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):

Smith Gardner, Inc.

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

Name: Madeline German Phone: 919-828-0577 x 222

E-mail: madeline@smithgardnerinc.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Davidson County Closed Phase 1 Landfill	1242 Old Highway 29 Thomasville, NC 27360	29-06	0.1600	March 31 & April 1, 2014

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.

Madeline German	Geologist	919-828-0577 x 222
Facility Representative Name (Print)	Title	(Area Code) Telephone Number

Signature _____ Date 5/29/14

Affix NC Licensed/ Professional Geologist Seal

NORTH CAROLINA LICENSED SEAL 2275 GEOLOGIST MADELINE GERMAN 5/29/14

14 N. Boylan Ave. Raleigh, NC 27603

Facility Representative Address

C-0828

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

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April 2014 Semi-Annual Groundwater Monitoring Report

Davidson County Phase 1 Lined Landfill
NC Solid Waste Permit No. 29-06

Prepared for:

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

May 2014

Prepared by:

SMITH+GARDNER

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

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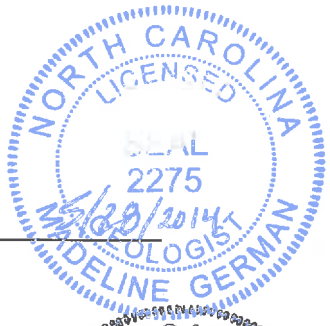
April 2014 Semi-Annual Groundwater Monitoring Report

Davidson County Phase 1 Lined Landfill
NC Solid Waste Permit No. 29-06

Prepared For:
Davidson County Integrated Solid Waste
Thomasville, North Carolina 27360-0024

S+G Project No. DAVDC0 -4



Madeline German, P.G.
Project Geologist

5/28/14

Joan Smyth, P.G.
Senior Hydrogeologist

May 2014

SMITH+GARDNER
14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

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Davidson County Phase 1 Lined Landfill
NC Solid Waste Permit No. 29-06

April 2014 Groundwater Monitoring Report

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1.0 INTRODUCTION

Smith Gardner, Inc. (S+G) was contracted by Davidson County to perform their semi-annual ground water monitoring at the Davidson County Phase 1 Lined Landfill, permit number 29-06, as required by 15A NCAC 13B .1600. Sampling was conducted March 31 and April 1, 2014. This report summarizes the event sampling procedures, field and laboratory results and ground water characterization as required by NC Solid Waste Regulations. Summary tables, a potentiometric map and the laboratory analytical report are also included.

2.0 SITE GEOLOGY

The Davidson County Landfill facility is located in the Piedmont Physiographic Province of North Carolina approximately three and a half miles northeast of the City of Lexington, NC. The Geologic Map of North Carolina (*USGS*, 1985) indicates that the site lies at the western margin of the Carolina Slate Belt; an area of 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 site vicinity is underlain by volcanic rocks from the Flat Swamp Member of the Cid Formation and metavolcanic rocks of the Battleground Formation.

3.0 SAMPLING LOCATIONS

The groundwater monitoring network for the Davidson County Phase 1 includes thirteen monitoring wells (MW-1S, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7S, MW-7D, MW-8, MW-9A, MW-10, MW-11and MW-12), two surface water locations (SW-1 and SW-2) and one leachate location (Leachate). Monitoring well MW-2 was dry this event; therefore, it was not sampled. SW-1 is the upstream surface water location; SW-2 is located on Jimmy's Creek downstream of the landfill. A trip blank and equipment blank were submitted for quality control purposes. Sampling locations are shown in Figure 1. Available well logs are provided in Appendix A.

4.0 SAMPLING PROCEDURES

Sampling procedures followed the protocols set forth in the site's Water Quality Monitoring Plan[1] and the North Carolina Water Quality Monitoring Guidance Document for Solid Waste Facilities (North Carolina Department of Environment and Natural Resources, Division of Waste Management). S+G personnel gauged each well to determine ground water depth and purged three to five well volumes or until dry. Ground water elevations are provided in Table 1.

Environment 1, Inc. (NC Laboratory Certification # 10) provided laboratory prepared sample containers for the specified analytical procedures. Ground water samples were properly preserved, placed on ice and transported to the laboratory facility within the specified hold times for each analysis.

1 Davidson County Water Quality Monitoring Plan, G.N. Richardson and Associates, June 1999.

Sampling wells and locations were inspected and found to be in good condition and free of obstructions. Field logs are presented in **Appendix B**.

5.0 FIELD & LABORATORY RESULTS

5.1 Field Results

Temperature, pH, specific conductance and turbidity were measured in the field at the time of sampling via direct read instruments. The field parameter results are summarized in **Table 2** and have remained consistent with previously reported sampling events.

5.2 Laboratory Analysis

Samples were transported to Environment 1, Inc., in Greenville, NC, a North Carolina certified laboratory (NC Wastewater ID #10). Laboratory analysis for groundwater included metals via EPA Test Method 200.8 and Appendix I Volatile Organic Compounds (VOCs) via EPA Test Method 8260B. Leachate samples were also sampled for BOD, COD, nitrate nitrogen, total phosphorus and sulfate via SWS approved methods listed in the laboratory report. Analytical results were compared to the NC DWM Solid Waste Section Quantitation Limits (SWSLs) and 15A NCAC 2L.0200 (2LStandard). Surface water results were compared with the NCAC 2B Standard for Class C waters (2B Standards).

Most constituents were either below the method detection limit (MDL) or were "J-values" indicating a non-quantifiable value. The laboratory results are presented in **Appendix C**.

5.2.1 Inorganic Constituents

Zinc in MW-8 was the only inorganic constituent detected above the SWSL this event. No inorganic constituents were detected above their 2L Standards. Inorganic detections are provided in **Table 3**.

5.2.2 Organic Constituents

Acetone was the only organic parameter detected this event; however, it was "j-qualified" and not detected above the SWSL or the 2L Standard. Organic detections are provided in **Table 3.**

5.2.3 Surface Water Results

No inorganic or organic constituents were detected above their 2B Standards in surface water samples. Surface water detections are shown in **Table 3**.

5.2.4 Leachate Analysis

Leachate samples were collected from the leachate collection system. A summary of constituents detected in the leachate is included as **Table 4**.

6.0 STATISTICAL ANALYSIS

No statistical analyses were performed on the analytical data based on the latest version of 15A NCAC 13B.1632 and .1633 effective April 1, 2011. Time vs. concentration graphs are included as **Appendix D**.

7.0 GROUNDWATER CHARACTERIZATION

A potentiometric surface map was prepared from ground water data from this sampling event. Ground water flow velocities for this sampling event were calculated for monitoring wells using the equation:

$$V = KI/n$$

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

Ground water velocities in the uppermost aquifer ranged from 0.015 feet/day (MW-6) to 2.099 feet/day (MW-9A) and averaging 0.4035 feet/day. Calculations are included in **Table 5**. Groundwater elevations indicate the flow direction is generally north and northwest across the site; which is consistent with historically reported ground water flow patterns. The potentiometric surface map is included as **Figure 1**.

8.0 CONCLUSIONS

The analytical results for the Phase 1 lined landfill are consistent with reported historic inorganic detections; likely due to variations in these naturally occurring constituents and are not indicative of ground water impact from the landfill. Acetone levels are non-quantifiable values, indicating April 2014 concentrations are not indicative of landfill contamination. The next ground water monitoring event is tentatively scheduled for October 2014.

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FIGURES

April 2014 Groundwater Monitoring Report
Davidson County Phased 1 Lined Landfill
NC Solid Waste Permit No. 29-06

