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).
- 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: Madeline German, PG Phone: 919-828-0577 x222

E-mail: madeline@rsgengineers.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Johnston County C&D Landfill	County Home Road, Smithfield, NC	51-03	.0500	October 25-27, 2011

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.

Madeline German, PG — Geologist — 919-828-0577 x222

Facility Representative Name (Print) — Title — (Area Code) Telephone Number

Signature — 1/31/2012 Date — Affix NC Licensed/ Professional Geologist Seal

14 N. Boylan Ave, Raleigh, NC 27603

Facility Representative Address

C-0828

NC PE Firm License Number (if applicable effective May 1, 2009)

NORTH CAROLINA LICENSED SEAL 2275 GEOLOGIST MADELINE GERMAN 1/31/2012

Revised 6/2009

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Johnston County Landfill Phase 5
Ground Water Monitoring Report

Fall 2011 Semi-annual
Monitoring Event

Johnston County Landfill
Smithfield, North Carolina
NC Solid Waste Permit # 51-03

Prepared for:
Johnston County Department of Public Utilities
309 East Market Street
Smithfield, North Carolina 27577

January 2012

RICHARDSON SMITH GARDNER
& ASSOCIATES
ENGINEERING & GEOLOGICAL
SERVICES

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Johnston County – Phase 5 Lined Landfill
Semi-annual Ground Water Monitoring Report
Fall 2011 Sampling Event

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Appendix A – Monitoring Well Information
Appendix B – Laboratory Analytical Report
Appendix C – Time vs. Concentration Graphs

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1 INTRODUCTION

Richardson Smith Gardner and Associates (RSG) is pleased to submit this semi-annual groundwater sampling report on behalf of the Johnston County Subtitle-D Phase 5 landfill in accordance with Solid Waste Section Rule 15A NCAC 13B. The Phase 5 unit operated under Solid Waste Permit # 51-03. This report presents semi-annual ground water monitoring results for the event performed October 24, 25 and 27, 2011.

The Phase 5 ground water monitoring network includes ten ground water monitoring wells and four leachate lagoon monitoring wells. This report includes a field procedure summary, laboratory analyses, statistical analyses and ground water characterization. Time concentration graphs and laboratory analytical reports are also provided.

2 SITE GEOLOGY

The site is underlain by Middendorf Formation sediments deposited largely in a deltaic system. According to Geology of the Carolinas (Horton/Zullo, 1991) the Middendorf Formation consists of unfossiliferous, interbedded, thin clay and sand. The stratigraphy tends to be discontinuous, indicating that the sediment deposits are lenticular. Most sediments range from silty clay to a coarse clayey sand and gravel with thin dense clay lenses. There are occasional concretions of iron oxide minerals which form very hard thin layers within the sand layers. In general, the unconsolidated sediments logged during drilling events at the site consisted of medium to coarse sands with some silts and clays. The Middendorf Formation is underlain by highly weathered metamorphic rocks of the Carolina Slate Belt.

Topography controls the Middendorf Formation thickness with the bottom being relatively flat-lying at elevations of approximately 170 fmsl[1]. The unconsolidated sediment thickness ranges from approximately 65 feet to less than 10 feet in the lower elevations surrounding the landfill.

3 SAMPLING LOCATIONS

The ground water monitoring network for Phased 5 consists of ten ground water monitoring wells (MW-5-1, MW-5-2, MW-5-3, MW-5-4, MW-5-5, MW-5-6, MW-5-7, MW-5-8, MW-5-9, and MW-5-10), two surface water locations, up and downstream on a tributary of Middle Creek, (SW5-1 and SW5-2) and six leachate collection points (Leachate Lagoon #1, Leachate Lagoon #2, Leachate Lagoon # 3, Leachate Lagoon #4, Leachate Jun Box and Leachate). MW-5-1 functions as the background well for this phase. Surface water location SW5-2 contained insufficient water and was unable to be sampled this event. A trip blank (TB) and equipment blank (EB) were also included for quality control.

Sampling locations are provided on **Figure 1**. Boring information for monitoring well locations is presented in **Appendix A**.

[1] fmsl = feet above mean sea level

4 SAMPLING PROCEDURES

The sampling event performed by Johnston County personnel, on October 24, 25 & 27, 2011 was conducted in accordance with the approved site Water Quality Monitoring Plan. 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 for pH, specific conductivity and temperature were recorded at each well.

Samples were collected by Johnston County personnel in laboratory prepared containers for the specified analytical procedures. Samples were collected using dedicated, Micropurge low-flow pumps. Ground water samples were properly preserved, placed on ice and transported to a NC certified laboratory facility within the specified hold times for each analysis.

Water table elevations are presented in **Table 1.**

5 FIELD AND LABORATORY RESULTS

5.1 Field Results

Temperature, pH and specific conductance were measured in the field at the time of sampling via direct read instruments. In general, field parameter results remained consistent with previously reported sampling events; however, turbidity levels at MW-5-4 were above average. Results are summarized in **Table 2**

5.2 Laboratory Analysis

Samples were transported to Environment 1, Inc., a North Carolina certified laboratory (NC Wastewater ID #10) located in Greenville, NC. Groundwater and the four leachate lagoon samples were analyzed for Appendix I VOCs per EPA Test Method 8260B and Appendix I metals via EPA Test Method 200.8. The leachate jun box and leachate sample were also analyzed for BOD, COD, total suspended residue, ammonia nitrogen, nitrate nitrogen, total phosphorous and sulfate via the SWS approved test method stated in the laboratory report.

Samples were transported to the laboratory facility under proper chain of custody and analyzed at the specified DWM Solid Waste Section Limits (SWSL)[2] for Appendix constituents.

The laboratory analytical report is included as **Appendix B**.

5.3 Laboratory Results

The laboratory analysis results were compared with the 15A NCAC 2L 0200 Groundwater Standard (2L Standard), SWSL or Groundwater Protection (GWP) Standard. Inorganic results remain generally consistent with historically reported detections.

5.3.1 Inorganic Constituents

Seven inorganic constituents were reported above their respective 2L Standard, SWSL or GWP

[2] New Guidelines for electronic submittal of environmental monitoring data memo, NCDENR DWM, Solid Waste Section, October 27, 2006.

standard. Seven inorganic constituents (barium, beryllium, cadmium, cobalt, copper, lead and zinc) were detected above the SWSL. Of these only:

- barium (MW5-4);
- cobalt (MW-5-4 & MW-5-10); and
- lead (MW5-4)

were reported above their respective 2L/GWP Standards. These results likely have a high-bias, due to abnormally high sample turbidity in MW5-4 for this event.

5.3.2 Organic Constituent

The laboratory results detected two constituents: 1,1-Dichloroethane in MW5-5 and 1,2-dichloropropane above their SWSL. One organic constituent was detected above its 2L Standard:

- 1,2-dichloropropane (MW5-2).

No contaminants were identified in the surface water sample above their respective 2B Standards. Laboratory detections are presented in **Table 3**.

6 STATISTICAL ANALYSIS & RESULTS

6.1 Statistical Analysis

RSG reviewed the laboratory data for this event to evaluate trends, examine major site changes and establish statistical significance while considering differences between up and down gradient wells. The inorganic laboratory analytical results were entered into our statistical database for the site. Data entry and analysis was performed using the Chempoint/Chemstat™ statistical software package developed specifically for RCRA Subtitle D sites (Starpoint Software, Cincinnati, OH). Chemstat follows EPA and DSWM protocols for approved statistical analysis methods for groundwater data.

Initial analysis included basic data review and a graphical time-concentration comparison to observe major changes or trends. Parametric Prediction Interval Analysis was used on most wells based on the percentage of non-detects. Sens Slope Analysis was also run if a well was evaluated as significant. Statistical analysis was performed on detected inorganic constituents using MW-5-1 as background well and MW-5-2, MW-5-3, MW-5-4, MW-5-5, MW-5-6, MW-5-7, MW-5-8, MW-5-9 and MW-5-10 as the compliance wells.

The following inorganic constituents were found to be statistically significant:

- barium (MW-5-4);
- cobalt (MW-5-10); and
- lead (MW-5-4).

A statistical analysis summary is included as **Table 4**; highlighted constituents were found to be statistically significant. Turbidity levels above the field meters capability potentially influenced the increased metal detections reported in MW-5-4.

6.2 2L/MCL Statistical Analysis

Additional analysis was performed on well data that presented statistically significant differences from background concentrations. This analysis has recently been required as part of ongoing Assessment Monitoring for North Carolina landfills. To perform the analysis, the respective 2L standard or MCL was determined for each parameter with statistically significant results. Compliance wells demonstrating statistical significance were re-analyzed against the lower of the 2L or MCL standard as a Ground Water Protection Standard (GWPS).

