

Notice: This form and any information attached to it are "Public Records" as defined in NC General Statute 132-1. As such, these documents are available for inspection and examination by any person upon request (NC General Statute 132-6).

Instructions:

- Prepare one form for each individually monitored unit.
- Please type or print legibly.
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i)).
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

Solid Waste Monitoring Data Submittal Information

Name of entity submitting data (laboratory, consultant, facility owner):

Richardson Smith Gardner and Associates, Inc.

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

Name: Joan A. Smyth, P.G. Phone: 919-828-0577 x 221
 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)
Washington Co. C&D Landfill	718 Landfill Rd Roper, NC	94-01	.0500	September 1, 2010

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 A. Smyth, P.G. Senior Hydrogeologist 919-828-0577 x 221
 Facility Representative Name (Print) Title (Area Code) Telephone Number
 Affix NC Licensed/ Professional Geologist Seal
 Signature Joan A. Smyth Date 12/23/10

14 N. Boylan Avenue Raleigh, NC 27603
 Facility Representative Address
 C0828
 NC PE Firm License Number (if applicable effective May 1, 2009)
 Revised 6/2009



Washington County C&D Landfill

Ground Water Monitoring Report

Fall 2010 Semi-annual Monitoring Event

**Washington County C&D Landfill
Washington, North Carolina
NC Solid Waste Permit # 94-04 CDLF 1996**

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

December 2010



PRINTED ON 100% RECYCLED PAPER

Fall 2010 Ground Water Monitoring Report

**Washington County C&D Landfill
Washington, North Carolina
NC Solid Waste Permit # 94-04 CDLF-1996**

Prepared for:

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

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



Joan A. Smyth, P.G.
Senior Hydrogeologist



December 2010



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Washington County C&D Landfill

**Semi-annual Ground Water Monitoring Report
Fall 2010 Event**

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1.0 Introduction

The Washington County Landfill, operating under Solid Waste Permit #94-04-CDLF-1996, is required to submit semiannual ground water monitoring reports for ground water monitoring. This report presents the results of the second semi-annual monitoring event for 2010, conducted on September 1, 2010.

The Washington County Landfill is currently accepting C&D waste. The ground water monitoring network consists of four (4) wells located around the perimeter of the landfill. This report includes summaries of the field procedures, laboratory analyses, and ground water characterization.

2.0 Regional Geology

The Washington County Landfill is located near Roper North Carolina. According to the Geologic Map of North Carolina (1985) this site is underlain by Quaternary surficial deposits that include sands, gravel, clay, and peat that were deposited in marine, fluvial, eolian and lacustrine environments. These environments are typical for a coastal plain environment.

3.0 Sampling Procedures

The sampling event, performed by Environment 1, Inc. on September 1, 2010, consisted of collecting samples from four (4) ground water wells (CD-1 through CD-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.

4.0 Field & Laboratory Results

4.1 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 Parameters were reported at NC DWM Solid Waste Section Limits (SWSLs). The laboratory analytical report is included as **Appendix A**.

4.2 Field and Laboratory Results

The field parameter results are included in **Table 2**, while detected constituents are presented in **Tables 3 & 4**.

Six (6) inorganic constituents (beryllium, cadmium, cobalt, iron, manganese and zinc) were detected above the SWSL in 4 wells (CD-1 through CD-4) shown in **Table 3**. Of these, three (3) inorganic constituents were detected above the 2L ground water standards:

- cobalt (CD-2);
- iron (CD-1, CD-2, CD-3, CD-4); and
- manganese (CD-1, CD-2, CD-3).

Sulfate was detected in well CD-2, above the 2L groundwater standards. No organic constituents were detected above the SWSLs.

No surface water samples were collected. Constituents detected below the SWSL are denoted as “J” values and are also included in **Tables 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 southwest direction. 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 data and analyses show relatively stable ground water quality at the Washington County C&D Landfill. The inorganic constituents detected are likely due to turbidity in the sample as these constituents are naturally occurring in the soils.

The next ground water monitoring event is scheduled for April 2010. Results will be reported upon completion of laboratory analysis.

