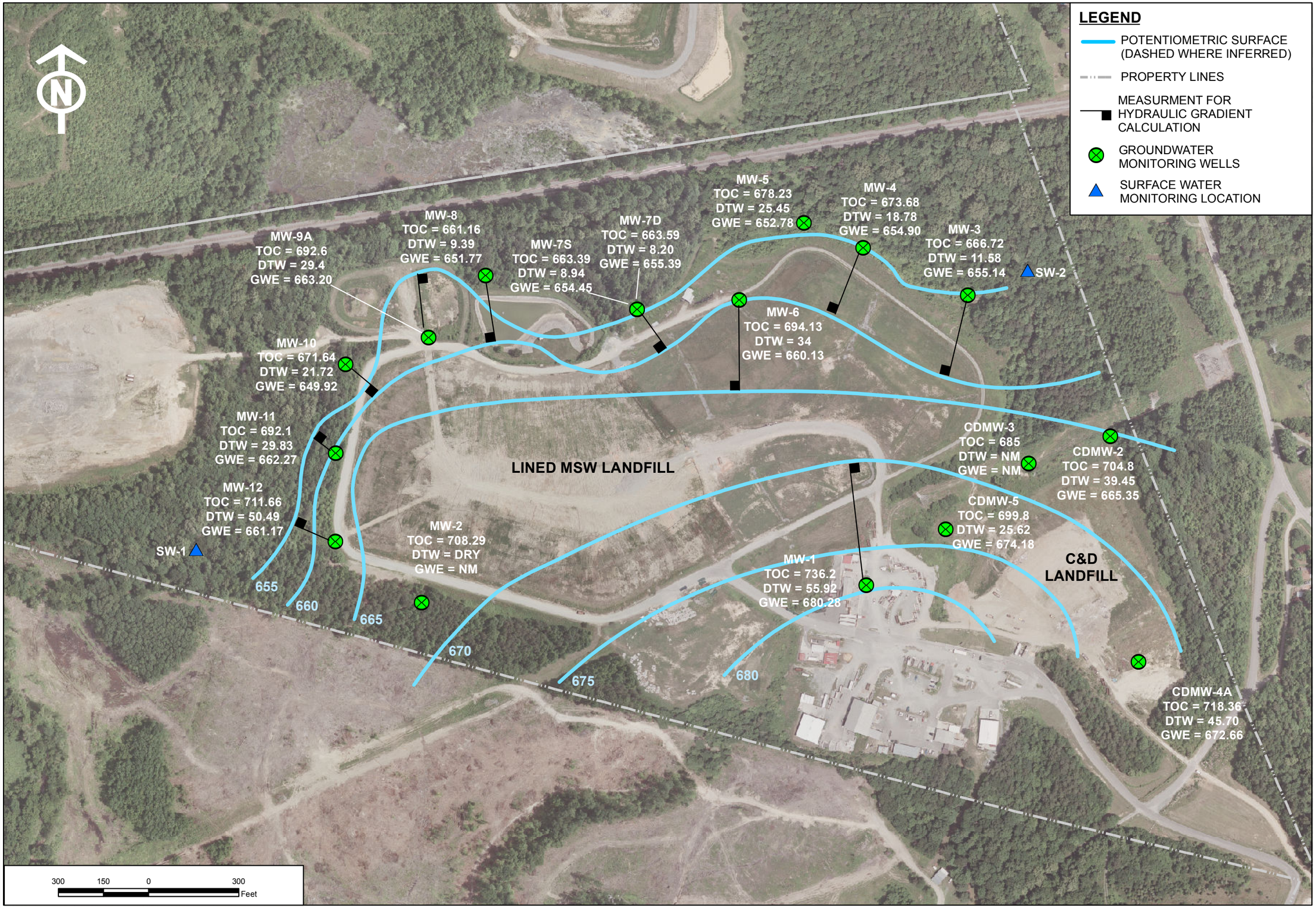
K = hydraulic conductivity
I = ground water gradient
n = porosity

Ground water velocities at the lined MSW landfill ranged from 0.0032 feet/day (MW-6) to 1.51 feet/day (MW-11). These calculations are included in **Table 5**. The data indicates that ground water underneath the lined MSW landfill is flowing generally to the north and northwest towards Jimmy's Creek. This is consistent with ground water flow patterns previously seen at this site. The potentiometric surface map (**Figure 1**) is also attached for your review.

5.0 Conclusions

The results presented from the lined landfill indicate a number of detections of inorganic constituents. This is likely due to turbidity and suspended solids of naturally occurring constituents in the samples and is not indicative of impact from the landfill. Elevated turbidity can yield "high biased" results of inorganic constituents in ground water analysis. Most of the samples that yielded elevated inorganic constituents also indicated elevated turbidity measurements at the time of sampling. In general, detected ground water concentrations at the site have remained stable. The next ground water monitoring event will be completed in September 2011. The results of this event will be reported to NCDENR upon completion of statistical analysis of laboratory data.

Figures



RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

FIGURE NO. 1	FILE NAME david_lined
SCALE: AS SHOWN	PROJECT NO. DAVDCO-4
CHECKED BY: J.A.S.	
DRAWN BY: D.M.M.	DATE: MAY 2011

TITLE:
DAVIDSON COUNTY
LINED AND C&D LANDFILLS
POTENTIOMETRIC SURFACE MAP
SPRING 2011

C:\gw\davidson sp 2011\potentiometric map data\david_lined.mxd 5/13/2011 11:40:23 AM

Tables

By: DMM
Date: 4/26/2011

Table 1
Ground Water Elevations
Davidson County Lined Landfill
3/14-15/2011

Well	Northing	Easting	TOC Elevation (feet)	Water Level (feet)	GW Elev (feet)
MW-1	763311.06	1650889.31	736.20	55.92	680.28
MW-2	763253.6	1649411.4	708.29	DRY	NM
MW-3	764274.92	1651226.41	666.72	11.58	655.14
MW-4	764433.34	1650879.1	673.68	18.78	654.90
MW-5	764515.15	1650681.8	678.23	25.45	652.78
MW-6	764259.47	1650467.49	694.13	34	660.13
MW-7S	764228.53	1650127.95	663.39	8.94	654.45
MW-7D	764228.53	1650127.95	663.59	8.20	655.39
MW-8	764340.45	1649624.12	661.16	9.39	651.77
MW-9A	764134.52	1649433.54	692.60	29.4	663.20
MW-10	764044.52	1649157.57	671.64	21.72	649.92
MW-11	763749.09	1649125.82	692.10	29.83	662.27
MW-12	763456.03	1649124.23	711.66	50.49	661.17

Notes: Survey Data collected by Michael Green and Associates.

NM - Not Measured

By: DMM

Date: 4/25/2011

Table 2
Field Parameters
Davidson County Lined Landfill
3/14-15/2011

Well	pH (Std. Units)	Conductivity (umhos)	Temp. (celsius)	Turbidity (NTU)
MW-1	6.3	520.0	15	18.0
MW-2	DRY	DRY	DRY	DRY
MW-3	7.2	180.0	10	34.0
MW-4	6.3	90.0	12	65.0
MW-5	6.7	110.0	12	70.0
MW-6	6.2	180.0	13	27.0
MW-7	6.5	50.0	12	22.0
MW-7d	6.1	130.0	10	315.0
MW-8	6.9	70.0	10	193.0
MW-9A	7.2	220.0	14.0	563.0
MW-10	7.2	260.0	13	49.0
MW-11	7.5	160.0	13	621.0
MW-12	6.5	440.0	13	15.0
SW-1	6.7	110.0	9.0	60.0
SW-2	6.8	180.0	9.0	25.0

Notes: Data Collected by Don Misenheimer and Lindsay Quant of RSG Engineers Inc.

By: DMM
Date: 4/25/2011

Table 3
Detected Inorganic Constituents
Davidson County Lined Landfill
3/14-15/2011

Parameter	SWSL	2L or GWP	MW-1s	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7d	MW-7s	MW-8	MW-9A	MW-10	MW-11	MW-12	SW-1	SW-2
Inorganic Constituents																	
total alkalinity	NE	NE	**270000**	NS	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
chloride	NE	250000	**40000**	NS	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
sulfate	250000	250000	29300 J	NS	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
arsenic	10	50	0.20 J	NS	ND	ND	ND	ND	ND	0.27 J	ND	ND	0.26 J	0.77 J	0.33 J	0.86 J	0.66 J
barium	100	2000	34.7 J	NS	**140**	34.2 J	68.2 J	11.4 J	6.6 J	47.8 J	14.6 J	48.3 J	7.6 J	45.6 J	3.1 J	43.8 J	26.8 J
beryllium	1	4	ND	NS	0.18 J	ND	ND	ND	ND	0.17 J	ND	0.14 J	0.09 J	0.43 J	ND	ND	ND
cadmium	1	1.75	0.05 J	NS	0.12 J	0.67 J	0.10 J	ND	0.14 J	0.17 J	ND	0.08 J	0.09 J	0.17 J	0.15 J	0.06 J	ND
cobalt	10	70	0.96 J	NS	5.1 J	0.71 J	1.1 J	0.08 J	0.19 J	3.2 J	1.0 J	3.2 J	1.3 J	4.9 J	0.73 J	3.9 J	0.59 J
copper	10	1000	2.2 J	NS	**26**	4.9 J	3.0 J	0.67 J	1.6 J	**19**	1.7 J	**24**	2.3 J	**24**	1.7 J	4.7 J	1.6 J
chromium, total	10	50	0.17 J	NS	1.6 J	1.3 J	1.3 J	ND	ND	5.6 J	0.43 J	1.7 J	3.0 J	**17**	1.5 J	1.9 J	0.41 J
iron	300	300	**992**	NS	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
manganese	50	50	26 J	NS	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
lead	10	15	0.66 J	NS	2.6 J	0.33 J	0.85 J	0.15 J	0.21 J	1.8 J	0.43 J	1.9 J	0.58 J	5.9 J	0.68 J	1.4 J	0.34 J
nickel	50	100	1.4 J	NS	4.0 J	0.99 J	1.2 J	0.21 J	ND	3.4 J	1.2 J	9.3 J	1.4 J	8.3 J	1.2 J	1.7 J	0.25 J
selenium	10	50	1.0 J	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.66 J
silver	10	17.5	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.12 J	ND	ND	ND
thallium	5	0.28	ND	NS	0.05 J	0.09 J	ND	ND	ND	ND	ND	ND	ND	0.03 J	ND	ND	0.03 J
vanadium	25	3.5	4.1 J	NS	23.4 J	5.9 J	6.8 J	1.7 J	1.7 J	15.2 J	3.4 J	8.1 J	10.2 J	**39**	9.4 J	7.6 J	2.9 J
zinc	10	1050	3.6 J	NS	**34**	7.2 J	5.9 J	4.7 J	4.7 J	**18**	2.8 J	**12**	3.2 J	**32**	1.8 J	6.3 J	1.7 J
Organic Constituents																	
acetone	100	700	ND	NS	ND	30.20 J	ND	ND	ND	ND	ND	ND	11.5 J	21.6 J	ND	ND	ND

SWSL	-	Solid Waste Section Pratical Quantitation Limits
GWP	-	Ground Water Protection Standard
ND	-	Not detected
Shading	-	Levels above 2L standard or no 2L standard
Bold Letters	-	Constituent detected above SWSL
J	-	Constituents detected below SWSL
NS	-	Not sampled
NA	-	Not analyzed
Note	-	All units are in ug/L.
	-	Samples analyzed by Environment 1, Inc.