This analysis was performed using tolerance interval analysis. Since a smaller subset of wells was analyzed during this step, the compliance well data were retested for normal distribution. Retested wells did not exhibit normal distribution and Poisson tolerance intervals were constructed as well.

The statistical results for this additional analysis are presented in **Table 4**. An upper tolerance limit higher than the GWPS standard was considered to be a statistically significant result. This analysis indicated statistically significant results for:

- barium (MW-5-4);
- cobalt (MW-5-10); and
- lead (MW-5-4).

Note that the sample from MW-5-4 had a turbidity level of 60.4 NTU, potentially accounting for the elevated metal constituents detected.

7 GROUND WATER CHARACTERIZATION

A potentiometric surface map was prepared from ground water data collected during this sampling event. Ground water velocity was calculated for each monitoring well using the equation V = (KI)/n where:

K = hydraulic conductivity
I = ground water gradient
n = porosity

Ground water velocities ranged from 0.004 feet/day (MW-5-10) to 0.682 feet/day (MW-5-2); calculations are included in **Table 1**. Data indicates that ground water is flowing generally north toward Middle Creek; which is consistent with previously observed flow patterns for this site. The potentiometric surface map is presented as **Figure 1.**

8 GROUND WATER ASSESSMENT

1,2-Dichloropropane was detected in MW-5-2 for this sampling event. Historically, decreasing concentrations have been detected in MW-5-2 and MW-5-8. 1,2-Dichloropropane can be used as a soil fumigant. Since this property was historically used for farming, we believe that is the 1,2-dichloropropane contamination source.

Detections of 1,2-dichloropropane below the SWSL have been intermittent. During this most recent and multiple past sampling events no 1,2-dichloropropane was detected in leachate samples above the method detection limit (MDL); therefore, it is unlikely that the landfill is the impact source. Additionally, no other constituent detected in the leachate was found in these well samples; further supporting historical farming practices as the source. We will continue to monitor 1,2-dichloropropane levels in future monitoring events.

9 CONCLUSIONS

Inorganic constituents were detected above the 2L Standard and reported as statistically significant for this event. High turbidity levels resulting from excess sediment in the samples likely caused this high bias. Additionally, an historical groundwater assessment on another portion of the property indicated that suspended sediment in groundwater samples impacts inorganic constituent concentrations.

The organic constituent 1,2-dichloropropane was reported above the 2L Standard; however, we believe its source is historic farming practices at the site and is not a result of landfill activity.

The next semi-annual sampling event is tentatively scheduled for April 2012. Results will be submitted following laboratory and statistical analyses.

Figures

LEGEND

- PROPERTY LINE (SHOWN WHITE ON MAP)
- ADJACENT PROPERTY LINES (SHOWN WHITE ON MAP)
- PHASE BOUNDARY
- EXISTING GROUND WATER MONITORING WELL
- C&D MONITORING WELL
- ABANDONED WELL
- APPROXIMATE SURFACE WATER SAMPLING LOCATION
- POTENTIOMETRIC SURFACE CONTOUR
- EXISTING DRAINAGE FEATURES/STREAMS
- TOC= TOP OF CASING
- DTW= DEPTH TO WATER (SEE NOTE 1)
- GWE= GROUND WATER ELEVATION
- NM NOT MEASURED
- GRADIENT MEASUREMENT

NOTE

1. GROUND WATER DATA COLLECTED IN OCTOBER 2011.
2. WELLS MARKED WITH AN * WERE NOT USED IN CONTOURING POTENTIOMETRIC SURFACE.

REFERENCES

1. AERIAL PHOTOGRAPHY PROVIDED BY GEODATA CORP. ON JUNE 17, 2011.

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NO.	DATE	REVISION

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SEAL

SEAL

PROJECT TITLE: JOHNSTON COUNTY LANDFILL
SMITHFIELD, NORTH CAROLINA

DRAWING TITLE: GROUND WATER POTENTIOMETRIC SURFACE MAP FALL 2011

DESIGNED BY: M.M.G.	DRAWN BY: W.R.B.
CHECKED BY:	PROJECT NO.: JOHN-4
SCALE: AS SHOWN	DATE: JAN. 2011
FILE NAME: JOHN-D0650	
SHEET NO.	DRAWING NO. FIG. 1

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Tables

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By: MG
Date: 1/26/2012

Table 1
Johnston County Phase 5 Lined Landfill
Ground Water Elevations & Velocities
October 24, 25 & 27, 2011

Well	Northing	Easting	TOC Elevation (feet)	Water Level (feet)	Groundwater Elevation (feet)	Hydraulic Conductivity (ft/day)	Porosity (%)	Gradient (ft/ft)	Velocity (ft/day)
MW-5-1	642015.58	2169415.40	232.17	25.85	206.32	2.275	0.2	0.018	0.205
MW-5-2	642487.14	2168749.63	206.77	7.03	199.74	5.247	0.2	0.026	0.682
MW-5-3	642851.56	2168588.27	203.80	12.91	190.89	0.995	0.2	0.028	0.139
MW-5-4	643464.18	2168455.67	186.58	10.50	176.08	0.465	0.2	0.028	0.065
MW-5-5	643800.44	2168449.11	185.42	16.90	168.52	0.261	0.2	0.014	0.018
MW-5-6	643938.92	2168706.91	199.11	32.13	166.98	0.366	0.2	0.022	0.039
MW-5-7	643786.20	2169150.69	182.73	13.49	169.24	0.422	0.2	0.168	0.354
MW-5-8	643347.86	2169177.25	189.31	10.48	178.83	0.312	0.2	0.027	0.042
MW-5-9	643102.64	2169406.82	198.31	15.11	183.20	0.309	0.2	0.028	0.043
MW-5-10	642917.77	2169543.59	202.88	15.99	186.89	0.037	0.2	0.023	0.004
LL-1	645398.84	2168192.54	na	na	na	na	na	na	na
LL-2	645867.44	2168271.33	na	21.45	na	na	na	na	na
LL-3	645957.48	2168106.00	na	na	na	na	na	na	na
LL-4	645781.30	2167851.39	na	13.97	na	na	na	na	na

Notes: Velocity Calculated from V=K*I/n
V = velocity
K = Hydraulic Conductivity
I = Gradient
n = Porosity
Hydraulic Conductivity data from slug testing
Porosity values assumed from Groundwater & Wells (Driscoll)
na = not available

By: MG
Date: 1/26/2012

Table 2
Johnston County Phase 5 Lined Landfill
Field Parameters
October 24, 25 & 27, 2011

Well Identification #	Static Water Level (ft) (DTW)	Temperature (°Celsius)	Turbidity (NTU)	pH	Specific Conductivity (uS/cm)
MW – 5-1	25.85	19.81	111	4.23	160
MW – 5-2	7.03	18.57	47.7	4.01	394
MW – 5-3	12.91	20.45	192	4.29	106
MW – 5-4	10.50	17.88	*	4.78	56
MW – 5-5	16.90	20.77	54.4	4.66	49
MW – 5-6	32.13	19.77	7.04	4.86	72
MW – 5-7	13.49	16.93	38.4	4.98	61
MW – 5-8	10.48	18.54	1.51	4.76	345
MW – 5-9	15.11	17.78	15.3	4.58	80
MW – 5-10	15.99	17.47	57.2	5.33	56
Phase 5 Direct Leachate	N/A	21.41	105	7.43	8420
Lagoon Lchte.#1	na	18.43	1.44	5.5	120
Lagoon Lchte. #2	21.45	17.37	1.57	5.64	119
Lagoon Lchte. #3	na	20.02	7.82	5.75	68
Lagoon Lchte. #4	13.97	17.66	74.3	5.84	116
SW5 – 1	N/A	13.43	9.67	6.58	321
SW5 – 2	N/A	IWV	IWV	IWV	IWV

N/A - Not Analyzed
Data collected by Kevin Shields of Johnston County
* Exceeded field instrument capability
IWV- insufficient water volume

By: MG
Date: 1/26/2012

Table 3
Johnston County Phase 5 Lined Landfill
Detected Inorganic and Organic Constituents
October 24, 25 & 27, 2011