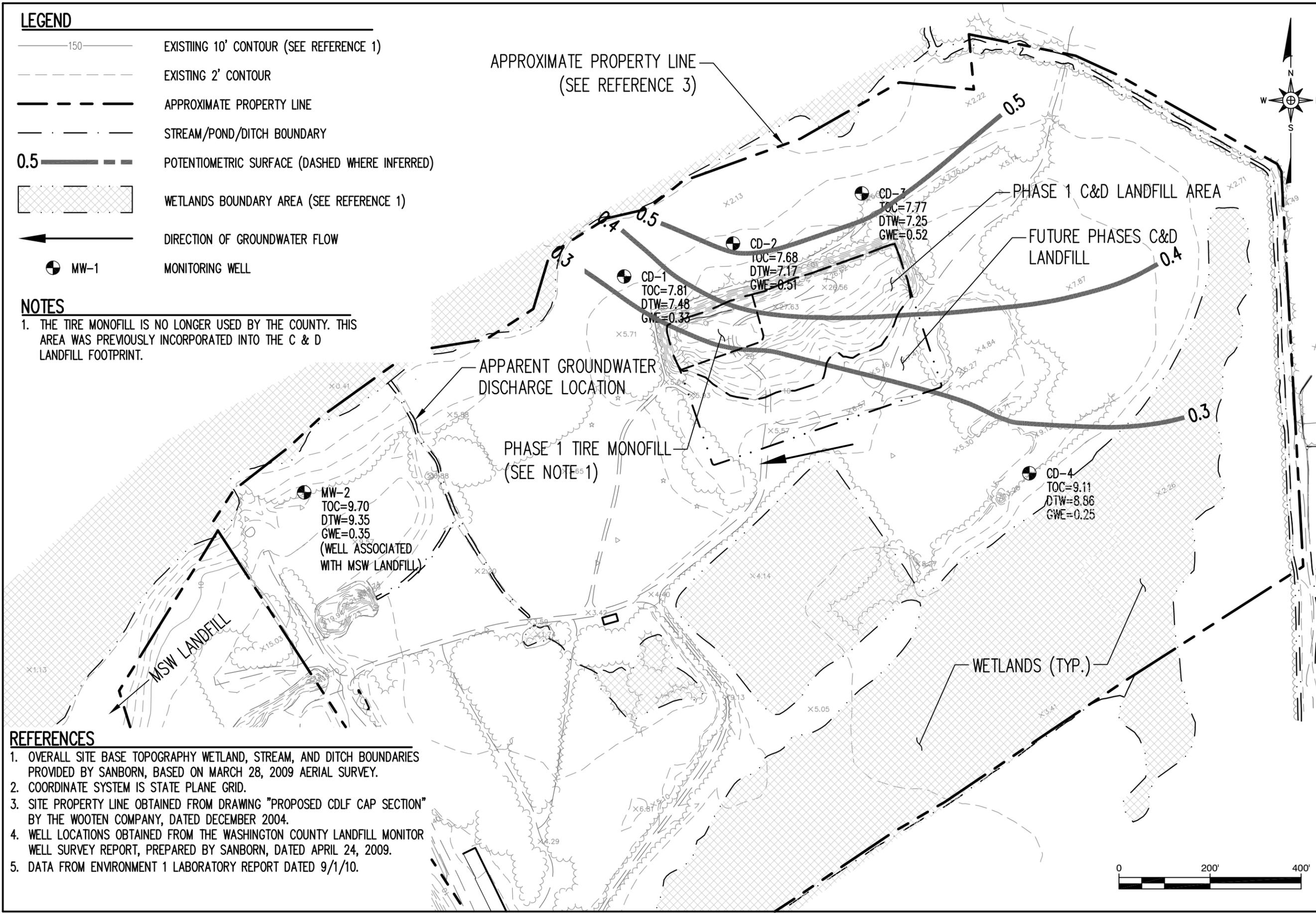
Figures

LEGEND

- 150 EXISTING 10' CONTOUR (SEE REFERENCE 1)
- EXISTING 2' CONTOUR
- APPROXIMATE PROPERTY LINE
- STREAM/POND/DITCH BOUNDARY
- 0.5 POTENTIOMETRIC SURFACE (DASHED WHERE INFERRED)
- WETLANDS BOUNDARY AREA (SEE REFERENCE 1)
- DIRECTION OF GROUNDWATER FLOW
- MW-1 MONITORING WELL

NOTES

1. THE TIRE MONOFILL IS NO LONGER USED BY THE COUNTY. THIS AREA WAS PREVIOUSLY INCORPORATED INTO THE C & D LANDFILL FOOTPRINT.



