

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 Washington County MSW Landfill	Washington County Landfill 943 Washington Square Mall Plymouth, NC 27962	94-01	.0500	September 11, 2008

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)

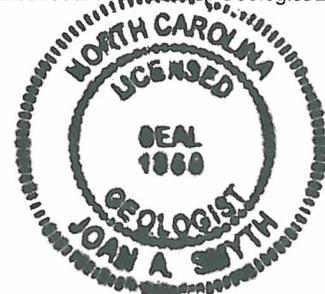
Title

(Area Code) Telephone Number

Joan A. Smyth
Signature

11/10/08
Date

Affix NC Licensed/ Professional Geologist/Engineer Seal here:



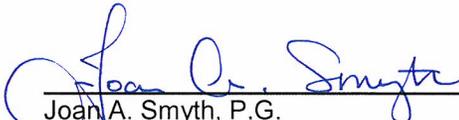
Fall 2008 Ground Water Monitoring Report

Washington County Closed MSW Landfill Washington, North Carolina NC Solid Waste Permit # 94-01 MSWLF-1980

Prepared for:

Washington County Solid Waste
943 Washington Square Mall
Plymouth, North Carolina 27962

RSG Project No. **Wash 08-2**


Joan A. Smyth, P.G.
Senior Hydrogeologist



November 2008



RICHARDSON SMITH GARDNER & ASSOCIATES
Engineering and Geological Services
14 N. Boylan Avenue
Raleigh, North Carolina 27603

Washington County Closed MSW Landfill

Ground Water Monitoring Report

September 2008 Semi-annual Monitoring Event

**Washington County Closed MSW Landfill
Plymouth, North Carolina
NC Solid Waste Permit # 94-01-MSWLF-1980**

Prepared for:

Washington County
P.O. Box 1007
Plymouth, North Carolina 27962

November 2008



Richardson Smith Gardner & Associates, Inc.

Engineering and Geological Services

14 North Boylan Avenue
Raleigh, North Carolina 27603

Washington County Closed MSW Landfill

**Semi-annual Ground Water Monitoring Report
September 2008 Event**

1.0 INTRODUCTION1

2.0 SAMPLING PROCEDURES1

3.0 FIELD AND LABORATORY RESULTS1

 3.1 Laboratory Analysis.....1

 3.2 Field and Laboratory Results.....2

4.0 GROUND WATER CHARACTERIZATION.....3

5.0 CONCLUSIONS.....3

FIGURES

Figure 1 – Washington County Landfill Site Map

TABLES

Table 1 – Field Parameter Results
Table 2 – Detected Inorganic Constituents
Table 3 – Detected Organic Constituents

APPENDICES

Appendix A – Laboratory Analytical Reports

1.0 Introduction

The Washington County Closed MSW Landfill, operating under Solid Waste Permit #94-01-MSWLF-1980 is required to submit semi-annual ground water monitoring reports for ground water monitoring. This report presents the results of the first semiannual monitoring event for 2008, conducted on September 11th, 2008.

This report includes summaries of the field procedures, laboratory analyses, and ground water characterization. Also included are laboratory analytical reports.

2.0 Sampling Procedures

The sampling event, performed by Environment 1, Inc. on September 11th, 2008, consisted of collecting samples from four (4) ground water wells (MW-1 through MW-4) in accordance with the approved site Sampling and Analysis Plan. Also included in the analysis were trip and field blanks for quality control.

Sampling methods followed the protocol outlined in the North Carolina Water Quality Monitoring Guidance Document for Solid Waste Facilities (North Carolina Department of Environment and Natural Resources, Division of Waste Management). 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.

All samples were collected in laboratory prepared containers for the specified analytical procedures. Sampling equipment (Teflon bailers) were cleaned in the laboratory and transported to the site in aluminum foil. Ground water samples were properly preserved, placed on ice, and transported to the laboratory facility within the specified holding times for each analysis.

3.0 Field & Laboratory Results

3.1 Laboratory Analysis

The ground and surface water samples were transported to Environment 1, Inc., a North Carolina certified laboratory (NC Wastewater ID #10). Laboratory analysis consisted of the full suite of RCRA Subtitle D Appendix I constituents plus previously detected Appendix II constituents, and chloride. Parameters were reported at NC DWM Solid Waste Section Limits (SWSLs). The laboratory analytical report is included as **Appendix A**. No surface water samples are required for monitoring this site.