Inorganic Constituents

Parameter	MDL	SWSL	2L/GWP	2B	MW-5-1	MW-5-2	MW-5-3	MW-5-4	MW-5-5	MW-5-6	MW-5-7	MW-5-8	MW-5-9	MW-5-10	SW-5-1
Antimony	0.14	6	1*	640	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	0.19 J	<0.14	<0.14	<0.14	<0.14
Arsenic	0.10	10	10	10	0.42 J	<0.10	0.34 J	4.4 J	<0.10	0.21 J	<0.10	<0.10	<0.1	0.66 J	<0.10
Barium	0.02	100	700	2000000	**186**	**474**	**126**	**1779**	64.6 J	**118**	62.7 J	**590**	**102**	**386**	**279**
Beryllium	0.02	1	4*	6.5	0.31 J	**1**	**1**	**2**	0.15 J	0.15 J	0.25 J	0.35 J	0.29 J	0.16 J	<0.02
Cadmium	0.02	1	2	2	<0.02	0.24 J	0.12 J	**1**	<0.02	0.06 J	<0.02	0.11 J	0.06 J	0.16 J	<0.02
Cobalt	0.03	10	1*	270	2.0 J	5.7 J	3.7 J	**14**	5.3 J	5.8 J	7.5 J	6.2 J	3.2 J	**31**	0.34 J
Copper	0.02	10	1000	7	0.93 J	2.1 J	6.0 J	**14**	1.2 J	1.8 J	2.0 J	1.2 J	1.3 J	2.1 J	0.74 J
Total Chromium	0.04	10	10	50	0.86 J	1.1 J	2.2 J	3.7 J	1.0 J	0.30 J	0.98 J	0.11 J	0.82 J	2.5 J	0.50 J
Lead	0.02	10	15	25	2.7 J	6.5 J	6.8 J	**41**	2.7 J	3.3 J	1.4 J	4.9 J	2.2 J	5.7 J	0.25 J
Nickel	0.04	50	100	88	3.3. J	6.3 J	3.7 J	13.0 J	2.2 J	2.6 J	7.6 J	6.8 J	3.0 J	6.2 J	1.3 J
Selenium	0.20	10	20	5	<0.20	<0.20	<0.20	2.9 J	<0.02	<0.20	<0.20	<0.20	0.37 J	0.79 J	<0.20
Silver	0.02	10	20	0.06	<0.20	<0.20	<0.20	0.27 J	<0.02	<0.20	0.06 J	<0.02	0.06 J	<0.02	<0.02
Thallium	0.02	5.5	0.28*	0.47	0.09 J	0.13 J	0.04 J	0.37 J	0.03 J	0.12 J	0.05 J	0.14 J	0.04 J	0.33 J	0.06 J
Vanadium	0.14	25	0.3*	NE	1.3 J	2.0 J	5.2 J	4.9 J	1.1 J	0.3 J	0.61 J	<0.14	1.5 J	8.1 J	0.45 J
Zinc	0.24	10	1000	50	0.89 J	6.8 J	9.8 J	**46**	2.0 J	6.7 J	**11**	3.1 J	4.3 J	5.8 J	0.98 J

Organic Constituents

Parameter	MDL	SWSL	2L	MW-5-2	MW-5-3	MW-5-5	MW-5-6	MW-5-7	MW-5-8	MW-5-9
1,1-Dichloroethane	0.20	5	6	<0.20	<0.20	<0.20	0.50 J	0.50 J	**5.4**	0.30 J
1,2-Dichloropropane	0.21	1	0.6	**3.8**	0.4 J	<0.21	<0.21	<0.21	<0.21	<0.21
Benzene	0.24	1	1	<0.24	<0.24	<0.24	0.70 J	<0.24	<0.24	<0.24
Toluene	0.23	1	600	0.30 J	0.40 J	0.30 J	<0.23	<0.23	<0.23	<0.230
Cis-1,2-Dichloroethene	0.25	5	70	<0.25	<0.25	<0.25	0.70 J	<0.25	<0.25	<0.25

NOTE:

MDL	-	Method Detection Limit
SWSL	-	Solid Waste Section Quantitation Limit
2L	-	Groundwater Standard (15A NCAC 2L 0200)
GWP		Groundwater Protection Standard (indicated by *)
2B	-	NCAC 2B Standard for Class C waters
< MDL	-	Not detected at or above the MDL
Shading	-	Levels above 2L standard or GWP
Bold Letters	-	Constituent detected above SWSL
J	-	"J-qualified" reported from laboratory as data between the MDL and SWSL

Results are presented in ug/l.
Data from 11/09/2011 Environment 1, Incorporated Laboratory Report #6033.

By: MG
Date: 1/26/2012

Table 4
Johnston County Phase 5 Landfill
Statistical Analysis Summary
October 24, 25 & 27, 2011

Location	Parameter	Result	Detection Limit	Test Units	%ND	Test	Statistically Significant?	2nd statistical Analysis	Test
MW 5-1	Barium	186	100	ug/l	69	PP	N	--	--
MW 5-2	Barium	474	100	ug/l	58.6	PP	N	--	--
MW 5-3	Barium	126	100	ug/l	67	PP	N	--	--
MW 5-4	Barium	1779	100	ug/l	72.4	PP	Y	Y	MCL-PTI (1992)
MW 5-6	Barium	118	100	ug/l	75.8	PP	N	--	--
MW 5-8	Barium	590	100	ug/l	69	PP	N	--	--
MW 5-9	Barium	102	100	ug/l	79.9	PP	N	--	--
MW 5-10	Barium	386	100	ug/l	65.5	PP	N	--	--
MW 5-2	Beryllium	1	1	ug/l	69	PP	N	--	--
MW 5-3	Beryllium	1	1	ug/l	72.4	PP	N	--	--
MW 5-4	Beryllium	2	1	ug/l	75.9	PP	N	--	--
MW-5-4	Cadmium	1	1	ug/l	79.3	PP	N	--	--
MW-5-4	Cobalt	14	10	ug/l	75.9	PP	N	--	--
MW-5-10	Cobalt	31	10	ug/l	37.9	PP	Y	Y	MCL-PTI (1992)
MW-5-4	Copper	14	10	ug/l	75.9	PP	N	--	--
MW 5-4	Lead	41	10	ug/l	75.9	PP	Y	Y	MCL-PTI (1992)
MW 5-4	Zinc	46	10	ug/l	72.4	PP	N	--	--
MW 5-7	Zinc	11	10	ug/l	72.4	PP	N	--	--

Legend:
%ND Percent non-detects
PP Parametric Prediction Interval Analysis

Shading indicates statistical significance.

Notes:
MW-5-1 was used as the background well

By: MG
Date: 1/26/2012

Table 5
Johnston County Phase 5 Lined Landfill
Leachate and Leachate Pond Summary
October 24, 25 & 27, 2011

Parameter	Unit	Leachate	Leachate Junction Box	Leachate Lagoon #1	Leachate Lagoon #2	Leachate Lagoon #3	Leachate Lagoon #4
Ammonia Nitrogen as N	ug/l	447000	583000	NS	NS	NS	NS
BOD	ug/l	42000	30000	NS	NS	NS	NS
COD	ug/l	935000	874000	NS	NS	NS	NS
Sulfate	ug/l	ND	10700 J	NS	NS	NS	NS
Nitrate Nitrogen as N	ug/l	ND	ND	NS	NS	NS	NS
Total Phosphorus as P	ug/l	680	1240	NS	NS	NS	NS
Total Suspended Residue	ug/l	29000	39000	NS	NS	NS	NS
Antimony	ug/l	2.8 J	3.2 J	ND	ND	ND	ND
Arsenic	ug/l	19	21	ND	ND	ND	ND
Barium	ug/l	374	454	10.6 J	9.1 J	14.4 J	1.3 J
Beryllium	ug/l	ND	ND	ND	ND	ND	ND
Cadmium	ug/l	0.60 J	0.58 J	ND	0.10 J	ND	ND
Cobalt	ug/l	17	9.7 J	0.29 J	3.7 J	0.31 J	2.1 J
Copper	ug/l	4.4 J	5.9 J	0.42 J	0.45 J	0.94 J	1.3 J
Total Chromium	ug/l	7.2 J	8.8 J	0.96 J	0.92 J	0.52 J	3.9 J
Lead	ug/l	0.09 J	0.57 J	0.07 J	0.09 J	0.18 J	0.14 J
Nickel	ug/l	61	71	2.6 J	2.4 J	1.6 J	1.7 J
Selenium	ug/l	29	28	1.7 J	ND	ND	0.26 J
Silver	ug/l	0.15 J	0.18 J	ND	0.10 J	0.04 J	ND
Thallium	ug/l	ND	ND	ND	0.39 J	0.15 J	0.10 J
Vanadium	ug/l	5.2 J	7.3 J	ND	ND	ND	0.46 J
Zinc	ug/l	3.2 J	6.7 J	1.7 J	2.3 J	3.2 J	9.8 J
1,1-Dichloroethane	ug/l	0.50 J	0.50 J	ND	ND	ND	ND
1,4-Dichlorobenzene	ug/l	5.5	6.7	ND	ND	ND	ND
2-Butanone	ug/l	57.2	120	ND	ND	ND	ND
4-Methyl-2-Pentanone	ug/l	1.3 J	1.9 J	ND	ND	ND	ND
Acetone	ug/l	94.5	141	10.70 J	ND	ND	ND
Benzene	ug/l	ND	3.6	ND	ND	ND	ND
Chlorobenzene	ug/l	ND	0.90 J	ND	ND	ND	ND
Chloromethane	ug/l	1.2	1.9	ND	ND	ND	ND
Cis-1,2-Dichloroethene	ug/l	ND	0.30 J	ND	ND	ND	ND
Ethylbenzene	ug/l	0.50 J	7.7	ND	ND	ND	ND
Styrene	ug/l	ND	0.30 J	ND	ND	ND	ND
Toluene	ug/l	0.30 J	3.8	1	ND	ND	ND
Xylenes	ug/l	1.5 J	18.2	ND	ND	ND	ND