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Table 4
Davidson County Lined Landfill
Leachate Analytical Data
3/14-15/2011

Parameter	Unit	Leachate
Antimony	ug/l	0.49 J
Arsenic	ug/l	1.6 J
Barium	ug/l	80.4 J
BOD	ug/l	13000
Cadmium	ug/l	0.4 J
Cobalt	ug/l	6.8 J
COD	ug/l	91000
Copper	ug/l	6.6 J
Lead	ug/l	0.19 J
Nitrate Nitrogen as N	ug/l	940 J
Nickel	ug/l	31.8 J
Selenium	ug/l	2.7 J
Sulfate	ug/l	24 J
Total Chromium	ug/l	2.5 J
Total Phosphorus as P	ug/l	320
Vanadium	ug/l	4.1 J
Zinc	ug/l	5.6 J

By: DMM
Date: 4/10/2011

Table 5
Aquifer Conductivity and Velocity
Davidson County Lined Landfill
3/14-15/2011

Well Number	Aquifer	Conductivity (ft/day)	Conductivity (ft/min)	Assumed Porosity (n)	Gradient (I)	Velocity (ft/day)
MW-1	Bedrock	0.14	9.72E-05	0.1	0.029	4.06E-02
MW-2	Bedrock	0.17	1.18E-04	0.1	NA	NA
MW-3	Unconsolidated	0.62	4.31E-04	0.2	0.017	5.27E-02
MW-4	Unconsolidated	1.31	9.10E-04	0.2	0.013	8.52E-02
MW-5	Unconsolidated	NA	NA	NA	NA	NA
MW-6	Bedrock	0.02	1.39E-05	0.1	0.016	3.20E-03
MW-7S	Unconsolidated	0.38	2.64E-04	0.15	0.037	9.37E-02
MW-7D	Unconsolidated	NA	NA	NA	NA	NA
MW-8	Unconsolidated	0.57	3.96E-04	0.15	0.04	1.37E-01
MW-9	Unconsolidated	2.65	1.84E-03	0.1	0.01	3.18E-01
MW-10	Unconsolidated	0.88	6.11E-04	0.2	0.061	2.68E-01
MW-11	Unconsolidated	4.13	2.87E-03	0.2	0.073	1.51E+00
MW-12	Unconsolidated	0.58	4.03E-04	0.2	0.035	1.02E-01

Notes:

Velocity Calculated from V=K*I/n where:
V = velocity
K = Hydraulic Conductivity
I = Gradient
n = Porosity
Hydraulic Conductivity data from slug tests performed in 1994
Porosity values assumed from Groundwater & Wells (Driscoll)
Survey Data collected by Michael Green and Associates.
Gradient calculated from Spring 2011 potentiometric surface.

NM - Not Measured
NA - Not Available

Appendix A

Field Data Sheets

RICHARDSON SMITH GARDNER & ASSOCIATES
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Groundwater Monitoring Well Inspection Checklist

This checklist is provided to inform our clients about the health and maintenance of their groundwater monitoring wells. This checklist provides no information pertaining to groundwater quality, but focuses on the physical characteristics of the well and its vicinity.

Site: DAVIDSON (L) **Date:** 3.14.11

Well ID: MW-15 **Initials:** MD

Please mark the aproprate box for the following areas of concern. If you answer NO, please explain in the comment box.

1. Well Vicinity	YES	NO
A. Well is assessable and surrounding area is safe for employees.	✓	
B. Vicinity is free of potential contaminants.	✓	
C. Dead trees, etc. not in danger of falling and damaging wells.	✓	
D. Well is in the same location as on field maps.	✓	
E.		

Comments/ items addressed or to be addressed:

O.K.

2. Concrete Apron and Steel Case	YES	NO
A. Concrete apron is present and in good condition.		✓
B. Steel case is present and upright.	✓	
C. Steel case is not movable and cemented in.	✓	
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	✓	
E. Well tag is present with pertinent information.	✓	
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	✓	
G. No evidence of tampering is present.	✓	
H. Lock operates properly.	✓	
I.		

Comments/ items addressed or to be addressed:

if concrete apron is present, it appears to be buried

3. PVC Riser	YES	NO
A. Monitoring cap is present and provides a tight seal.	✓	
B. Riser is of appropriate height (has not been cut off too low within the steel case).	✓	
C. Riser is not loose/ easily moved.	✓	
D. Riser does not appear cracked, broken, or brittle.	✓	
E. No visual sign of external contamination entering well through riser.	✓	
F.		

Comments/ items addressed or to be addressed:

O.K.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

This checklist is provided to inform our clients about the health and maintenance of their groundwater monitoring wells. This checklist provides no information pertaining to groundwater quality, but focuses on the physical characteristics of the well and its vicinity.

Site: Davidson (L) **Date:** 3·14·11

Well ID: MW-2 **Initials:** MD

Please mark the aproprate box for the following areas of concern. If you answer NO, please explain in the comment box.

1. Well Vicinity	YES	NO
A. Well is assessable and surrounding area is safe for employees.	✓	
B. Vicinity is free of potential contaminants.	✓	
C. Dead trees, etc. not in danger of falling and damaging wells.	✓	
D. Well is in the same location as on field maps.	✓	
E.		

Comments/ items addressed or to be addressed:

ok.

2. Concrete Apron and Steel Case	YES	NO
A. Concrete apron is present and in good condition.	✓	
B. Steel case is present and upright.	✓	
C. Steel case is not movable and cemented in.	✓	
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	✓	
E. Well tag is present with pertinent information.	✓	
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	✓	
G. No evidence of tampering is present.	✓	
H. Lock operates properly.	✓	
I.		

Comments/ items addressed or to be addressed:

O. K.

3. PVC Riser	YES	NO
A. Monitoring cap is present and provides a tight seal.	✓	
B. Riser is of appropriate height (has not been cut off too low within the steel case).	✓	
C. Riser is not loose/ easily moved.	✓	
D. Riser does not appear cracked, broken, or brittle.	✓	
E. No visual sign of external contamination entering well through riser.	✓	
F.		

Comments/ items addressed or to be addressed:

O. K.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

This checklist is provided to inform our clients about the health and maintenance of their groundwater monitoring wells. This checklist provides no information pertaining to groundwater quality, but focuses on the physical characteristics of the well and its vicinity.

Site: DAVIDSON (L) Date: 3·14·11

Well ID: MW-3 Initials: MD

Please mark the aproprate box for the following areas of concern. If you answer NO, please explain in the comment box.

1. Well Vicinity	YES	NO
A. Well is assessable and surrounding area is safe for employees.	✓	
B. Vicinity is free of potential contaminants.	✓	
C. Dead trees, etc. not in danger of falling and damaging wells.	✓	
D. Well is in the same location as on field maps.	✓	
E.		

Comments/ items addressed or to be addressed:

O.K.

2. Concrete Apron and Steel Case	YES	NO
A. Concrete apron is present and in good condition.		✓
B. Steel case is present and upright.	✓	
C. Steel case is not movable and cemented in.	✓	
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	✓	
E. Well tag is present with pertinent information.	✓	
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	✓	
G. No evidence of tampering is present.	✓	
H. Lock operates properly.	✓	
I.		

Comments/ items addressed or to be addressed:

if concrete apron is present, it appears to be buried.

3. PVC Riser	YES	NO
A. Monitoring cap is present and provides a tight seal.	✓	
B. Riser is of appropriate height (has not been cut off too low within the steel case).	✓	
C. Riser is not loose/ easily moved.	✓	
D. Riser does not appear cracked, broken, or brittle.	✓	
E. No visual sign of external contamination entering well through riser.	✓	
F.		

Comments/ items addressed or to be addressed:

O.K.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

This checklist is provided to inform our clients about the health and maintenance of their groundwater monitoring wells. This checklist provides no information pertaining to groundwater quality, but focuses on the physical characteristics of the well and its vicinity.

Site: Davidson (L) Date: 3-14-11

Well ID: MW-4 Initials: [illegible]

Please mark the aproprate box for the following areas of concern. If you answer NO, please explain in the comment box.

1. Well Vicinity	YES	NO
A. Well is assessable and surrounding area is safe for employees.	✓	
B. Vicinity is free of potential contaminants.	✓	
C. Dead trees, etc. not in danger of falling and damaging wells.	✓	
D. Well is in the same location as on field maps.	✓	
E.		

Comments/ items addressed or to be addressed:

O.K.

2. Concrete Apron and Steel Case	YES	NO
A. Concrete apron is present and in good condition.	✓	
B. Steel case is present and upright.	✓	
C. Steel case is not movable and cemented in.	✓	
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	✓	
E. Well tag is present with pertinent information.	✓	
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	✓	
G. No evidence of tampering is present.	✓	
H. Lock operates properly.	✓	
I.		