REFERENCES

1. OVERALL SITE BASE TOPOGRAPHY WETLAND, STREAM, AND DITCH BOUNDARIES PROVIDED BY SANBORN, BASED ON MARCH 28, 2009 AERIAL SURVEY.
2. COORDINATE SYSTEM IS STATE PLANE GRID.
3. SITE PROPERTY LINE OBTAINED FROM DRAWING "PROPOSED CDF CAP SECTION" BY THE WOOTEN COMPANY, DATED DECEMBER 2004.
4. WELL LOCATIONS OBTAINED FROM THE WASHINGTON COUNTY LANDFILL MONITOR WELL SURVEY REPORT, PREPARED BY SANBORN, DATED APRIL 24, 2009.
5. DATA FROM ENVIRONMENT 1 LABORATORY REPORT DATED 9/1/10.

RICHARDSON SMITH GARDNER & ASSOCIATES
INC. LIC. NO. C-2282 (ENGINEERING)
 www.rsgengineers.com

14 N. Boylan Ave.
 Raleigh, N.C. 27603
 ph: 919-826-0577
 fax: 919-826-3899

DRAWN BY: J.A.L.	CHECKED BY: J.A.S.	SCALE: AS SHOWN	FIGURE NO. 1
DATE: Dec. 2010		PROJECT NO. WASH 08-2	
		FILE NAME WASH-B0023	

**WASHINGTON COUNTY
 C&D LANDFILL
 POTENTIOMETRIC SURFACE MAP
 FALL 2010**

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Tables



By: LAQ
Date: 10/11/2010

Table 1
Groundwater Elevations
Washington County C&D Landfill
9/1/2010

Well	Northing	Easting	TOC Elevation (feet)	Water Level (feet)	GW Elev (feet)
CD-1	799028.14	2691515.73	7.81	7.48	0.33
CD-2	799100.9	2691755.17	7.68	7.17	0.51
CD-3	799210.55	2692038.09	7.77	7.25	0.52
CD-4	798597.78	2692406.42	9.11	8.86	0.25

Lab data analyzed by Environmental 1, Inc. ID# 6030 September 1, 2010.

Well locations and elevations provided by Sanborn, Charlotte, NC from field survey conducted on 4/8/09.

Table 2
Field Parameter Results
Washington County C&D Landfill
9/1/2010

Well	pH (Std units)	Spec Cond (umhos/cm)	Temp (celsius)
CD-1	4.7	324	19
CD-2	3.9	923	20
CD-3	5.3	156	18
CD-4	5.2	42	19

Note: PH measured with a "Hanna" pH/EC/TDS Meter, type HI9811
Temperature measured with a laboratory grade thermometer.
Lab data analyzed by Environmental 1, Inc. ID# 6030 September 1, 2010.



By: LAQ
Date: 10/11/2010

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Lab data analyzed by Environmental 1, Inc. ID# 6030 September 1, 2010.

Well locations and elevations provided by Sanborn, Charlotte, NC from field survey conducted on 4/8/09.

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#: 6030

WASHINGTON CO. LANDFILL (C&D)
MR. CARL CRITCHER
P.O. BOX 1007
PLYMOUTH ,NC 27962

DATE COLLECTED: 09/01/10
DATE REPORTED : 09/24/10

REVIEWED BY: 