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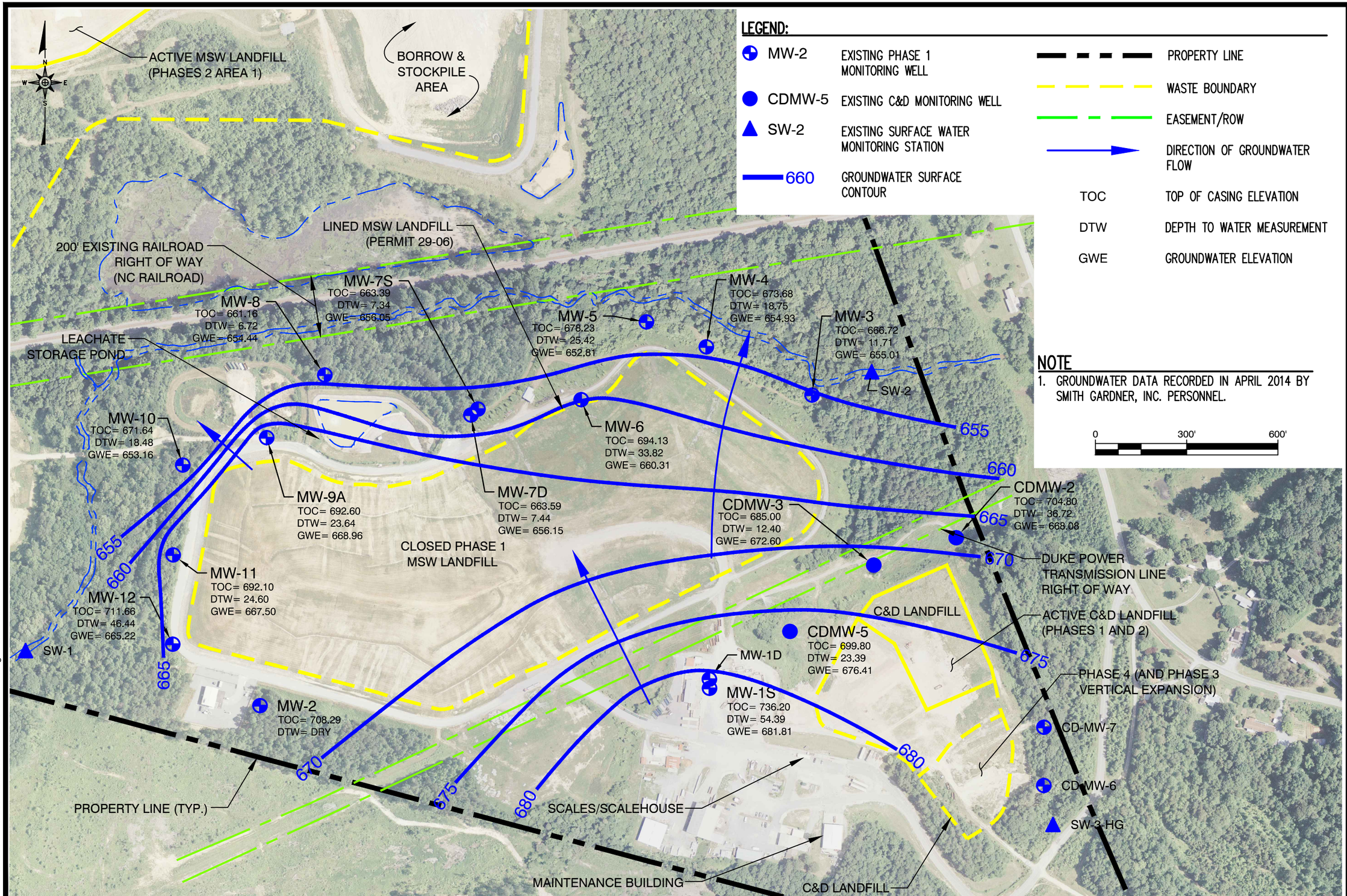

LEGEND:

MW-2	EXISTING PHASE 1 MONITORING WELL
CDMW-5	EXISTING C&D MONITORING WELL
SW-2	EXISTING SURFACE WATER MONITORING STATION
660	GROUNDWATER SURFACE CONTOUR
	PROPERTY LINE
	WASTE BOUNDARY
	EASEMENT/ROW
	DIRECTION OF GROUNDWATER FLOW
TOC	TOP OF CASING ELEVATION
DTW	DEPTH TO WATER MEASUREMENT
GWE	GROUNDWATER ELEVATION

NOTE

1. GROUNDWATER DATA RECORDED IN APRIL 2014 BY SMITH GARDNER, INC. PERSONNEL.

0 300' 600'

PREPARED BY:
SMITH+GARDNER
NC LIC. NO. C-0826 (ENGINEERING)
14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

FIGURE NO. 1
FILENAME: DAVDCO-B0779
SCALE: AS SHOWN
PROJECT NO: DAVDCO-4
APPROVED: M.M.G.
DRAWN: J.A.L.
DATE: May 2014

PREPARED FOR:

POTENTIOMETRIC SURFACE MAP
APRIL 2014
CLOSED PHASE 1 AND C&D
DAVIDSON COUNTY, NC

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TABLES

April 2014 Groundwater Monitoring Report
Davidson County Phase 1 Lined Landfill
Solid Waste Permit No. 29-06

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SMITH+GARDNER

By: MMG
Date: 04/03/2014

Table 1
Groundwater Elevations
Davidson County Phase 1 Lined Landfill
March 31 and April 1, 2014

Well	Northing	Easting	TOC Elevation (feet)	Water Level (feet)	GW Elev (feet)
MW-1S	763311.06	1650889.31	736.20	54.39	681.81
MW-2	763253.60	1649411.40	708.29	DRY	-
MW-3	764274.92	1651226.41	666.72	11.71	655.01
MW-4	764433.34	1650879.10	673.68	18.75	654.93
MW-5	764515.15	1650681.80	678.23	25.42	652.81
MW-6	764259.47	1650467.49	694.13	33.82	660.31
MW-7S	764228.53	1650127.95	663.39	7.34	656.05
MW-7D	764228.53	1650127.95	663.59	7.44	656.15
MW-8	764340.45	1649624.12	661.16	6.72	654.44
MW-9A	764134.52	1649433.54	692.60	23.64	668.96
MW-10	764044.52	1649157.57	671.64	18.48	653.16
MW-11	763749.09	1649125.82	692.10	24.60	667.50
MW-12	763456.03	1649124.23	711.66	46.44	665.22

Notes: Survey Data collected by Michael Green and Associates.

SMITH+GARDNER

By: MMG
Date: 04/04/2014

Table 2
Field Parameters
Davidson County Phase 1 Lined Landfill
March 31 and April 1, 2014

Well	pH (Std. Units)	Conductivity (umhos)	Temperature (celsius)	Turbidity (NTU)	DO (%)	ORP (mV)
MW-1	6.30	722	17.61	5.3	18.7	257.6
MW-3	6.09	217	12.08	34.5	38.2	266.2
MW-4	5.83	131	12.97	59.9	41.4	269.2
MW-5	6.17	145	13.97	7.27	29	254.6
MW-6	6.90	211	15	1.76	77.3	222.6
MW-7S	5.96	115	11.18	77.5	46.3	248.3
MW-7d	6.30	100	11.97	1.25	60.5	237.9
MW-8	5.58	95	9.41	23.8	17.7	237.5
MW-9A	6.45	340	15.45	45.7	71.8	266.6
MW-10	6.34	311	12.32	12.4	29.1	219.9
MW-11	6.41	306	13.57	28.8	38.5	216.5
MW-12	6.80	672	14.52	1.34	40.3	214.5
SW-1	7.40	144	10.86	15.7	90.9	188.5
SW-2	7.15	145	11.33	20	81.9	145.5

NOTES:
Data Collected by S+G personel,Madeline German and John Fearrington.

SMITH+GARDNER

By: SH
Date: 5/1/2014

Table 3
Detected Parameters
Davidson County Phase 1 Lined Landfill
March 31 and April 1, 2014

Parameter	MDL	SWSL	2L or GWP	2B	MW-1S	MW-3	MW-4	MW-5	MW-6	MW-7D	MW-8	MW-7S	MW-9A	MW-10	MW-11	MW-12	SW-1	SW-2
Inorganic Constituents																		
antimony	0.02	6	1 §	640	0.05 J	0.03 J	0.02 J	<0.02	0.05 J	<0.02	0.8 J	0.06 J	0.22 J	0.05 J	0.86 J	0.02 J	0.17 J	0.13 J
arsenic	0.05	10	10	10	0.44 J	0.19 J	0.24 J	0.08 J	0.13 J	0.25 J	0.63 J	0.42 J	0.47 J	0.32 J	0.42 J	0.42 J	0.73 J	0.56 J
barium	0.06	100	700	2000000	43.8 J	65.1 J	52.3 J	55.4 J	12.5 J	4.9 J	65.2 J	28.2 J	31.6 J	6.4 J	13.8 J	1.1 J	25.9 J	27.8 J
beryllium	0.03	1	4 §	6.5	<0.03	0.04 J	0.04 J	<0.03	<0.03	<0.03	0.16 J	0.12 J	0.04 J	0.09 J	0.12 J	<0.03	<0.03	<0.03
cadmium	0.05	1	2	2	<0.05	<0.05	0.08 J	0.09 J	0.21 J	<0.05	<0.05	0.05 J	<0.05	0.06 J	0.08 J	0.05 J	<0.05	<0.05
cobalt	0.02	10	1 §	270	0.2 J	1.2 J	1.1 J	0.14 J	0.04 J	0.03 J	4.5 J	1.5 J	1.3 J	0.74 J	1.3 J	0.16 J	0.65 J	0.80 J
copper	0.06	10	1000	7	0.65 J	4.6 J	6 J	0.49 J	<0.06	0.16 J	8.8 J	9.5 J	9.3 J	1.6 J	6.1 J	0.23 J	1.5 J	1.5 J
chromium, total	0.04	10	10	50	<0.04	0.53 J	2.3 J	<0.04	<0.04	<0.04	6 J	3.3 J	1.7 J	2 J	5.4 J	0.19 J	0.63 J	0.66 J
iron	13.6	300	300	1	227 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
manganese	0.42	50	50	NE	15 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	0.02	10	15	25	0.16 J	0.3 J	1.3 J	0.08 J	0.03 J	0.83 J	4.3 J	1 J	1.1 J	0.38 J	0.97 J	0.03 J	0.44 J	0.44 J
nickel	0.45	50	100	88	1.7 J	1.5 J	1.6 J	<0.45	0.49 J	<0.45	3.7 J	2.2 J	4.1 J	1.5 J	3.6 J	1.4 J	0.86 J	0.89 J
selenium	0.06	10	20	5	1.4 J	0.44 J	0.28 J	0.35 J	0.44 J	0.43 J	0.75 J	0.35 J	1.1 J	0.64 J	0.89 J	0.90 J	0.48 J	0.40 J
thallium	0.02	5.5	0.28 §	0.47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03 J	<0.02	<0.02	0.05 J	0.03 J	<0.02	<0.02	<0.02
vanadium	0.07	25	0.3 §	NE	2.5 J	8.9 J	7 J	3.5 J	0.26 J	0.6 J	19.6 J	9.8 J	7.8 J	6.9 J	14.1 J	5.3 J	1.9 J	2.1 J
zinc	0.47	10	1000	50	0.67 J	7.7 J	10	<0.47	1.1 J	0.74 J	**13**	8.3 J	8.9 J	3.2 J	6.2 J	0.99 J	3.0 J	2.5 J

