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).
- 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)
Closed Avery County MSW Landfill	Avery County Landfill Brushy Creek Road Spruce Pine, NC 28777	06-01	.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
☐ Groundwater monitoring data from private water supply wells
☐ Leachate monitoring data
☐ Surface water monitoring data
☐ Methane gas monitoring data
☐ Corrective action data (specify) _____
☐ Other(specify)

Notification attached?

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

Certification

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

Joan Smyth, P.G.	Senior Hydrogeologist	919-828-0577 x122
Facility Representative Name (Print)	Title	(Area Code) Telephone Number

Joan A. Smyth 5/13/09

Signature Date

Affix NC Licensed/ Professional Geologist/Engineer Seal here:

NORTH CAROLINA LICENSED SEAL 1369 GEOLOGIST JOAN A. SMYTH

Revised 01/2007

Closed Avery County MSW Landfill

Ground Water Monitoring Report

March 2009 Semi-annual Monitoring Event

Avery County Landfill
Newland, North Carolina
NC Solid Waste Permit # 06-01

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

May 2009

RICHARDSON SMITH GARDNER
& ASSOCIATES
ENGINEERING & GEOLOGICAL
SERVICES

PRINTED ON 100% RECYCLED PAPER

Spring 2009 Ground Water Monitoring Report

Avery County Closed MSW 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**

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

NORTH CAROLINA LICENSED SEAL 1369 GEOLOGIST JOAN A. SMYTH

May 2009

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

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Avery County – MSW Landfill
Semi-annual Ground Water Monitoring Report
March 2009 Sampling Event

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FIGURES

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Table 2 – Field Parameter Results
Table 3 – Detected Constituents

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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 # 06-01 (MSW) is required to submit semi-annual ground water monitoring reports for the closed MSW landfill. This report, prepared by Richardson Smith Gardner and Associates, Inc (RSG), 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 MSW landfill includes three (3) ground water monitoring wells (MW-1, MW-2 & MW-3) and two surface water locations (SW-1 & SW-2). This report includes summaries of the field procedures and laboratory analyses for the MSW site. Also included are summary tables of the results and laboratory analytical reports.

2.0 Site Geology

The principal geologic units mapped in the immediate vicinity of the site include a mix of metamorphosed sedimentary and igneous rocks – termed *paragneiss* and *orthogneiss*, respectively – interlayered with contemporaneous schist, phyllite, and marble, later injected with various granitic intrusions, including plutons, pegmatites, and hydrothermal veins. Regional metamorphic grades in the region include kyanite-grade (high grade) and retrograde chlorite-biotite metamorphism (low grade). Major lithologic units near the site, from youngest to oldest, are:

Dqd - quartz diorite to granodiorite intrusive; contains biotite, muscovite and xenocrysts (included fragments of older rock units); Devonian age (390 MY); associated pegmatite veins are the target of the well-documented Spruce Pine mining district, which produced feldspars, mica, and quartz for various industries, along with emeralds and other gem stones;

Zabg - Gneiss of Alligator Back Formation; finely laminated to thin layered, contains massive gneiss and micaceous conglomerate; includes schist and phyllite; late Proterozoic age (750 MY);

Zaba - Amphibolite of Alligator Back Formation; equigranular, massive to well foliated, chiefly metaphosed mafic rock; late Proterozoic age (750 MY); often occurring as large circular or elliptical areas marking plutonic stocks,[1] associated with pre-Appalachian rifting that formed an earlier ocean called Iapetus.[2]

Ybgg - biotite granitic gneiss; pinkish gray to light gray massive to well foliated; late to mid Proterozoic age (950-1250 my); associated with the Grenville *orogeny*.

---

[1] http://www.1911encyclopedia.org/Amphibolite

[2] Stewart and Roberson, Exploring the Geology of the Carolinas, University of North Carolina Press, 2007

RSG has not performed any geologic investigation activities at this site, nor have we been able to locate any previous geologic studies for the site; therefore we can not provide more detail regarding site geology.