Comments/ items addressed or to be addressed:

O.K.

3. PVC Riser	YES	NO
A. Monitoring cap is present and provides a tight seal.	✓	
B. Riser is of appropriate height (has not been cut off too low within the steel case).	✓	
C. Riser is not loose/ easily moved.	✓	
D. Riser does not appear cracked, broken, or brittle.	✓	
E. No visual sign of external contamination entering well through riser.	✓	
F.		

Comments/ items addressed or to be addressed:

O.K.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

This checklist is provided to inform our clients about the health and maintenance of their groundwater monitoring wells. This checklist provides no information pertaining to groundwater quality, but focuses on the physical characteristics of the well and its vicinity.

Site: DAVIDSON (L) **Date:** 3-14-11

Well ID: MW-5 **Initials:** ND

Please mark the aproprate box for the following areas of concern. If you answer NO, please explain in the comment box.

1. Well Vicinity	YES	NO
A. Well is assessable and surrounding area is safe for employees.	✓	
B. Vicinity is free of potential contaminants.	✓	
C. Dead trees, etc. not in danger of falling and damaging wells.	✓	
D. Well is in the same location as on field maps.	✓	
E.		

Comments/ items addressed or to be addressed:

O.K.

2. Concrete Apron and Steel Case	YES	NO
A. Concrete apron is present and in good condition.	✓	
B. Steel case is present and upright.	✓	
C. Steel case is not movable and cemented in.	✓	
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	✓	
E. Well tag is present with pertinent information.	✓	
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	✓	
G. No evidence of tampering is present.	✓	
H. Lock operates properly.	✓	
I.		

Comments/ items addressed or to be addressed:

O.K.

3. PVC Riser	YES	NO
A. Monitoring cap is present and provides a tight seal.	✓	
B. Riser is of appropriate height (has not been cut off too low within the steel case).	✓	
C. Riser is not loose/ easily moved.	✓	
D. Riser does not appear cracked, broken, or brittle.	✓	
E. No visual sign of external contamination entering well through riser.	✓	
F.		

Comments/ items addressed or to be addressed:

O.K.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

This checklist is provided to inform our clients about the health and maintenance of their groundwater monitoring wells. This checklist provides no information pertaining to groundwater quality, but focuses on the physical characteristics of the well and its vicinity.

Site: Davidson (L) **Date:** 3-14-11

Well ID: MW-6 **Initials:** MD

Please mark the aproprate box for the following areas of concern. If you answer NO, please explain in the comment box.

1. Well Vicinity	YES	NO
A. Well is assessable and surrounding area is safe for employees.	✓	
B. Vicinity is free of potential contaminants.	✓	
C. Dead trees, etc. not in danger of falling and damaging wells.	✓	
D. Well is in the same location as on field maps.	✓	
E.		

Comments/ items addressed or to be addressed:

o.k.

2. Concrete Apron and Steel Case	YES	NO
A. Concrete apron is present and in good condition.	✓	
B. Steel case is present and upright.	✓	
C. Steel case is not movable and cemented in.	✓	
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	✓	
E. Well tag is present with pertinent information.	✓	
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	✓	
G. No evidence of tampering is present.	✓	
H. Lock operates properly.	✓	
I.		

Comments/ items addressed or to be addressed:

o. k.

3. PVC Riser	YES	NO
A. Monitoring cap is present and provides a tight seal.	✓	
B. Riser is of appropriate height (has not been cut off too low within the steel case).	✓	
C. Riser is not loose/ easily moved.	✓	
D. Riser does not appear cracked, broken, or brittle.	✓	
E. No visual sign of external contamination entering well through riser.	✓	
F.		

Comments/ items addressed or to be addressed:

o.k.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

This checklist is provided to inform our clients about the health and maintenance of their groundwater monitoring wells. This checklist provides no information pertaining to groundwater quality, but focuses on the physical characteristics of the well and its vicinity.

Site: DAVIDSON (P2) **Date:** 3-14-[redacted]11

Well ID: MW-7s **Initials:** MD

Please mark the aproprate box for the following areas of concern. If you answer NO, please explain in the comment box.

1. Well Vicinity	YES	NO
A. Well is assessable and surrounding area is safe for employees.	✓	
B. Vicinity is free of potential contaminants.	✓	
C. Dead trees, etc. not in danger of falling and damaging wells.	✓	
D. Well is in the same location as on field maps.	✓	
E.		

Comments/ items addressed or to be addressed:

o.k.

2. Concrete Apron and Steel Case	YES	NO
A. Concrete apron is present and in good condition.		✓
B. Steel case is present and upright.	✓	
C. Steel case is not movable and cemented in.	✓	
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	✓	
E. Well tag is present with pertinent information.	✓	
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	✓	
G. No evidence of tampering is present.	✓	
H. Lock operates properly.	✓	
I.		

Comments/ items addressed or to be addressed:

if concrete apron is present, it appears to be buried.

3. PVC Riser	YES	NO
A. Monitoring cap is present and provides a tight seal.	✓	
B. Riser is of appropriate height (has not been cut off too low within the steel case).	✓	
C. Riser is not loose/ easily moved.	✓	
D. Riser does not appear cracked, broken, or brittle.	✓	
E. No visual sign of external contamination entering well through riser.	✓	
F.		

Comments/ items addressed or to be addressed:

o.k.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

This checklist is provided to inform our clients about the health and maintenance of their groundwater monitoring wells. This checklist provides no information pertaining to groundwater quality, but focuses on the physical characteristics of the well and its vicinity.

Site: Davidson (L) **Date:** 3-14-11

Well ID: MW-7d **Initials:** M

Please mark the aproprate box for the following areas of concern. If you answer NO, please explain in the comment box.

1. Well Vicinity	YES	NO
A. Well is assessable and surrounding area is safe for employees.	✓	
B. Vicinity is free of potential contaminants.	✓	
C. Dead trees, etc. not in danger of falling and damaging wells.	✓	
D. Well is in the same location as on field maps.	✓	
E.		

Comments/ items addressed or to be addressed:

O.K.

2. Concrete Apron and Steel Case	YES	NO
A. Concrete apron is present and in good condition.		✓
B. Steel case is present and upright.	✓	
C. Steel case is not movable and cemented in.	✓	
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	✓	
E. Well tag is present with pertinent information.	✓	
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	✓	
G. No evidence of tampering is present.	✓	
H. Lock operates properly.	✓	
I.		

Comments/ items addressed or to be addressed:

if concrete apron is present, it appears to be buried.

3. PVC Riser	YES	NO
A. Monitoring cap is present and provides a tight seal.	✓	
B. Riser is of appropriate height (has not been cut off too low within the steel case).	✓	
C. Riser is not loose/ easily moved.	✓	
D. Riser does not appear cracked, broken, or brittle.	✓	
E. No visual sign of external contamination entering well through riser.	✓	
F.		

Comments/ items addressed or to be addressed:

O.K.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

This checklist is provided to inform our clients about the health and maintenance of their groundwater monitoring wells. This checklist provides no information pertaining to groundwater quality, but focuses on the physical characteristics of the well and its vicinity.

Site: DAVIDSON (L) **Date:** 3-14-11

Well ID: MW-8 **Initials:** MD

Please mark the aproprate box for the following areas of concern. If you answer NO, please explain in the comment box.

1. Well Vicinity	YES	NO
A. Well is assessable and surrounding area is safe for employees.	✓	
B. Vicinity is free of potential contaminants.	✓	
C. Dead trees, etc. not in danger of falling and damaging wells.	✓	
D. Well is in the same location as on field maps.	✓	
E.		

Comments/ items addressed or to be addressed:

o.k.

2. Concrete Apron and Steel Case	YES	NO
A. Concrete apron is present and in good condition.	✓	
B. Steel case is present and upright.	✓	
C. Steel case is not movable and cemented in.	✓	
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	✓	
E. Well tag is present with pertinent information.	✓	
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	✓	
G. No evidence of tampering is present.	✓	
H. Lock operates properly.	✓	
I.		

Comments/ items addressed or to be addressed:

o.k.

3. PVC Riser	YES	NO
A. Monitoring cap is present and provides a tight seal.	✓	
B. Riser is of appropriate height (has not been cut off too low within the steel case).	✓	
C. Riser is not loose/ easily moved.	✓	
D. Riser does not appear cracked, broken, or brittle.	✓	
E. No visual sign of external contamination entering well through riser.	✓	
F.		

Comments/ items addressed or to be addressed:

o.k.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

This checklist is provided to inform our clients about the health and maintenance of their groundwater monitoring wells. This checklist provides no information pertaining to groundwater quality, but focuses on the physical characteristics of the well and its vicinity.

Site: DAVIDSON (L) **Date:** 3-14-11

Well ID: MW-9A **Initials:** M

Please mark the aproprate box for the following areas of concern. If you answer NO, please explain in the comment box.

1. Well Vicinity	YES	NO
A. Well is assessable and surrounding area is safe for employees.	✓	
B. Vicinity is free of potential contaminants.	✓	
C. Dead trees, etc. not in danger of falling and damaging wells.	✓	
D. Well is in the same location as on field maps.	✓	
E.		

Comments/ items addressed or to be addressed:

o.k.

2. Concrete Apron and Steel Case	YES	NO
A. Concrete apron is present and in good condition.	✓	
B. Steel case is present and upright.	✓	
C. Steel case is not movable and cemented in.	✓	
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	✓	
E. Well tag is present with pertinent information.	✓	
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	✓	
G. No evidence of tampering is present.	✓	
H. Lock operates properly.	✓	
I.		

Comments/ items addressed or to be addressed:

o.k.

3. PVC Riser	YES	NO
A. Monitoring cap is present and provides a tight seal.	✓	
B. Riser is of appropriate height (has not been cut off too low within the steel case).	✓	
C. Riser is not loose/ easily moved.	✓	
D. Riser does not appear cracked, broken, or brittle.	✓	
E. No visual sign of external contamination entering well through riser.	✓	
F.		

Comments/ items addressed or to be addressed:

ok.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

This checklist is provided to inform our clients about the health and maintenance of their groundwater monitoring wells. This checklist provides no information pertaining to groundwater quality, but focuses on the physical characteristics of the well and its vicinity.