Organic Constituents

Parameter	MDL	SWSL	2L	MW-4	MW-5	MW-10
acetone	9.06	100	6000	43.5 J	11.5 J	27.60 J

SWSL	-	Solid Waste Section Quantitation Limits
2L	-	Groundwater Standards (15A NCAC 2L 0200)
2B	-	NCAC 2B Standard for Class C waters
GWP	-	Groundwater Protection Standards (noted by §)
MDL	-	Method Detection Limit
Shading	-	Detection above 2L Standard
Bold Letters	-	Constituents detected above SWSL
J	-	Laboratory defined detection between MDL and SWSL limit
<MDL	-	Not detected at or above MDL
NA	-	Not analyzed
NE	-	Not Established

Table units are presented in ug/l.
Lab data analysis by Environment 1, Inc. report dated 04/30/2014, Client ID#6038.

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SMITH+GARDNER

By: SH
Date: 05/01/2014

Table 4
Leachate Analytical Data
Davidson County Phase 1 Lined Landfill
March 31 and April 1, 2014

Parameter	Unit	Leachate
Antimony	ug/l	1.1 J
Arsenic	ug/l	1.3 J
Barium	ug/l	60.6 J
BOD	mg/l	7.9
Cobalt	ug/l	1.9 J
COD	mg/l	97
Copper	ug/l	5 J
Lead	ug/l	0.3 J
Nitrate Nitrogen as N	mg/l	0.5 J
Nickel	ug/l	11.5 J
Selenium	ug/l	0.94 J
Sulfate	mg/l	37.1 J
Total Chromium	ug/l	1.9 J
Total Phosphorus as P	mg/l	0.09
Vanadium	ug/l	4.7 J
Zinc	ug/l	3.7 J

NOTES:

J-values indicate the parameter was detected between the laboratory MDL and the SWSL. These are estimated concentrations.

Lab data analysis by Environment 1, Inc. report dated 04/30/2014, Client ID#6038.

SMITH+GARDNER

Table 5
Aquifer Conductivity and Velocity Calculations
Davidson County Phase 1 Lined Landfill
March 31 and April 1, 2014

By: MG
Date: 5/23/2014

Well Number	Aquifer	Conductivity (ft/day)	Conductivity (ft/min)	Assumed Porosity (n)	Gradient (I)	Velocity (ft/day)
MW-1S	Bedrock	0.14	9.72E-05	0.1	0.052	0.0724
MW-2	Bedrock	0.17	1.18E-04	0.1	DRY	-
MW-3	Unconsolidated	0.62	4.31E-04	0.2	0.045	0.1406
MW-4	Unconsolidated	1.31	9.10E-04	0.2	0.033	0.2143
MW-5	Unconsolidated	NA	NA	NA	0.034	NA
MW-6	Bedrock	0.02	1.39E-05	0.1	0.076	0.0152
MW-7S	Unconsolidated	0.38	2.64E-04	0.15	0.023	0.0591
MW-7D	Unconsolidated	NA	NA	NA	NA	NA
MW-8	Unconsolidated	0.57	3.96E-04	0.15	0.079	0.3018
MW-9A	Unconsolidated	2.65	1.84E-03	0.1	0.079	2.0988
MW-10	Unconsolidated	0.88	6.11E-04	0.2	0.037	0.1619
MW-11	Unconsolidated	4.13	2.87E-03	0.2	0.045	0.9386
MW-12	Unconsolidated	0.58	4.03E-04	0.2	0.011	0.0319

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 Fall 2013 potentiometric surface.

NM - Not Measured
NA - Not Available

Appendix A

Monitoring Well Information

April 2014 – Groundwater Monitoring Report
Davidson County Phase 1 Lined Landfill
Solid Waste Permit No. 29-06

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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: 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										

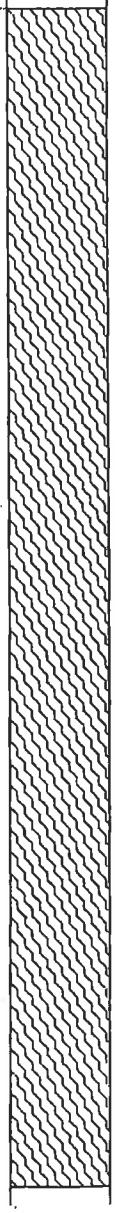
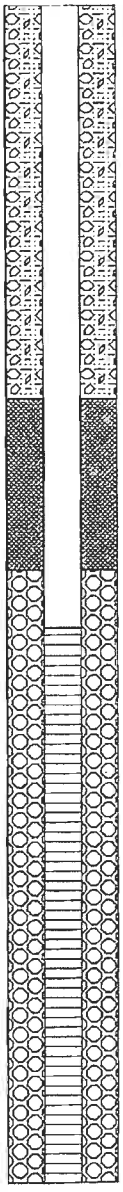
FIELD BOREHOLE LOG

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

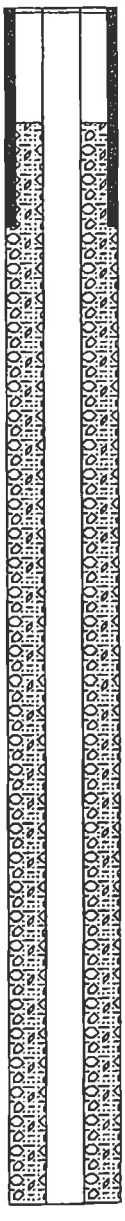
TOP OF CASING ELEVATION: -
TOTAL DEPTH: 39.0
GROUND SURFACE ELEVATION: -
SHEET: 1 OF: 2

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

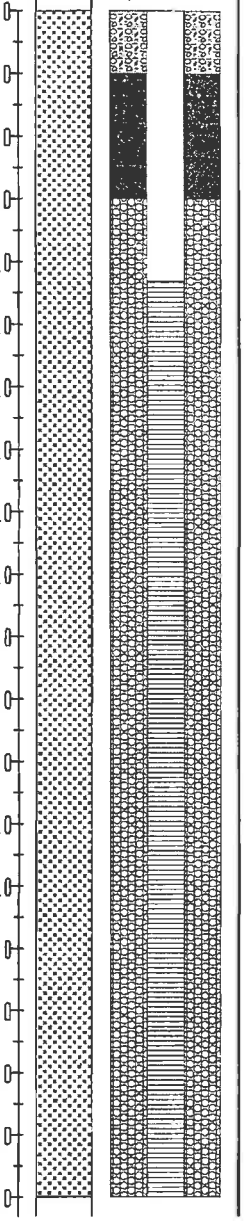
BOREHOLE NUMBER: MW-2

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)		
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
20.0								DIORITE: white feldspar with augite, weathered
21.0								
22.0								
23.0	15	Ss	S5					
24.0	32							
25.0	37							
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								



