

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 C&D Landfill	1242 Old Highway 29 Thomasville, NC 27360	29-06	0.0500	September 24-25, 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  Methane gas monitoring data  
 Groundwater monitoring data from private water supply wells  Corrective action data (specify) \_\_\_\_\_  
 Leachate monitoring data  Other(specify) \_\_\_\_\_  
 Surface water monitoring data

**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

*Madeline German*  
Signature

12/3/14  
Date

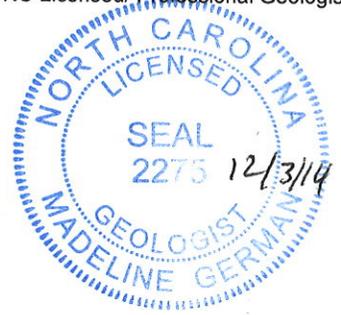
Affix NC Licensed/Professional Geologist Seal

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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# September 2014 Semi-Annual Groundwater Monitoring Report

## Davidson County Construction and Demolition Debris Landfill NC Solid Waste Permit No. 29-06

Prepared for:

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



**December 2014**

Prepared by:

NC LIC. NO. C-0828 (ENGINEERING)

**SMITH+GARDNER**

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577



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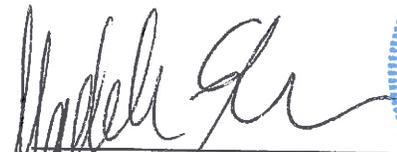
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# September 2014 Semi-Annual Groundwater Monitoring Report

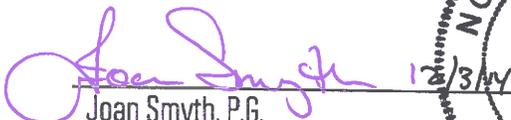
**Davidson County Construction and Demolition Debris Landfill  
NC Solid Waste Permit No. 29-06**

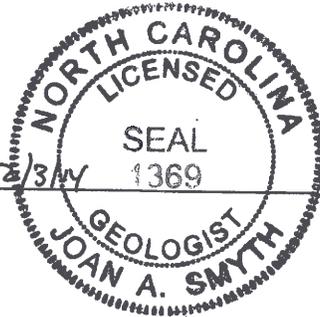
Prepared For:  
**Davidson County Integrated Solid Waste  
Thomasville, North Carolina 27360-0024**

**S+G Project No. DAVDCO 14-8**

  
Madeline German P.G.  
Project Geologist



  
Joan Smyth, P.G.  
Senior Hydrogeologist



**December 2014**

NC LIC. NO. C-0828 (ENGINEERING)

**SMITH + GARDNER**

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0527

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**Davidson County Construction and Demolition Debris Landfill  
NC Solid Waste Permit No. 29-06**

**September 2014 Groundwater Monitoring Report**

Table of Contents

		<u>Page</u>
1.0	INTRODUCTION .....	1
2.0	SITE GEOLOGY .....	1
3.0	SAMPLING LOCATIONS .....	1
4.0	SAMPLING PROCEDURES .....	2
5.0	FIELD & LABORATORY RESULTS .....	2
5.1	Field Results.....	2
5.2	Laboratory Analysis.....	2
	5.2.1 Inorganic Constituents.....	3
	5.2.2 Organic Constituents .....	3
6.0	GROUNDWATER CHARACTERIZATION .....	3
7.0	CONCLUSIONS .....	3

**FIGURE**

Figure 1                      Groundwater Potentiometric Map

**TABLES**

Table 1                      Groundwater Elevations  
 Table 2                      Field Parameters  
 Table 3                      Detected Inorganic Parameters  
 Table 4                      Detected Organic Parameters

**APPENDICES**

Appendix A                      Monitoring Well Information  
 Appendix B                      Laboratory Analytical Report

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## 1.0 INTRODUCTION

Smith Gardner, Inc. (S+G) was contracted by Davidson County to perform their semi-annual groundwater monitoring at the Davidson County Construction and Demolition (C&D) Debris Landfill, permit number 29-06, as required by 15A NCAC 13B .0600. Sampling was conducted September 24-25, 2014. This report summarizes the event sampling procedures, field and laboratory results and groundwater 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. This region also has numerous intrusions of metagabbro and metabasalt dikes and conformable sheets. This metagabbro typically crops out as round residual boulders that show no foliation except in the Gold Hill/Silver Hill shear zone.

The encountered lithology includes sandy silt and partially weathered rock. For this report partially weathered rock is defined as soils with a standard penetration test blow count of 100+ blows per foot.

## 3.0 SAMPLING LOCATIONS

Groundwater sampling at the Davidson County C&D landfill was performed at five down-gradient groundwater monitoring well locations (CDMW-2, CDMW-3, CDMW-5, CDMW-6 and CDMW-7). Upgradient monitoring well MW-1S (associated with the Phase 1 lined landfill) is used as the upgradient well for this site as well. No surface water monitoring locations have been established for this site. A trip blank (TB) sample was also submitted for quality control purposes.

Sampling locations are shown on **Figure 1**. Boring logs and construction records are provided in **Appendix A**.

## 4.0 SAMPLING PROCEDURES

Sampling procedures followed the protocols set forth in the site's Sampling and Analysis Plan<sup>1</sup> 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 groundwater depth and purged three to five well volumes or until dry. Field measurements for pH, specific conductivity and temperature were recorded at each well. Groundwater elevations are provided in **Table 1**.

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

Sampling wells and locations were inspected and found to be in good condition and free of obstructions.

## 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 included C&D metals via EPA Test Method 200.8, Appendix I Volatile Organic Compounds (VOCs) via EPA Test Method 8260B and additional C&D parameters for alkalinity, chloride, total dissolved solids 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). The laboratory analysis is presented in **Appendix B**.

---

<sup>1</sup> Davidson County C&D Landfill Water Quality Monitoring Plan. Richardson Smith Gardner and Associates, April 2011.

<sup>2</sup> New Guidelines for electronic submittal of environmental monitoring data memo, NCDENR DWM, Solid Waste Section, October 27, 2006.