Site: DAVIDSON (L) Date: 3-14-11

Well ID: MW-10 Initials: MD

Please mark the aproprate box for the following areas of concern. If you answer NO, please explain in the comment box.

1. Well Vicinity	YES	NO
A. Well is assessable and surrounding area is safe for employees.	✓	
B. Vicinity is free of potential contaminants.	✓	
C. Dead trees, etc. not in danger of falling and damaging wells.	✓	
D. Well is in the same location as on field maps.	✓	
E.		

Comments/ items addressed or to be addressed:

O. K.

2. Concrete Apron and Steel Case	YES	NO
A. Concrete apron is present and in good condition.	✓	
B. Steel case is present and upright.	✓	
C. Steel case is not movable and cemented in.	✓	
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	✓	
E. Well tag is present with pertinent information.	✓	
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	✓	
G. No evidence of tampering is present.	✓	
H. Lock operates properly.	✓	
I.		

Comments/ items addressed or to be addressed:

o. k.

3. PVC Riser	YES	NO
A. Monitoring cap is present and provides a tight seal.	✓	
B. Riser is of appropriate height (has not been cut off too low within the steel case).	✓	
C. Riser is not loose/ easily moved.	✓	
D. Riser.does not appear cracked, broken, or brittle.	✓	
E. No visual sign of external contamination entering well through riser.	✓	
F.		

Comments/ items addressed or to be addressed:

O.K.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

This checklist is provided to inform our clients about the health and maintenance of their groundwater monitoring wells. This checklist provides no information pertaining to groundwater quality, but focuses on the physical characteristics of the well and its vicinity.

Site: DAVIDSON (L) **Date:** 3-14-11

Well ID: MW-11 **Initials:** MD

Please mark the aproprate box for the following areas of concern. If you answer NO, please explain in the comment box.

1. Well Vicinity	YES	NO
A. Well is assessable and surrounding area is safe for employees.	✓	
B. Vicinity is free of potential contaminants.	✓	
C. Dead trees, etc. not in danger of falling and damaging wells.	✓	
D. Well is in the same location as on field maps.	✓	
E.		

Comments/ items addressed or to be addressed:

O.K.

2. Concrete Apron and Steel Case	YES	NO
A. Concrete apron is present and in good condition.	✓	
B. Steel case is present and upright.	✓	
C. Steel case is not movable and cemented in.	✓	
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	✓	
E. Well tag is present with pertinent information.	✓	
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	✓	
G. No evidence of tampering is present.	✓	
H. Lock operates properly.	✓	
I.		

Comments/ items addressed or to be addressed:

O.K.

3. PVC Riser	YES	NO
A. Monitoring cap is present and provides a tight seal.	✓	
B. Riser is of appropriate height (has not been cut off too low within the steel case).	✓	
C. Riser is not loose/ easily moved.	✓	
D. Riser does not appear cracked, broken, or brittle.	✓	
E. No visual sign of external contamination entering well through riser.	✓	
F.		

Comments/ items addressed or to be addressed:

O.K.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

This checklist is provided to inform our clients about the health and maintenance of their groundwater monitoring wells. This checklist provides no information pertaining to groundwater quality, but focuses on the physical characteristics of the well and its vicinity.

Site: DAVIDSON (L) Date: 3-14-11

Well ID: MW-12 Initials: M

Please mark the aproprate box for the following areas of concern. If you answer NO, please explain in the comment box.

1. Well Vicinity	YES	NO
A. Well is assessable and surrounding area is safe for employees.	✓	
B. Vicinity is free of potential contaminants.	✓	
C. Dead trees, etc. not in danger of falling and damaging wells.	✓	
D. Well is in the same location as on field maps.	✓	
E.		

Comments/ items addressed or to be addressed:

O.K.

2. Concrete Apron and Steel Case	YES	NO
A. Concrete apron is present and in good condition.		✓
B. Steel case is present and upright.	✓	
C. Steel case is not movable and cemented in.	✓	
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	✓	
E. Well tag is present with pertinent information.	✓	
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	✓	
G. No evidence of tampering is present.	✓	
H. Lock operates properly.	✓	
I.		

Comments/ items addressed or to be addressed:

if concrete apron is present, it appears to be buried.

3. PVC Riser	YES	NO
A. Monitoring cap is present and provides a tight seal.	✓	
B. Riser is of appropriate height (has not been cut off too low within the steel case).	✓	
C. Riser is not loose/ easily moved.	✓	
D. Riser does not appear cracked, broken, or brittle.	✓	
E. No visual sign of external contamination entering well through riser.	✓	
F.		

Comments/ items addressed or to be addressed:

O.K.

Appendix B

Monitoring Well Information

FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-1D

PROJECT NUMBER: 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION: LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: HOLLOW STEM AUGER AND AIR ROTARY
WEATHER: SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 5/03/94 DATE COMPLETED: 5/03/94

TOP OF CASING ELEVATION: 736.18
TOTAL DEPTH: 88.5
GROUND SURFACE ELEVATION: 735.01
SHEET: 1 OF: 4

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)	51.88 AB	
Time	9:37	
Date:	05/04/94	

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	OGI	LITHOLOGY DESCRIPTION
2.0								
1.0								
0.0								CLAY AND SILT: with sand; white quartz and weathered feldspar; grades into light green weathered chlorite schist.
1.0								
2.0								
3.0	15	Ss	S1					
4.0	50/5							
5.0								
6.0								
7.0								
8.0	26	Ss	S2					
9.0	50/4							CLAY AND SILT: chlorite schist; light bluish green; some black stained vertical fractures; very dense; dry.
10.0								
11.0								
12.0								
13.0	42	Ss	S3					
14.0	50/4							CLAY AND SILT: bluish gray green; weathered chlorite schist; with white feldspar (talc) veins; some black to orange stained subvertical fractures.
15.0								
16.0								
17.0								
18.0	35	Ss	S4					
19.0	50/4							CLAY AND SILT: weathered chlorite/white feldspar schist; horizontal to subvertical fractures; dry; very dense; auger refusal.
20.0								
21.0								

LITHOLOGY

WELL INSTALLATION

FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-1D

PROJECT NUMBER: 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION: LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: AIR ROTARY
WEATHER: SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 5/03/94 DATE COMPLETED: 5/03/94

TOP OF CASING ELEVATION: 736.18
TOTAL DEPTH: 88.5
GROUND SURFACE ELEVATION: 735.01
SHEET: 2 OF: 4

STATIC WATER LEVEL (BLS)		
WD-While Drilling AB-After Boring		
Depth(ft)	51.88 AB	
Time	9:37	
Date:	05/04/94	

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	ORGANIC VAPOR	OGI	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL INSTALLATION
21.0								SCHIST: chlorite/white feldspar schist; few horizontal to subvertical fractures.		
22.0										
23.0										
24.0										
25.0										
26.0										
27.0										
28.0										
29.0										
30.0										
31.0										
32.0										
33.0										
34.0										
35.0										
36.0										
37.0										
38.0										
39.0										
40.0										
41.0										
42.0										
43.0										
44.0										
45.0										

FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-1D

PROJECT NUMBER: 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION: LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: AIR ROTARY
WEATHER: SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 5/03/94 DATE COMPLETED: 5/03/94

TOP OF CASING ELEVATION: 736.18
TOTAL DEPTH: 88.5
GROUND SURFACE ELEVATION: 735.01
SHEET: 3 OF: 4

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)	51.88 AB	
Time	9:37	
Date:	05/04/94	

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	ORGANIC VAPOR	CGI	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL INSTALLATION
45.0								SCHIST: chlorite/white feldspar schist; few horizontal to subvertical fractures.		
46.0										
47.0										
48.0										
49.0										
50.0										
51.0										
52.0										
53.0										
54.0										
55.0										
56.0										
57.0										
58.0										
59.0										
60.0										
61.0										
62.0										
63.0										
64.0										
65.0										
66.0										
67.0										
68.0										

FIELD BOREHOLE LOG

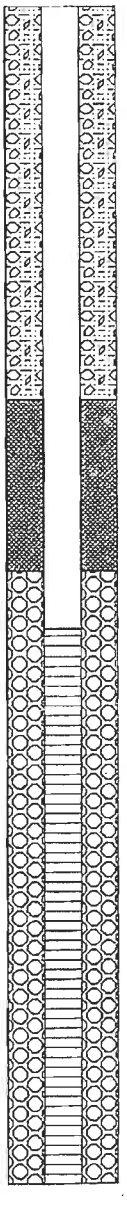
BOREHOLE NUMBER: MW-10

PROJECT NUMBER: 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION: LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: AIR ROTARY
WEATHER: SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 5/03/94 DATE COMPLETED: 5/03/94

TOP OF CASING ELEVATION: 736.18
TOTAL DEPTH: 88.5
GROUND SURFACE ELEVATION: 735.01
SHEET: 4 OF: 4

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(Ft)	51.88 AB	
Time	9:37	
Date:	05/04/94	

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	ORGANIC VAPOR	CGI	LITHOLOGY DESCRIPTION	LITHOLOGY	WELL INSTALLATION
68.0								SCHIST: chlorite/white feldspar schist; few horizontal to subvertical fractures.		
69.0										
70.0										
71.0										
72.0										
73.0										
74.0										
75.0										
76.0										
77.0										
78.0										
79.0										
80.0										
81.0										
82.0										
83.0										
84.0										
85.0										
86.0										
87.0										
88.0										



FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-2

PROJECT NUMBER: 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION: LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: HOLLOW STEM AUGER
WEATHER: SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 5/5/94 DATE COMPLETED: 5/5/94

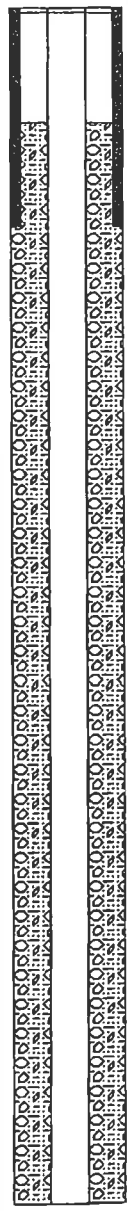
TOP OF CASING ELEVATION: -
TOTAL DEPTH: 39.0
GROUND SURFACE ELEVATION: -
SHEET: 1 OF: 2

