

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)).
- In accordance with NC General Statutes Chapter 89C and 89E and NC Solid Waste Management Rules 15A NCAC 13B, be sure to affix a seal to the bottom of this page, when applicable.
- 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):

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

Name: Joan Smyth, P.G.

Phone: 919-828-0577 x 122

E-mail: joan@rsgengineers.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Avery County C&D Landfill	Avery County Landfill 2175 Brushy Creek Road Spruce Pine, NC 28777	06-03	.0500	March 31, 2009

**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.

Joan Smyth, P.G.

Senior Hydrogeologist

919-828-0577 x122

Facility Representative Name (Print)

Title

(Area Code) Telephone Number

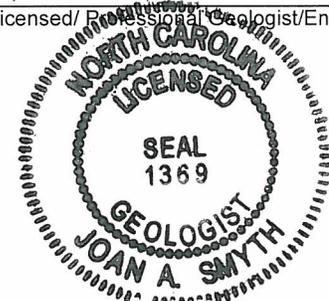
Signature

Date

Affix NC Licensed/Professional Geologist/Engineer Seal here:

*Joan A. Smyth*

5/13/09



**Avery County C&D Landfill**  
**Ground Water Monitoring Report**

**March 2009 Semi-annual  
Monitoring Event**

**Avery County Landfill  
Newland, North Carolina  
NC Solid Waste Permit # 06-03**

Prepared for:  
**Avery County Solid Waste**  
175 Linville St.  
Newland, North Carolina 28657

**May 2009**



PRINTED ON 100% RECYCLED PAPER

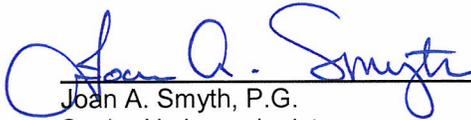
# Spring 2009 Ground Water Monitoring Report

**Avery County C&D Landfill  
Newland, North Carolina  
NC Solid Waste Permit # 06-01**

Prepared for:

**Avery County Solid Waste  
175 Linville st.  
Newland, North Carolina 28657**

RSG Project No. **Avery 07-2**

 5/13/09  
Joan A. Smyth, P.G.  
Senior Hydrogeologist



**May 2009**



PRINTED ON 100% RECYCLED PAPER

**Avery County C&D Landfill  
Semi-annual Ground Water Monitoring Report  
March 2009 Sampling Event**

1.0 INTRODUCTION .....1

2.0 SITE GEOLOGY AND HYDROGEOLOGY.....1

3.0 SAMPLING PROCEDURES .....2

4.0 FIELD AND LABORATORY RESULTS.....2

    4.1 Laboratory Analysis.....2

    4.2 Field and Laboratory Results .....3

5.0 GROUND WATER CHARACTERIZATION.....3

6.0 CONCLUSIONS.....3

**FIGURES**

Figure 1 – Ground Water Potentiometric Map

**TABLES**

Table 1 – Ground Water Elevation Data  
Table 2 – Field Parameter Results  
Table 3 – Detected Constituents

**APPENDICES**

Appendix A – Field Data Sheets  
Appendix B – Monitoring Well Information  
Appendix C – Laboratory Analytical Report

## 1.0 Introduction

The Avery County Landfill, currently operating under Solid Waste Permit # 06-03 (C&D) and 15A NCAC 13B.0544, is required to submit semi-annual ground water monitoring reports for C&D landfill. This report presents the results of the first semi-annual monitoring event for 2009. This event was performed to comply with the semi-annual monitoring schedule required by NC Solid Waste Regulations.

The ground water monitoring network for the C&D landfill includes four (4) ground water monitoring wells. This report includes summaries of the field procedures and laboratory analyses for the C&D site. Also included are summary tables of the results and laboratory analytical reports.

## 2.0 Site Geology and Hydrogeology

The site is located within Blue Ridge province of North Carolina, along the eastern limb of the Blue Ridge anticlinorium. Published geologic mapping<sup>1</sup> places the site approximately 12 miles west of the Brevard Zone (measured perpendicular to strike), which is the boundary of the Blue Ridge Belt and the Piedmont. Local rock types comprise medium- to high-grade metamorphic species, many of sedimentary origin, and plutonic rocks of mid Proterozoic age (>1000 MY) to Devonian age (390 MY). The rocks in the region tend to be highly jointed, due to the mechanical stresses the rocks experienced, once or repeatedly, with the older rocks typically exhibiting more complex jointing.

As relatively few outcrops exist in the area (none were observed on the project site), the rock cores are relied upon to confirm the geologic mapping. The NC Geologic Map shows a unit of Alligator Back amphibolite underlying the higher (north) portion site, surrounded by Alligator Back gneiss, including the lower (south) portion, with Grenville-age biotite gneiss existing close by to the east and Devonian quartz diorite further south. This mapping is reflected by the surface topography, e.g., the gentler slopes within the southern portions of the site and existing near Brushy Creek are probably indicative of the more deeply weathered micaceous gneiss and schist, whereas the steeper terrain located to the north likely results from the a more resistant amphibolite – the presence of the contact between gneiss and amphibolite was confirmed by the test borings.

The following table shows the field hydraulic conductivity values from piezometers installed for site permitting, grouped relative to two principal hydrogeologic units defined on the basis of material density. The field hydraulic conductivity values relative to each hydrogeologic unit vary as follows:

---

<sup>1</sup> North Carolina Geologic Survey at <http://www.geology.enr.state.nc.us>

Hydro. Unit	Unit Description	Conductivity (cm/sec)			Conductivity (ft/day)		
		Max.	Min.	Avg.	Max.	Min.	Avg.
1A	Saprolite <100 bpf	7.67E-4 PZ-13i	3.42E-4 PZ-12	4.92E-4	2.17 PZ-13i	0.968 PZ-12	1.40
1B	Saprolite >100 bpf	1.60E-3 PZ-9	8.19E-6 MW-3d	7.24E-4	4.53 PZ-9	0.002 MW-3d	2.05
2	Bedrock	2.66E-3 MW-1d	5.64E-4 B-6	1.61E-3	7.53 MW-1d	1.60 B-6	4.65

These data show a slight increasing trend with depth, most likely due to higher clay content in the upper soils, more sand-like conditions and fracturing at depth, indicated by the low Rock Quality Data (RQD) values.

### 3.0 Sampling Procedures

The sampling event, performed by trained personnel from Richardson Smith Gardner & Associates (RSG) on March 31<sup>st</sup>, 2009, consisted of collecting samples from four (4) ground water wells (MW-1s, MW-2s, MW-3s and MW-4s), shown in **Figure 1**. Collecting samples were also taken from two surface water monitoring locations, (SW-1 & SW-2), two potable wells located on neighboring properties (Frye well, and Wise well) and the on-site non-potable well. Field data sheets for the monitoring wells are included in **Appendix A**, and boring logs for these well are included in **Appendix B**.