### 5.2.1 Inorganic Constituents

Two inorganic constituents were detected above the 2L Standard:

- iron (CDMW-2, CDMW-3, CDMW-6 and CDMW-7) and
- manganese (CDMW-2, CDMW3, CDMW-6 and CDMW-7).

The indicator parameter total dissolved residue was also reported at concentrations above 2L for the sample collected from CDMW-3.

Most inorganic constituents were either below the method detection limit (MDL) or were “J-values” indicating a non-quantifiable value.

### 5.2.2 Organic Constituents

No organic constituents were detected above the established 2L Standard in groundwater samples from the September 2014 sampling event. Tetrahydrofuran was detected above the MDL in the sample from CDMW-3. There is no established SWSL or 2L standard for this constituent.

## **6.0 GROUNDWATER CHARACTERIZATION**

A potentiometric surface map was prepared from groundwater data from this sampling event. Groundwater at the C&D landfill flows in a generally northern direction. The potentiometric surface for the landfill property is shown on **Figure 1**.

## **7.0 CONCLUSIONS**

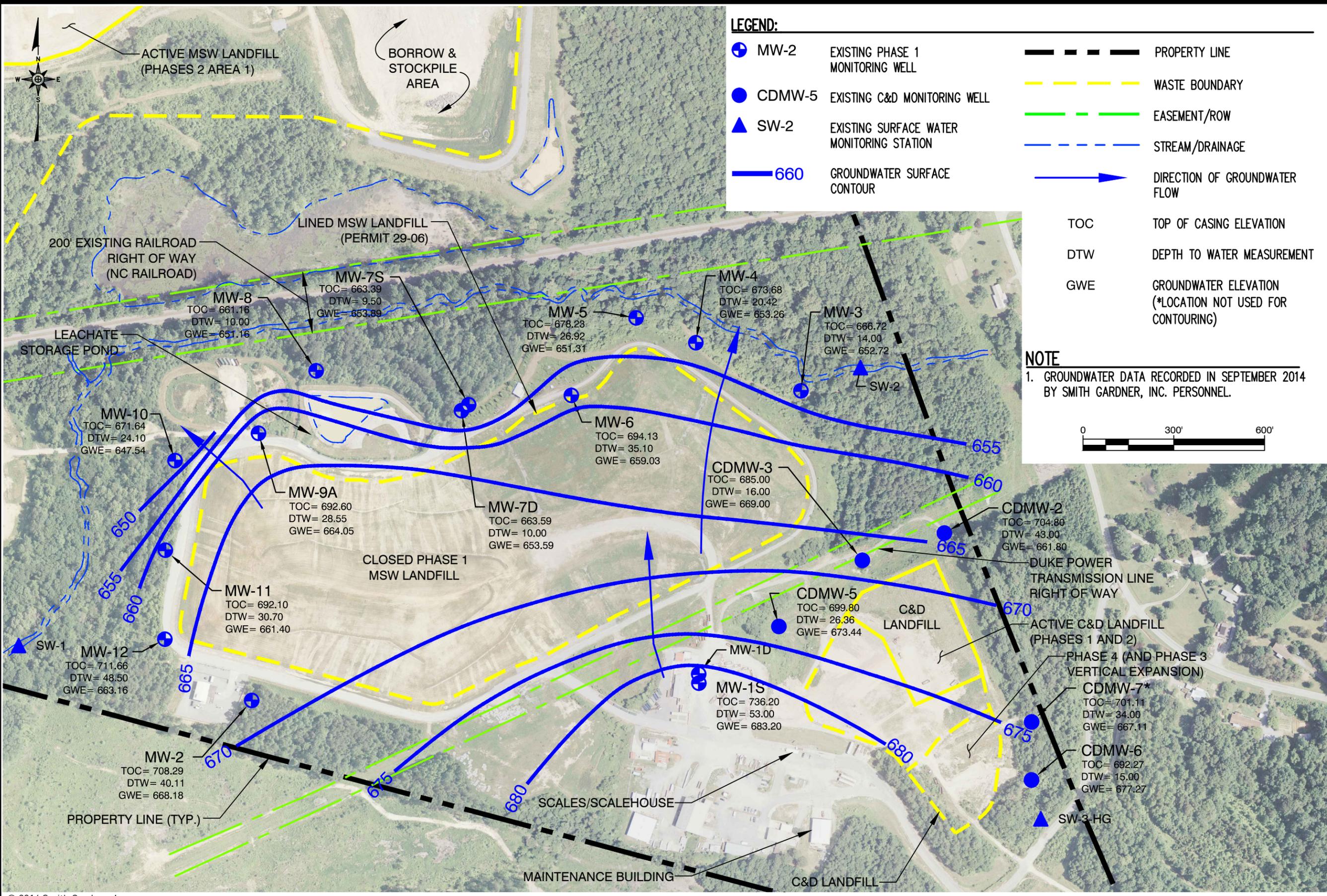
C&D landfill analytical results indicate that iron and manganese were detected above the 2L standard in groundwater samples. These detections are likely due to variations in these naturally occurring constituents and are not indicative of groundwater impact from the landfill. The next ground water monitoring event is scheduled for April 2015. A monitoring report will be submitted with analytical data from that event

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## **FIGURES**

**September 2014 Groundwater Monitoring Report  
Davidson County C&D 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
- STREAM/DRAINAGE
- DIRECTION OF GROUNDWATER FLOW

TOC TOP OF CASING ELEVATION  
 DTW DEPTH TO WATER MEASUREMENT  
 GWE GROUNDWATER ELEVATION (\*LOCATION NOT USED FOR CONTOURING)

**NOTE**

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



PREPARED BY: **SMITH+GARDNER**  
NC LIC. NO. C-0828 (ENGINEERING)  
14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

DRAWN:	T.R.S.	DATE:	Dec 2014	
APPROVED:	M.M.G.	PROJECT NO.:	DAVDCCO-4	
SCALE:	AS SHOWN	FILENAME:	DAVDCCO-B0790	
FIGURE NO.:	1			