3.0 Sampling Procedures

The sampling event was performed by trained personnel from RSG on March 31st, 2009, and consisted of collecting samples from three (3) ground water wells, shown in **Figure 1**. Surface water samples were collected from two locations (SW-1 and SW-2) adjacent to the landfill. Field data sheets for the monitoring wells are included in **Appendix A** and a table of well information is available in **Appendix B**. No boring logs for these monitoring wells could be located during a file search at NCDENR.

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[3] for Appendix I constituents. The laboratory report is attached for your review as **Appendix C.**

4.2 Field and Laboratory Results

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

Four (4) inorganic constituents (barium, cobalt, copper and zinc) were detected in two (2) wells above the SWSL, but below 2L or ground water protection (GWP) standards. No constituents were detected in any of the surface water monitoring wells.

It should be noted that turbidity levels in the three ground water monitoring wells were found to be slightly elevated. These levels are indicative of suspended solids in the

[3] New Guidelines for Electronic Submittal of Environmental Monitoring Data Memo, NCDENR – Solid Waste Section, October 27, 2006

samples which can elevate inorganic results.

Table 3 summarizes the list of constituents detected. Several inorganic and organic constituents were detected at concentrations below the SWSLs. These are listed as "J" values on **Table 3**.

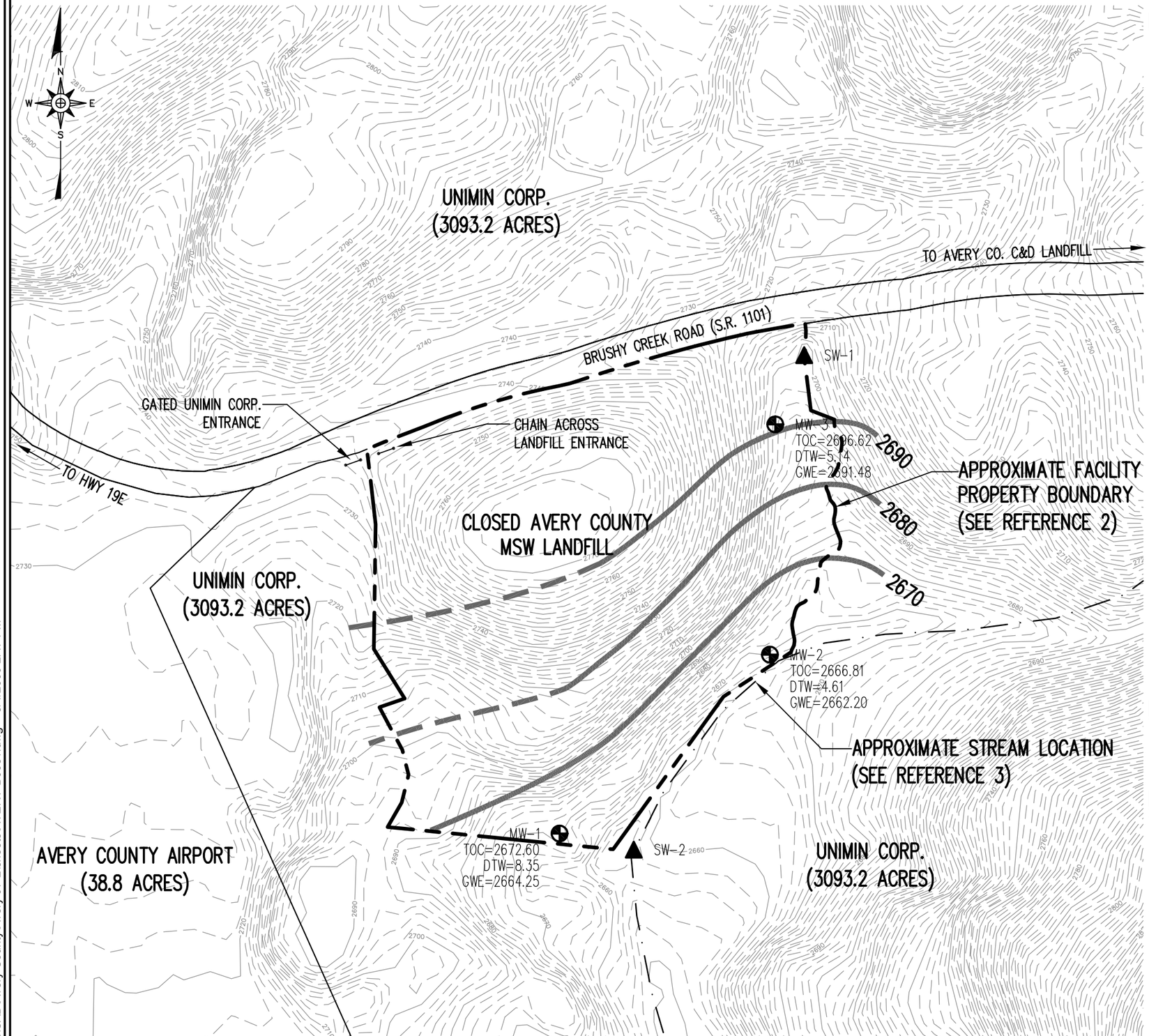
5.0 Ground Water Characterization

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 and southeast across most of the site. Hydraulic conductivity data was 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 four (4) inorganic constituents. The inorganic constituents are likely due to suspended solids 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



LEGEND