Sampling methods followed the protocol outlined in the North Carolina Water Quality Monitoring Guidance Document for Solid Waste Facilities (NCDENR, DWM). The depth to water in each well was gauged prior to purging and sampling. Field measurements of pH, specific conductivity, and temperature were obtained from each well. Water table elevations and field parameter results are included in **Tables 1 and 2**, respectively.

All samples were collected by RSG personnel in laboratory prepared containers for the specified analytical procedures. Samples were collected using new factory sealed teflon bailers. Ground water samples were properly preserved, placed on ice, and transported to the laboratory facility (Environment 1, Inc.), within the specified holding times for each analysis.

### 4.0 Field and Laboratory Results

#### 4.1 Laboratory Analysis

All samples were transported to the laboratory facility under proper chain of custody analyzed at the specified DWM Solid Waste Quantitation Limits (SWSLs)<sup>2</sup> for Appendix I and C&D landfill mandated constituents. The laboratory report is attached for your review as **Appendix C**.

<sup>2</sup> New Guidelines for Electronic Submittal of Environmental Monitoring Data Memo, NCDENR – Solid Waste Section, October 27, 2006

## 4.2 Field and Laboratory Results

Ground water and field measurements included in **Table 2**. Detected constituents are presented in **Table 3**.

Eleven (11) inorganic constituents (barium, beryllium, cadmium, copper, manganese, mercury, total chromium, lead, iron, vanadium and zinc) shown in **Table 3**, were detected above the SWSL in all four (4) monitoring wells. Of these, four (4) constituents were detected at concentrations above their 2L / groundwater protection (GWP) standards:

- iron,
- lead,
- manganese; and
- vanadium.

One detected constituent (Zinc) was found in surface monitoring location (SW-2), Frye well and on-site monitoring well above the SWSL limit; but below their 2L or GWP standards.

**Table 3** summarizes the list of constituents detected. It should be noted that turbidity levels in the MW-3 and MW-4 were found to be elevated. These levels are indicative of suspended solids in the samples which can elevate inorganic results.

Constituents detected below the SWSL are denoted as “J” values and are also included in **Table 3**.

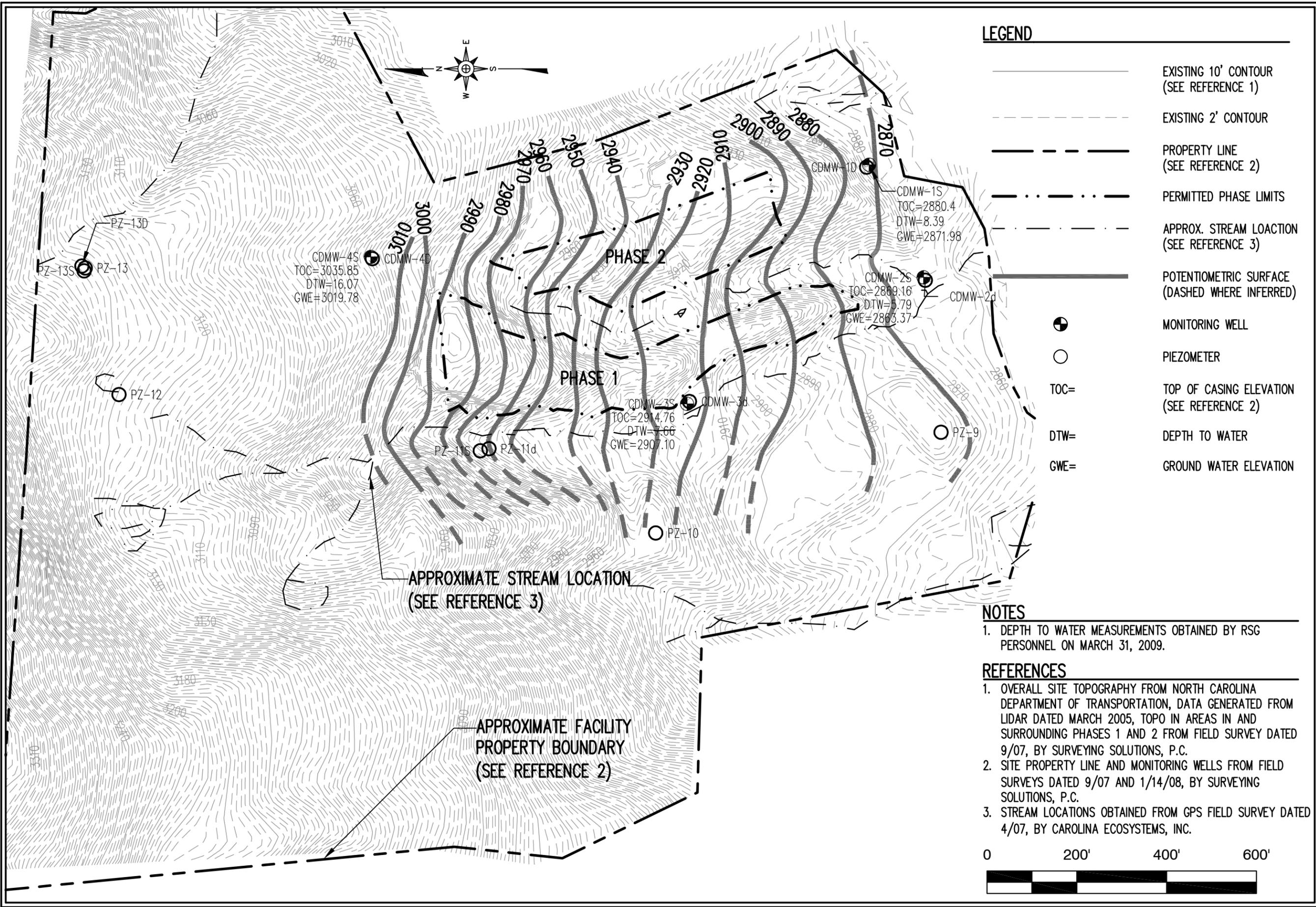
## 5.0 Ground Water Characterization

A potentiometric surface map was prepared from ground water elevation data collected during this sampling event. The data indicates that ground water is flowing generally to the south across most of the site. Hydraulic conductivity data is not available for these wells so ground water velocities could not be calculated. The potentiometric surface map (**Figure 1**) is also attached for your review.

## 6.0 Conclusions

The results of this monitoring event indicate detectable levels of eleven (11) inorganic constituents. The inorganic constituents are likely due to suspended solids in the samples. This is evidenced by elevated turbidity readings in the samples. The next ground water monitoring event is scheduled for October 2009. A report will be submitted to NCDENR upon receipt of laboratory analyses.

Figures



**RICHARDSON SMITH GARDNER & ASSOCIATES**  
 www.rsgengineers.com  
 14 N. Boylan Ave. Raleigh, N.C. 27603  
 ph: 919-826-0577  
 fax: 919-826-3899

FIGURE NO.	1	FILE NAME	AVERY-B0082
SCALE:	AS SHOWN	PROJECT NO.	AVERY 07-2
CHECKED BY:	J.A.S.	DATE:	May, 2009
DRAWN BY:	W.R.B.		