FIELD BOREHOLE LOG

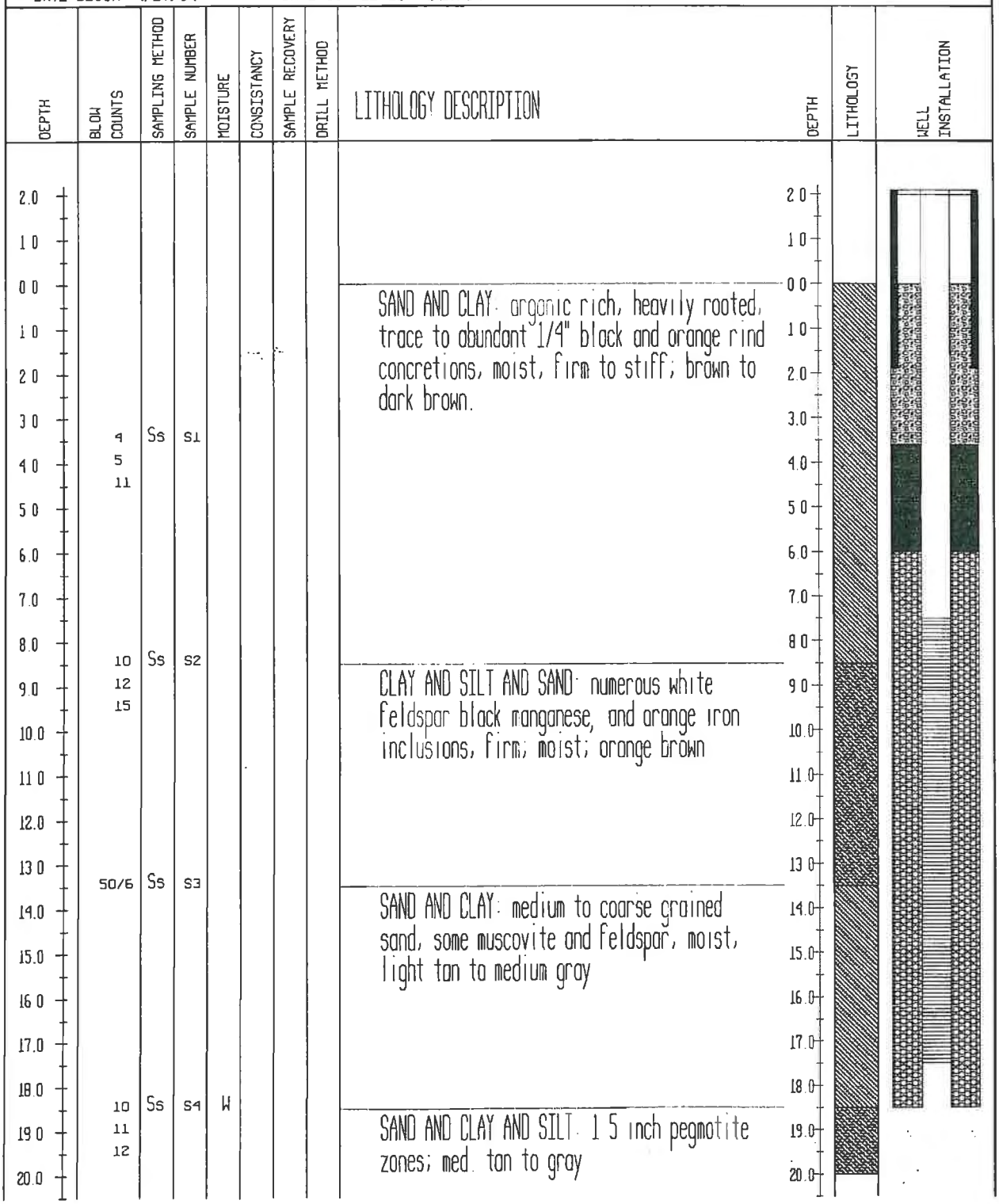
BOREHOLE NUMBER: MW-3

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
0.0 – 8.0	4 5 11	Ss	S1					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.
8.0 – 13.0	10 12 15	Ss	S2					CLAY AND SILT AND SAND: numerous white feldspar black manganese, and orange iron inclusions, firm; moist; orange brown
13.0 – 18.0	50/6	Ss	S3					SAND AND CLAY: medium to coarse grained sand, some muscovite and feldspar, moist, light tan to medium gray
18.0 – 20.0	10 11 12	Ss	S4	W				SAND AND CLAY AND SILT: 1.5 inch pegmotite zones; med. tan to gray



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

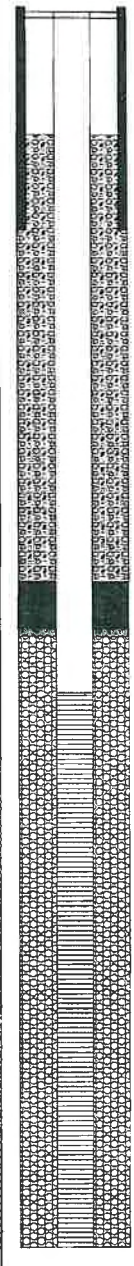
TOP OF CASING ELEVATION: 673.68
TOTAL DEPTH: 20.0
GROUND SURFACE ELEVATION: 671.51
SHEET: 1 OF: 1

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
0.0								SAND AND CLAY: tan to orange; fill
1.0								SAND AND CLAY AND SILT: rooted, med. brown;
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							
5.0	42							
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							
10.0	25							
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
18.0	36	Ss	S4	W				SAND AND SILT: fine to med feldspar, some biotite; moist, very dense, light gray
19.0	36							
20.0	50/5							

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	15:15	
Date:	04/28/94	

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

LITHOLOGY

WELL INSTALLATION

FIELD BOREHOLE LOG

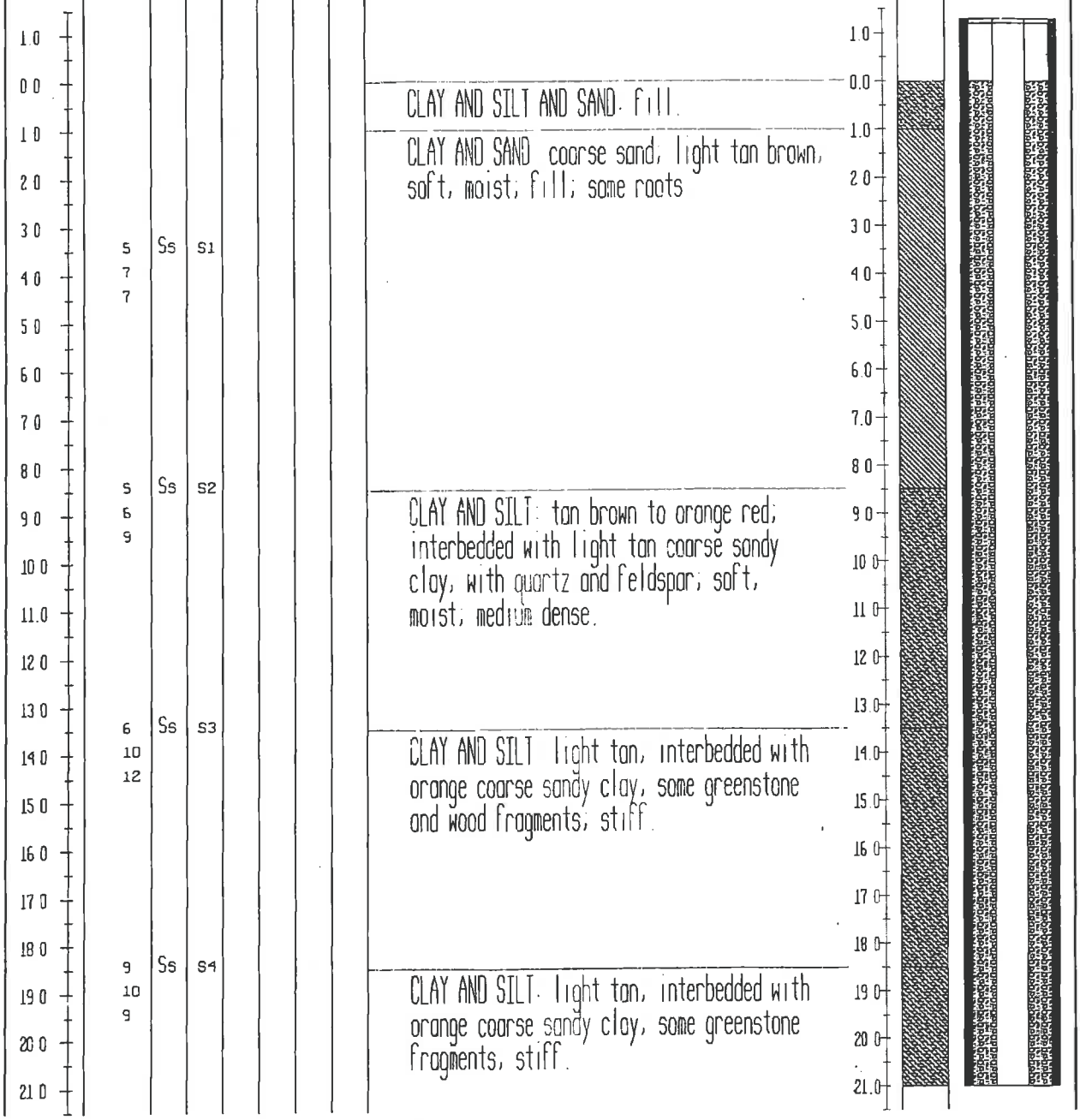
BOREHOLE NUMBER: MW-6D

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	5	Ss	S1					
4.0	7							
	7							
8.0	5	Ss	S2					
9.0	6							CLAY AND SILT: tan brown to orange red; interbedded with light tan coarse sandy clay, with quartz and feldspar; soft, moist; medium dense.
	9							
13.0	6	Ss	S3					
14.0	10							CLAY AND SILT light tan, interbedded with orange coarse sandy clay, some greenstone and wood fragments; stiff.
	12							
18.0	9	Ss	S4					
19.0	10							CLAY AND SILT: light tan, interbedded with orange coarse sandy clay, some greenstone fragments, stiff.
	9							