PARAMETERS	MDL	SWSL	CD-1	CD-2	CD-3	CD-4	Analysis Date	Analyst	Method Code	
PH (field measurement), Units			4.7	3.9	5.3	5.2	09/01/10	RJH	SM4500HB	
Total Alkalinity, mg/l	1.0	1.0	1.0	---	U	8	3	09/01/10	TRB SM2320B	
Chloride, mg/l	5.0	5.0	19	22	7	---	U	09/02/10	MEL SM4500-CLB	
Total Dissolved Residue, mg/l	1.0	1.0	194	663	105	12	09/02/10	MJN	SM2540C	
Sulfate, mg/l	5.0	250.0	129.6 J	761.3	61.4 J			09/13/10	TRB SM426C	
Sulfate, mg/l	5.0	250.0				10.7 J		09/01/10	TRB SM426C	
Antimony, ug/l	0.22	6.0	---	U	---	U		09/03/10	LFJ EPA200.8	
Antimony, ug/l	0.22	6.0					---	U	09/21/10	CMF EPA200.8
Arsenic, ug/l	0.04	10.0	---	U	1.5 J	0.9 J		09/03/10	LFJ EPA200.8	
Arsenic, ug/l	0.04	10.0					---	U	09/21/10	CMF EPA200.8
Barium, ug/l	0.03	100.0	33.6 J	10.9 J	57.2 J			09/03/10	LFJ EPA200.8	
Barium, ug/l	0.03	100.0				16.5 J		09/21/10	CMF EPA200.8	
Beryllium, ug/l	0.02	1.0	0.4 J	2.4	0.3 J			09/03/10	LFJ EPA200.8	
Beryllium, ug/l	0.02	1.0				0.2 J		09/21/10	CMF EPA200.8	
Cadmium, ug/l	0.02	1.0	0.4 J	1	1			09/03/10	LFJ EPA200.8	
Cadmium, ug/l	0.02	1.0				0.3 J		09/21/10	CMF EPA200.8	
Cobalt, ug/l	0.10	10.0	2.8 J	14	1.1 J			09/03/10	LFJ EPA200.8	
Cobalt, ug/l	0.10	10.0				1.0 J		09/21/10	CMF EPA200.8	
Copper, ug/l	0.03	10.0	0.3 J	1.4 J	1.9 J			09/03/10	LFJ EPA200.8	
Copper, ug/l	0.03	10.0					---	U	09/21/10	CMF EPA200.8
Total Chromium, ug/l	0.03	10.0	---	U	0.6 J	1.7 J			09/03/10	LFJ EPA200.8
Total Chromium, ug/l	0.03	10.0					---	U	09/21/10	CMF EPA200.8
Iron, ug/l	13.8	300.0	7113	17730	15880	659		09/24/10	LFJ SM3111B	
Manganese, ug/l	0.61	50.0	785	1784	1324	26 J		09/15/10	LFJ EPA200.7	
Lead, ug/l	0.01	10.0	0.2 J	1 J	5.6 J			09/03/10	LFJ EPA200.8	
Lead, ug/l	0.01	10.0				0.1 J		09/21/10	CMF EPA200.8	
Mercury, ug/l	0.08	0.20	---	U	---	U		09/03/10	LFJ EPA200.8	
Mercury, ug/l	0.08	0.20					---	U	09/21/10	CMF EPA200.8
Nickel, ug/l	0.05	50.0	1.2 J	5.9 J	1.3 J			09/03/10	LFJ EPA200.8	
Nickel, ug/l	0.05	50.0					---	U	09/21/10	CMF EPA200.8
Selenium, ug/l	0.32	10.0	0.9 J	2.8 J	0.8 J			09/03/10	LFJ EPA200.8	
Selenium, ug/l	0.32	10.0					---	U	09/21/10	CMF EPA200.8
Silver, ug/l	0.03	10.0	---	U	---	U		09/03/10	LFJ EPA200.8	
Silver, ug/l	0.03	10.0					---	U	09/21/10	CMF EPA200.8
Thallium, ug/l	0.05	5.5	---	U	0.1 J	---	U	09/03/10	LFJ EPA200.8	
Thallium, ug/l	0.05	5.5				0.1 J		09/21/10	CMF EPA200.8	
Vanadium, ug/l	0.03	25.0	0.7 J	6.4 J	13.1 J			09/03/10	LFJ EPA200.8	
Vanadium, ug/l	0.03	25.0				3.3 J		09/21/10	CMF EPA200.8	
Zinc, ug/l	0.08	10.0	59	51	5.4 J			09/03/10	LFJ EPA200.8	
Zinc, ug/l	0.08	10.0					---	U	09/21/10	CMF EPA200.8
Conductivity (at 25c), uMhos	1.0	1.0	324	923	156	42		09/01/10	RJH SM2510B	
Temperature, °C			19	20	18	19		09/01/10	RJH SM2550B	
Static Water Level, feet			7.48	7.17	7.25	8.86		09/01/10	RJH	
Well Depth, feet			22.90	19.90	21.45	20.67		09/01/10	RJH	