**TITLE:**  
 AVERY COUNTY  
 SOLID WASTE DEPARTMENT  
 AVERY COUNTY C&D LANDFILL  
 POTENTIOMETRIC MAP SPRING '09

Tables



**Table 1  
 Avery County C&D Landfill  
 Ground Water Elevations  
 3/31/2009**

<b>Well</b>	<b>Well Location Northing</b>	<b>Well Location Easting</b>	<b>TOC Elevation (feet)</b>	<b>Depth to Water (feet)</b>	<b>GW Elev (feet)</b>
CDMW-1s	817312.18	1121257.85	2880.37	8.39	2871.98
CDMW-2s	817190.86	1121007.60	2869.16	5.79	2863.37
CDMW-3s	817717.60	1120726.57	2914.76	7.66	2907.1
CDMW-4s	818421.66	1121053.03	3035.85	16.07	3019.78

Note: survey data from 9/07 and 1/14/08 by Surveying Solutions, P.C.

**Table 2**  
**Avery County C&D Landfill**  
**Field Parameters**  
**3/31/2009**

Well Identification #	Temperature (°Celsius)	Turbidity (NTU)	Specific Conductivity (uS/cm)	pH
CDMW-1s	9	10.1	30	5.9
CDMW-2s	10	14	140	6.3
CDMW-3s	9	272	20	6.4
CDMW-4s	11	567	0	6.1
Frye Well	9	21	90	6.9
Wise Well	11	41	70	7.3
On-Site Non-Potable Well	14	0.75	100	7.5
SW-1	9	160	0	7.8
SW-2	10	44.9	70	7.7

**Note:**

1. pH measured with a 'Hanna' pH/EC/TDS Meter, type HI9811
2. Water Levels measured with a Slope Indicator Water Level Meter
3. Turbidity measured with a Hach 2100P turbidimeter and
4. Temperature measured with a laboratory grade thermometer.
5. Data Collected by Richard Sheehan of RSG Engineers Inc.
6. nm = Not Measured



**Table 3  
Avery County C&D Landfill  
Detected Inorganic and Organic Constituents  
3/31/2009**

Constituents	SWSL	2L or GWP Standards	Frye Well	Wise Well	On-Site Well	CDMW-1s	CDMW-2s	CDMW-3s	CDMW-4s	SW-1	SW-2
<b>Inorganic Constituents</b>											
Antimony	6	1.4	0.2 J	ND	0.7 J	ND	0.1 J	0.1 J	0.7 J	ND	ND
Arsenic	10	50	0.7 J	ND	0.4 J	1 J	0.5 J	2.4 J	0.2 J	ND	0.2 J
Barium	100	2000	71.2 J	45.6 J	41.8 J	<b>506</b>	<b>617</b>	<b>304</b>	31.8 J	24.4 J	22.6 J
Beryllium	1	4	ND	0.2 J	ND	<b>1.9</b>	<b>2.1</b>	<b>2.1</b>	0.5 J	0.2 J	0.1 J
Cadmium	1	5	ND	ND	ND	<b>1.3</b>	0.6 J	0.4 J	0.1 J	0.1 J	ND
Cobalt	10	70	0.1 J	0.1 J	0.5 J	5.1 J	8.3 J	7.8 J	7.2 J	1.5 J	1.4 J
Copper	10	1000	1.3 J	1.1 J	3.8 J	<b>14</b>	<b>19</b>	<b>12</b>	6.3 J	3 J	2.5 J
Chromium, total	10	50	0.6 J	0.6 J	1 J	<b>14</b>	<b>21</b>	<b>22</b>	8.6 J	2.3 J	1.6 J
Iron	300	300	ND	ND	ND	<b>49300</b>	<b>46150</b>	<b>26900</b>	<b>6455</b>	ND	ND
Lead	10	15	0.4 J	0.1 J	0.3 J	6 J	<b>10</b>	<b>17</b>	3 J	1.4 J	1.1 J
Manganese	50	50	ND	ND	ND	<b>632</b>	<b>1180</b>	<b>452</b>	<b>202</b>	ND	ND
Mercury	0.2	1.1	ND	ND	ND	0.11 J	0.15 J	<b>4.7</b>	0.07 J	ND	ND
Nickel	50	100	1 J	0.5 J	1.2 J	8.9 J	13.8 J	9.5 J	5.3 J	1.9 J	1.6 J
Selenium	10	50	ND	ND	0.2 J	1.1 J	0.9 J	1.1 J	ND	ND	ND
Silver	10	17.5	ND	ND	0.1 J	0.1 J	0.2 J	0.2 J	0.1 J	ND	ND
Thallium	5.5	0.28	ND	ND	0.1 J	0.3 J	0.3 J	0.3 J	0.1 J	0.1 J	0.1 J
Vanadium	25	3.5	1 J	0.9 J	3.3 J	<b>56</b>	<b>28</b>	<b>31</b>	11.5 J	6 J	5.2 J
Zinc	10	2100	<b>69</b>	8.4 J	<b>58</b>	<b>79</b>	<b>105</b>	<b>80</b>	<b>11</b>	7.7 J	<b>11</b>
<b>Organic Constituents</b>											
Chloroethane	10	2.8	ND	ND	ND	ND	0.5 J	ND	ND	ND	ND
Carbon Disulfide	100	700	1.8 J	ND	0.2 J	ND	ND	ND	ND	ND	ND
Acetone	100	700	ND	ND	ND	1.5 J	1.3 J	ND	1.5 J	ND	1.3 J
1,1-Dichloroethane	5	70	ND	ND	ND	ND	0.4 J	ND	ND	ND	ND
Cis-1,2-Dichloroethene	5	70	ND	ND	ND	ND	0.8 J	ND	ND	ND	ND
2-Butanone	100	4200	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	1000	0.3 J	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	1	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	5	530	ND	ND	ND	ND	3.5 J	ND	ND	ND	ND

- SWSL - Solid Waste Section Quantitation Limit
- ND - Not detected at or above SWSL
- Shading - Concentrations above 2L standard or Groundwater Protection Standard
- Bold Letters - Constituent detected above SWSL
- J - Constituent detected below SWSL

All SWSLs, 2L Standards and Results are in ug/l.

Data from Environment 1 laboratory report dated 4/24/2009, ID# 6057 A.