FIELD BOREHOLE LOG

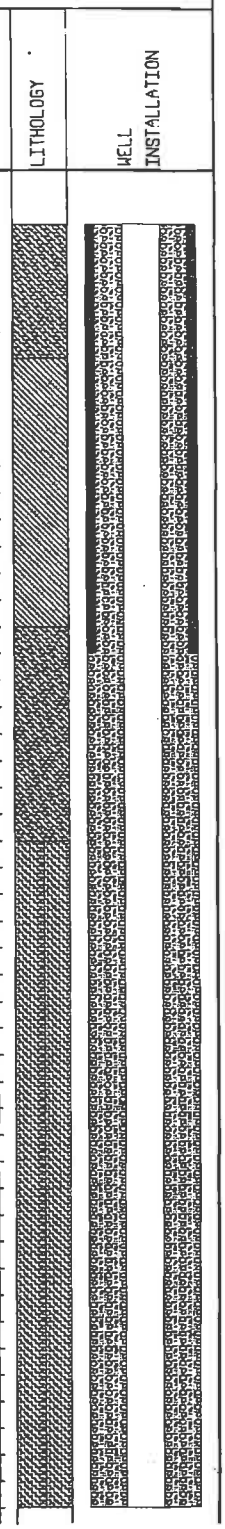
BOREHOLE NUMBER: MW-60

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								



FIELD BOREHOLE LOG

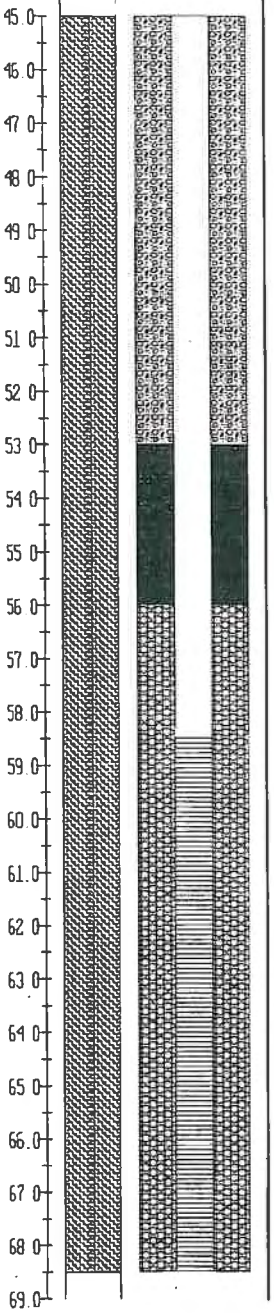
BOREHOLE NUMBER: MW-6D

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 OF: 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
0.0								CLAY AND SAND: fill; orange brown; moist.
3.0	13 17 25 26	Ss	S1	W				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.
8.0	9 11 14	Ss	S2					CLAY AND SILT: relict chlorite schist structure with trace of white feldspar veins; dark green and white; hard; wet.
13.0	7 11 16	Ss	S3					CLAY AND SILT: chlorite feldspar schist; one 45 degree fracture; dk. green and white.
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
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.
3.0	8	Ss	S1					
4.0	13							
5.0	18							
8.0	8	Ss	S2					CLAY AND SILT: gray to green; relict chlorite schist; with heavy orange brown iron staining and bands; saprolite; moist; trace hair veins; hard.
9.0	11							
10.0	13							
13.0	13	Ss	S3	W				CLAY AND SILT: equigranular chlorite/white feldspar schist with red/brown iron stained fractures; moist; dense.
14.0	13							
15.0	19							
18.0	20	Ss	S4					SILT AND CLAY: gray green chlorite feldspar schist; numerous miscellaneously oriented feldspar microveins; orange staining.
19.0	36							
20.0	50/6							SAND: coarse grained feldspar, quartz muscovite granite; iron stained.

LITHOLOGY

WELL INSTALLATION

FIELD BOREHOLE LOG

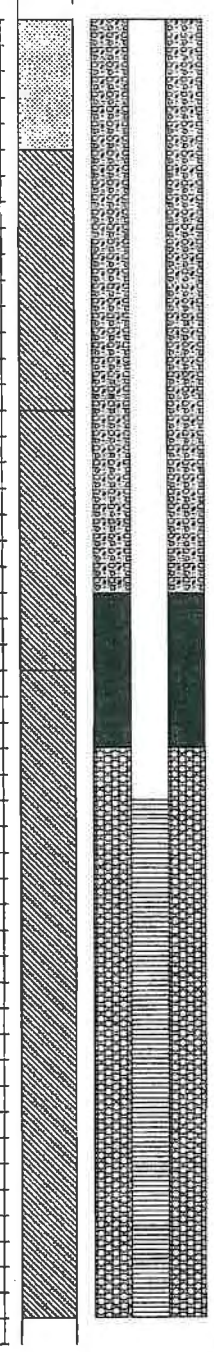
BOREHOLE NUMBER: MW-7D

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
23.0	25	Ss	S5					
24.0	50/6							SAND AND CLAY coarse sand, orange brown porphyritic gray quartz/white feldspar trace muscovite and hornblende granite; heavy iron staining
	50/5							
28.0	50/5	Ss	S6					SAND AND CLAY coarse sand, brown; porphyritic gray quartz/white feldspar; trace muscovite and hornblende granite, heavy iron staining
33.0	50/4	Ss	S7					SAND AND CLAY coarse sand, dark brown; porphyritic gray quartz/white feldspar, trace muscovite and hornblende granite, heavy iron staining
38.0	50/5	Ss	S8					
43.0	50/3	Ss	S9					



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

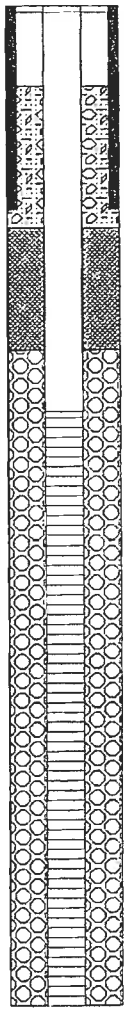
TOP OF CASING ELEVATION: 661.16
TOTAL DEPTH: 15.0
GROUND SURFACE ELEVATION: 659.83
SHEET: 1 OF: 1

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							
5.0	5							
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.
10.0	4							
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							
15.0	9							CLAY AND SAND: relict granite texture; quartz; feldspar; equigranular; moist.

LITHOLOGY

WELL INSTALLATION



Richardson Smith Gardner & Assoc
14 North Boylan Avenue, Raleigh NC 27603
(919) 828-0577