	EXISTING 10' CONTOUR (SEE REFERENCE 1)
	EXISTING 2' CONTOUR
	PROPERTY LINE (SEE REFERENCE 2)
	ADJACENT PROPERTY LINE
	STREAM LOCATION (SEE REFERENCE 2)
	POTENTIOMETRIC SURFACE (DASHED WHERE INFERRED)
	EXISTING MONITORING WELL (SEE REFERENCE 3)
	EXISTING SURFACE WATER MONITORING POINT (APPROXIMATE LOCATION)
TOC=	TOP OF CASING ELEVATION
DTW=	DEPTH TO WATER
GWE=	GROUND WATER ELEVATION

NOTES

1. DEPTH TO WATER MEASUREMENTS OBTAINED BY RSG PERSONNEL ON MARCH 31, 2009.

REFERENCES

1. OVERALL SITE TOPOGRAPHY FROM NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, DATA GENERATED FROM LIDAR DATED MARCH 2005.
2. SITE PROPERTY LINE, ADJACENT PROPERTIES, AND STREAM LOCATIONS FROM AVERY COUNTY GIS MAPPING DEPARTMENT.
3. MONITORING WELL LOCATIONS FROM FIELD SURVEY DATED 1/14/08, BY SURVEYING SOLUTIONS, P.C.

0 200' 400' 600'

RICHARDSON SMITH GARDNER & ASSOCIATES
14 N. Boylan Ave.
Raleigh, N.C. 27603
ph: 919-828-0577
fax: 919-828-3899
www.rsgengineers.com

FIGURE NO.	1
FILE NAME	AVERY-B0081
SCALE:	AS SHOWN
PROJECT NO.	AVERY 07-2
CHECKED BY:	J.A.S.
DRAWN BY:	W.R.B.
DATE:	May. 2009

TITLE:
AVERY COUNTY
SOLID WASTE DEPARTMENT
AVERY COUNTY MSW LANDFILL
POTENTIOMETRIC MAP SPRING '09

G:\CAD\Avery County\Avery 07-2\sheets\AVERY-B0081.dwg - 5/4/2009 2:47 PM

Tables

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Table 1
Avery County MSW Landfill
Ground Water Elevation Data
3/31/2009

Well	Well location Northing	Well location Easting	TOC Elevation (feet)	Depth to Water (feet)	GW Elev (feet)
MW-1	812705.6749	1114262.085	2672.6	8.35	2664.25
MW-2	813030.7307	1114625.494	2666.81	4.61	2662.2
MW-3	813531.8988	1114643.917	2696.62	5.14	2691.48

RICHARDSON SMITH GARDNER
& ASSOCIATES
ENGINEERING & GEOLOGICAL
SERVICES

Table 2
Avery County MSW Landfill
Field Parameters
3/31/2009

Well Identification #	Temperature (°Celsius)	Turbidity (NTU)	Specific Conductivity (uS/cm)	pH
MW-1	7	79	190	6.8
MW-2	8	50	13	6.6
MW-3	8	97	130	6.5
SW-1	11	19.6	80	7.6
SW-2	10	7.83	10	7.9