NM = Not Measured
ND = Not Detected

*EB with Leachate Jun Box detects (chloroform @2.9 J ug/l and bromodichloromethane @0.3 J ug/l

Appendix A

Monitoring Well Information

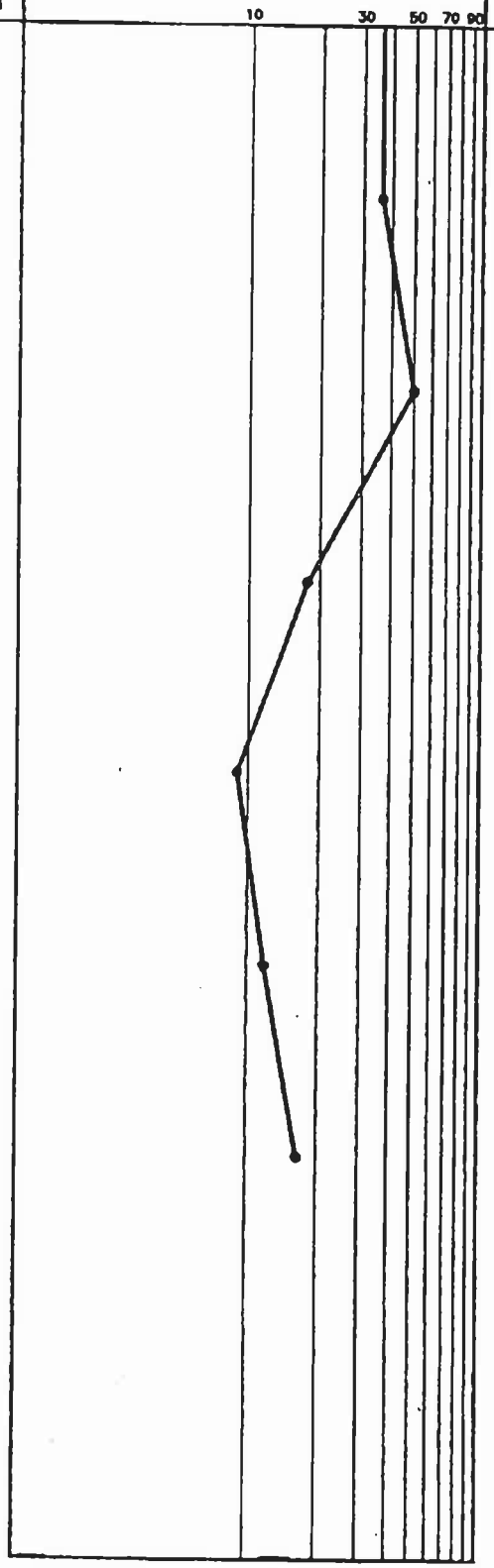
PROJECT:	JOHNSTON COUNTY LANDFILL PHASE 5 MONITOR WELL INSTALLATION	TEST BORING RECORD	DMW 5-1
PROJECT NO.:	1054-95-286A	ELEVATION:	
LOGGED BY:	W. BECKWITH	BORING DEPTH:	30 FEET
DATE DRILLED:	4/16/97	WATER LEVEL:	19.4' ON 4/17/97
DRILL METHOD:	4 ¼" H.S.A.	DRILL RIG:	MUDBUG

NOTES: 2" PVC MONITOR WELL INSTALLED IN BOREHOLE AT COMPLETION OF DRILLING

WELL SCHEMATIC LEGEND: SCREEN INTERVAL, SANDPACK, BENTONITE, GROUT

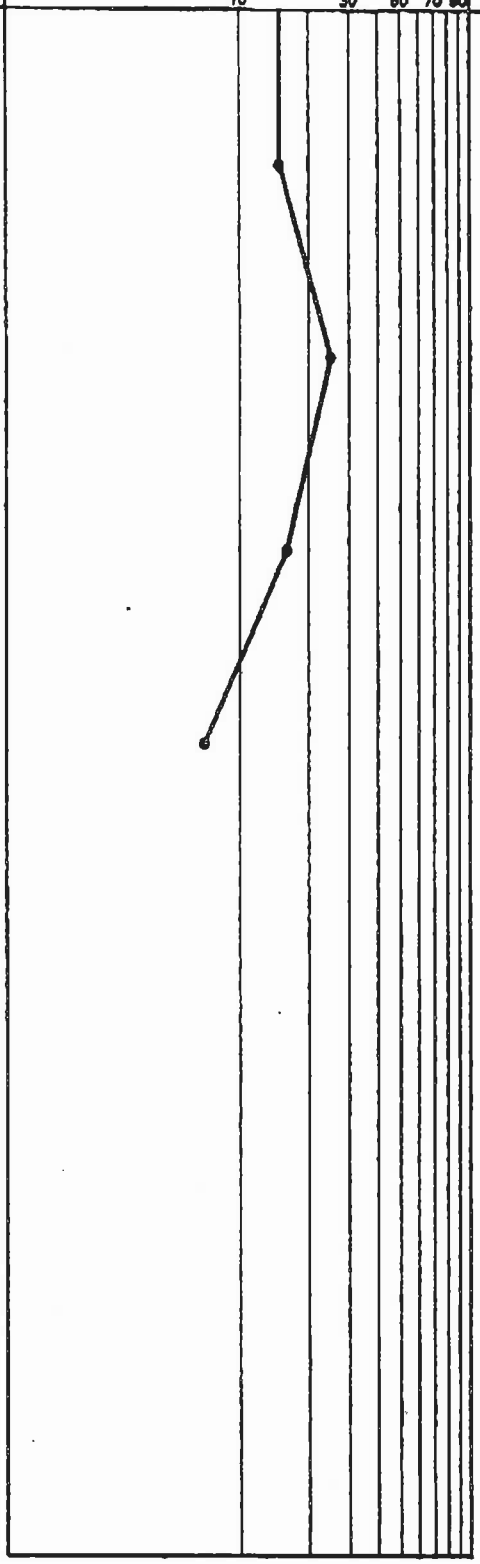
DEPTH (ft)	Soil Description	SAMPLE	BPF
	LOOSE GRAY SILTY FINE TO MEDIUM SAND (SM) PLOWED LAYER		
	LOOSE TAN SILTY FINE TO MEDIUM SAND (SM)		
	DENSE ORANGE BROWN CLAYEY MEDIUM TO COARSE SAND (SC)	SS-1	36
	DENSE ORANGE SILTY FINE TO MEDIUM SAND WITH TRACE OF CLAY (SM)	SS-2	50
		SS-3	18
	LOOSE PINK SILTY WELL GRADED SAND WITH OCCAISIONAL PES GRAVEL (SW-SM)	SS-4	9
	MEDIUM DENSE YELLOW BROWN SILTY WELL GRADED SAND WITH SOME GRAVEL (15-20% UP TO 1/2"ø) (SM-GM) AND WELL-ROUNDED QUARTZ	SS-5	12
	RED SILTY FINE TO COARSE SAND WITH OCCASIONAL PEA GRAVEL (SM) HEAVY IRON STAINING	SS-6	16
	BORING TERMINATED AT 30 FT.		