# Appendix A

## Field Data Sheets

# 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: AVERY - C & D      Date: 3/29/09  
 Well ID: 01 MW-~~2~~1      Initials: RMS

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

1. Well Vicinity		YES	NO
A. Well is assessable and surrounding area is safe for employees.	<input checked="" type="checkbox"/>		
B. Vicinity is free of potential contaminants.	<input checked="" type="checkbox"/>		
C. Dead trees, etc. not in danger of falling and damaging wells.	<input checked="" type="checkbox"/>		
D. Well is in the same location as on field maps.	<input checked="" type="checkbox"/>		
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.	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
B. Steel case is present and upright.	<input checked="" type="checkbox"/>		
C. Steel case is not movable <del>and cemented in.</del>	<input checked="" type="checkbox"/>		
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	<input checked="" type="checkbox"/>		
E. Well tag is present with pertinent information.	<input checked="" type="checkbox"/>		
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	<input checked="" type="checkbox"/>		
G. No evidence of tampering is present.	<input checked="" type="checkbox"/>		
H. Lock operates properly.	<input checked="" type="checkbox"/>		
I.			
Comments/ items addressed or to be addressed: C. STEEL CASE IS NOT MOVEABLE AND MAY BE CEMENTED IN UNDER THE GROUND ALTHOUGH IT IS NOT VISIBLE. A. NO APRON (CONCRETE) EXISTS. DUG A LITTLE OUT TO SEE IF IT WAS BURIED BUT DID NOT FIND ANY CONCRETE APRON			

3. PVC Riser		YES	NO
A. Monitoring cap is present and provides a tight seal.	<input checked="" type="checkbox"/>		
B. Riser is of appropriate height (has not been cut off too low within the steel case).	<input checked="" type="checkbox"/>		
C. Riser is not loose/ easily moved.	<input checked="" type="checkbox"/>		
D. Riser does not appear cracked, broken, or brittle.	<input checked="" type="checkbox"/>		
E. No visual sign of external contamination entering well through riser.	<input checked="" type="checkbox"/>		
F.			
Comments/ items addressed or to be addressed:			

# 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: AVERY-C & D Date: 3/29/09  
 Well ID: CD MW #2 Initials: RLS

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

		YES	NO
<b>1. Well Vicinity</b>			
A.	Well is assessable and surrounding area is safe for employees.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
B.	Vicinity is free of potential contaminants.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C.	Dead trees, etc. not in danger of falling and damaging wells.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
D.	Well is in the same location as on field maps.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
E.		<input type="checkbox"/>	<input type="checkbox"/>
Comments/ items addressed or to be addressed:			

		YES	NO
<b>2. Concrete Apron and Steel Case</b>			
A.	Concrete apron is present and in good condition.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
B.	Steel case is present and upright.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C.	Steel case is not movable and cemented in.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
D.	Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
E.	Well tag is present with pertinent information.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
F.	Well numbers are prominently displayed (Reflective address numbers, etc.).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
G.	No evidence of tampering is present.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
H.	Lock operates properly.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
I.		<input type="checkbox"/>	<input type="checkbox"/>
Comments/ items addressed or to be addressed:			

		YES	NO
<b>3. PVC Riser</b>			
A.	Monitoring cap is present and provides a tight seal.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
B.	Riser is of appropriate height (has not been cut off too low within the steel case).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C.	Riser is not loose/ easily moved.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
D.	Riser does not appear cracked, broken, or brittle.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
E.	No visual sign of external contamination entering well through riser.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
F.		<input type="checkbox"/>	<input type="checkbox"/>
Comments/ items addressed or to be addressed:			

# 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: VERY-C & D Date: 3/29/09  
 Well ID: CD MW-3 Initials: RMS

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

	YES	NO
<b>1. Well Vicinity</b>		
A. Well is assessable and surrounding area is safe for employees.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
B. Vicinity is free of potential contaminants.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C. Dead trees, etc. not in danger of falling and damaging wells.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
D. Well is in the same location as on field maps.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
E.	<input type="checkbox"/>	<input type="checkbox"/>
Comments/ items addressed or to be addressed:		

	YES	NO
<b>2. Concrete Apron and Steel Case</b>		
A. Concrete apron is present and in good condition.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B. Steel case is present and upright.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C. Steel case is not movable and cemented in.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
E. Well tag is present with pertinent information.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
G. No evidence of tampering is present.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
H. Lock operates properly.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
I.	<input type="checkbox"/>	<input type="checkbox"/>
Comments/ items addressed or to be addressed: <u>A. NO APRON EXISTS</u> <u>C. CASE IS SOLID ALTHOUGH NO CEMENT IS VISIBLE. CASE IS LIKELY CONCRETED IN A FEW FEET UNDER GROUND</u>		

	YES	NO
<b>3. PVC Riser</b>		
A. Monitoring cap is present and provides a tight seal.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
B. Riser is of appropriate height (has not been cut off too low within the steel case).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C. Riser is not loose/ easily moved.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
D. Riser does not appear cracked, broken, or brittle.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
E. No visual sign of external contamination entering well through riser.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
F.	<input type="checkbox"/>	<input type="checkbox"/>
Comments/ items addressed or to be addressed:		

# 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: AVERY - C & D Date: 3/29/09  
 Well ID: CD MW - A Initials: RMS

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

	YES	NO
<b>1. Well Vicinity</b>		
A. Well is assessable and surrounding area is safe for employees.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
B. Vicinity is free of potential contaminants.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C. Dead trees, etc. not in danger of falling and damaging wells.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
D. Well is in the same location as on field maps.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
E.	<input type="checkbox"/>	<input type="checkbox"/>
Comments/ items addressed or to be addressed:		

	YES	NO
<b>2. Concrete Apron and Steel Case</b>		
A. Concrete apron is present and in good condition.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B. Steel case is present and upright.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C. Steel case is not movable and cemented in.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
D. Steel case lid opens and closes correctly with no gaps. Lock can be easily applied.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
E. Well tag is present with pertinent information.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
F. Well numbers are prominently displayed (Reflective address numbers, etc.).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
G. No evidence of tampering is present.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
H. Lock operates properly.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
I.	<input type="checkbox"/>	<input type="checkbox"/>
Comments/ items addressed or to be addressed: <u>A. NO APRON EXISTS</u>		

	YES	NO
<b>3. PVC Riser</b>		
A. Monitoring cap is present and provides a tight seal.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
B. Riser is of appropriate height (has not been cut off too low within the steel case).	<input checked="" type="checkbox"/>	<input type="checkbox"/>
C. Riser is not loose/ easily moved.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
D. Riser does not appear cracked, broken, or brittle.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
E. No visual sign of external contamination entering well through riser.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
F.	<input type="checkbox"/>	<input type="checkbox"/>
Comments/ items addressed or to be addressed:		

## Appendix B

### Monitoring Well Information



**Appendix B  
 Avery County C&D Landfill  
 Monitoring Well Information**

<b>Well</b>	<b>Well Location Northing</b>	<b>Well Location Easting</b>	<b>TOC Elevation (feet)</b>	<b>Depth to Water (feet)</b>	<b>Depth to Bottom (feet)</b>	<b>Assumed Screened Interval</b>
CDMW-1s	817312.18	1121257.85	2880.37	8.39	23	10' - 20
CDMW-2s	817190.86	1121007.60	2869.16	5.79	23	10' - 20
CDMW-3s	817717.60	1120726.57	2914.76	7.66	23	10' - 20
CDMW-4s	818421.66	1121053.03	3035.85	16.07	32	22' - 32'*

Note: survey data from 9/07 and 1/14/08 by Surveying Solutions, P.C.  
 Depth to Water and Depth to Bottom measured from Top of Casing  
 No boring logs available for monitoring wells MW-1s, MW-2s and MW-3s  
 screened interval assumed based upon depth to bottom measurements.  
 Monitoring well MW-4s data is actual data from boring log (attached)

# David Garrett and Associates

Engineering and Geology

Depths in feet, referenced b.g.s.