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)		
Time		
Date:		

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	CGI	LITHOLOGY DESCRIPTION
2.0								
1.0								
0.0								SAND AND SILT: brown;fine grained.
1.0								
2.0								CLAY AND SILT AND SAND: brown to green; fine grained.
3.0	6	Ss	S1					
4.0	6 7							
5.0								
6.0								
7.0								
8.0	4	Ss	S2					
9.0	6 7							
10.0								
11.0								SAND AND SILT: brown green; fine grained.
12.0								
13.0	11	Ss	S3					
14.0	16 16							
15.0								
16.0								
17.0								
18.0	14	Ss	S4					
19.0	21 22							
20.0								

LITHOLOGY

WELL INSTALLATION



FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-2

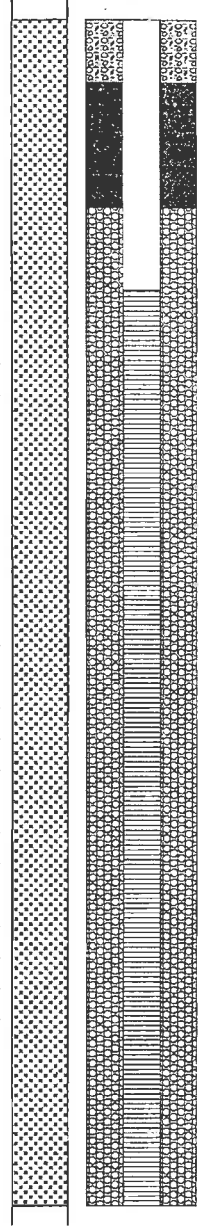
PROJECT NUMBER: 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION: LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: HOLLOW STEM AUGER
WEATHER: SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 5/5/94 DATE COMPLETED: 5/5/94

TOP OF CASING ELEVATION: -
TOTAL DEPTH: 39.0
GROUND SURFACE ELEVATION: -
SHEET: 2 OF 2

STATIC WATER LEVEL (BLS)		
WO=While Drilling AB=After Boring		
Depth(ft)		
Time		
Date		

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION
20.0								DIORITE: white feldspar with augite, weathered
21.0								
22.0								
23.0	15	Ss	S5					
24.0	32							
	37							
25.0								
26.0								
27.0								
28.0	40	Ss	S6					
29.0	50/5							
30.0								
31.0								
32.0				W				
33.0	50/5	Ss	S7					
34.0								
35.0								
36.0								
37.0								
38.0	50/5	Ss	S8					
39.0								

DEPTH | LITHOLOGY | WELL INSTALLATION



FIELD BOREHOLE LOG

BOREHOLE NUMBER
MW-3

PROJECT NUMBER 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: HOLLOW STEM AUGER
WEATHER SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 4/27/94 DATE COMPLETED: 4/27/94

TOP OF CASING ELEVATION 666.72
TOTAL DEPTH 20.0
GROUND SURFACE ELEVATION 664.56
SHEET: 1 OF: 1

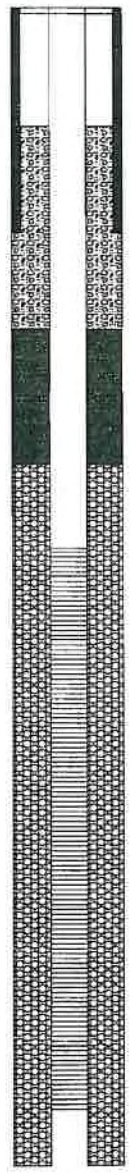
STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)	12.10 AB	
Time	15:40	
Date:	05/03/94	

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION
2.0								
1.0								
0.0								SAND AND CLAY: organic rich, heavily rooted, trace to abundant 1/4" black and orange rind concretions, moist, firm to stiff; brown to dark brown.
1.0								
2.0								
3.0	4	Ss	S1					
4.0	5 11							
5.0								
6.0								
7.0								
8.0	10	Ss	S2					
9.0	12 15							CLAY AND SILT AND SAND: numerous white feldspar black manganese, and orange iron inclusions, firm; moist; orange brown
10.0								
11.0								
12.0								
13.0	50/6	Ss	S3					
14.0								SAND AND CLAY: medium to coarse grained sand, some muscovite and feldspar, moist, light tan to medium gray
15.0								
16.0								
17.0								
18.0	10	Ss	S4	W				
19.0	11 12							SAND AND CLAY AND SILT: 1.5 inch pegmatite zones; med. tan to gray
20.0								

DEPTH

LITHOLOGY

WELL INSTALLATION



FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-4

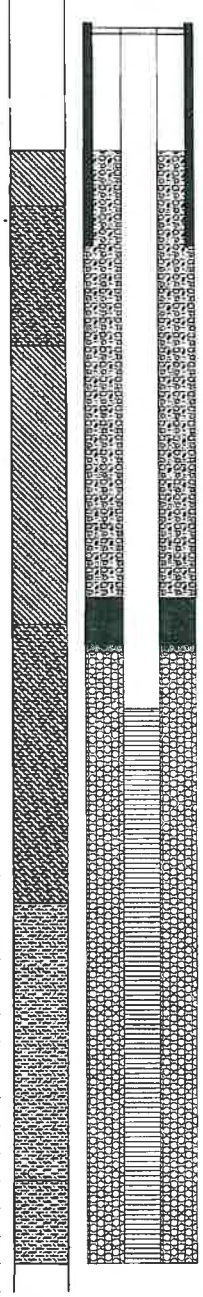
PROJECT NUMBER: 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION: LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: HOLLOW STEM AUGER
WEATHER: SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 4/28/94 DATE COMPLETED: 4/28/94

TOP OF CASING ELEVATION: 673.68
TOTAL DEPTH: 20.0
GROUND SURFACE ELEVATION: 671.51
SHEET 1 OF: 1

STATIC WATER LEVEL (BLS)		
WO=While Drilling AB=After Boring		
Depth(ft)	19.21 AB	
Time	16:50	
Date	05/03/94	

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION
2.0								
1.0								
0.0								SAND AND CLAY: tan to orange; fill
1.0								SAND AND CLAY AND SILT: rooted, med. brown
2.0								
3.0	16	Ss	S1					CLAY AND SAND: some silt, relict granite gneiss with white med to coarse feldspar, medium to fine quartz and abundant biotite laminae dry, very dense; light tan to orange tan
4.0	32							
	42							
5.0								
6.0								
7.0								
8.0	36	Ss	S2					SILT AND CLAY: trace fine biotite (2 inches), coarse clayey sand granite gneiss, coarse white feldspar and biotite, dry, very dense; dark olive green
9.0	50/4							
	25							
10.0								
11.0								
12.0								
13.0	27	Ss	S3					SAND AND SILT: with some clay; medium to coarse grained feldspar and quartz, abundant muscovite; weathered granite gneiss; equigranular, dry; very dense; light tan
14.0								
15.0								
16.0								
17.0								
18.0	36	Ss	S4	W				SAND AND SILT: fine to med feldspar, some biotite; moist, very dense, light gray
19.0	36							
	50/5							
20.0								

LITHOLOGY



WELL INSTALLATION

FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-5A

PROJECT NUMBER: 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION: LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: HOLLOW STEM AUGER
WEATHER: SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 4/28/94 DATE COMPLETED: 4/28/94

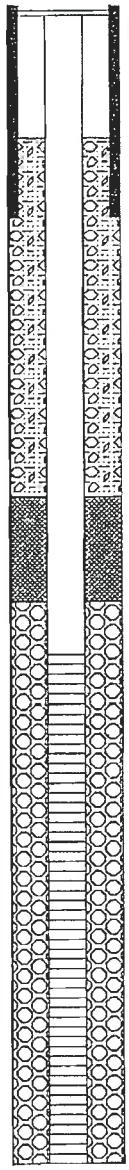
TOP OF CASING ELEVATION: 674.57
TOTAL DEPTH: 19.5
GROUND SURFACE ELEVATION: 672.23
SHEET: 1 OF: 1

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)	19.45 DB	
Time	16:15	
Date:	04/28/94	

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	ORGANIC VAPOR	CGI	LITHOLOGY DESCRIPTION
2.0								
1.0								
0.0								CLAY AND SILT: with manganese staining; dry; stiff; yellow tan.
1.0								
2.0								
3.0	8	Ss	S1					
4.0	7 9							
5.0								
6.0								
7.0								
8.0	12	Ss	S2					
9.0	15 25							SAND AND CLAY: med. to coarse grained quartz and feldspar; feldspar is white to pinkish; abundant biotite; some iron staining; dry; dense; weathered granite gneiss; light tan.
10.0								
11.0								
12.0								
13.0	25	Ss	S3					
14.0	50/5							SAND AND CLAY: med. to coarse feldspar (white) and quartz; abundant muscovite; orange iron staining throughout; equigranular; very dense; wet; orange tan.
15.0								
16.0								
17.0								
18.0	50/5	Ss	S4					
19.0				W				CLAY AND SAND AND SILT: med. to fine grained; abundant feldspar and blue quartz; lt. brown.
20.0								

LITHOLOGY

WELL INSTALLATION



FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-6D

PROJECT NUMBER 94012
PROJECT NAME DAVIDSON COUNTY
LOCATION LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER MOBILE B-53
DRILLING METHOD: HOLLOW STEM AUGER
WEATHER: SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 5/04/94 DATE COMPLETED: 5/04/94

TOP OF CASING ELEVATION 694.13
TOTAL DEPTH: 68.5
GROUND SURFACE ELEVATION 692.79
SHEET: 1 OF: 3

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)		
Time		
Date:		

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION
0.0								CLAY AND SILT AND SAND: fill.
1.0								CLAY AND SAND coarse sand, light tan brown, soft, moist; fill; some roots
3.0–4.0	5 7 7	Ss	S1					
8.0–9.0	5 6 9	Ss	S2					CLAY AND SILT: tan brown to orange red; interbedded with light tan coarse sandy clay, with quartz and feldspar; soft, moist; medium dense.
13.0–14.0	6 10 12	Ss	S3					CLAY AND SILT light tan, interbedded with orange coarse sandy clay, some greenstone and wood fragments; stiff.
18.0–19.0	9 10 9	Ss	S4					CLAY AND SILT: light tan, interbedded with orange coarse sandy clay, some greenstone fragments, stiff.