Standard Penetration Test Data BLOWS/FT



PROJECT: JOHNSTON COUNTY LANDFILL PHASE 5 MONITOR WELL INSTALLATION		TEST BORING RECORD DMW 5-2
PROJECT NO.: 1054-95-286A	ELEVATION:	NOTES: 2" PVC MONITOR WELL INSTALLED IN BOREHOLE AT COMPLETION OF DRILLING
LOGGED BY: W. BECKWITH	BORING DEPTH: 22 FEET	WELL SCHEMATIC LEGEND
DATE DRILLED: 4/22/97	WATER LEVEL: 1.6' ON 4/25/97	SCREEN INTERVAL, SANDPACK, BENTONITE, GROUT
DRILL METHOD: 4 ¼" H.S.A.	DRILL RIG: MOBILE B-57 ATV	

DEPTH (ft)	GRAPHIC LOG	Soil Description	WELL SCHEMATIC	WATER LEVEL	SAMPLE	ELEVATION	Standard Penetration Test Data BLOWS/FT	BPF
		FILL: LOOSE LIGHT BROWN FINE TO MEDIUM GRAINED **SAND** (SP)						
		TOPSOIL: MEDIUM DENSE BLACK SILTY FINE TO COARSE **SAND** WITH SOME ORGANIC MATTER (SM)		W				
		MEDIUM DENSE LIGHT BROWN SLIGHTLY SILTY FINE TO COARSE **SAND** (SW)			SS-1			15
5		IRON CEMENTED CONGLOMERATE						
		VERY STIFF REDDISH BROWN BECOMING GRAY SILTY **CLAY** (CH)			SS-2			25
10		VERY STIFF GRAY SILTY **CLAY** WITH SOME FINE SAND AND OCCAISIONAL QUARTZ GRAVEL (CL-CH)			SS-3			16
15		LOOSE YELLOW BROWN AND GRAY SILTY FINE TO MEDIUM GRAINED **SAND** FINELY LAMINATED (SC)			SS-4			7
20		*BORING TERMINATED AT 22 FT.*						
25								
30								
35								
40								



PROJECT:	JOHNSTON COUNTY LANDFILL PHASE 5 MONITOR WELL INSTALLATION	TEST BORING RECORD	DMW 5-3
PROJECT NO.:	1054-95-286A	ELEVATION:	
LOGGED BY:	W. BECKWITH	BORING DEPTH:	22 FEET
DATE DRILLED:	4/22/97	WATER LEVEL:	7.0' ON 4/25/97
DRILL METHOD:	4 ¼" H.S.A.	DRILL RIG:	MOBILE B-57 ATV

NOTES: 2" PVC MONITOR WELL INSTALLED IN BOREHOLE AT COMPLETION OF DRILLING

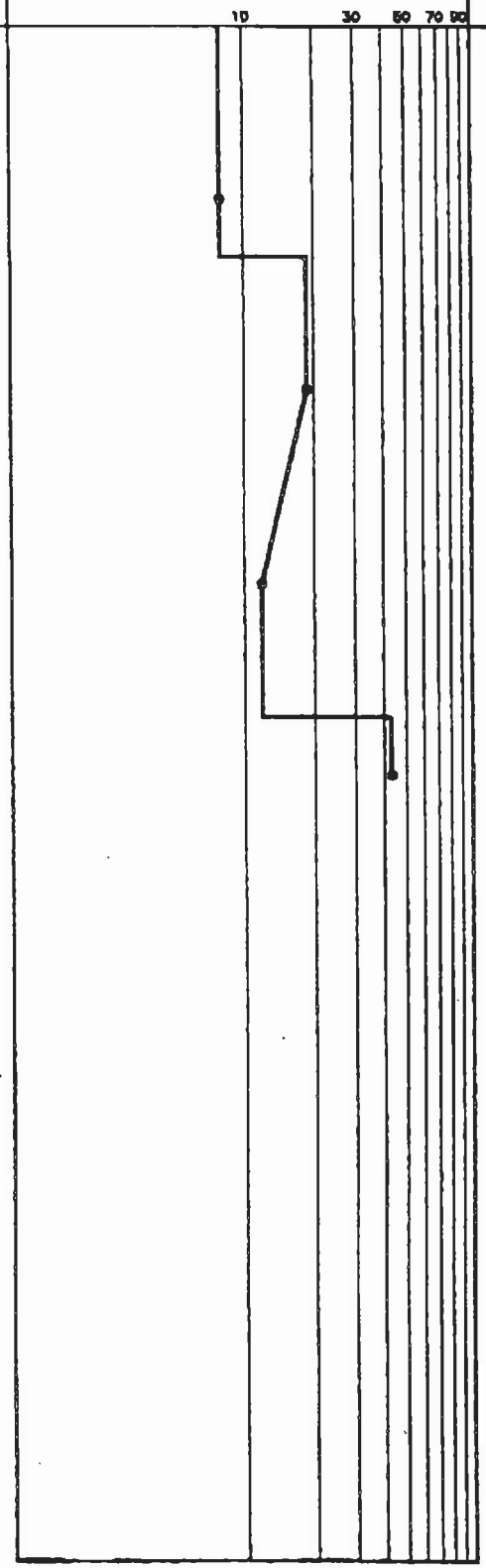
WELL SCHEMATIC LEGEND: SCREEN INTERVAL, SANDPACK, BENTONITE, GROUT

DEPTH (ft)	GRAPHIC LOG	Soil Description	WELL SCHEMATIC	WATER LEVEL	SAMPLE	ELEVATION	Standard Penetration Test Data BLOWS/FT (10, 30, 50, 70, 90)	BPF
		TOPSOIL: GRAY SILTY **SAND** (SM)						
		STIFF REDDISH TAN TO RED AND GRAY SILTY **CLAY** (CL)			SS-1			14
5								
		HARD GRAY SILTY **CLAY** WITH TRACE OF FINE SAND AND OCCAISIONAL GRAVEL BEDS (CL)		▼	SS-2			31
10								
		VERY STIFF RED BROWN AND YELLOW SILTY FINE **SAND** FINELY LAMINATED WITH SILTY CLAY (CL)			SS-3			25
15								
		MEDIUM DENSE LIGHT GRAY AND BROWN SILTY VERY FINE **SAND** WITH CLAY LENSES (SM)			SS-4			13
20								
		BORING TERMINATED AT 22 FT.						
25								
30								
35								
40								

PROJECT: JOHNSTON COUNTY LANDFILL PHASE 5 MONITOR WELL INSTALLATION		TEST BORING RECORD DMW 5-4
PROJECT NO.: 1054-95-286A	ELEVATION:	NOTES: 2" PVC MONITOR WELL INSTALLED IN BOREHOLE AT COMPLETION OF DRILLING
LOGGED BY: W. BECKWITH	BORING DEPTH: 22 FEET	WELL SCHEMATIC LEGEND
DATE DRILLED: 4/22/97	WATER LEVEL: 2.9' ON 4/25/97	SCREEN INTERVAL, SANDPACK, BENTONITE, GROUT
DRILL METHOD: 4 ¼" H.S.A.	DRILL RIG: MOBILE B-57 ATV	

DEPTH (ft)	Soil Description	SAMPLE	BPF
	DARK GRAY SILTY **SAND** (SM)		
	LOOSE GRAY AND TAN CLAYEY **SAND** (SC)	SS-1	8
5			
	MEDIUM DENSE LIGHT GRAY STREAKED WITH YELLOW SILTY FINE TO MEDIUM **SAND** WITH TRACE OF MICA	SS-2	19
10			
	MEDIUM DENSE YELLOW BROWN TO ORANGE STREAKED WITH GRAY SILTY CLAYEY **SAND** (SM-SC)	SS-3	12
15			
	RESIDUUM: HARD YELLOW BROWN TO LIGHT GRAY FINE SANDY CLAYEY **SILT** (ML)	SS-4	44
20			
	BORING TERMINATED AT 22 FT.		
25			
30			
35			
40			

Standard Penetration Test Data BLOWS/FT



PROJECT: JOHNSTON COUNTY LANDFILL PHASE 5 MONITOR WELL INSTALLATION		TEST BORING RECORD DMW 5-5
PROJECT NO.: 1054-95-286A	ELEVATION:	NOTES: 2" PVC MONITOR WELL INSTALLED IN BOREHOLE AT COMPLETION OF DRILLING
LOGGED BY: W. BECKWITH	BORING DEPTH: 22 FEET	WELL SCHEMATIC LEGEND
DATE DRILLED: 4/22/97	WATER LEVEL: 8.1' ON 4/25/97	SCREEN INTERVAL, SANDPACK, BENTONITE, GROUT
DRILL METHOD: 4 ¼" H.S.A.	DRILL RIG: MOBILE B-57 ATV	