3.2 Field and Laboratory Results

The field parameter results are shown in **Table 1** while detected constituents are presented in **Tables 2** and **3**. Two (2) inorganic constituents, arsenic (MW-1) and barium (MW-1, MW-2 & MW-3) were detected above the SWSL and shown in **Table 2**. These constituents were detected below the 2L ground water standards.

Two (2) organic constituents, chlorobenzene (MW-3) and 1,4-dichlorobenzene (MW-2 and MW-3) were detected above the SWSLs . Of these, only 1, 4-dichlorobenzene was detected at concentrations above the 2L standards.

Constituents detected below the SWSL are denoted as “J” values and are also included in **Tables 2 & 3**.

4.0 Ground Water Characterization

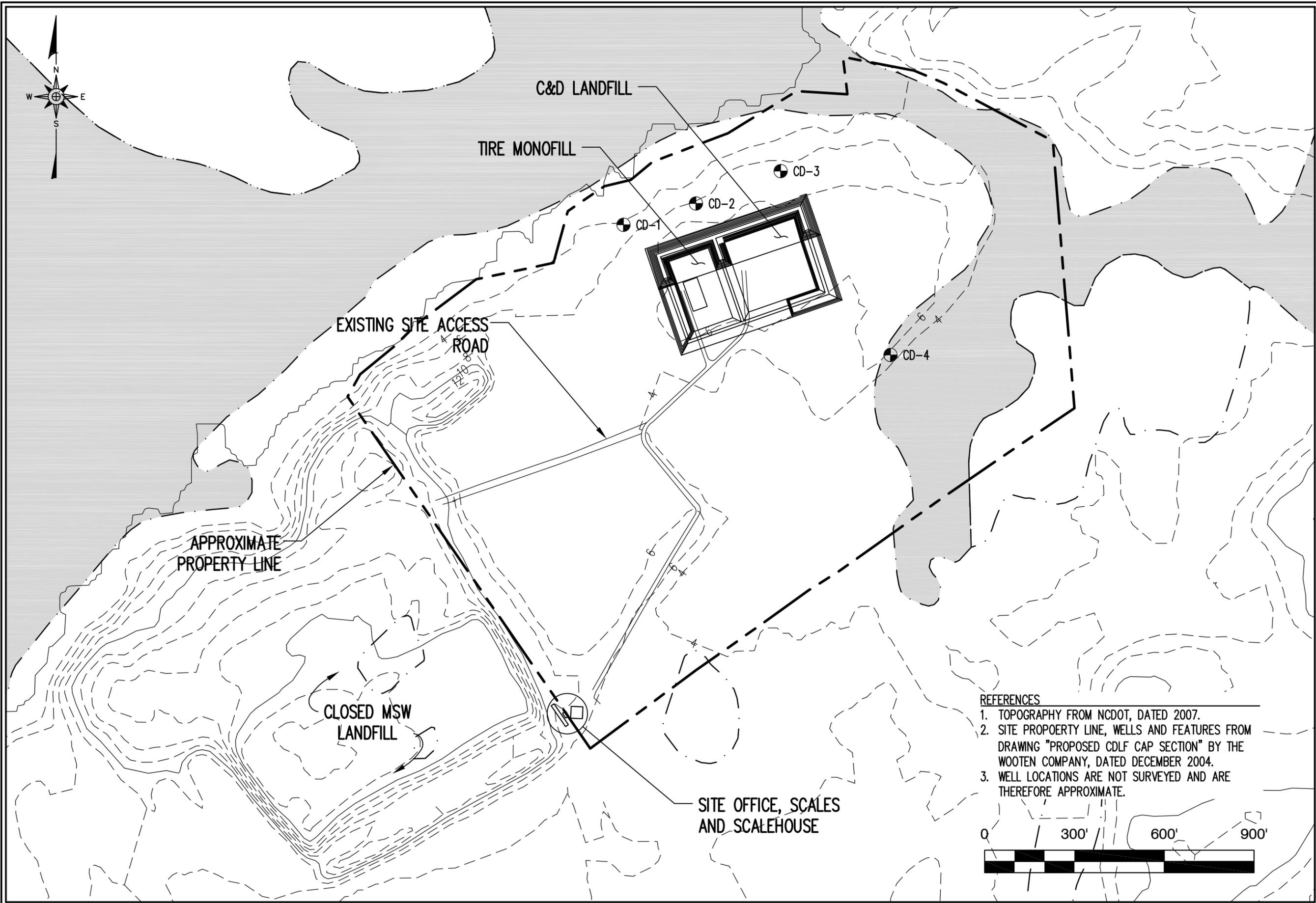
Currently, we are unable to locate survey data for the ground water monitoring wells. Prior to the next ground water monitoring event we expect that these wells will be surveyed and an evaluation of the potentiometric surface and ground water flow direction will be presented.