FIELD BOREHOLE LOG

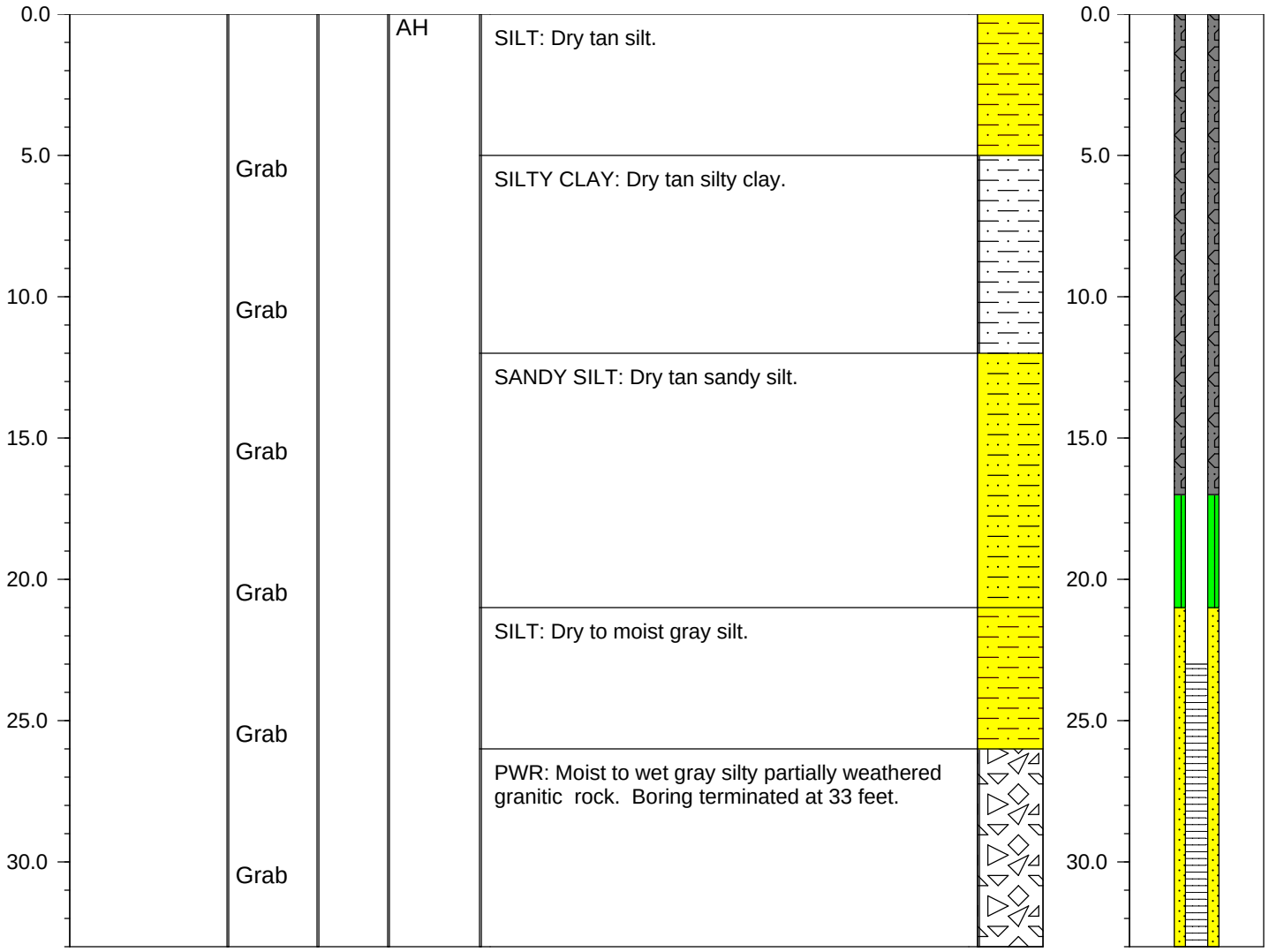
BOREHOLE NUMBER **MW-9a**

PROJECT NAME: **Davidson Co Phase 1 Landfill**
LOCATION: **Davidson County**
DRILLING CO: **Geologic Explorations**
DRILLING METHOD: **AH**
FIELD PARTY: **Johnny Burr**
GEOLOGIST: **Lindsay Quant**
DATE BEGUN: **11/11/10** COMPLETED: **11/11/10**

TOTAL DEPTH: **33**
TOP OF CASING ELEV.:
GROUND ELEV.: **686.32**
NORTHING: **764126.597**
EASTING: **1649351.338**

STATIC WATER LEVEL (BLS)		
Depth (ft)		
Time		
Date		

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
0.0				AH	SILT: Dry tan silt.		0.0	
5.0		Grab			SILTY CLAY: Dry tan silty clay.		5.0	
10.0		Grab			SANDY SILT: Dry tan sandy silt.		10.0	
15.0		Grab					15.0	
20.0		Grab			SILT: Dry to moist gray silt.		20.0	
25.0		Grab			PWR: Moist to wet gray silty partially weathered granitic rock. Boring terminated at 33 feet.		25.0	
30.0		Grab					30.0	



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Appendix B

Field Data Sheets

April 2014 – Groundwater Monitoring Report
Davidson County Phase 1 Lined Landfill
NC Solid Waste Permit No. 29-06

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SMITH+GARDNER **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: DAVOLO PHASE I **Date:** 3/31/14

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

Please mark the apropriate 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:

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:

NO LOCK

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:

SMITH+GARDNER **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: DAVCO PHASE 1 Date: 3/31/14

Well ID: MW-2 Initials: JRF

Please mark the apropriate 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:

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:

NO LOCK

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:

SMITH+GARDNER **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: DAVCO PHASE I **Date:** 3/31/14

Well ID: MW-3 **Initials:** JRF

Please mark the apropriate 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:

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:

NO LOCK

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:

SMITH+GARDNER **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: DAVCO PHASE I **Date:** 3/31/14

Well ID: MW - 4 **Initials:** JRF

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:

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:

NO LOCK

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:

SMITH+GARDNER **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: DAVCO PHASE I **Date:** 3/31/14

Well ID: MW 5 **Initials:** JRF

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:

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:

NO LOCK

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:

SMITH+GARDNER **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: DAUDCO PHASE I Date: 3/31/14

Well ID: MW-6 Initials: JRF

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:

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:

NO LOCK

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:

SMITH+GARDNER **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: DAVOCO PHASE I **Date:** 3/31/14

Well ID: MW - 7S **Initials:** JRF

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:

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:

WELL LOOKS TO BE RUN OVER

NO LOCK

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:

SMITH + GARDNER **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: DANDCO PHASE I **Date:** 3/31/14

Well ID: MW-7D **Initials:** JRF

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:

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:

NO LOCK

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:

SMITH+GARDNER **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: DAVIS PHASE 1 Date: 3/31/14

Well ID: MW - 8 Initials: JRF

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:

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:

NO LOCK

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:

SMITH+GARDNER **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: DANDCO PHASE I Date: 3/31/14

Well ID: MW-9A Initials: JFF

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:

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:

NO LOCK

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:

SMITH+GARDNER **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: DAVCO PHASE I **Date:** 3/31/14

Well ID: MW-10 **Initials:** JRF

Please mark the apropriate 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:

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:

NO LOCK

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:

SMITH+GARDNER **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: DANDCO PHASE I **Date:** 3/31/14

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

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:

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:

NO LOCK

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:

SMITH+GARDNER **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: DAVOCO PHASE I Date: 3/31/14

Well ID: MW - 12 Initials: JRF

Please mark the apropriate 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:

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:

NO LOCK

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:

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Appendix C

Laboratory Analytical Report

April 2014 Groundwater Monitoring Report
Davidson County Phase 1 Lined Landfill
NC Solid Waste Permit No. 29-06

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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
SMITH GARDNER, INC.
14 NORTH BOYLAN AVE.
RALEIGH ,NC 27603

DATE COLLECTED: 04/01/14
DATE REPORTED : 04/30/14

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-1S	MW-3	MW-4	MW-5	MW-6	Analysis Date	Analyst	Method Code
Total Alkalinity (to pH 4.5), mg/l	1.0	1.0	256					04/03/14	TRB	2320B-97
Chloride, mg/l	5.0	5.0	65					04/07/14	CMC	4500CLB-97
Total Dissolved Residue, mg/l	1.0	1.0	470					04/07/14	LW	2540C-97
Sulfate, mg/l	5.0	250.0	31.2 J					04/04/14	TRB	4500SO42E97
Antimony, ug/l	0.02	6.0	0.05 J	0.03 J	0.02 J	--- U	0.05 J	04/20/14	LFJ	EPA200.8
Arsenic, ug/l	0.05	10.0	0.44 J	0.19 J	0.24 J	0.08 J	0.13 J	04/20/14	LFJ	EPA200.8
Barium, ug/l	0.06	100.0	43.8 J	65.1 J	52.3 J	55.4 J	12.5 J	04/20/14	LFJ	EPA200.8
Beryllium, ug/l	0.03	1.0	--- U	0.04 J	0.04 J	--- U	--- U	04/20/14	LFJ	EPA200.8
Cadmium, ug/l	0.05	1.0	--- U	--- U	0.08 J	0.09 J	0.21 J	04/20/14	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	0.20 J	1.2 J	1.1 J	0.14 J	0.04 J	04/20/14	LFJ	EPA200.8
Copper, ug/l	0.06	10.0	0.65 J	4.6 J	6.0 J	0.49 J	--- U	04/20/14	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	--- U	0.53 J	2.3 J	--- U	--- U	04/20/14	LFJ	EPA200.8
Iron, ug/l	13.6	300.0	227 J					04/24/14	MTM	3111B-99
Manganese, ug/l	0.42	50.0	15 J					04/25/14	LFJ	EPA200.7
Lead, ug/l	0.02	10.0	0.16 J	0.30 J	1.3 J	0.08 J	0.03 J	04/20/14	LFJ	EPA200.8
Mercury, ug/l	0.01	0.20	--- U					04/15/14	MTM	245.1 R3-94
Nickel, ug/l	0.45	50.0	1.7 J	1.5 J	1.6 J	--- U	0.49 J	04/20/14	LFJ	EPA200.8
Selenium, ug/l	0.06	10.0	1.4 J	0.44 J	0.28 J	0.35 J	0.44 J	04/20/14	LFJ	EPA200.8
Silver, ug/l	0.03	10.0	--- U	--- U	--- U	--- U	--- U	04/20/14	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	--- U	--- U	--- U	--- U	--- U	04/20/14	LFJ	EPA200.8
Vanadium, ug/l	0.07	25.0	2.5 J	8.9 J	7.0 J	3.5 J	0.26 J	04/20/14	LFJ	EPA200.8
Zinc, ug/l	0.47	10.0	0.67 J	7.7 J	10	--- U	1.1 J	04/20/14	LFJ	EPA200.8