Boring No. MW-4s

Page 1 of 1

Client and Project **Avery County C&D Expansion**

Ground Elevation **3032.72**

Equipment **Dietrich D-50 ATV**

Drilling Method **HSA**

Water Level, TOB **20.00** ▾

Date Started **11/19/07**

Date Ended **11/19/07**

Water Level, 24 Hr. **15.78**

Drilling Firm **Red Dog Drilling, Inc.**

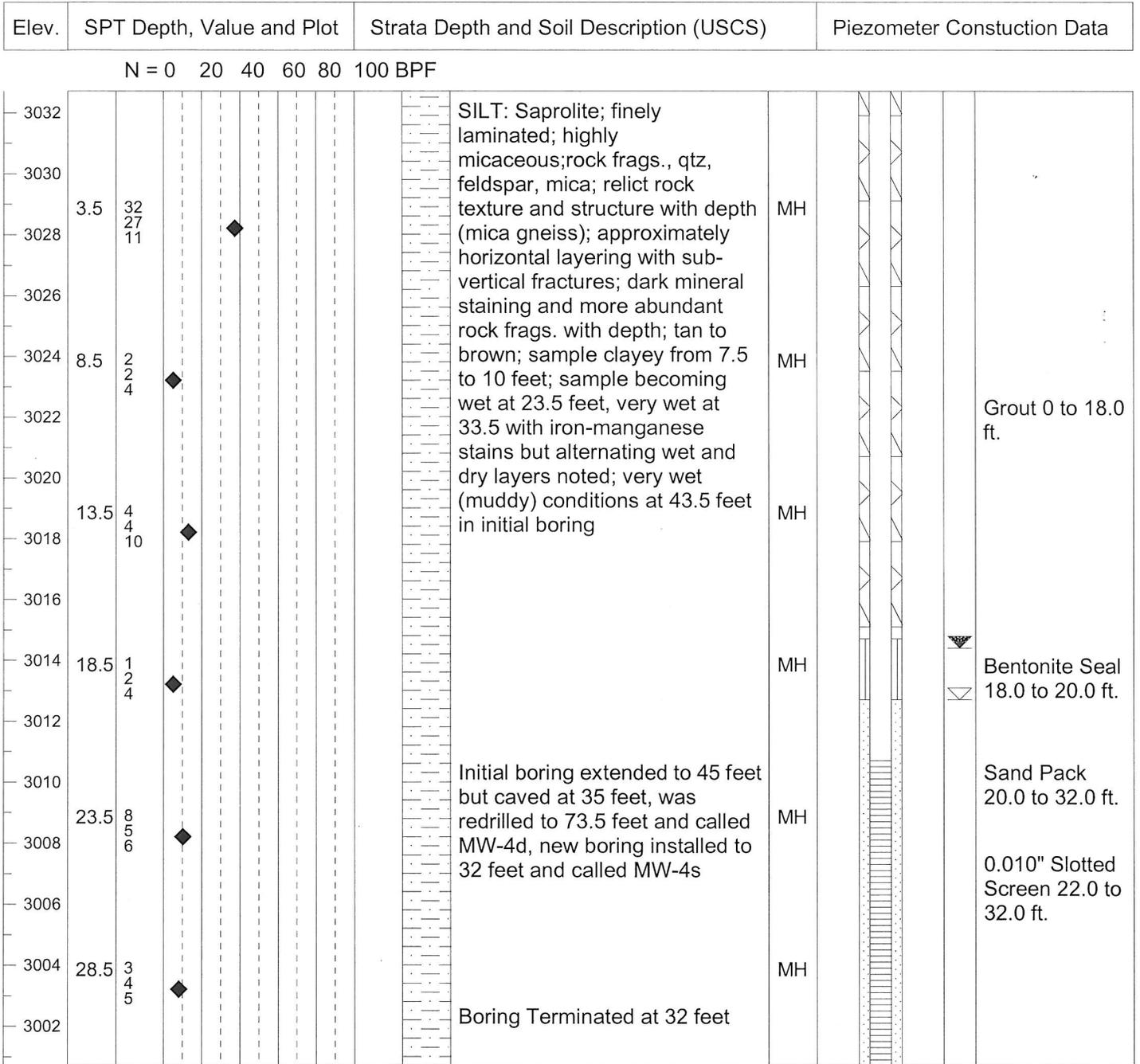
Logged by **Joan Smythe**

Stabilized Level **18.30** ▾

Comments **Immediately north of landfill**

Total Depth **32.0**

Observation Date **2/7/08**



## Appendix C

### Laboratory Analytical Report

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

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

ID#: 6057 A

AVERY COUNTY C&D LANDFILL  
MS. JOAN SMYTH  
RICHARDSON SMITH GARDNER  
14 N. BOYLAN AVENUE  
RALEIGH ,NC 27603

DATE COLLECTED: 03/31/09  
DATE REPORTED : 04/24/09

REVIEWED BY: 

PARAMETERS	MDL	Frye Well		Wise Well	Analysis		Method
		SWSL			Date	Analyst	Code
Antimony, ug/l	0.06	6.0	0.2 J	---	U	04/08/09	LFJ EPA200.8
Arsenic, ug/l	0.17	10.0	0.7 J	---	U	04/08/09	LFJ EPA200.8
Barium, ug/l	0.04	100.0	71.2 J	45.6 J		04/08/09	LFJ EPA200.8
Beryllium, ug/l	0.06	1.0	---	U		04/08/09	LFJ EPA200.8
Cadmium, ug/l	0.04	1.0	---	U		04/08/09	LFJ EPA200.8
Cobalt, ug/l	0.02	10.0	0.1 J	0.1 J		04/08/09	LFJ EPA200.8
Copper, ug/l	0.04	10.0	1.3 J	1.1 J		04/08/09	LFJ EPA200.8
Total Chromium, ug/l	0.10	10.0	0.6 J	0.6 J		04/08/09	LFJ EPA200.8
Lead, ug/l	0.04	10.0	0.4 J	0.1 J		04/08/09	LFJ EPA200.8
Nickel, ug/l	0.04	50.0	1 J	0.5 J		04/08/09	LFJ EPA200.8
Selenium, ug/l	0.12	10.0	---	U		04/08/09	LFJ EPA200.8
Silver, ug/l	0.04	10.0	---	U		04/08/09	LFJ EPA200.8
Thallium, ug/l	0.03	5.0	---	U		04/08/09	LFJ EPA200.8
Vanadium, ug/l	0.28	25.0	1 J	0.9 J		04/08/09	LFJ EPA200.8
zinc, ug/l	0.14	10.0	69	8.4 J		04/08/09	LFJ EPA200.8