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

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## **TABLES**

**September 2014 Groundwater Monitoring Report  
Davidson County C&D Landfill  
Solid Waste Permit No. 29-06**

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**Table 1**  
 Groundwater Elevations  
 Davidson County C&D Landfill  
 September 24-25, 2014

Well	Well Installation Date	Latitude	Longitude	Well Diameter (inches)	Total Well Depth (ft bgs)	Ground Surface Elevation (ft amsl)	TOC Elevation (TOC)	Depth to Water (ft bgs)	Groundwater Elevation (ft amsl)	Screen Interval (ft bgs)	Screen Geology
CDMW-2	7/16/1998	35.84298	80.17524	2.0	51.0	702.27	704.80	43.00	661.80	41-51	granite
CDMW-3	12/5/2000	35.84273	80.17615	2.0	27.0	681.02	685.00	16.00	669.00	17-27	clayey sand & PWR
CDMW-5	1/30/2006	35.84212	80.17707	2.0	47.0	696.79	699.80	26.36	673.44	32-47	granite
CDMW-6	11/15/2010	35.84076	80.17423	2.0	23.0	689.84	692.27	15.00	677.27	13-23	PWR
CDMW-7	11/15/2010	35.84128	80.17424	2.0	45.0	698.56	701.11	34.00	667.11	35-45	silt & granite

NOTE: Survey data reported by Michael Green and Associates.  
 amsl = above mean sea level  
 bgs = below ground surface  
 Well construction information from well logs (provided in Appendix A)

**Table 2**  
Field Parameters  
Davidon County C&D Landfill  
March 31 and April 1, 2014

Well	pH (Std Units)	Conductivity (uhmos/cm)	Temperature (Celsius)	Turbidity (NTU)
CDMW-2	6.69	26	15.3	14.8
CDMW-3	7.03	96	16.4	27.4
CDMW-5	6.80	67	16.1	4.05
CDMW-6	6.95	28	16.4	654
CDMW-7	7.28	42	15.50	248

NOTES:

Data Collected by Madeline German & John Fearington of S+G.

CDMW-4 was abandoned and new monitoring locations CDMW-6 and CDMW-7 were installed prior to sampling.

Constituent	MDL	SWSL	2L or GWP	MCL	CDMW-2	CDMW-3	CDMW-5	CDMW-6	CDMW-7
total alkalinity	1000	NE	NE	NE	30000	250000	69000	35000	124000
chloride	5000	NE	250000	250000	6000	56000	48000	23000	22000
total dissolved residue	1000	NE	500000	500000	142000	<b>570000</b>	294000	171000	242000
sulfate	5000	250000	250000	250000	31800 J	121000 J	29100 J	23900 J	25700 J
antimony	0.12	6	1 <sup>§</sup>	6	0.22 J	0.13 J	0.34 J	<0.12	<0.12
arsenic	0.10	10	10	10	0.46 J	0.92 J	0.58 J	0.75 J	0.82 J
barium	0.12	100	700	2000	83.5 J	203	53.3 J	46.3 J	32.0 J
beryllium	0.04	1	4 <sup>§</sup>	4	0.1 J	0.13 J	0.12 J	0.68 J	0.39 J
cadmium	0.04	1		5	0.06 J	0.05 J	0.06 J	0.15 J	0.07 J
cobalt	0.12	10	1 <sup>§</sup>	NE	1.3 J	1.1 J	0.89 J	2.7 J	3.8 J
copper	0.10	10	1000	1300	1.8 J	7.7 J	1.7 J	4.9 J	42
total chromium	0.14	10	10	100	0.43 J	0.54 J	<0.14	1.4 J	6.4 J
iron	16.0	300	300	300	<b>2925</b>	<b>2619</b>	245 J	<b>14235</b>	<b>14150</b>
manganese	0.21	50	50	50	<b>88</b>	<b>123</b>	47 J	<b>746</b>	<b>293</b>
lead	0.13	10	15	15	0.54 J	0.53 J	<0.13	9.2 J	6.2 J
nickel	0.12	50	100	NE	1.4 J	5.9 J	3.0 J	5.2 J	5.6 J
selenium	0.16	10	20	50	0.51 J	3.7 J	2.6 J	2.4 J	2.0 J
silver	0.04	10	20	100	<0.04	0.16 J	<0.04	0.05 J	0.06 J
vanadium	0.06	25	0.3 <sup>§</sup>	NE	4.9 J	15 J	2.3 J	12.7	26
zinc	0.53	10	1000	5000	9.4 J	6.3 J	3.1 J	56	41

## NOTE:

- MDL - Method Detection Limit
- SWSL - Solid Waste Section Quantitation Limits
- 2L - Groundwater Standards (15A NCAC 2L 0200)
- GWP - SWS Groundwater Protection Standards (noted by<sup>§</sup>)
- MCL - Federal Maximum Contaminant Limit
- BOLD** - Detection above 2L Standard
- J - Laboratory reported detection between MDL and SWSL limit
- <MDL - Not detected at or above MDL

Table units are presented in ug/l.

Lab data analysis by Environment 1, Inc. report dated 10/23/2014, Client ID#6050.

**Table 4**  
Detected Organic Parameters  
Davidson County C&D Landfill  
September 24 & 25, 2014

Constituent	MDL	SWSL	2L	MCL	CDMW-3	CDMW-6
1,1-dichloroethane	0.20	5	6	5	0.5 J	<0.2
benzene	0.24	1	1	5	0.3 J	<0.24
tetrahydrofuran	0.39	NE	NE	NE	41.3	0.8 J

NOTES:

- MDL - Method Detection Limit
- SWSL - Solid Waste Section Quantitation Limits
- 2L - Groundwater Standards (15A NCAC 2L 0200)
- MCL - Federal Maximum Contaminant Limit
- BOLD** - Detection above 2L Standard
- J - Laboratory reported detection between MDL and SWSL limit

Table units are presented in ug/l.

Lab data analysis by Environment 1, Inc. report dated 10/23/2014, Client ID#6050.