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

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ENGINEERING & GEOLOGICAL SERVICES

Table 3
Avery County MSW Landfill
Detected Inorganic and Organic Constituents
3/31/2009

Constituents	SWSL	2L or GWP Standards	MW-1	MW-2	MW-3	SW-1	SW-2
Antimony	6	1.4	ND	0.1 J	ND	ND	ND
Arsenic	10	50	0.5 J	0.2 J	3.3 J	ND	ND
Barium	100	2000	**145**	29.6 J	38.4 J	14.9 J	11.2 J
Beryllium	1	4	0.2 J	0.1 J	0.2 J	ND	ND
Cadmium	1	5	0.9 J	0.1 J	0.1 J	ND	ND
Cobalt	10	70	**19**	1.2 J	3 J	0.3 J	0.3 J
Copper	10	1000	7.5 J	**22**	2 J	0.7 J	0.7 J
Lead	10	15	2.2 J	3.8 J	1.8 J	0.8 J	0.2 J
Nickel	50	100	3.6 J	0.9 J	1.1 J	0.5 J	0.3 J
Selenium	10	50	0.7 J	ND	ND	ND	ND
Total Chromium	10	50	0.8 J	0.9 J	1 J	ND	ND
Thallium	5	0.28	0.1 J	ND	ND	ND	ND
Vanandium	25	3.5	4.7 J	1.9 J	3.8 J	1.5 J	1.2 J
Zinc	10	2100	**36**	**14**	5.3 J	5.2 J	3.6 J
Silver	10	17.5	0.1 J	0.1 J	0.1 J	ND	ND
Acetone	100	700	ND	ND	10.7 J	ND	1.3 J
1,4-Dichlorobenzene	1	75	0.6 J	ND	0.8 J	ND	ND
1,1-Dichloroethane	5	70	0.2 J	ND	ND	ND	ND
Benzene	1	1	0.3 J	ND	0.3 J	ND	ND
Chlorobenzene	3	50	ND	ND	ND	ND	ND
Cis-1,2-Dichloroethene	5	70	0.5 J	ND	0.5 J	ND	ND
Vinyl Chloride	1	0.015	ND	ND	0.4 J	ND	ND

SWSL	-	Solid Waste Quantitation Limit
ND	-	Not detected at or above SWSL
Shading	-	Levels above 2L standard or no 2L standard
Bold Letters	-	Constituent detected above SWSL
J	-	Detected constituents below SWSL limit

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

Appendix A

Field Data Sheets

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

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

Site: Avery MSW **Date:** 4-2-09

Well ID: MW-1 **Initials:** BR

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:

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:

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

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

Site: Avery MSW **Date:** 4-2-09

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

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. UNKNOWN		
B. Steel case is present and upright.	✓	
C. Steel case is not movable and cemented in. UNK		
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:

3. PVC Riser	YES	NO
A. Monitoring cap is present and provides a tight seal. PVC CAP	✓	
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:

Riser is approx 12" down inside CASING

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Groundwater Monitoring Well Inspection Checklist

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

Site: Avery MSW **Date:** 4-2-09

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

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:

~~CASI~~

2. Concrete Apron and Steel Case	YES	NO
A. Concrete apron is present and in good condition. see photo		
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:

casing is rather low

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:

Appendix B

Monitoring Well Information

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Appendix B
Avery County MSW Landfill
Monitoring Well Information

Well	Well location Northing	Well location Easting	TOC Elevation (feet)	Depth to Water (feet)	Depth to Bottom (feet)	Assumed Screen Interval
MW-1	812705.6749	1114262.085	2672.6	8.35	23.37	10' - 20'
MW-2	813030.7307	1114625.494	2666.81	4.61	14.37	4' - 14'
MW-3	813531.8988	1114643.917	2696.62	5.14	15.37	4' - 14'