DEPTH: 1.0, 0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0, 21.0

LITHOLOGY

WELL INSTALLATION

FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-6D

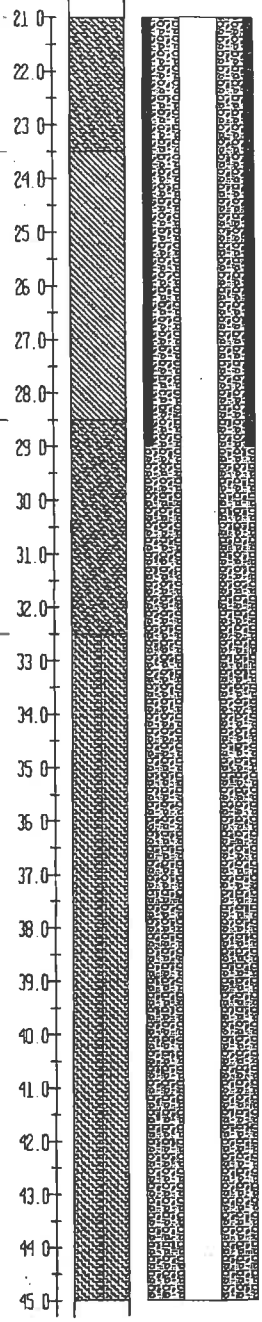
PROJECT NUMBER: 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION: LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: HOLLOW STEM AUGER
WEATHER: SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 5/04/94 DATE COMPLETED: 5/04/94

TOP OF CASING ELEVATION: 694.13
TOTAL DEPTH: 68.5
GROUND SURFACE ELEVATION: 692.79
SHEET 2 OF 3

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)		
Time		
Date:		

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION
21.0								CLAY AND SILT: light tan; interbedded with orange coarse sandy clay, some greenstone fragments, stiff.
22.0								
23.0	6	Ss	S5					
24.0	10							CLAY AND SAND: orange brown, coarse grained; moist; stiff.
	14							
25.0								
26.0								
27.0								
28.0	12	Ss	S6					
29.0	50/5							CLAY AND SAND AND SILT: dark brown to orange and tan; heavy manganese staining; tan feldspar bands; residual weathered gneiss.
30.0								
31.0								
32.0								
33.0	50/1	Ss	S7					GRANITE GNEISS: bedrock; auger refusal
34.0								
35.0								
36.0								
37.0								
38.0								
39.0								
40.0								
41.0								
42.0								
43.0								
44.0								
45.0								

DEPTH | LITHOLOGY | WELL INSTALLATION



FIELD BOREHOLE LOG

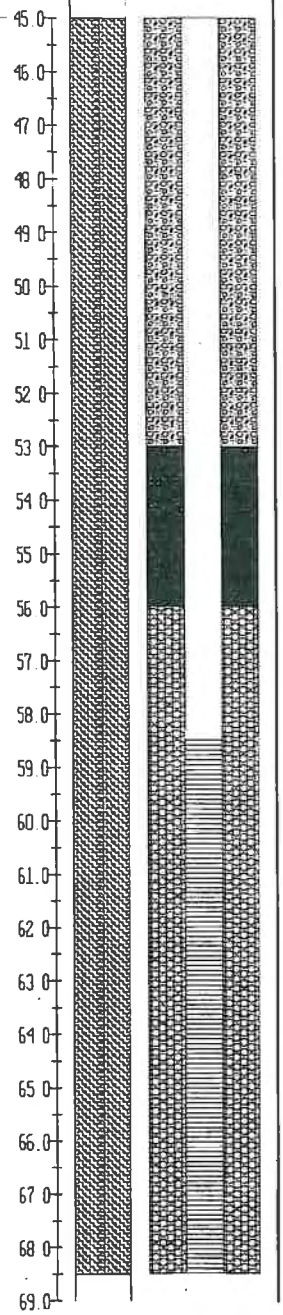
BOREHOLE NUMBER: MW-6D

PROJECT NUMBER: 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION: LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: HOLLOW STEM AUGER
WEATHER: SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 5/04/94 DATE COMPLETED: 5/04/94

TOP OF CASING ELEVATION: 694.13
TOTAL DEPTH: 68.5
GROUND SURFACE ELEVATION: 692.79
SHEET: 3 OF 3

STATIC WATER LEVEL (BLS)		
WO=While Drilling AB=After Boring		
Depth(ft)		
Time		
Date		

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION
45.0								GRANITE GNEISS: bedrock.
46.0								
47.0								
48.0								
49.0								
50.0								
51.0								
52.0								
53.0								
54.0								
55.0								
56.0								
57.0								
58.0								
59.0								
60.0								
61.0								
62.0								
63.0								
64.0								
65.0								
66.0								
67.0								
68.0								
69.0								



FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-7

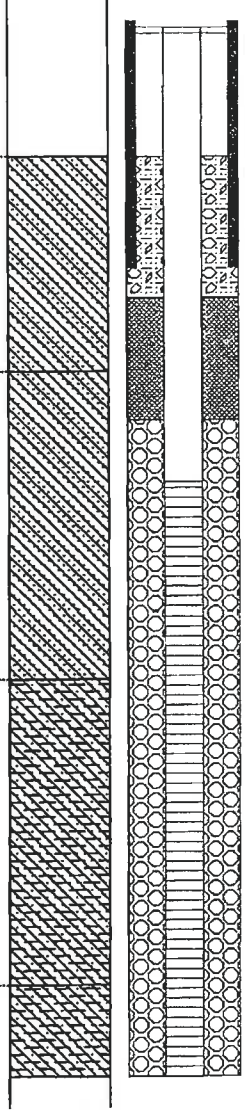
PROJECT NUMBER: 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION: LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: HOLLOW STEM AUGER
WEATHER: SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 4/25/94 DATE COMPLETED: 4/25/94

TOP OF CASING ELEVATION: 663.39
TOTAL DEPTH: 15.0
GROUND SURFACE ELEVATION: 661.30
SHEET: 1 DF: 1

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)	5.08 AB	
Time	12:43	
Date:	05/03/94	

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	ORGANIC VAPOR	CGI	LITHOLOGY DESCRIPTION
2.0								
1.0								
0.0								CLAY AND SAND: fill; orange brown; moist.
1.0								
2.0								
3.0	13	Ss	S1	W				
4.0	17							CLAY AND SAND: orange brown to orange gray; hard; moist; 1 inch orange to tan clay sand with quartz (granite residuum); 3 inch green and white chlorite feldspar gneiss; wet; SM.
	25							
5.0	26							
6.0								
7.0								
8.0	9	Ss	S2					
9.0	11							CLAY AND SILT: relict chlorite schist structure with trace of white feldspar veins; dark green and white; hard; wet.
	14							
10.0								
11.0								
12.0								
13.0	7	Ss	S3					
14.0	11							CLAY AND SILT: chlorite feldspar schist; one 45 degree fracture; dk. green and white.
	16							
15.0								

LITHOLOGY



WELL INSTALLATION

FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-7D

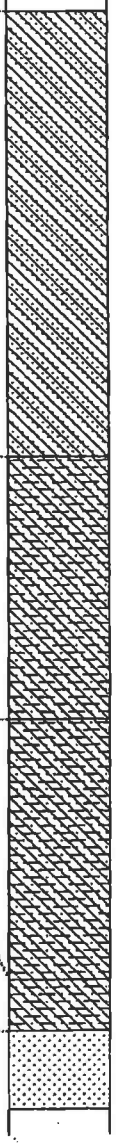
PROJECT NUMBER: 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION: LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: HOLLOW STEM AUGER AND AIR ROTARY
WEATHER: SUNNY
FIELD PARTY: KENNY MOGLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 4/26/94 DATE COMPLETED: 4/26/94.

TOP OF CASING ELEVATION: 663.59
TOTAL DEPTH: 46.0
GROUND SURFACE ELEVATION: 661.44
SHEET: 1 OF: 2

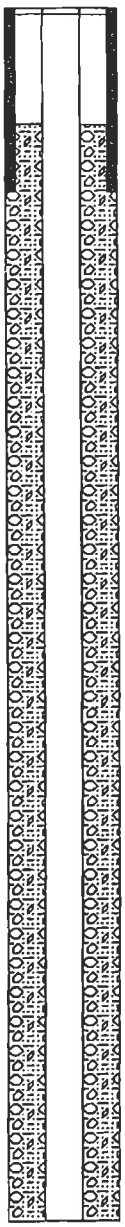
STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)	4.55 AB	
Time	4:37	
Date:	04/26/94	

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	ORGANIC VAPOR	CGI	LITHOLOGY DESCRIPTION
2.0								
1.0								
0.0								CLAY AND SAND: with organics; yellowish orange grading to gray green coarse sandy clay; some relict chlorite schist fabric; dry to moist; hard.
1.0								
2.0								
3.0	8	Ss	S1					
4.0	13							
	18							
5.0								
6.0								
7.0								
8.0	8	Ss	S2					
9.0	11							CLAY AND SILT: gray to green; relict chlorite schist; with heavy orange brown iron staining and bands; saprolite; moist; trace hair veins; hard.
	13							
10.0								
11.0								
12.0								
13.0	13	Ss	S3					
14.0	13			W				CLAY AND SILT: equigranular chlorite/white feldspar schist with red/brown iron stained fractures; moist; dense.
	19							
15.0								
16.0								
17.0								SILT AND CLAY: gray green chlorite feldspar schist; numerous miscellaneously oriented feldspar microveins; orange staining.
18.0	20	Ss	S4					
19.0	36							
	50/6							
20.0								SAND: coarse grained feldspar, quartz muscovite granite; iron stained.
21.0								