## **Appendix A**

### **Monitoring Well Information**

**September 2014 Groundwater Monitoring Report  
Davidson County C&D Landfill  
NC Solid Waste Permit No. 29-06**

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<b>FIELD BOREHOLE LOG</b>		BOREHOLE NUMBER <b>B-6</b>
PROJECT NUMBER: <b>Davco-14</b> PROJECT NAME: <b>Davidson County Landfill</b> LOCATION: <b>Lexington, North Carolina</b> DRILLING COMPANY: <b>Engineering Tectonics</b> RIG TYPE & NUMBER: <b>MOBILE B-50</b> DRILLING METHOD: <b>Hollow Stem/Air Rotary/Hammer</b> WEATHER: <b>Sunny, 95 DEGREES</b> FIELD PARTY: <b>R. Barron</b> GEOLOGIST: <b>P. May</b> DATE BEGUN: <b>7/16/98</b>		TOP OF CASING ELEVATION: <b>TBD</b> TOTAL DEPTH: <b>51.0 FT</b> GROUND SURFACE ELEVATION: <b>TBD</b> SHEET: <b>1</b> OF <b>2</b>
STATIC WATER LEVEL (BLS) WD=While Drilling AB=After Boring		
DATE COMPLETED: <b>7/16/98</b>		Depth(Ft) - - Time - - Date: - -

DEPTH	BLDN COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION	DEPTH	LITHOLOGY	WELL INSTALLATION
1.0							AR	<p><b>SAND:</b> Tan orange fine to medium with some coarse sand mottled with iron and manganese, SP.</p>	1.0		
0.0									0.0		
1.0									1.0		
2.0									2.0		
3.0	10	Ss	S1						3.0		
4.0	15								4.0		
5.0	18								5.0		
6.0									6.0		
7.0									7.0		
8.0	17	Ss	S2						8.0		
9.0	26								9.0		
10.0	34								10.0		
11.0									11.0		
12.0								12.0			
13.0	50/5	Ss	S3					13.0			
14.0								14.0			
15.0								15.0			
16.0								16.0			
17.0								17.0			
18.0	50/4	Ss	S4					18.0			
19.0								19.0			
20.0								20.0			
21.0								21.0			
22.0								22.0			
23.0							AH	23.0			
24.0								24.0			

**GRANITE:** Tan and gray granite. Dry.







**G. N. Richardson & Associates, Inc.**

14 North Boylan Avenue, Raleigh NC 27603  
(919) 828-0577

**FIELD BOREHOLE LOG**

BOREHOLE NUMBER **CDMW-5**

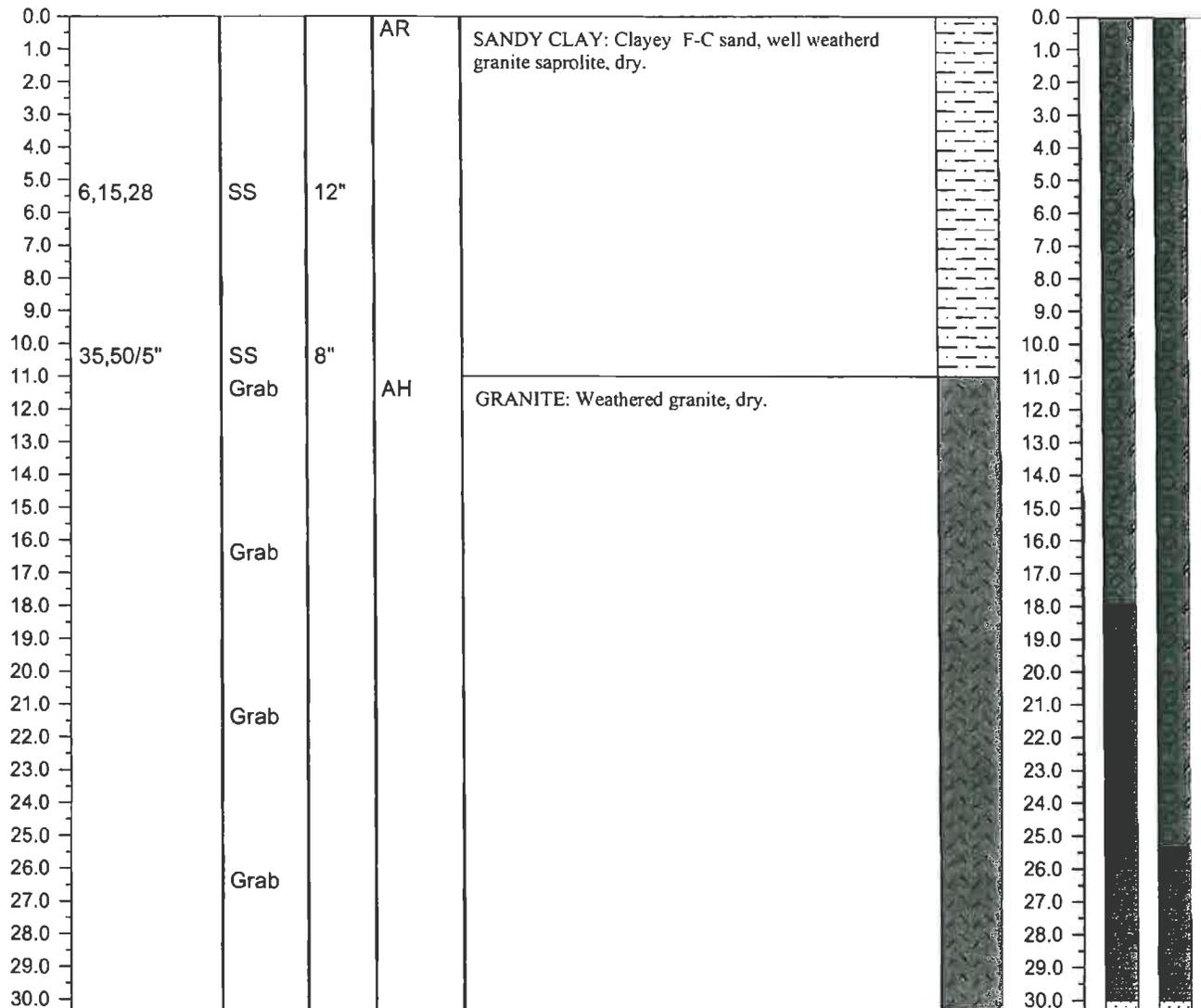
Page 1 of 2

PROJECT NAME: **Davidson County C&D Landfill**  
LOCATION: **Lexington, NC**  
DRILLING CO: **Engineering Tectonics, P.A.**  
DRILLING METHOD: **AR/AH**  
FIELD PARTY: **R. Barron**  
GEOLOGIST: **J. Smyth**  
DATE BEGUN: **1/30/06** COMPLETED: **1/30/06**