5.0 Conclusions

The data indicates relatively stable ground water quality at the Washington County Closed MSW Landfill. The next ground water monitoring event is scheduled for April 2009. Results will be reported upon completion of laboratory analysis.

Figures

G:\CAD\Washington County\Wash 08-2\sheets\WASH-B0001.dwg - 6/16/2008 2:49 PM



REFERENCES

1. TOPOGRAPHY FROM NCDOT, DATED 2007.
2. SITE PROPOERTY LINE, WELLS AND FEATURES FROM DRAWING "PROPOSED CDLF CAP SECTION" BY THE WOOTEN COMPANY, DATED DECEMBER 2004.
3. WELL LOCATIONS ARE NOT SURVEYED AND ARE THEREFORE APPROXIMATE.




RICHARDSON SMITH GARDNER & ASSOCIATES
 14 N. Boylan Ave.
 Raleigh, N.C. 27603
 www.rsgengineers.com
 ph: 919-825-0577
 fax: 919-825-3899

FIGURE NO.	1	FILE NAME	WASH-B0001
SCALE:	AS SHOWN	PROJECT NO.	WASH 08-2
CHECKED BY:		DATE:	Jun. 2008
DRAWN BY:	J.A.L.		

TITLE:

**WASHINGTON COUNTY
LANDFILL SITE MAP**

Tables

Table 1
Field Parameter Results
Washington County MSW Landfill
9/11/2008

Well	pH (Std units)	Spec Cond (umhos/cm)	Temp (celsius)	Static Water Level (feet)
MW-1	5.6	434	19	10.21
MW-2	6.7	1505	26	9.64
MW-3	6.2	357	19	11.31
MW-4	5.9	134	18	8.35

Table 2
Detected Inorganic Constituents
Washington County Closed MSW Landfill
9/11/2008

Parameter	SWSL	2L	MW-1	MW-2	MW-3	MW-4
Arsenic	10	50	11	4.6J	4.1J	0.7J
Barium	100	2000	115	865	145	24.5J
Cadmium	1	1.75	0.3J	0.3J	0.1J	0.2J
Total Chromium	10	50	1.3J	1.7J	0.3J	2.0J
Lead	10	15	1.4J	0.8J	0.7J	1.3J
Mercury	0.2	1.05	0.04J	0.05J	0.03J	0.03J
Selenium	10	50	2.1J	1.2J	0.8J	0.3J
Silver	10	17.5	ND	0.1J	ND	0.1J

- 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.

Table 3
Detected Organic Constituents
Washington County Closed MSW Landfill
9/11/2008

Parameter	SWSL	2L	MW-1	MW-2	MW-3	MW-4
Acetone	100.0	700	4.4 J	7.0 J	4.9 J	5.1 J
Vinyl Chloride	1.0	0.015	ND	ND	0.4J	ND
Benzene	1.0	1	ND	0.9 J	0.7 J	ND
2-Butanone	100.0	4200	3.9 J	5.0 J	4.0 J	4.0 J
Chlorobenzene	3.0	50	ND	4.5 J	11.60	ND
Chloromethane	1.0	2.6	0.2 J	0.3 J	0.3 J	0.3 J
1, 4-Dichlorobenzene	1.0	1.4	ND	3.2	2.7	ND
1, 2-Dichlorobenzene	5.0	24	ND	ND	0.2 J	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

Laboratory Analytical Report

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

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

ID#: 6018

WASHINGTON CO. LANDFILL
MR. CARL CRITCHER
P.O. BOX 1007
PLYMOUTH ,NC 27962

DATE COLLECTED: 09/11/08
DATE REPORTED : 09/30/08

REVIEWED BY: 