J = Between MDL and SWSL, U = Below ALL Quantitation 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
SMITH GARDNER, INC.
14 NORTH BOYLAN AVE.
RALEIGH ,NC 27603

DATE COLLECTED: 04/01/14
DATE REPORTED : 04/30/14

REVIEWED BY: _____

PARAMETERS	MDL	SWSL	MW-7D	MW-8	MW-7S	MW-9A	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.02	6.0	--- U	0.80 J	0.06 J	0.22 J	04/20/14	LFJ	EPA200.8
Arsenic, ug/l	0.05	10.0	0.25 J	0.63 J	0.42 J	0.47 J	04/20/14	LFJ	EPA200.8
Barium, ug/l	0.06	100.0	4.9 J	65.2 J	28.2 J	31.6 J	04/20/14	LFJ	EPA200.8
Beryllium, ug/l	0.03	1.0	--- U	0.16 J	0.12 J	0.04 J	04/20/14	LFJ	EPA200.8
Cadmium, ug/l	0.05	1.0	--- U	--- U	0.05 J	--- U	04/20/14	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	0.03 J	4.5 J	1.5 J	1.3 J	04/20/14	LFJ	EPA200.8
Copper, ug/l	0.06	10.0	0.16 J	8.8 J	9.5 J	9.3 J	04/20/14	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	--- U	6.0 J	3.3 J	1.7 J	04/20/14	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.83 J	4.3 J	1.0 J	1.1 J	04/20/14	LFJ	EPA200.8
Nickel, ug/l	0.45	50.0	--- U	3.7 J	2.2 J	4.1 J	04/20/14	LFJ	EPA200.8
Selenium, ug/l	0.06	10.0	0.43 J	0.75 J	0.35 J	1.1 J	04/20/14	LFJ	EPA200.8
Silver, ug/l	0.03	10.0	--- U	--- U	--- U	--- U	04/20/14	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	--- U	0.03 J	--- U	--- U	04/20/14	LFJ	EPA200.8
Vanadium, ug/l	0.07	25.0	0.60 J	19.6 J	9.8 J	7.8 J	04/20/14	LFJ	EPA200.8
Zinc, ug/l	0.47	10.0	0.74 J	13	8.3 J	8.9 J	04/20/14	LFJ	EPA200.8

J = Between MDL and SWSL, U = Below ALL Quantitation 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
SMITH GARDNER, INC.
14 NORTH BOYLAN AVE.
RALEIGH, NC 27603

REVIEWED BY:

CLIENT ID: 6038

ANALYST: MO
DATE COLLECTED: 04/01/14
DATE ANALYZED: 04/09/14
DATE REPORTED: 04/30/14

VOLATILE ORGANICS
EPA METHOD 8260B R1(96)

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	43.50 J	11.50 J	--- 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 Quantitation 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
SMITH GARDNER, INC.
14 NORTH BOYLAN AVE.
RALEIGH, NC 27603

CLIENT ID: 6038

ANALYST: MO
DATE COLLECTED: 04/01/14
DATE ANALYZED: 04/09/14
DATE REPORTED: 04/30/14

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B R1(96)

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 Quantitation 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
SMITH GARDNER, INC.
14 NORTH BOYLAN AVE.
RALEIGH NC 27603

(919) 828-0577

DISINFECTION
- ☐ CHLORINE
- ☐ UV
- ☐ NONE
- ☐ _____

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB): 2 2 2 2

CONTAINER TYPE, P/G: P P P P P G G G

CHEMICAL PRESERVATION: A A A A A E E E

PARAMETERS

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

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Alkalinity	Chloride	TDS	Sulfate	Metals	EPA 8260B	8260 Dup. 1	8260 Dup. 2
MW-1S	4/1	10:30A			8	▒	▒	▒	▒	▒	▒	▒	▒
MW-2		7:55A			3					▒	▒	▒	
MW-3		9:45A			3					▒	▒	▒	
MW-4		9:35A			3					▒	▒	▒	
MW-5		9:30A			3					▒	▒	▒	
MW-6		9:00A			3					▒	▒	▒	
MW-7D		9:12A			3					▒	▒	▒	
MW-8		8:50A			3					▒	▒	▒	
MW-7S		9:16A			3					▒	▒	▒	
MW-9A		8:40A			3					▒	▒	▒	

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

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

SAMPLES COLLECTED BY: (Please Print)

SAMPLES RECEIVED IN LAB AT 0-2 °C

	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.) (SAMPLER)	04/02/14 8:00A		4/2/14 452
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS: No metals or Vials for MW-2. Per Madeline German - site is dry, DEL 4-3-14

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.

NO 273527

FORM #5

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
SMITH GARDNER, INC.
14 NORTH BOYLAN AVE.
RALEIGH ,NC 27603

DATE COLLECTED: 04/02/14
DATE REPORTED : 04/30/14

REVIEWED BY:

PARAMETERS	MDL	Leachate SWSL		Analysis Date	Analyst	Method Code
BOD, mg/l	2.0	2.0	7.9	04/03/14	TRB	5210B-01
COD, mg/l	20.0	20.0	97	04/07/14	TRB	H8000-79
Nitrate Nitrogen as N, mg/l	0.03	10.0	0.50 J	04/04/14	ANO	353.2 R2-93
Total Phosphorus as P, mg/l	0.04	0.04	0.09	04/07/14	ALB	365.4-74
Sulfate, mg/l	5.0	250.0	37.1 J	04/04/14	TRB	4500SO42E97
Antimony, ug/l	0.02	6.0	1.1 J	04/20/14	LFJ	EPA200.8
Arsenic, ug/l	0.05	10.0	1.3 J	04/20/14	LFJ	EPA200.8
Barium, ug/l	0.06	100.0	60.6 J	04/20/14	LFJ	EPA200.8
Beryllium, ug/l	0.03	1.0	--- U	04/20/14	LFJ	EPA200.8
Cadmium, ug/l	0.05	1.0	--- U	04/20/14	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	1.9 J	04/20/14	LFJ	EPA200.8
Copper, ug/l	0.06	10.0	5.0 J	04/20/14	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	1.9 J	04/20/14	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.30 J	04/20/14	LFJ	EPA200.8
Nickel, ug/l	0.45	50.0	11.5 J	04/20/14	LFJ	EPA200.8
Selenium, ug/l	0.06	10.0	0.94 J	04/28/14	LFJ	EPA200.8
Silver, ug/l	0.03	10.0	--- U	04/20/14	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	--- U	04/20/14	LFJ	EPA200.8
Vanadium, ug/l	0.07	25.0	4.7 J	04/20/14	LFJ	EPA200.8
Zinc, ug/l	0.47	10.0	3.7 J	04/20/14	LFJ	EPA200.8

J = Between MDL and SWSL, U = Below ALL Quantitation 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
SMITH GARDNER, INC.
14 NORTH BOYLAN AVE.
RALEIGH, NC 27603

CLIENT ID: 6038 A

ANALYST: MAO
DATE COLLECTED: 04/02/14
DATE ANALYZED: 04/14/14
DATE REPORTED: 04/30/14

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B R1(96)

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 Quantitation 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 A **Week:** 12

DAVIDSON COUNTY (LINED)
MS. JOAN SMYTH
SMITH GARDNER, INC.
14 NORTH BOYLAN AVE.
RALEIGH NC 27603

(919) 828-0577

DISINFECTION
- ☐ CHLORINE
- ☐ UV
- ☐ NONE
- ☐ _____

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB): <2 | <2 | 12 | 12 | 12

CONTAINER TYPE, P/G: P | P | P | P | P | P | G | G

CHEMICAL PRESERVATION: A | C | A | C | A | A | E | E

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

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	BOD	COD	Nitrate	T. Phosphorus	Sulfate	Metals	EPA 8260B	8260 Dup. 1
Leachate	4/2	8:07A			8	▒	▒	▒	▒	▒	▒	▒	▒

PARAMETERS

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

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

SAMPLES COLLECTED BY:
(Please Print)

SAMPLES RECEIVED IN LAB AT 12 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
	4/2 8:30A		4/2/14 445
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 side.