TOTAL DEPTH: **47**  
GROUND SURFACE ELEVATION: **NA**  
TOP OF CASING ELEVATION:

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

DEPTH	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH	WELL INSTALLATION
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**G. N. Richardson & Associates, Inc.**

14 North Boylan Avenue, Raleigh NC 27603  
(919) 828-0577

**FIELD BOREHOLE LOG**

BOREHOLE NUMBER CDMW-5

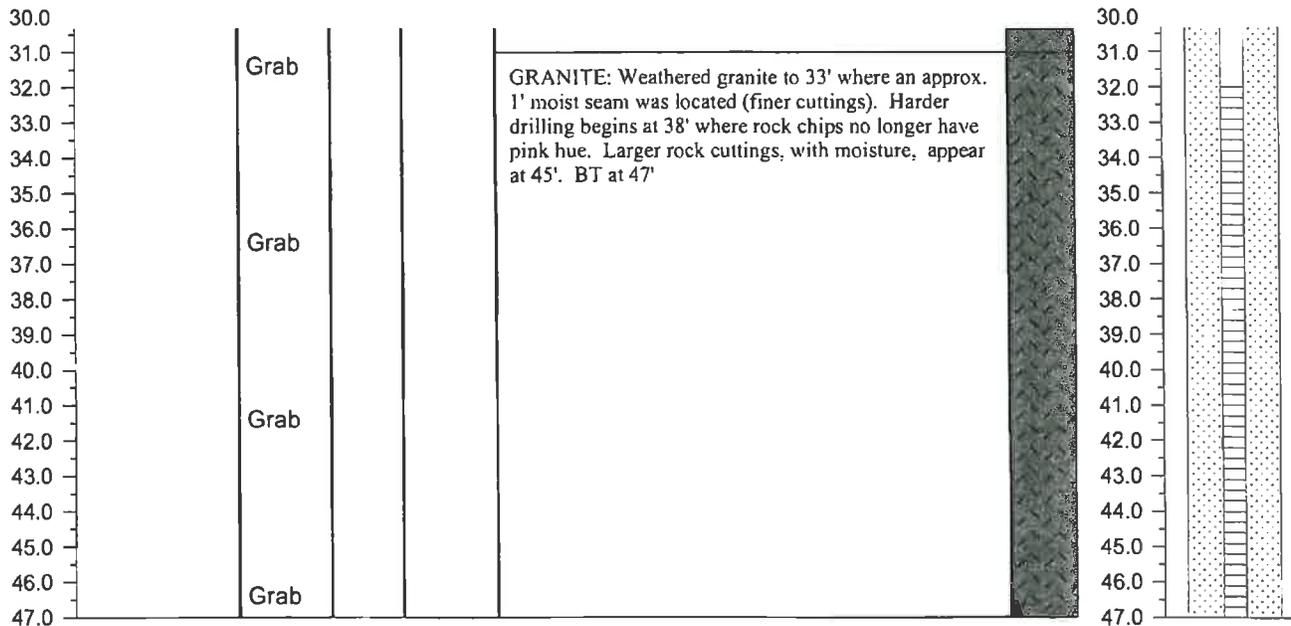
Page 2 of 2

PROJECT NAME: Davidson County C&D Landfill  
LOCATION: Lexington, NC  
DRILLING CO: Engineering Tectonics, P.A.  
DRILLING METHOD: AR/AH  
FIELD PARTY: R. Barron  
GEOLOGIST: J. Smyth  
DATE BEGUN: 1/30/06 COMPLETED: 1/30/06

TOTAL DEPTH: 47  
GROUND SURFACE ELEVATION: NA  
TOP OF CASING ELEVATION:

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

DEPTH	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH	WELL INSTALLATION
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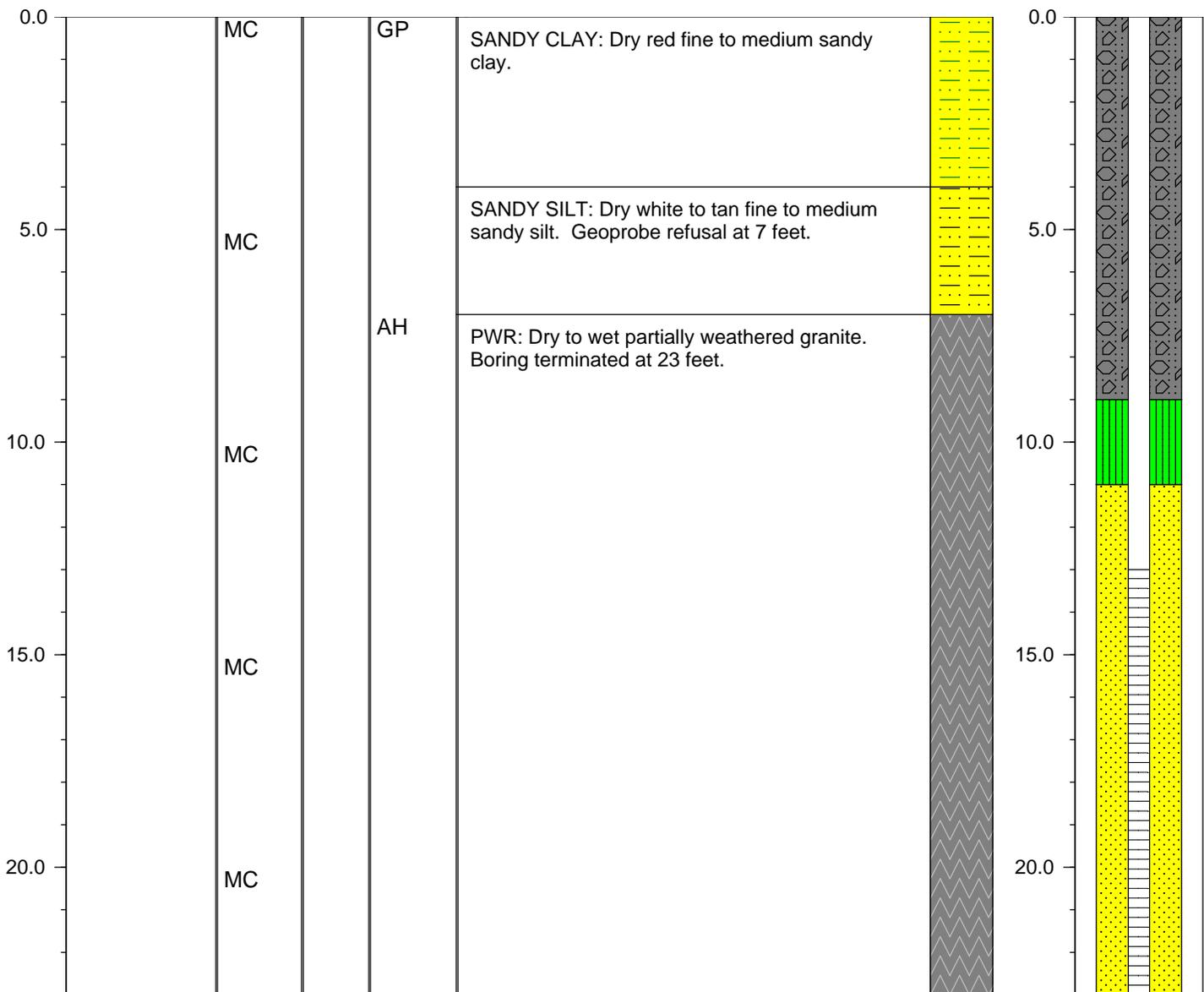


PROJECT NAME: **Davidson County C&D Landfill**  
 LOCATION: **Lexington, NC**  
 DRILLING CO: **Geologic Exploration**  
 DRILLING METHOD: **GP/AH**  
 FIELD PARTY: **John Burr**  
 GEOLOGIST: **Lindsay Quant**  
 DATE BEGUN: **11/15/10** COMPLETED: **11/15/10**

TOTAL DEPTH: **23**  
 TOP OF CASING ELEV.: **GROUND ELEV.: 686.32**  
 NORTHING: **762991.614** EASTING: **1651988.624**

STATIC WATER LEVEL (from TOC)		
Depth (ft)	14.95	
Time	10 am	
Date	3/30/11	

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
---------------	----------------------	-----------------	--------------------	--------------	-------------	-----------	---------------	----------------------