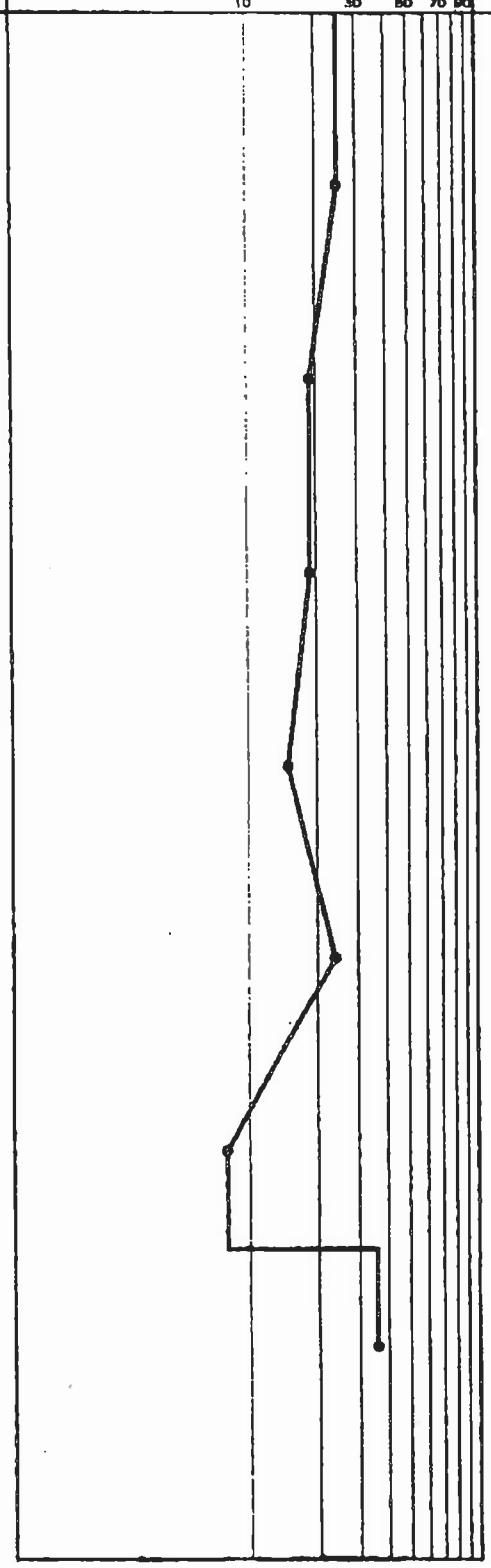
DEPTH (ft)	Soil Description	SAMPLE	Standard Penetration Test Data BLOWS/FT (10, 30, 50, 70, 90)	BPF
	FILL: LOSSE BROWN SILTY **SAND** (SM)			
	MEDIUM DENSE PINKISH GRAY CLAYEY FINE TO MEDIUM **SAND** (SC)	SS-1		18
5				
		SS-2		15
10				
		SS-3		16
15	MEDIUM DENSE LIGHT GRAY AND YELLOW CLAYEY **SAND** (SC)			
	VERY STIFF ORANGE BROWN SILTY **CLAY** WITH ROUNDED QUARTZ GRAVEL UP TO 3/4"ø (CL)	SS-4		27
20	RESIDUUM: VERY STIFF YELLOW **SILT** (ML)			
	BORING TERMINATED AT 22 FT.			
25				
30				
35				
40				

PROJECT:	JOHNSTON COUNTY LANDFILL PHASE 5 MONITOR WELL INSTALLATION	TEST BORING RECORD	DMW 5-6
PROJECT NO.:	1054-95-286A	ELEVATION:	
LOGGED BY:	W. BECKWITH	BORING DEPTH:	39 FEET
DATE DRILLED:	4/22/97	WATER LEVEL:	25.5' ON 4/25/97
DRILL METHOD:	4 ¼" H.S.A.	DRILL RIG:	MOBILE B-57 ATV

NOTES: 2" PVC MONITOR WELL INSTALLED IN BOREHOLE AT COMPLETION OF DRILLING

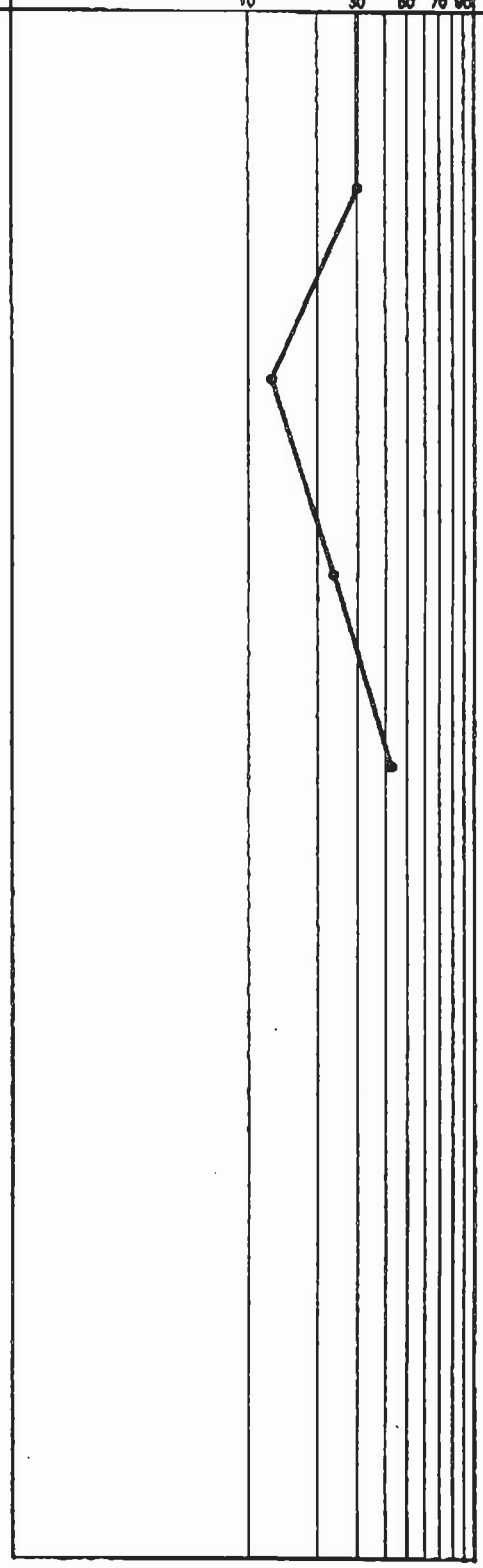
WELL SCHEMATIC LEGEND

DEPTH (ft)	Soil Description	SAMPLE	BPF
	LIGHT GRAY CLAYEY **SAND** (SC)		
	LIGHT GRAY SILTY **CLAY** (CH)		
5	MEDIUM DENSE YELLOW BROWN SLIGHTLY CLAYEY SILTY FINE TO MEDIUM GRAINED **SAND** (SC-SM)	SS-1	25
10	MEDIUM DENSE ORANGE BROWN SILTY FINE TO MEDIUM **SAND** WITH OCCASIONAL 1" THICK CLAY LENSES (SM WITH CL)	SS-2	19
15		SS-3	19
20	MEDIUM DENSE WHITE CLAYEY MEDIUM TO COARSE **SAND** (SC)	SS-4	15
25		SS-5	24
30		SS-6	8
35	HARD YELLOW BROWN AND LIGHT GRAY **SILT** (ML) SHOWS RELICT SLATE STRUCTURE	SS-7	36
40	BORING TERMINATED AT 39 FT.		



PROJECT: JOHNSTON COUNTY LANDFILL PHASE 5 MONITOR WELL INSTALLATION		TEST BORING RECORD DMW 5-7
PROJECT NO.: 1054-95-286A	ELEVATION:	NOTES: 2" PVC MONITOR WELL INSTALLED IN BOREHOLE AT COMPLETION OF DRILLING
LOGGED BY: W. BECKWITH	BORING DEPTH: 23 FEET	WELL SCHEMATIC LEGEND
DATE DRILLED: 4/18/97	WATER LEVEL: 7.0' ON 4/25/97	SCREEN INTERVAL, SANDPACK, BENTONITE, GROUT
DRILL METHOD: 4 1/4" H.S.A.	DRILL RIG: MOBILE B-57 ATV	

DEPTH (M)	GRAPHIC LOG	Soil Description	SAMPLE	BPF
		TOPSOIL: LIGHT GRAY SILTY SAND (SM)		
5		MEDIUM DENSE LIGHT BROWN SILTY FINE SAND WITH SOME WELL-ROUNDED QUARTZ GRAVEL (SM)	SS-1	30
10		MEDIUM DENSE BROWN MEDIUM TO COARSE SAND WITH TRACE OF SILT (SW)	SS-2	13
15		VERY STIFF TAN SILT (ML)	SS-3	24
20		HARD TAN SILT (ML) SHOWS RELICT BEDROCK TEXTURE	SS-4	43
25		BORING TERMINATED AT 23 FT.		
30				
35				
40				