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

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 CLIENT: WASHINGTON CO. LANDFILL (C&D)
 MR. CARL CRITCHER
 P.O. BOX 1007
 PLYMOUTH, NC 27962

CLIENT ID: 6030

 ANALYST: MAO
 DATE COLLECTED: 09/01/10
 DATE REPORTED: 09/24/10

Page: 1

 REVIEWED BY: 
**VOLATILE ORGANICS
 EPA METHOD 8260B**

PARAMETERS, ug/l	Date Analyzed:		09/08/10	09/08/10	09/09/10	09/09/10
	MDL	SWSL	CD-1	CD-2	CD-3	CD-4
1. Chloromethane	0.77	1.0	---	U	---	U
2. Vinyl Chloride	0.63	1.0	---	U	---	U
3. Bromomethane	0.67	10.0	---	U	---	U
4. Chloroethane	0.48	10.0	---	U	---	U
5. Trichlorofluoromethane	0.24	1.0	---	U	---	U
6. 1,1-Dichloroethene	0.17	5.0	---	U	---	U
7. Acetone	9.06	100.0	---	U	---	U
8. Iodomethane	0.26	10.0	---	U	---	U
9. Carbon Disulfide	0.23	100.0	---	U	---	U
10. Methylene Chloride	0.64	1.0	---	U	---	U
11. trans-1,2-Dichloroethene	0.23	5.0	---	U	---	U
12. 1,1-Dichloroethane	0.20	5.0	---	U	---	U
13. Vinyl Acetate	0.20	50.0	---	U	---	U
14. Cis-1,2-Dichloroethene	0.25	5.0	---	U	---	U
15. 2-Butanone	2.21	100.0	---	U	---	U
16. Bromochloromethane	0.27	3.0	---	U	---	U
17. Chloroform	0.25	5.0	---	U	---	U
18. 1,1,1-Trichloroethane	0.19	1.0	---	U	---	U
19. Carbon Tetrachloride	0.22	1.0	---	U	---	U
20. Benzene	0.24	1.0	---	U	---	U
21. 1,2-Dichloroethane	0.27	1.0	---	U	---	U
22. Trichloroethene	0.23	1.0	---	U	---	U
23. 1,2-Dichloropropane	0.21	1.0	---	U	---	U
24. Bromodichloromethane	0.21	1.0	---	U	---	U
25. Cis-1,3-Dichloropropene	0.24	1.0	---	U	---	U
26. 4-Methyl-2-Pentanone	1.19	100.0	---	U	---	U
27. Toluene	0.23	1.0	---	U	---	U
28. trans-1,3-Dichloropropene	0.28	1.0	---	U	---	U
29. 1,1,2-Trichloroethane	0.25	1.0	---	U	---	U
30. Tetrachloroethene	0.17	1.0	---	U	---	U
31. 2-Hexanone	1.57	50.0	---	U	---	U
32. Dibromochloromethane	0.24	3.0	---	U	---	U
33. 1,2-Dibromoethane	0.26	1.0	---	U	---	U
34. Chlorobenzene	0.30	3.0	---	U	---	U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	---	U	---	U
36. Ethylbenzene	0.21	1.0	---	U	---	U
37. Xylenes	0.68	5.0	---	U	---	U
38. Dibromomethane	0.28	10.0	---	U	---	U
39. Styrene	0.19	1.0	---	U	---	U
40. Bromoform	0.20	3.0	---	U	---	U
41. 1,1,1,2-Tetrachloroethane	0.26	3.0	---	U	---	U
42. 1,2,3-Trichloropropane	0.43	1.0	---	U	---	U
43. 1,4-Dichlorobenzene	0.39	1.0	---	U	---	U
44. 1,2-Dichlorobenzene	0.32	5.0	---	U	---	U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	---	U	---	U
46. Acrylonitrile	2.72	200.0	---	U	---	U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	---	U	---	U

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