Appendix C

Laboratory Analytical Report

Environment 1, Incorporated

REC'D APR 28 2009

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#: 6056

AVERY COUNTY LANDFILL (OLD)
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	SWSL	MW-1	MW-2	MW-3	Trip Blank	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.06	6.0	--- U	0.1 J	--- U		04/03/09	LFJ	EPA200.8
Arsenic, ug/l	0.17	10.0	0.5 J	0.2 J	3.3 J		04/03/09	RJH	EPA200.8
Barium, ug/l	0.04	100.0	145	29.6 J	38.4 J		04/03/09	LFJ	EPA200.8
Beryllium, ug/l	0.06	1.0	0.2 J	0.1 J	0.2 J		04/03/09	LFJ	EPA200.8
Cadmium, ug/l	0.04	1.0	0.9 J	0.1 J	0.1 J		04/03/09	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	19	1.2 J	3 J		04/03/09	LFJ	EPA200.8
Copper, ug/l	0.04	10.0	7.5 J	22	2 J		04/03/09	LFJ	EPA200.8
Total Chromium, ug/l	0.10	10.0	0.8 J	0.9 J	1 J		04/03/09	LFJ	EPA200.8
Lead, ug/l	0.04	10.0	2.2 J	3.8 J	1.8 J		04/03/09	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	3.6 J	0.9 J	1.1 J		04/03/09	LFJ	EPA200.8
Selenium, ug/l	0.12	10.0	0.7 J	--- U	--- U		04/03/09	LFJ	EPA200.8
Silver, ug/l	0.04	10.0	0.1 J	0.1 J	0.1 J		04/03/09	LFJ	EPA200.8
Thallium, ug/l	0.03	5.0	0.1 J	--- U	--- U		04/03/09	LFJ	EPA200.8
Vanadium, ug/l	0.28	25.0	4.7 J	1.9 J	3.8 J		04/03/09	LFJ	EPA200.8
Zinc, ug/l	0.14	10.0	36	14	5.3 J		04/03/09	LFJ	EPA200.8

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

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

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

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

CLIENT: AVERY COUNTY LANDFILL (OLD)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
14 N. BOYLAN AVENUE
RALEIGH, NC 27603

REVIEWED BY:

CLIENT ID: 6056

ANALYST: MAO
DATE COLLECTED: 03/31/09
DATE ANALYZED: 04/07/09
DATE REPORTED: 04/24/09

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-1	MW-2	MW-3	Trip Blank
1. Chloromethane	0.18	1.0	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.34	1.0	--- U	--- U	0.40 J	--- U
3. Bromomethane	0.26	10.0	--- U	--- U	--- U	--- U
4. Chloroethane	0.29	10.0	--- U	--- U	--- U	--- U
5. Trichlorofluoromethane	0.13	1.0	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.14	5.0	--- U	--- U	--- U	--- U
7. Acetone	1.21	100.0	--- U	--- U	10.70 J	--- U
8. Iodomethane	0.12	10.0	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.14	100.0	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.14	1.0	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.13	5.0	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.16	5.0	0.20 J	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.14	5.0	0.50 J	--- U	0.50 J	--- U
15. 2-Butanone	0.85	100.0	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.11	3.0	--- U	--- U	--- U	--- U
17. Chloroform	0.13	5.0	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.11	1.0	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.13	1.0	--- U	--- U	--- U	--- U
20. Benzene	0.16	1.0	0.30 J	--- U	0.30 J	--- U
21. 1,2-Dichloroethane	0.12	1.0	--- U	--- U	--- U	--- U
22. Trichloroethene	0.13	1.0	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.17	1.0	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.13	1.0	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.17	1.0	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	0.68	100.0	--- U	--- U	--- U	--- U
27. Toluene	0.13	1.0	--- U	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.14	1.0	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.20	1.0	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.16	1.0	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.00	50.0	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.14	3.0	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.13	1.0	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.13	3.0	--- U	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.16	1.0	--- U	--- U	--- U	--- U
37. Xylenes	0.48	5.0	--- U	--- U	--- U	--- U
38. Dibromomethane	0.17	10.0	--- U	--- U	--- U	--- U
39. Styrene	0.16	1.0	--- U	--- U	--- U	--- U
40. Bromoform	0.11	3.0	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.06	1.0	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.21	1.0	0.60 J	--- U	0.80 J	--- U
44. 1,2-Dichlorobenzene	0.13	5.0	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	--- U	--- U	--- U	--- U
46. Acrylonitrile	1.49	200.0	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.14	100.0	--- U	--- U	--- U	--- U