# 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: AVERY COUNTY C&D LANDFILL  
MS. JOAN SMYTH  
RICHARDSON SMITH GARDNER  
14 N. BOYLAN AVENUE  
RALEIGH, NC 27603

CLIENT ID: 6057 A  
ANALYST: MAO  
DATE COLLECTED: 03/31/09  
DATE ANALYZED: 04/07/09  
DATE REPORTED: 04/24/09

Page: 1

REVIEWED BY: 

## VOLATILE ORGANICS EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Frye Well	Wise Well
1. Chloromethane	0.18	1.0	--- U	--- U
2. Vinyl Chloride	0.34	1.0	--- U	--- U
3. Bromomethane	0.26	10.0	--- U	--- U
4. Chloroethane	0.29	10.0	--- U	--- U
5. Trichlorofluoromethane	0.13	1.0	--- U	--- U
6. 1,1-Dichloroethene	0.14	5.0	--- U	--- U
7. Acetone	1.21	100.0	--- U	--- U
8. Iodomethane	0.12	10.0	--- U	--- U
9. Carbon Disulfide	0.14	100.0	1.80 J	--- U
10. Methylene Chloride	0.14	1.0	--- U	--- U
11. trans-1,2-Dichloroethene	0.13	5.0	--- U	--- U
12. 1,1-Dichloroethane	0.16	5.0	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U
14. Cis-1,2-Dichloroethene	0.14	5.0	--- U	--- U
15. 2-Butanone	0.85	100.0	--- U	--- U
16. Bromochloromethane	0.11	3.0	--- U	--- U
17. Chloroform	0.13	5.0	--- U	--- U
18. 1,1,1-Trichloroethane	0.11	1.0	--- U	--- U
19. Carbon Tetrachloride	0.13	1.0	--- U	--- U
20. Benzene	0.16	1.0	--- U	--- U
21. 1,2-Dichloroethane	0.12	1.0	--- U	--- U
22. Trichloroethene	0.13	1.0	--- U	--- U
23. 1,2-Dichloropropane	0.17	1.0	--- U	--- U
24. Bromodichloromethane	0.13	1.0	--- U	--- U
25. Cis-1,3-Dichloropropene	0.17	1.0	--- U	--- U
26. 4-Methyl-2-Pentanone	0.68	100.0	--- U	--- U
27. Toluene	0.13	1.0	0.30 J	--- U
28. trans-1,3-Dichloropropene	0.14	1.0	--- U	--- U
29. 1,1,2-Trichloroethane	0.20	1.0	--- U	--- U
30. Tetrachloroethene	0.16	1.0	--- U	--- U
31. 2-Hexanone	1.00	50.0	--- U	--- U
32. Dibromochloromethane	0.14	3.0	--- U	--- U
33. 1,2-Dibromoethane	0.13	1.0	--- U	--- U
34. Chlorobenzene	0.13	3.0	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	--- U	--- U
36. Ethylbenzene	0.16	1.0	--- U	--- U
37. Xylenes	0.48	5.0	--- U	--- U
38. Dibromomethane	0.17	10.0	--- U	--- U
39. Styrene	0.16	1.0	--- U	--- U
40. Bromoform	0.11	3.0	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	--- U	--- U
42. 1,2,3-Trichloropropane	0.06	1.0	--- U	--- U
43. 1,4-Dichlorobenzene	0.21	1.0	--- U	--- U
44. 1,2-Dichlorobenzene	0.13	5.0	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	--- U	--- U
46. Acrylonitrile	1.49	200.0	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.14	100.0	--- 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

ID#: 6057 A

AVERY COUNTY C&D LANDFILL  
MS. JOAN SMYTH  
RICHARDSON SMITH GARDNER  
14 N. BOYLAN AVENUE  
RALEIGH ,NC 27603

DATE COLLECTED: 03/30/09

DATE REPORTED : 04/24/09

REVIEWED BY: 

PARAMETERS	MDL	SW-1		SW-2		On-Site		Analysis		Method	
		SWSL				Well	Date	Analyst	Code		
Antimony, ug/l	0.06	6.0	---	U	---	U	0.7 J	04/03/09	LFJ	EPA200.8	
Arsenic, ug/l	0.17	10.0	---	U	0.2 J		0.4 J	04/03/09	RJH	EPA200.8	
Barium, ug/l	0.04	100.0	24.4 J		22.6 J		41.8 J	04/03/09	LFJ	EPA200.8	
Beryllium, ug/l	0.06	1.0	0.2 J		0.1 J		---	U	04/03/09	LFJ	EPA200.8
Cadmium, ug/l	0.04	1.0	0.1 J		---	U	---	U	04/03/09	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	1.5 J		1.4 J		0.5 J	04/03/09	LFJ	EPA200.8	
Copper, ug/l	0.04	10.0	3 J		2.5 J		3.8 J	04/03/09	LFJ	EPA200.8	
Total Chromium, ug/l	0.10	10.0	2.3 J		1.6 J		1 J	04/03/09	LFJ	EPA200.8	
Lead, ug/l	0.04	10.0	1.4 J		1.1 J		0.3 J	04/03/09	LFJ	EPA200.8	
Nickel, ug/l	0.04	50.0	1.9 J		1.6 J		1.2 J	04/03/09	LFJ	EPA200.8	
Selenium, ug/l	0.12	10.0	---	U	---	U	0.2 J	04/03/09	LFJ	EPA200.8	
Silver, ug/l	0.04	10.0	---	U	---	U	0.1 J	04/03/09	LFJ	EPA200.8	
Thallium, ug/l	0.03	5.0	0.1 J		0.1 J		0.1 J	04/03/09	LFJ	EPA200.8	
Vanadium, ug/l	0.28	25.0	6 J		5.2 J		3.3 J	04/03/09	LFJ	EPA200.8	
Zinc, ug/l	0.14	10.0	7.7 J		11		58	04/03/09	LFJ	EPA200.8	

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

# Environment 1, Incorporated

Drinking Water ID: 37715  
Wastewater ID: 10

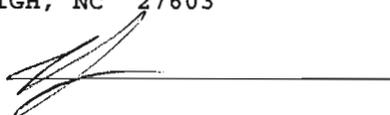
P.O. BOX 7085, 114 OAKMONT DRIVE  
GREENVILLE, N.C. 27835-7085