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

NO. 273526

FORM #5

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
SMITH GARDNER, INC.
14 NORTH BOYLAN AVE.
RALEIGH ,NC 27603

DATE COLLECTED: 04/01/14
DATE REPORTED : 04/30/14

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-10	MW-11	MW-12	SW-1	SW-2	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.02	6.0	0.05 J	0.86 J	0.2 J	0.17 J	0.13 J	04/20/14	LFJ	EPA200.8
Arsenic, ug/l	0.05	10.0	0.32 J	0.42 J	0.42 J	0.73 J	0.56 J	04/20/14	LFJ	EPA200.8
Barium, ug/l	0.06	100.0	6.4 J	13.8 J	1.1 J	25.9 J	27.8 J	04/20/14	LFJ	EPA200.8
Beryllium, ug/l	0.03	1.0	0.09 J	0.12 J	--- U	--- U	--- U	04/20/14	LFJ	EPA200.8
Cadmium, ug/l	0.05	1.0	0.06 J	0.08 J	0.05 J	--- U	--- U	04/20/14	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	0.74 J	1.3 J	0.16 J	0.65 J	0.80 J	04/20/14	LFJ	EPA200.8
Copper, ug/l	0.06	10.0	1.6 J	6.1 J	0.23 J	1.5 J	1.5 J	04/20/14	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	2.0 J	5.4 J	0.19 J	0.63 J	0.66 J	04/20/14	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.38 J	0.97 J	0.03 J	0.44 J	0.44 J	04/20/14	LFJ	EPA200.8
Nickel, ug/l	0.45	50.0	1.5 J	3.6 J	1.4 J	0.86 J	0.89 J	04/20/14	LFJ	EPA200.8
Selenium, ug/l	0.06	10.0	0.64 J	0.89 J	0.90 J	0.48 J	0.40 J	04/20/14	LFJ	EPA200.8
Silver, ug/l	0.03	10.0	--- U	--- U	--- U	--- U	--- U	04/20/14	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	0.05 J	0.03 J	--- U	--- U	--- U	04/20/14	LFJ	EPA200.8
Vanadium, ug/l	0.07	25.0	6.9 J	14.1 J	5.3 J	1.9 J	2.1 J	04/20/14	LFJ	EPA200.8
Zinc, ug/l	0.47	10.0	3.2 J	6.2 J	0.99 J	3.0 J	2.5 J	04/20/14	LFJ	EPA200.8

J = Between MDL and SWSL, U = Below ALL Quantitation 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
SMITH GARDNER, INC.
14 NORTH BOYLAN AVE.
RALEIGH, NC 27603

CLIENT ID: 6038 B

ANALYST: MAO
DATE COLLECTED: 04/01/14
DATE REPORTED: 04/30/14

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	MDL	SWSL	Date Analyzed: 04/10/14 MW-10	04/11/14 MW-11	04/11/14 MW-12	04/11/14 SW-1	04/11/14 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	27.60 J	--- U	--- 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 Quantitation 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
SMITH GARDNER, INC.
14 NORTH BOYLAN AVE.
RALEIGH, NC 27603

CLIENT ID: 6038 B
ANALYST: MAO
DATE COLLECTED: 04/01/14
DATE REPORTED: 04/30/14

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	Date Analyzed: MDL	SWSL	04/11/14 Equipment Blank	04/11/14 Trip Blank
1. Chloromethane	0.77	1.0	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U
20. Benzene	0.24	1.0	--- U	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quantitation 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 B **Week:** 12

DAVIDSON COUNTY (LINED)
MS. JOAN SMYTH
SMITH GARDNER, INC.
14 NORTH BOYLAN AVE.
RALEIGH NC 27603

(919) 828-0577

DISINFECTION
- ☐ CHLORINE
- ☐ UV
- ☐ NONE
- ☐ _____

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

PARAMETERS

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

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Metals	EPA 8260B	8260 Dup. 1	8260 Dup. 2
						12	12	12	12
						P	G	G	G
						A	E	E	E
MW-10	4/1	8:30A			4	■	■	■	■
MW-11		8:20A			3	■	■	■	
MW-12		8:10A			3	■	■	■	
SW-1		10:12A			3	■	■	■	
SW-2		9:50A			3	■	■	■	
Equipment Blank					2		■	■	
Trip Blank					2		■	■	

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

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

SAMPLES COLLECTED BY: (Please Print)

SAMPLES RECEIVED IN LAB AT 0.6 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
	4/2 8:00A		4/2/14 445
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 side.

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

NO 273525

FORM #5

Appendix D

Time vs. Concentration Graphs

April 2014 Groundwater Monitoring Report
Davidson County Phase 1 Lined Landfill
NC Solid Waste Permit No. 29-06

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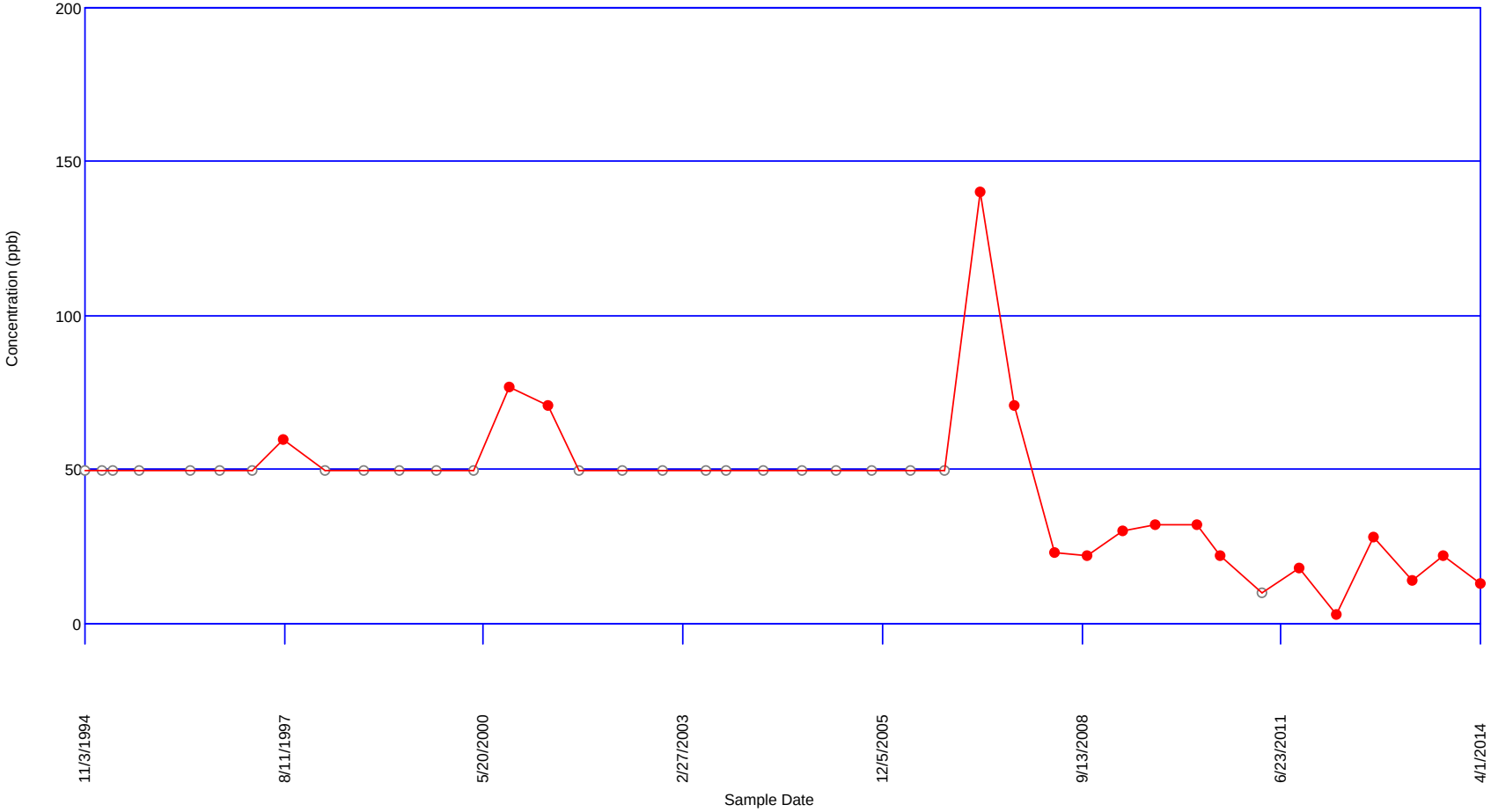
Zinc

Time-Series Graph of MW-8



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