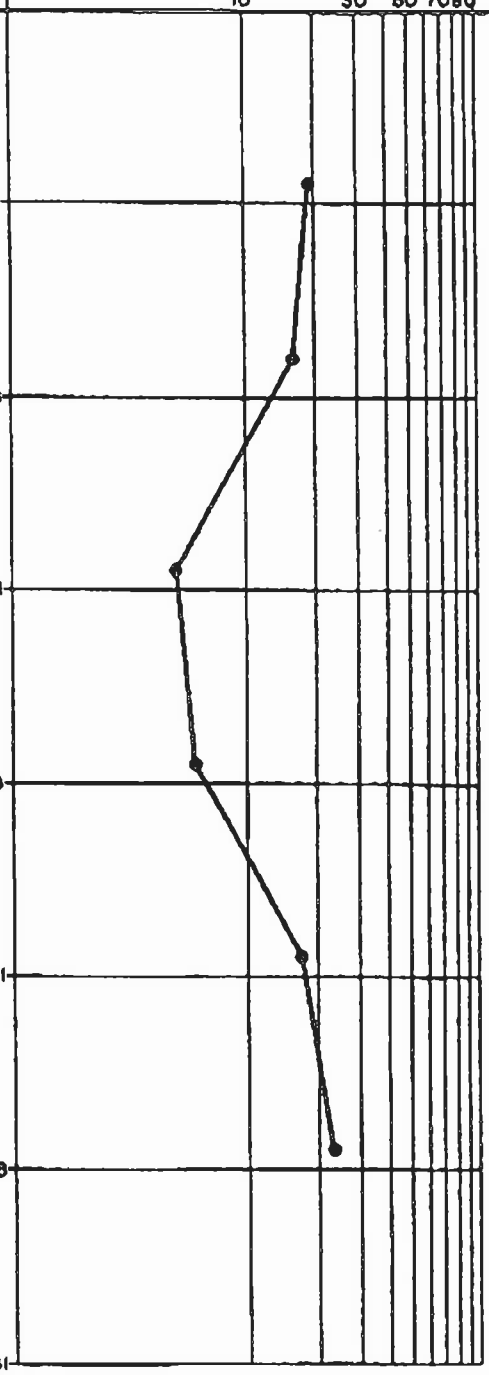
PROJECT: JOHNSTON COUNTY LANDFILL PHASE 5 MONITOR WELL INSTALLATION		TEST BORING RECORD DMW 5-8
PROJECT NO.: 1054-95-286A	ELEVATION:	NOTES: 2" PVC MONITOR WELL INSTALLED IN BOREHOLE AT COMPLETION OF DRILLING
LOGGED BY: W. BECKWITH	BORING DEPTH: 22 FEET	WELL SCHEMATIC LEGEND
DATE DRILLED: 4/21/97	WATER LEVEL: 3.2' ON 4/25/97	SCREEN INTERVAL, SANDPACK, BENTONITE, GROUT
DRILL METHOD: 4 ¼" H.S.A.	DRILL RIG: MOBILE B-57 ATV	

DEPTH (ft)	GRAPHIC LOG	Soil Description	WELL SCHEMATIC	WATER LEVEL	SAMPLE	ELEVATION	Standard Penetration Test Data BLOWS/FT (10, 30, 50, 70, 90)	BPF
		FILL: LOOSE REDDISH TAN SILTY **SAND** (SM)						
		TOPSOIL: LOOSE GRAY SILTY **SAND** (SM)						
		ALLUVIUM: LIGHT TAN FINE TO MEDIUM **SAND** WITH TRACE OF SILT (SP)			SS-1			12
5								
		LOOSE GRAY SILTY FINE TO MEDIUM **SAND** (SM)			SS-2			8
10								
		WHITE YELLOW AND ORANGE SILTY VERY FINE **SAND** WITH OCCASIONAL FINE MICA (SM)			SS-3			10
15								
		REDDISH TAN SILTY WELL GRADED **SAND** WITH OCCASIONAL GRAVEL (SW)						
		LIGHT GRAY TAN FINELY LAMINATED **SILT** (ML)			SS-4			15
20								
		BORING TERMINATED AT 22 FT.						
25								
30								
35								
40								

PROJECT:	Johnston County Landfill Johnston County, NC	TEST BORING RECORD DMW 5-9
PROJECT NO.: 1054-95-266	ELEVATION: 195.53 FEET	NOTES: Monitor Well Installed
LOGGED BY: WJB	BORING DEPTH: 30.0 FEET	
DATE DRILLED: 3-18-95	WATER LEVEL: 10.8/6.65 FEET	
DRILLING METHOD: 3-1/4" I.D. HSA	DRILL RIG: Mobile B-57	

DEPTH (ft)	GRAPHIC LOG	Soil Description	OVM (ppm)	WATER LEVEL	SAMPLE	ELEV.	BPF
		Topsoil					
		Stiff Yellow-Brown Wet Sandy Silty **CLAY** (CL)					
5		Medium Dense to Loose Red-Tan and Yellow-Gray Wet Clayey **SAND** (SC)				191	19
10						186	18
15		Loose Light Gray and Yellow Silty **SAND** (SM)				181	5
20						176	8
		Medium Dense Pink-Tan and Light Gray Silty **SAND** with Trace of Mica (SM)					
25		- with Iron-Cemented Fragments below 26.0'				171	17
30		Stiff to Very Stiff White-Tan Clayey **SILT** with occasional Quartz Fragments (ML-MH)				166	23
35		Boring terminated at 30.0. Groundwater encountered at 10.8' and 6.65' below existing grade at the completion of drilling and 24 hours after completion drilling, respectively.				161	

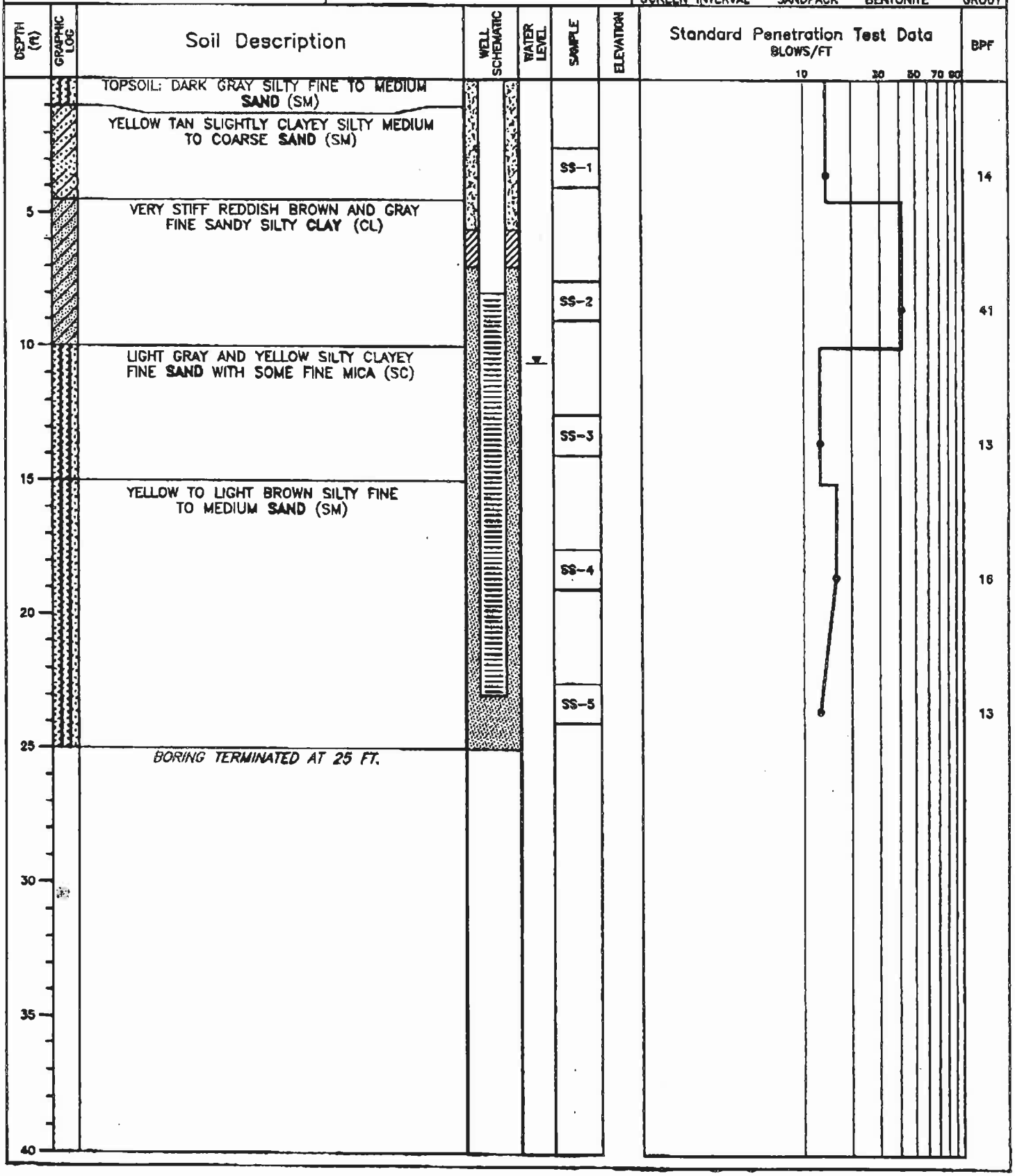
Standard Penetration Test Data (Blows/ft)