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

CLIENT: AVERY COUNTY C&D LANDFILL  
MS. JOAN SMYTH  
RICHARDSON SMITH GARDNER  
14 N. BOYLAN AVENUE  
RALEIGH, NC 27603

CLIENT ID: 6057 A  
ANALYST: MAO  
DATE COLLECTED: 03/30/09  
DATE REPORTED: 04/24/09

Page: 1

REVIEWED BY: 

## VOLATILE ORGANICS EPA METHOD 8260B

PARAMETERS, ug/l	Date Analyzed:		04/06/09	04/07/09	04/07/09
	MDL	SWSL	SW-1	SW-2	On-Site Well
1. Chloromethane	0.18	1.0	--- U	--- U	--- U
2. Vinyl Chloride	0.34	1.0	--- U	--- U	--- U
3. Bromomethane	0.26	10.0	--- U	--- U	--- U
4. Chloroethane	0.29	10.0	--- U	--- U	--- U
5. Trichlorofluoromethane	0.13	1.0	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.14	5.0	--- U	--- U	--- U
7. Acetone	1.21	100.0	--- U	1.30 J	--- U
8. Iodomethane	0.12	10.0	--- U	--- U	--- U
9. Carbon Disulfide	0.14	100.0	--- U	--- U	0.20 J
10. Methylene Chloride	0.14	1.0	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.13	5.0	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.16	5.0	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.14	5.0	--- U	--- U	--- U
15. 2-Butanone	0.85	100.0	--- U	--- U	--- U
16. Bromochloromethane	0.11	3.0	--- U	--- U	--- U
17. Chloroform	0.13	5.0	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.11	1.0	--- U	--- U	--- U
19. Carbon Tetrachloride	0.13	1.0	--- U	--- U	--- U
20. Benzene	0.16	1.0	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.12	1.0	--- U	--- U	--- U
22. Trichloroethene	0.13	1.0	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.17	1.0	--- U	--- U	--- U
24. Bromodichloromethane	0.13	1.0	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.17	1.0	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	0.68	100.0	--- U	--- U	--- U
27. Toluene	0.13	1.0	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.14	1.0	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.20	1.0	--- U	--- U	--- U
30. Tetrachloroethene	0.16	1.0	--- U	--- U	--- U
31. 2-Hexanone	1.00	50.0	--- U	--- U	--- U
32. Dibromochloromethane	0.14	3.0	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.13	1.0	--- U	--- U	--- U
34. Chlorobenzene	0.13	3.0	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	--- U	--- U	--- U
36. Ethylbenzene	0.16	1.0	--- U	--- U	--- U
37. Xylenes	0.48	5.0	--- U	--- U	--- U
38. Dibromomethane	0.17	10.0	--- U	--- U	--- U
39. Styrene	0.16	1.0	--- U	--- U	--- U
40. Bromoform	0.11	3.0	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.06	1.0	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.21	1.0	--- U	--- U	--- U
44. 1,2-Dichlorobenzene	0.13	5.0	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	--- U	--- U	--- U
46. Acrylonitrile	1.49	200.0	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.14	100.0	--- 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

ID#: 6057

AVERY COUNTY C&D LANDFILL  
MS. JOAN SMYTH  
RICHARDSON SMITH GARDNER  
14 N. BOYLAN AVENUE  
RALEIGH ,NC 27603

DATE COLLECTED: 03/31/09  
DATE REPORTED : 04/27/09

REVIEWED BY: 

PARAMETERS	MDL	SWSL	CDMW-1	CDMW-2	CDMW-3	CDMW-4	Analysis		Method
							Date	Analyst	Code
Total Alkalinity, mg/l	1.0	1.0	--- U	32	22	8	04/01/09	TRB	SM2320B
Chloride, mg/l	5.0	5.0	--- U	8	---	---	04/07/09	MJN	SM4500-CLB
Total Dissolved Residue, mg/l	1.0	1.0	43	116	46	44	04/06/09	TRB	SM2540C
Sulfate, mg/l	5.0	250.0	--- U	23.2 J	---	---	04/07/09	TRB	SM4500-SO4E
Antimony, ug/l	0.06	6.0	---	0.1 J	---	---	04/03/09	LFJ	EPA200.8
Antimony, ug/l	0.06	6.0	---	---	0.1 J	0.7 J	04/08/09	LFJ	EPA200.8
Arsenic, ug/l	0.17	10.0	1 J	1.5 J	---	---	04/03/09	RJH	EPA200.8
Arsenic, ug/l	0.17	10.0	---	---	2.4 J	0.2 J	04/08/09	LFJ	EPA200.8
Barium, ug/l	0.04	100.0	506	617	---	---	04/03/09	LFJ	EPA200.8
Barium, ug/l	0.04	100.0	---	---	304	31.8 J	04/08/09	LFJ	EPA200.8
Beryllium, ug/l	0.06	1.0	1.9	2.1	---	---	04/03/09	LFJ	EPA200.8
Beryllium, ug/l	0.06	1.0	---	---	2.1	0.5 J	04/08/09	LFJ	EPA200.8
Cadmium, ug/l	0.04	1.0	1.3	0.6 J	---	---	04/03/09	LFJ	EPA200.8
Cadmium, ug/l	0.04	1.0	---	---	0.4 J	0.1 J	04/08/09	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	5.1 J	8.3 J	---	---	04/03/09	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	---	---	7.8 J	7.2 J	04/08/09	LFJ	EPA200.8
Copper, ug/l	0.04	10.0	14	19	---	---	04/03/09	LFJ	EPA200.8
Copper, ug/l	0.04	10.0	---	---	12	6.3 J	04/08/09	LFJ	EPA200.8
Total Chromium, ug/l	0.10	10.0	14	21	---	---	04/03/09	LFJ	EPA200.8
Total Chromium, ug/l	0.10	10.0	---	---	22	8.6 J	04/08/09	LFJ	EPA200.8
Iron, ug/l	14.0	300.0	49300	46150	26900	6455	04/06/09	ADD	SM3111B
Manganese, ug/l	0.50	50.0	632	1180	452	202	04/06/09	LFJ	EPA200.7
Lead, ug/l	0.04	10.0	6 J	10	---	---	04/03/09	LFJ	EPA200.8
Lead, ug/l	0.04	10.0	---	---	17	3 J	04/08/09	LFJ	EPA200.8
Mercury, ug/l	0.03	0.20	0.11 J	0.15 J	---	---	04/03/09	LFJ	EPA200.8
Mercury, ug/l	0.03	0.20	---	---	4.7	---	04/23/09	ADD	EPA245.1
Mercury, ug/l	0.03	0.20	---	---	---	0.07 J	04/08/09	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	8.9 J	13.8 J	---	---	04/03/09	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	---	---	9.5 J	5.3 J	04/08/09	LFJ	EPA200.8
Selenium, ug/l	0.12	10.0	1.1 J	0.9 J	---	---	04/03/09	LFJ	EPA200.8
Selenium, ug/l	0.12	10.0	---	---	1.1 J	---	04/08/09	LFJ	EPA200.8
Silver, ug/l	0.04	10.0	0.1 J	0.2 J	---	---	04/03/09	LFJ	EPA200.8
Silver, ug/l	0.04	10.0	---	---	0.2 J	0.1 J	04/08/09	LFJ	EPA200.8
Thallium, ug/l	0.03	5.0	0.3 J	0.3 J	---	---	04/03/09	LFJ	EPA200.8
Thallium, ug/l	0.03	5.0	---	---	0.3 J	0.1 J	04/08/09	LFJ	EPA200.8
Vanadium, ug/l	0.28	25.0	56	28	---	---	04/03/09	LFJ	EPA200.8
Vanadium, ug/l	0.28	25.0	---	---	31	11.5 J	04/08/09	LFJ	EPA200.8
Zinc, ug/l	0.14	10.0	79	105	---	---	04/03/09	LFJ	EPA200.8
Zinc, ug/l	0.14	10.0	---	---	80	11	04/08/09	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: AVERY COUNTY C&D LANDFILL  
MS. JOAN SMYTH  
RICHARDSON SMITH GARDNER  
14 N. BOYLAN AVENUE  
RALEIGH, NC 27603