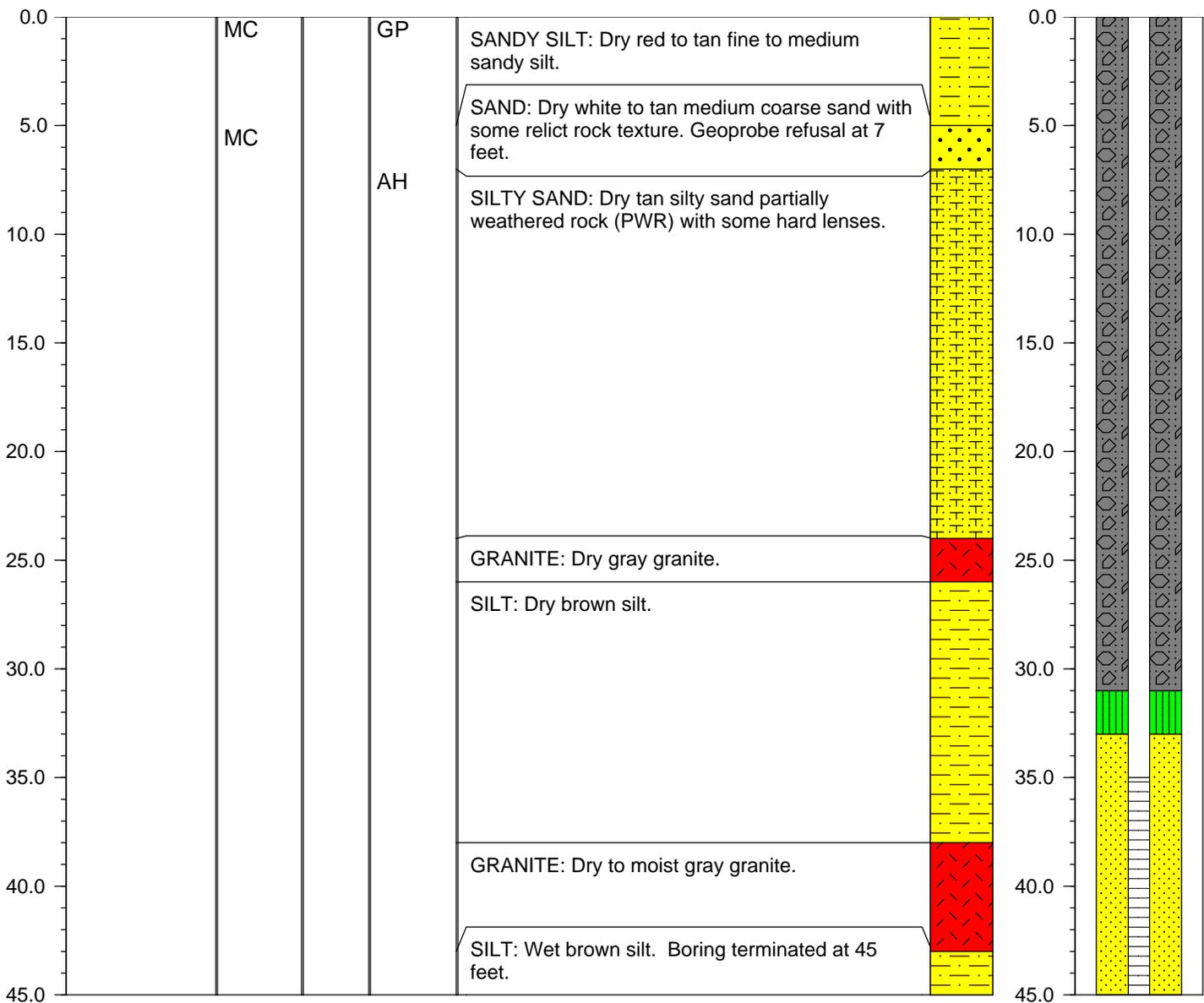


PROJECT NAME: **Davidson County C&D Landfill**  
 LOCATION: **Lexington, NC**  
 DRILLING CO: **Geologic Exploration**  
 DRILLING METHOD: **GP/AH**  
 FIELD PARTY: **John Burr**  
 GEOLOGIST: **Lindsay Quant**  
 DATE BEGUN: **11/15/10** COMPLETED: **11/15/10**

TOTAL DEPTH: **45**  
 TOP OF CASING ELEV.: **GROUND ELEV.: 698.58**  
 NORTHING: **763182.755** EASTING: **1651989.107**

STATIC WATER LEVEL (from TOC)		
Depth (ft)	31.02	
Time	11 am	
Date	3/30/11	

DEPTH Feet	BLOW COUNT Per 6"	SAMPLING METHOD	RECOVERY Inches	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH Feet	WELL INSTALLATION
---------------	----------------------	-----------------	--------------------	--------------	-------------	-----------	---------------	----------------------



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## **Appendix B**

### **Laboratory Analytical Report**

**September 2014 Groundwater Monitoring Report  
Davidson County C&D Landfill  
NC Solid Waste Permit No. 29-06**

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# Environment 1, Incorporated

Drinking Water ID: 17715  
Wastewater ID: 10

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

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

ID#: 6050

DAVIDSON COUNTY LANDFILL (C&D)  
MS. JOAN SMYTH  
SMITH GARDNER, INC.  
14 NORTH BOYLAN AVE.  
RALEIGH, NC 27603

DATE COLLECTED: 09/24/14  
DATE REPORTED : 10/17/14

REVIEWED BY: 

PARAMETERS	MDL	SWSL	CDMW-2	CDMW-3	CDMW-5	CDMW-7	Trip	Analysis	Method
							Blank	Date	Analyst
Total Alkalinity (to pH 4.5), mg/l	1.0	1.0	30	250	69	124		09/29/14	TRB 2320B-97
Chloride, mg/l	5.0	5.0	6	56	48	22		09/29/14	CMC 4500CLB-97
Total Dissolved Residue, mg/l	1.0	1.0	142	570	294	242		09/30/14	LW 2540C-97
Sulfate, mg/l	5.0	250.0	31.8 J	121 J	29.1 J	25.7 J		10/06/14	TRB 4500S042E9
Antimony, ug/l	0.12	6.0	0.22 J	0.13 J	0.34 J	---	U	10/03/14	LFJ EPA200.8
Arsenic, ug/l	0.10	10.0	0.46 J	0.92 J	0.58 J	0.82 J		10/03/14	LFJ EPA200.8
Barium, ug/l	0.12	100.0	83.5 J	203	53.3 J	32.0 J		10/03/14	LFJ EPA200.8
Beryllium, ug/l	0.04	1.0	0.10 J	0.13 J	0.12 J	0.39 J		10/03/14	LFJ EPA200.8
Cadmium, ug/l	0.04	1.0	0.06 J	0.05 J	0.06 J	0.07 J		10/03/14	LFJ EPA200.8
Cobalt, ug/l	0.12	10.0	1.3 J	1.1 J	0.89 J	3.8 J		10/03/14	LFJ EPA200.8
Copper, ug/l	0.10	10.0	1.8 J	7.7 J	1.7 J	42		10/03/14	LFJ EPA200.8
Total Chromium, ug/l	0.14	10.0	0.43 J	0.54 J	---	6.4 J		10/03/14	LFJ EPA200.8
Iron, ug/l	16.0	300.0	2925	2619	245 J	14150		10/07/14	MTM 3111B-99
Manganese, ug/l	0.21	50.0	88	123	47 J	293		10/07/14	LFJ EPA200.7
Lead, ug/l	0.13	10.0	0.54 J	0.53 J	---	6.2 J		10/03/14	LFJ EPA200.8
Mercury, ug/l	0.06	0.20	---	---	---	---		10/09/14	MTM 245.1 R3-9
Nickel, ug/l	0.12	50.0	1.4 J	5.9 J	3.0 J	5.6 J		10/03/14	LFJ EPA200.8
Selenium, ug/l	0.16	10.0	0.51 J	3.7 J	2.6 J	2.0 J		10/03/14	LFJ EPA200.8
Silver, ug/l	0.04	10.0	---	0.16 J	---	0.06 J		10/07/14	LFJ EPA200.8
Thallium, ug/l	0.13	5.5	---	---	---	---		10/03/14	LFJ EPA200.8
Vanadium, ug/l	0.06	25.0	4.9 J	15 J	2.3 J	26		10/03/14	LFJ EPA200.8
Zinc, ug/l	0.53	10.0	9.4 J	6.3 J	3.1 J	41		10/03/14	LFJ EPA200.8

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

# Environment 1, Incorporated

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Wastewater ID: 10

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GREENVILLE, N.C. 27835-7085

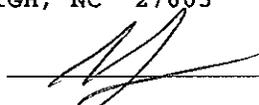
PHONE (252) 756-6208  
FAX (252) 756-0633

CLIENT: DAVIDSON COUNTY LANDFILL (C&D)  
MS. JOAN SMYTH  
SMITH GARDNER, INC.  
14 NORTH BOYLAN AVE.  
RALEIGH, NC 27603

CLIENT ID: 6050

ANALYST: MAO  
DATE COLLECTED: 09/24/14  
DATE ANALYZED: 09/27/14  
DATE REPORTED: 10/17/14

Page: 1

REVIEWED BY: 