LITHOLOGY



WELL INSTALLATION



FIELD BOREHOLE LOG

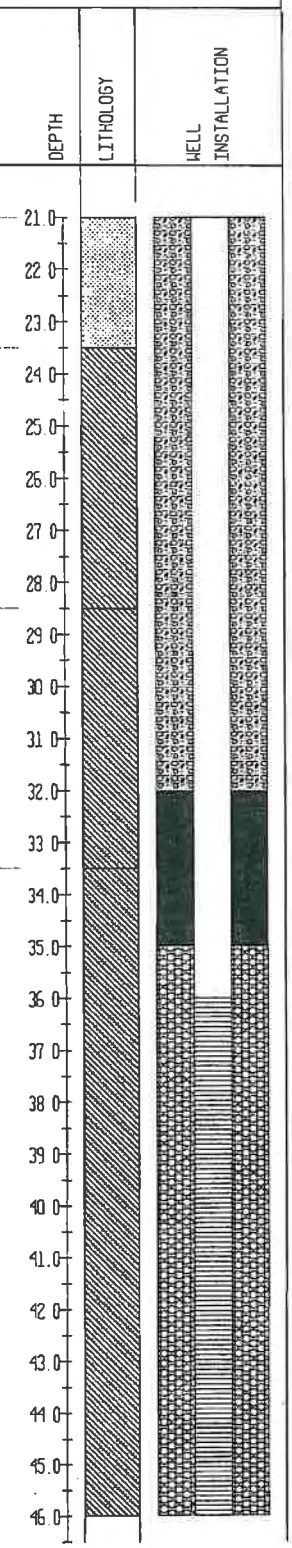
BOREHOLE NUMBER: MW-7D

PROJECT NUMBER: 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION: LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: HOLLOW STEM AUGER
WEATHER: SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 4/26/94 DATE COMPLETED: 4/26/94

TOP OF CASING ELEVATION 663.59
TOTAL DEPTH 46.0
GROUND SURFACE ELEVATION 661.44
SHEET: 2 OF: 2

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(Ft)	4.55 AB	
Time	4:37	
Date:	04/26/94	

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION
21.0								SAND coarse grained quartz muscovite granite, medium gray with gray quartz; heavy iron staining
22.0								
23.0	25	Ss	S5					
24.0	50/6 50/5							SAND AND CLAY coarse sand, orange brown porphyritic gray quartz/white feldspar trace muscovite and hornblende granite; heavy iron staining
25.0								
26.0								
27.0								
28.0	50/5	Ss	S6					
29.0								SAND AND CLAY coarse sand, brown; porphyritic gray quartz/white feldspar; trace muscovite and hornblende granite, heavy iron staining
30.0								
31.0								
32.0								
33.0	50/4	Ss	S7					
34.0								SAND AND CLAY coarse sand, dark brown; porphyritic gray quartz/white feldspar, trace muscovite and hornblende granite, heavy iron staining
35.0								
36.0								
37.0								
38.0	50/5	Ss	S8					
39.0								
40.0								
41.0								
42.0								
43.0	50/3	Ss	S9					
44.0								
45.0								
46.0								



FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-8

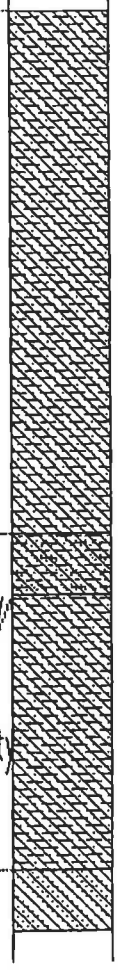
PROJECT NUMBER: 94012
PROJECT NAME: DAVIDSON COUNTY
LOCATION: LEXINGTON, NORTH CAROLINA
DRILLING COMPANY: BORE AND CORE
RIG TYPE & NUMBER: MOBILE B-53
DRILLING METHOD: HOLLOW STEM AUGER
WEATHER: SUNNY
FIELD PARTY: KENNY MOSLEY
GEOLOGIST: GRAHAM SIMMERMAN
DATE BEGUN: 4/27/94 DATE COMPLETED: 4/27/94

TOP OF CASING ELEVATION: 661.16
TOTAL DEPTH: 15.0
GROUND SURFACE ELEVATION: 659.83
SHEET: 1 OF: 1

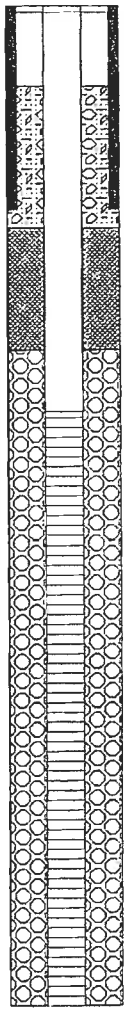
STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)	6.34 AB	
Time	9:37	
Date:	04/28/94	

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	ORGANIC VAPOR	CGI	LITHOLOGY DESCRIPTION
2.0								
1.0								
0.0								CLAY AND SILT: with medium to coarse sand; engineered fill (nine inches thick); numerous root fragments; mottled iron staining; wetland soil; dark grayish brown.
1.0								
2.0								
3.0	7	Ss	S1					
4.0	4							
	5							
5.0								
6.0								
7.0				W				
8.0	6	Ss	S2					
9.0	4							CLAY AND SAND AND SILT: sand is med. to coarse blue quartz; angular; some reddish orange sandy clay; moist; med. dense.
	4							
10.0								
11.0								
12.0								CLAY AND SILT: light bluish green with tan silty clay; some iron staining; slight relict chlorite/feldspar schist fabric.
13.0	10	Ss	S3					
14.0	10							
	9							CLAY AND SAND: relict granite texture; quartz; feldspar; equigranular; moist.
15.0								

LITHOLOGY



WELL INSTALLATION



Appendix C

Laboratory Analytical Report

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 6038

DAVIDSON COUNTY (LINED)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
133 SPRING AVENUE
FUQUAY VARINA ,NC 27526

DATE COLLECTED: 03/15/11
DATE REPORTED : 04/05/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-1S	MW-2	MW-3	MW-4	MW-5	Analysis Date	Analyst	Method Code
Total Alkalinity, mg/l	1.0	1.0	270					03/18/11	TRB	SM2320B
Chloride, mg/l	5.0	5.0	40					03/21/11	HLB	SM4500-CLB
Total Dissolved Residue, mg/l	1.0	1.0	785					03/21/11	MEL	SM2540C
Sulfate, mg/l	5.0	250.0	29.3 J					03/21/11	TRB	SM426C
Antimony, ug/l	0.14	6.0	--- U	Missing	--- U	--- U	--- U	03/22/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0	0.20 J	Missing	--- U	--- U	--- U	03/22/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0	34.7 J	Missing	140	34.2 J	68.2 J	03/22/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0	--- U	Missing	0.18 J	--- U	--- U	03/23/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0	0.05 J	Missing	0.12 J	0.67 J	0.10 J	03/22/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0	0.96 J	Missing	5.1 J	0.71 J	1.1 J	03/22/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0	2.2 J	Missing	26	4.9 J	3.0 J	03/22/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	0.17 J	Missing	1.6 J	1.3 J	1.3 J	03/22/11	LFJ	EPA200.8
Iron, ug/l	15.9	300.0	992					03/30/11	ADD	SM3111B
Manganese, ug/l	0.02	50.0	26 J					03/22/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.66 J	Missing	2.6 J	0.33 J	0.85 J	03/22/11	LFJ	EPA200.8
Mercury, ug/l	0.05	0.20	--- U					03/22/11	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	1.4 J	Missing	4.0 J	0.99 J	1.2 J	03/22/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0	1.0 J	Missing	--- U	--- U	--- U	03/22/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0	--- U	Missing	--- U	--- U	--- U	03/22/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	--- U	Missing	0.05 J	0.09 J	--- U	03/22/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0	4.1 J	Missing	23.4 J	5.9 J	6.8 J	03/22/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0	3.6 J	Missing	34	7.2 J	5.9 J	03/22/11	LFJ	EPA200.8

J = Between MDL and SWSL, U = Below ALL Quanititation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 6038

DAVIDSON COUNTY (LINED)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
133 SPRING AVENUE
FUQUAY VARINA ,NC 27526

DATE COLLECTED: 03/15/11
DATE REPORTED : 04/05/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-6	MW-7D	MW-8	MW-7S	MW-9A	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	--- U	--- U	--- U	--- U	--- U	03/22/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0	--- U	--- U	--- U	0.27 J	--- U	03/22/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0	11.4 J	6.6 J	14.6 J	47.8 J	48.3 J	03/22/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0	--- U	--- U	--- U	0.17 J	0.14 J	03/23/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0	--- U	0.14 J	--- U	0.17 J	0.08 J	03/22/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0	0.08 J	0.19 J	1.0 J	3.2 J	3.2 J	03/22/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0	0.67 J	1.6 J	1.7 J	19	24	03/22/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	--- U	--- U	0.43 J	5.6 J	1.7 J	03/22/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.15 J	0.21 J	0.43 J	1.8 J	1.9 J	03/22/11	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	0.21 J	--- U	1.2 J	3.4 J	9.3 J	03/22/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0	--- U	--- U	--- U	--- U	--- U	03/22/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0	--- U	--- U	--- U	--- U	--- U	03/22/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	--- U	--- U	--- U	--- U	--- U	03/22/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0	1.7 J	1.7 J	3.4 J	15.2 J	8.1 J	03/22/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0	2.8 J	4.7 J	2.8 J	18	12	03/22/11	LFJ	EPA200.8

J = Between MDL and SWSL, U = Below ALL Quanititation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: DAVIDSON COUNTY (LINED)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
133 SPRING AVENUE
FUQUAY VARINA, NC 27526

REVIEWED BY:

CLIENT ID: 6038

ANALYST: MAO
DATE COLLECTED: 03/15/11
DATE ANALYZED: 03/21/11
DATE REPORTED: 04/05/11

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-1S	MW-3	MW-4	MW-5	MW-6
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	--- U	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U	30.20 J	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U	--- U	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	--- U	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	--- U	--- U	--- U	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quanititation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: DAVIDSON COUNTY (LINED)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
133 SPRING AVENUE
FUQUAY VARINA, NC 27526