PARAMETERS	MDL	Well				Analysis		Method	
		SWSL	#1	#2	#3	#4	Date	Analyst	Code
PH (field measurement), Units			5.6	6.7	6.2	5.9	09/11/08	RJH	SM4500HB
Arsenic, ug/l	0.07	10.0	11	4.6 J	4.1 J	0.7 J	09/15/08	LFJ	EPA200.8
Barium, ug/l	0.11	100.0	115	865	145	24.5 J	09/15/08	LFJ	EPA200.8
Cadmium, ug/l	0.04	1.0	0.3 J	0.3 J	0.1 J	0.2 J	09/15/08	LFJ	EPA200.8
Total Chromium, ug/l	0.11	10.0	1.3 J	1.7 J	0.3 J	2.0 J	09/15/08	LFJ	EPA200.8
Lead, ug/l	0.04	10.0	1.4 J	0.8 J	0.7 J	1.3 J	09/15/08	LFJ	EPA200.8
Mercury, ug/l	0.01	0.20	0.04 J	0.05 J	0.03 J	0.03 J	09/15/08	LFJ	EPA200.8
Selenium, ug/l	0.14	10.0	2.1 J	1.2 J	0.8 J	0.3 J	09/15/08	LFJ	EPA200.8
Silver, ug/l	0.04	10.0	--- U	0.1 J	--- U	0.1 J	09/15/08	LFJ	EPA200.8
Conductivity (at 25c), uMhos	1.0	1.0	434	1505	357	134	09/11/08	RJH	SM2510B
Temperature, °C			19	26	19	18	09/11/08	RJH	SM2550B
Static Water Level, feet			10.21	9.64	11.31	8.35	09/11/08	RJH	
Well Depth, feet			23.09	19.30	19.97	22.90	09/11/08	RJH	

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

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

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

CLIENT: WASHINGTON CO. LANDFILL
MR. CARL CRITCHER
P.O. BOX 1007
PLYMOUTH, NC 27962

CLIENT ID: 6018
ANALYST: MAO
DATE COLLECTED: 09/11/08
DATE ANALYZED: 09/12/08
DATE REPORTED: 09/30/08

Page: 1

REVIEWED BY: 

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Well #1	Well #2	Well #3	Well #4
1. Chloromethane	0.18	1.0	0.20 J	0.30 J	0.30 J	0.30 J
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	4.40 J	7.00 J	4.90 J	5.10 J
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	--- U	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.14	5.0	--- U	--- U	--- U	--- U
15. 2-Butanone	0.85	100.0	3.90 J	5.00 J	4.00 J	4.00 J
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	--- U	0.90 J	0.70 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	4.50	11.60	--- 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	--- U	3.20	2.70	--- U
44. 1,2-Dichlorobenzene	0.13	5.0	--- U	--- U	0.20 J	--- 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 Quantitation Limits.

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

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

CLIENT: 6018 Week: 37

WASHINGTON CO. LANDFILL
 MR. CARL CRITCHER
 P.O. BOX 1007
 PLYMOUTH NC 27962

(252) 793-5615

CHAIN OF CUSTODY RECORD

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/l	AT COLLECTION	TEMPERATURE, °C	AT COLLECTION	# OF CONTAINERS	DISINFECTION				Field pH	Metals	Conductivity	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2	PARAMETERS	CHEMICAL PRESERVATION	CONTAINER TYPE, P/G	pH CHECK (LAB)	CHLORINE NEUTRALIZED AT COLLECTION
	DATE	TIME						CHLORINE	UV	NONE														
Well #1	09/11/08	1125	19	19	19	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	P	P	P	P	G	G	G								
Well #2	09/11/08	0950	26	26	26	4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	A	A	A	A	E	E	E								
Well #3	09/11/08	0935	19	19	19	4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	A	A	A	A	E	E	E								
Well #4	09/11/08	0920	18	18	18	4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	A	A	A	A	E	E	E								
CLASSIFICATION: <input type="checkbox"/> WASTEWATER (NPDES) <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> DWQ/GW <input checked="" type="checkbox"/> SOLID WASTE SECTION CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY SAMPLES COLLECTED BY: <i>HP</i> <i>for</i> (Please Print) SAMPLES RECEIVED IN LAB AT <i>14</i> °C																								
RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	COMMENTS:																				
<i>BOE</i>	09/11/08 1500	<i>AL</i>	09/11/08 1500																					
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME																					
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME																					

Instructions for completing this form are 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.