## VOLATILE ORGANICS EPA METHOD 8260B R1 (96)

PARAMETERS, ug/l	MDL	SWSL	CDMW-2	CDMW-3	CDMW-5	CDMW-7	Trip Blank
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	0.50 J	--- U	--- U	--- 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	0.30 J	--- U	--- U	--- 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				
48. Tetrahydrofuran	0.39	1.0	--- U	41.30	--- U	--- U	--- U

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

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Drinking Water ID: 37715  
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P.O. BOX 7085, 114 OAKMONT DRIVE  
GREENVILLE, N.C. 27835-7085

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

ID#: 6050

DAVIDSON COUNTY LANDFILL (C&D)  
MS. JOAN SMYTH  
SMITH GARDNER, INC.  
14 NORTH BOYLAN AVE.  
RALEIGH, NC 27603

DATE COLLECTED: 09/25/14  
DATE REPORTED : 10/17/14

REVIEWED BY: 

PARAMETERS	MDL	CDMW-6		Analysis		Method Code
		SWSL		Date	Analyst	
Total Alkalinity (to pH 4.5), mg/l	1.0	1.0	35	09/29/14	TRB	2320B-97
Chloride, mg/l	5.0	5.0	23	09/29/14	CMC	4500CLB-97
Total Dissolved Residue, mg/l	1.0	1.0	171	09/30/14	LW	2540C-97
Sulfate, mg/l	5.0	250.0	23.9 J	10/06/14	TRB	4500SO42E97
Antimony, ug/l	0.12	6.0	--- U	10/07/14	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0	0.75 J	10/03/14	LFJ	EPA200.8
Barium, ug/l	0.12	100.0	46.3 J	10/03/14	LFJ	EPA200.8
Beryllium, ug/l	0.04	1.0	0.68 J	10/03/14	LFJ	EPA200.8
Cadmium, ug/l	0.04	1.0	0.15 J	10/03/14	LFJ	EPA200.8
Cobalt, ug/l	0.12	10.0	2.7 J	10/03/14	LFJ	EPA200.8
Copper, ug/l	0.10	10.0	4.9 J	10/03/14	LFJ	EPA200.8
Total Chromium, ug/l	0.14	10.0	1.4 J	10/03/14	LFJ	EPA200.8
Iron, ug/l	16.0	300.0	14235	10/07/14	MTM	3111B-99
Manganese, ug/l	0.21	50.0	746	10/07/14	LFJ	EPA200.7
Lead, ug/l	0.13	10.0	9.2 J	10/03/14	LFJ	EPA200.8
Mercury, ug/l	0.06	0.20	--- U	10/09/14	MTM	245.1 R3-94
Nickel, ug/l	0.12	50.0	5.2 J	10/03/14	LFJ	EPA200.8
Selenium, ug/l	0.16	10.0	2.4 J	10/03/14	LFJ	EPA200.8
Silver, ug/l	0.04	10.0	0.05 J	10/03/14	LFJ	EPA200.8
Thallium, ug/l	0.13	5.5	--- U	10/03/14	LFJ	EPA200.8
Vanadium, ug/l	0.06	25.0	12.7 J	10/03/14	LFJ	EPA200.8
Zinc, ug/l	0.53	10.0	56	10/03/14	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

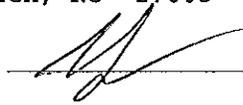
PHONE (252) 756-6208  
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## VOLATILE ORGANICS EPA METHOD 8260B R1 (96)

PARAMETERS, ug/l	MDL	SWSL	CDMW-6
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
48. Tetrahydrofuran	0.39	1.0	0.80 J

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

Environment ~~Int'l~~  
 P.O. Box 7085, 114 Oakmont Dr.  
 Greenville, NC 27838  
 environmentinc.com  
 Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6050 ~~6059A~~  
 6059 A  
 Week: 39

DAVIDSON COUNTY LANDFILL (C&D)  
 MS. JOAN SMYTH  
 SMITH GARDNER, INC.  
 14 NORTH BOYLAN AVE.  
 RALEIGH NC 27603

(919) 828-0577

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	DISINFECTION		Alkalinity	Chloride	TDS	Sulfate	Metals	EPA 8260B	8260 Dup. 1	8260 Dup. 2	PARAMETERS/TESTS	
	DATE	TIME				CHLORINE	UV										
CDMW-2	9/24/14	8:07	16.3	16.4	8	<input type="checkbox"/>	<input type="checkbox"/>									A - NONE D - NaOH B - HNO <sub>3</sub> E - HCL C - H <sub>2</sub> SO <sub>4</sub> F - ZINC ACETATE/NaOH G - NaTHIOSULFATE	
CDMW-3	9/24/14	11:17	16.4	16.4	7	<input type="checkbox"/>	<input type="checkbox"/>										
CDMW-5	9/24/14	10:54	16.1	16.1	7	<input type="checkbox"/>	<input type="checkbox"/>										
CDMW-6	9/25/14	10:57	16.4	16.4	7	<input type="checkbox"/>	<input type="checkbox"/>										
CDMW-7	9/24/14	11:48	15.5	15.5	7	<input type="checkbox"/>	<input type="checkbox"/>										
Trip Blank					2	<input type="checkbox"/>	<input type="checkbox"/>										
Sw-2 (PHASE 2)	9/24/14	13:30	17.1	17.1	3	<input type="checkbox"/>	<input type="checkbox"/>										
Sw-1 (PHASE 2)	11	13:50	16.8	16.8	4	<input type="checkbox"/>	<input type="checkbox"/>										
REINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
REINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
COMMENTS: CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY SAMPLES COLLECTED BY: <u>JOAN SMYTH</u> (Please Print) <u>JOAN SMYTH</u> CARTEL STORGE SAMPLES RECEIVED IN LAB AT <u>1.0</u> °C																	

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. 282033