CLIENT ID: 6057  
ANALYST: MAO  
DATE COLLECTED: 03/31/09  
DATE ANALYZED: 04/07/09  
DATE REPORTED: 04/27/09

Page: 1

REVIEWED BY: 

## VOLATILE ORGANICS EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	CDMW-1	CDMW-2	CDMW-3	CDMW-4
1. Chloromethane	0.18	1.0	---	0.50 J	---	---
2. Vinyl Chloride	0.34	1.0	---	---	---	---
3. Bromomethane	0.26	10.0	---	---	---	---
4. Chloroethane	0.29	10.0	---	---	---	---
5. Trichlorofluoromethane	0.13	1.0	---	---	---	---
6. 1,1-Dichloroethene	0.14	5.0	---	---	---	---
7. Acetone	1.21	100.0	1.50 J	1.30 J	---	1.50 J
8. Iodomethane	0.12	10.0	---	---	---	---
9. Carbon Disulfide	0.14	100.0	---	---	---	---
10. Methylene Chloride	0.14	1.0	---	---	---	---
11. trans-1,2-Dichloroethene	0.13	5.0	---	---	---	---
12. 1,1-Dichloroethane	0.16	5.0	---	0.40 J	---	---
13. Vinyl Acetate	0.20	50.0	---	---	---	---
14. Cis-1,2-Dichloroethene	0.14	5.0	---	0.80 J	---	---
15. 2-Butanone	0.85	100.0	---	---	---	---
16. Bromochloromethane	0.11	3.0	---	---	---	---
17. Chloroform	0.13	5.0	---	---	---	---
18. 1,1,1-Trichloroethane	0.11	1.0	---	---	---	---
19. Carbon Tetrachloride	0.13	1.0	---	---	---	---
20. Benzene	0.16	1.0	---	---	---	---
21. 1,2-Dichloroethane	0.12	1.0	---	---	---	---
22. Trichloroethene	0.13	1.0	---	---	---	---
23. 1,2-Dichloropropane	0.17	1.0	---	---	---	---
24. Bromodichloromethane	0.13	1.0	---	---	---	---
25. Cis-1,3-Dichloropropene	0.17	1.0	---	---	---	---
26. 4-Methyl-2-Pentanone	0.68	100.0	---	---	---	---
27. Toluene	0.13	1.0	---	---	---	---
28. trans-1,3-Dichloropropene	0.14	1.0	---	---	---	---
29. 1,1,2-Trichloroethane	0.20	1.0	---	---	---	---
30. Tetrachloroethene	0.16	1.0	---	---	---	---
31. 2-Hexanone	1.00	50.0	---	---	---	---
32. Dibromochloromethane	0.14	3.0	---	---	---	---
33. 1,2-Dibromoethane	0.13	1.0	---	---	---	---
34. Chlorobenzene	0.13	3.0	---	---	---	---
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	---	---	---	---
36. Ethylbenzene	0.16	1.0	---	---	---	---
37. Xylenes	0.48	5.0	---	3.50 J	---	---
38. Dibromomethane	0.17	10.0	---	---	---	---
39. Styrene	0.16	1.0	---	---	---	---
40. Bromoform	0.11	3.0	---	---	---	---
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	---	---	---	---
42. 1,2,3-Trichloropropane	0.06	1.0	---	---	---	---
43. 1,4-Dichlorobenzene	0.21	1.0	---	---	---	---
44. 1,2-Dichlorobenzene	0.13	5.0	---	---	---	---
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	---	---	---	---
46. Acrylonitrile	1.49	200.0	---	---	---	---
47. trans-1,4-Dichloro-2-Butene	0.14	100.0	---	---	---	---

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

# CHAIN OF CUSTODY RECORD

Environment 1, Inc.  
 P.O. Box 7085, 114 Oakmont Dr.  
 Greenville, NC 27858  
 Phone (252) 756-6208 • Fax (252) 756-0633

CLIENT: 6057      Week: 17

EVERY COUNTY C&D LANDFILL  
 MS. JOAN SMYTH  
 RICHARDSON SMITH GARDNER  
 14 N. BOYLAN AVENUE  
 RALEIGH NC 27603

(919) 828-0577

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/l	DISINFECTATION	AT COLLECTION	TEMPERATURE, °C	# OF CONTAINERS	Alkalinity	Chloride	TDS	Sulfate	Metals	EPA 8260B	8260 Dup. 1	8260 Dup. 2	PARAMETERS	CHEMICAL PRESERVATION	CONTAINER TYPE, P/G	pH CHECK (LAB)	CHLORINE NEUTRALIZED AT COLLECTION
	DATE	TIME																		
CDMW-1	3/31/09	9:20		<input type="checkbox"/> CHLORINE <input type="checkbox"/> UV <input type="checkbox"/> NONE		9	8	<input checked="" type="checkbox"/>												
CDMW-2	3/31/09	8:14			10	7		<input checked="" type="checkbox"/>												
CDMW-3	3/31/09	10:10			9	7		<input checked="" type="checkbox"/>												
CDMW-4	3/31/09	9:45			11	7		<input checked="" type="checkbox"/>												
RELINQUISHED BY (SIG.) (SAMPLER)	3/31/09	2:00																		
RELINQUISHED BY (SIG.)																				
RELINQUISHED BY (SIG.)																				

RECEIVED BY (SIG.)  
 RECEIVED BY (SIG.)  
 RECEIVED BY (SIG.)

DATE/TIME: 3/31/09 2:00  
 DATE/TIME: 4/1/09 10:58  
 DATE/TIME:

COMMENTS: All samples grab

SAMPLES COLLECTED BY: *Be RAN C*

SAMPLES RECEIVED IN LAB AT 03 °C