CLIENT ID: 6038

ANALYST: MAO
DATE COLLECTED: 03/15/11
DATE ANALYZED: 03/21/11
DATE REPORTED: 04/05/11

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-7D	MW-8	MW-7S	MW-9A
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	--- U	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	--- U	--- U	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quanititation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 6038 B

DAVIDSON COUNTY (LINED)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
133 SPRING AVENUE
FUQUAY VARINA ,NC 27526

DATE COLLECTED: 03/15/11
DATE REPORTED : 04/05/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-10	MW-11	MW-12	SW-1	SW-2	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	--- U	--- U	--- U	--- U	--- U	03/24/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0	0.26 J	0.77 J	0.33 J	0.86 J	0.66 J	03/24/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0	7.6 J	45.6 J	3.1 J	43.8 J	26.8 J	03/24/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	0.09 J	0.43 J	--- U	--- U	--- U	03/24/11	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	0.09 J	0.17 J	0.15 J	0.06 J	--- U	03/24/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	1.3 J	4.9 J	0.73 J	3.9 J	0.59 J	03/24/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	2.6 J	24	1.7 J	4.7 J	1.6 J	03/24/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	3.0 J	17	1.5 J	1.9 J	0.41 J	03/24/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	0.58 J	5.9 J	0.68 J	1.4 J	0.34 J	03/24/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	1.4 J	8.3 J	1.2 J	1.7 J	0.25 J	03/24/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	--- U	--- U	--- U	--- U	0.66 J	03/24/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0	--- U	0.12 J	--- U	--- U	--- U	03/24/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5	--- U	0.03 J	--- U	--- U	0.03 J	03/24/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	10.2 J	39	9.4 J	7.9 J	2.9 J	03/24/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	3.2 J	32	1.8 J	6.3 J	1.7 J	03/24/11	CMF	EPA200.8

J = Between MDL and SWSL, U = Below ALL Quanititation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

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CLIENT: DAVIDSON COUNTY (LINED)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
133 SPRING AVENUE
FUQUAY VARINA, NC 27526

CLIENT ID: 6038 B

ANALYST: MAO
DATE COLLECTED: 03/15/11
DATE ANALYZED: 03/29/11
DATE REPORTED: 04/05/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-10	MW-11	MW-12	SW-1	SW-2
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	--- U	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	11.50 J	21.60 J	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U	--- U	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	--- U	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	--- U	--- U	--- U	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quanititation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 6038 A

DAVIDSON COUNTY (LINED)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
133 SPRING AVENUE
FUQUAY VARINA ,NC 27526

DATE COLLECTED: 03/17/11
DATE REPORTED : 04/07/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	Leachate	Analysis Date	Analyst	Method Code
BOD, mg/l	2.0	2.0	13	03/18/11	TRB	SM5210B
COD, mg/l	10.0	10.0	91	03/22/11	TRB	HACH8000
Nitrate Nitrogen as N, mg/l	0.03	10.0	0.94 J	03/18/11	MPH	EPA353.2
Total Phosphorus as P, mg/l	0.04	0.04	0.32	03/24/11	TWA	EPA365.4
Sulfate, mg/l	5.0	250.0	24.0 J	03/21/11	TRB	SM426C
Antimony, ug/l	0.14	6.0	0.49 J	03/28/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0	1.6 J	03/28/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0	80.4 J	03/28/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	--- U	03/28/11	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	0.04 J	03/28/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	6.8 J	03/28/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	6.6 J	03/28/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	2.5 J	03/28/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	0.19 J	03/28/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	31.8 J	03/28/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	2.7 J	03/28/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0	--- U	03/28/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5	--- U	03/28/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	4.1 J	03/28/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	5.6 J	03/28/11	CMF	EPA200.8

J = Between MDL and SWSL, U = Below ALL Quanititation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: DAVIDSON COUNTY (LINED)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
133 SPRING AVENUE
FUQUAY VARINA, NC 27526

CLIENT ID: 6038 A

ANALYST: MAO
DATE COLLECTED: 03/17/11
DATE ANALYZED: 03/31/11
DATE REPORTED: 04/07/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Leachate
1. Chloromethane	0.77	1.0	--- U
2. Vinyl Chloride	0.63	1.0	--- U
3. Bromomethane	0.67	10.0	--- U
4. Chloroethane	0.48	10.0	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U
7. Acetone	9.06	100.0	--- U
8. Iodomethane	0.26	10.0	--- U
9. Carbon Disulfide	0.23	100.0	--- U
10. Methylene Chloride	0.64	1.0	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U
13. Vinyl Acetate	0.20	50.0	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U
15. 2-Butanone	2.21	100.0	--- U
16. Bromochloromethane	0.27	3.0	--- U
17. Chloroform	0.25	5.0	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U
20. Benzene	0.24	1.0	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U
22. Trichloroethene	0.23	1.0	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U
24. Bromodichloromethane	0.21	1.0	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U
27. Toluene	0.23	1.0	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U
30. Tetrachloroethene	0.17	1.0	--- U
31. 2-Hexanone	1.57	50.0	--- U
32. Dibromochloromethane	0.24	3.0	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U
34. Chlorobenzene	0.30	3.0	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U
36. Ethylbenzene	0.21	1.0	--- U
37. Xylenes	0.68	5.0	--- U
38. Dibromomethane	0.28	10.0	--- U
39. Styrene	0.19	1.0	--- U
40. Bromoform	0.20	3.0	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U
46. Acrylonitrile	2.72	200.0	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U

J = Between MDL and SWSL, U = Below ALL Quanititation Limits.

Environment 1, Inc.
P.O. Box 7085, 114 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6038 **Week: 12**

DAVIDSON COUNTY (LINED)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
133 SPRING AVENUE
FUQUAY VARINA NC 27526

(919) 828-0577

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

																				CHLORINE NEUTRALIZED AT COLLECTION
										12	12	12	12							pH CHECK (LAB)
										P	P	P	P							CONTAINER TYPE, P/G
										A	A	A	A							CHEMICAL PRESERVATION
SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Alkalinity	Chloride	TDS	Sulfate	Metals	EPA 8260B	8260 Dup. 1	8260 Dup. 2							PARAMETERS
MW-1S	3/15/11	9:55a			7	■	■	■	■	■	■	■								
~~MW-2~~ 9a	~~3/15/11~~	~~12:15p~~			4					■	■	■	■							
MW-3	3/15/11	9:44a			3					■	■	■								
MW-4	3/15/11	9:36a			3					■	■	■								
MW-5	3/15/11	9:30a			3					■	■	■								
MW-6	3/15/11	10:25a			3					■	■	■								
MW-7D	3/15/11	10:37a			3					■	■	■								
MW-8	3/15/11	10:4[illegible]a			3					■	■	■								
MW-7S	3/15/11	10:40a			3					■	■	■								

DO THESE!

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 F - ZINC ACETATE
G - NA THIOSULFATE

CLASSIFICATION:
☐ WASTEWATER (NPDES)
☐ DRINKING WATER
☐ DWQ/GW
☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY: Y N

SAMPLES COLLECTED BY: (Please Print) LAQ & DMM

SAMPLES RECEIVED IN LAB AT 02 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
[signature]	3/17/11 2:30p	[signature]	3/18 8:35
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:
Please Replace MW-8 for MW-2
MW-2 was Dry please do MW-9a

PLEASE READ Instructions for completing this form on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

№ 213059

Environment 1, Inc.
P.O. Box 7085, 114 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6038 A **Week:** 12

DAVIDSON COUNTY (LINED)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
133 SPRING AVENUE
FUQUAY VARINA NC 27526

(919) 828-0577

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

CHLORINE NEUTRALIZED AT COLLECTION																				
pH CHECK (LAB)			<2		<2		<2	<2	<2											
CONTAINER TYPE, P/G			P	P	P	P	P	P	G	G										
CHEMICAL PRESERVATION			A	C	A	C	A	A	E	E										
SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	BOD	COD	Nitrate	T. Phosphorus	Sulfate	Metals	EPA 8260B	8260 Dup. 1							
Leachate	3/17	12:00p			8	■	■	■	■	■	■	■	■							

PARAMETERS

A - NONE
B - HNO_3
C - H_2SO_4
D - NAOH
E - HCL
F - ZINC ACETATE
G - NA THIOSULFATE

CLASSIFICATION:
☐ WASTEWATER (NPDES)
☐ DRINKING WATER
☐ DWQ/GW
☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY
(Y) N

SAMPLES COLLECTED BY: (Please Print)
LAQ & DMM

SAMPLES RECEIVED IN LAB 5 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
[signature]	3/17 2:30p	[signature]	3/18 8:27
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

PLEASE READ Instructions for completing this form on the reverse.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

№ 213058

Environment 1, Inc.
P.O. Box 7085, 114 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6038 B **Week: 12**

DAVIDSON COUNTY (LINED)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
133 SPRING AVENUE
FUQUAY VARINA NC 27526
919-902-1661
(919) 828-0577

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Metals	EPA 8260B	8260 Dup. 1	8260 Dup. 2
CHLORINE NEUTRALIZED AT COLLECTION									
pH CHECK (LAB)						<2	<2	<2	<2
CONTAINER TYPE, P/G						P	G	G	G
CHEMICAL PRESERVATION						A	E	E	E
MW-10	3/15/11	8:42a			4	■	■	■	■
MW-11	3/15/11	8:32a			3	■	■	■	
MW-12	3/15/11	8:16a			3	■	■	■	
SW-1	3/15/11	9:09a			3	■	■	■	
SW-2	3/15/11	9:47a			3	■	■	■	
Equipment Blank					2		■	■	
Trip Blank					2		■	■	

PARAMETERS

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 F - ZINC ACETATE
G - NA THIOSULFATE

CLASSIFICATION:
☐ WASTEWATER (NPDES)
☐ DRINKING WATER
☐ DWQ/GW
☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY
(Y) N

SAMPLES COLLECTED BY: (Please Print)
LAQ & DMM

SAMPLES RECEIVED IN LAB AT 0.2 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Lily Q. A	3/17/11 2:30p	B	3/18 822
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:
Spoke w/ Lindsey Trip Blank and Equipment Blank Broken.

PLEASE READ Instructions for completing this form on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

№ 213057