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

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

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

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

ID#: 6056

AVERY COUNTY LANDFILL (OLD)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
14 N. BOYLAN AVENUE
RALEIGH ,NC 27603

DATE COLLECTED: 03/30/09
DATE REPORTED : 04/22/09

REVIEWED BY:

PARAMETERS	MDL	SWSL	SW-1	SW-2	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.06	6.0	--- U	--- U	04/03/09	LFJ	EPA200.8
Arsenic, ug/l	0.17	10.0	--- U	--- U	04/03/09	RJH	EPA200.8
Barium, ug/l	0.04	100.0	14.9 J	11.2 J	04/03/09	LFJ	EPA200.8
Beryllium, ug/l	0.06	1.0	--- U	--- U	04/03/09	LFJ	EPA200.8
Cadmium, ug/l	0.04	1.0	--- U	--- U	04/03/09	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	0.3 J	0.3 J	04/03/09	LFJ	EPA200.8
Copper, ug/l	0.04	10.0	0.7 J	0.7 J	04/03/09	LFJ	EPA200.8
Total Chromium, ug/l	0.10	10.0	--- U	--- U	04/03/09	LFJ	EPA200.8
Lead, ug/l	0.04	10.0	0.8 J	0.2 J	04/03/09	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	0.5 J	0.3 J	04/03/09	LFJ	EPA200.8
Selenium, ug/l	0.12	10.0	--- U	--- U	04/03/09	LFJ	EPA200.8
Silver, ug/l	0.04	10.0	--- U	--- U	04/03/09	LFJ	EPA200.8
Thallium, ug/l	0.03	5.0	--- U	--- U	04/03/09	LFJ	EPA200.8
Vanadium, ug/l	0.28	25.0	1.5 J	1.2 J	04/03/09	LFJ	EPA200.8
Zinc, ug/l	0.14	10.0	5.2 J	3.6 J	04/03/09	LFJ	EPA200.8

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

Environment 1, Incorporated

Drinking Water ID: 37415
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 LANDFILL (OLD)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
14 N. BOYLAN AVENUE
RALEIGH, NC 27603

CLIENT ID: 6056

ANALYST: MAO
DATE COLLECTED: 03/30/09
DATE ANALYZED: 04/06/09
DATE REPORTED: 04/22/09

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	SW-1	SW-2
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	1.30 J
8. Iodomethane	0.12	10.0	--- U	--- U
9. Carbon Disulfide	0.14	100.0	--- U	--- 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	--- U	--- 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 Quanititation Limits.

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

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

CHAIN OF CUSTODY RECORD

CLIENT: 6056 **Week: 17**

AVERY COUNTY LANDFILL (OLD)
MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
14 N. BOYLAN AVENUE
RALEIGH NC 27603

(919) 828-0577

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Metals	EPA 8260B	8260 Dup. 1	8260 Dup. 2
CHLORINE NEUTRALIZED AT COLLECTION									
pH CHECK (LAB)						L2	L2	L2	L2
CONTAINER TYPE, P/G						P	G	G	G
CHEMICAL PRESERVATION						A	E	E	E
MW-1	3/31/09	11:15		7	4	▒	▒	▒	▒
MW-2	3/31/09	10:55		8	3	▒	▒	▒	
MW-3	3/31/09	10:40		8	3	▒	▒	▒	
SW-1	3/30/09	4:35	~~[illegible]~~	11	3	▒	▒	▒	
SW-2	3/30/09	4:55		10	3	▒	▒	▒	
Trip Blank	by Lab				2		▒	▒	

PARAMETERS

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

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

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

SAMPLES COLLECTED BY: (Please Print) Britt Ransom

SAMPLES RECEIVED IN LAB AT 0.4 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Brit Ransom	3/31/09 2:00	UPS Marion	3/30/09 2:00
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
		[illegible]	3/1/09 11:03
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS: All samples grab

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.

№ 178234

FORM #5