S&ME Environmental Services

PROJECT:	JOHNSTON COUNTY LANDFILL PHASE 5 MONITOR WELL INSTALLATION	TEST BORING RECORD DMW 5-10
PROJECT NO.: 1054-95-286A	ELEVATION:	NOTES: 2" PVC MONITOR WELL INSTALLED IN BOREHOLE AT COMPLETION OF DRILLING
LOGGED BY: W. BECKWITH	BORING DEPTH: 25 FEET	WELL SCHEMATIC LEGEND
DATE DRILLED: 4/21/97	WATER LEVEL: 10.6' ON 4/25/97	SCREEN INTERVAL, SANDPACK, BENTONITE, GROUT
DRILL METHOD: 4 ¼" H.S.A.	DRILL RIG: MOBILE B-57 ATV	

DEPTH (ft)	Soil Description	SAMPLE	BPF
	TOPSOIL: DARK GRAY SILTY FINE TO MEDIUM **SAND** (SM)		
	YELLOW TAN SLIGHTLY CLAYEY SILTY MEDIUM TO COARSE **SAND** (SM)	SS-1	14
5	VERY STIFF REDDISH BROWN AND GRAY FINE SANDY SILTY **CLAY** (CL)	SS-2	41
10	LIGHT GRAY AND YELLOW SILTY CLAYEY FINE **SAND** WITH SOME FINE MICA (SC)	SS-3	13
15	YELLOW TO LIGHT BROWN SILTY FINE TO MEDIUM **SAND** (SM)	SS-4	16
20		SS-5	13
25	*BORING TERMINATED AT 25 FT.*		
30			
35			
40			



PROJECT: JOHNSTON COUNTY LANDFILL PHASE 5 MONITOR WELL INSTALLATION		TEST BORING RECORD DLL-I
PROJECT NO.: 1054-95-286A	ELEVATION:	NOTES: 2" PVC MONITOR WELL INSTALLED IN BOREHOLE AT COMPLETION OF DRILLING
LOGGED BY: W. BECKWITH	BORING DEPTH: 23 FEET	WELL SCHEMATIC LEGEND
DATE DRILLED: 4/17/97	WATER LEVEL: 12.2' ON 4/18/97	SCREEN INTERVAL, SANDPACK, BENTONITE, GROUT
DRILL METHOD: 4 ¼" H.S.A.	DRILL RIG: DIETRICH D-100	

DEPTH (ft)	GRAPHIC LOG	Soil Description	WELL SCHEMATIC	WATER LEVEL	SAMPLE	ELEVATION	Standard Penetration Test Data BLOWS/FT (10, 30, 50, 70, 90)	BPF
		LOOSE GRAY SILTY SAND (SM)						
		MEDIUM DENSE ORANGE BROWN CLAYEY FINE SAND (SC)			SS-1			16
5								
		HARD GREEN GRAY SILT (ML) SHOWS RELICT BEDROCK TEXTURE.			SS-2			42
10								
		PARTIALLY WEATHERED ROCK (SLATE) SAMPLED AS GREEN AND BROWN SILT AND SLATE FRAGMENTS		▼	SS-3			50/.42
15								
					SS-4			50/.25
20								
		BORING TERMINATED AT 23 FT.						
25								
30								
35								
40								

PROJECT: JOHNSTON COUNTY LANDFILL PHASE 5 MONITOR WELL INSTALLATION		TEST BORING RECORD DLL-2
PROJECT NO.: 1054-95-286A	ELEVATION:	NOTES: 2" PVC MONITOR WELL INSTALLED IN BOREHOLE AT COMPLETION OF DRILLING
LOGGED BY: W. BECKWITH	BORING DEPTH: 24 FEET	WELL SCHEMATIC LEGEND
DATE DRILLED: 4/17/97	WATER LEVEL: 11.5' ON 4/18/97	SCREEN INTERVAL, SANDPACK, BENTONITE, GROUT
DRILL METHOD: 4 ¼" H.S.A.	DRILL RIG: DIETRICH D-100	

DEPTH (ft)	Soil Description	SAMPLE	BPF
	MEDIUM DENSE TAN CLAYEY FINE SAND WITH OCCAISIONAL SMALL WELL-ROUNDED QUARTZ GRAVEL (SC)		
5		SS-1	11
	HARD REDDISH BROWN SILT WITH WEATHERED SLATE FRAGMENTS (ML)		
	PARTIALLY WEATHERED ROCK (SLATE) SAMPLED AS BLUE GREEN SILT WITH SLATE FRAGMENTS		
10		SS-2	50/.4
15		SS-3	50/.4
20		SS-4	50/.15
	BORING TERMINATED AT 24 FT.		
25			
30			
35			
40			

Standard Penetration Test Data BLOWS/FT (10, 30, 50, 70, 90)

PROJECT: JOHNSTON COUNTY LANDFILL PHASE 5 MONITOR WELL INSTALLATION		TEST BORING RECORD DLL-3
PROJECT NO.: 1054-95-286A	ELEVATION:	NOTES: 2" PVC MONITOR WELL INSTALLED IN BOREHOLE AT COMPLETION OF DRILLING
LOGGED BY: W. BECKWITH	BORING DEPTH: 28 FEET	WELL SCHEMATIC LEGEND
DATE DRILLED: 4/18/97	WATER LEVEL: 15.9 ON 4/21/97	
DRILL METHOD: 4 ¼" H.S.A.	DRILL RIG: MOBILE B-57 ATV	

SCREEN INTERVAL | SANDPACK | BENTONITE | GROUT

DEPTH (ft)	GRAPHIC LOG	Soil Description	WELL SCHEMATIC	WATER LEVEL	SAMPLE	ELEVATION	Standard Penetration Test Data BLOWS/FT (10, 30, 50, 70, 90)	BPF
		LOOSE REDDISH TAN CLAYEY SAND WITH WELL-ROUNDED QUARTZ GRAVEL (SC)						
		STIFF REDDISH BROWN TO TAN SILT (ML)						
5								
		HARD GREEN-TAN SILT (ML) SHOWS RELICT BEDROCK TEXTURE						
10								
15					SS-1			43
20					SS-2			37
		PARTIALLY WEATHERED ROCK (SLATE) SAMPLED AS GREEN TAN SILT WITH SLATE FRAGMENTS			SS-3			50.3
25								
		BORING TERMINATED AT 28 FT.						
30								
35								
40								

PROJECT: JOHNSTON COUNTY LANDFILL PHASE 5 MONITOR WELL INSTALLATION		TEST BORING RECORD DLL-4
PROJECT NO.: 1054-95-286A	ELEVATION:	NOTES: 2" PVC MONITOR WELL INSTALLED IN BOREHOLE AT COMPLETION OF DRILLING
LOGGED BY: W. BECKWITH	BORING DEPTH: 14.5 FEET	WELL SCHEMATIC LEGEND
DATE DRILLED: 4/24/97	WATER LEVEL: 4.0' ON 4/25/97	SCREEN INTERVAL, SANDPACK, BENTONITE, GROUT
DRILL METHOD: 4 1/4" H.S.A.	DRILL RIG: MOBILE B-57 ATV	

DEPTH (ft)	GRAPHIC LOG	Soil Description	WELL SCHEMATIC	WATER LEVEL	SAMPLE	ELEVATION	Standard Penetration Test Data BLOWS/FT (10, 30, 50, 70, 90)	BPF
		STIFF RED BROWN CLAYEY SILT WITH DIABASE COBBLES (ML-CL)						
		STIFF YELLOW TO BROWN SILT WITH DIABASE COBBLES (ML)			SS-1			50/.5
5					SS-2			50/.5
10					SS-3			6
		DIABASE BEDROCK						
15		BORING TERMINATED UPON AUGER REFUSAL AT 14.5 FT.						
20								
25								
30								
35								
40								

Johnston County

DEPARTMENT of PUBLIC UTILITIES

Solid Waste Division

FIELD MEASUREMENTS

Phase 5 Landfill & 4A Collection/Detection Points

November 3rd, 2011

"Fall 2011" Groundwater Sampling Event

Phase 5 surface water points and wells were performed on 10/24/11 and Lagoon wells on 10/25/11. The Phase 5 leachate point and the Phase 4A collection and detection points were sampled on 10/27/11.
In-House Data & Sample Collector: Kevin J. Shields.

⊙ALL DEDICATED WELLS except **MW- 5-8**, Surface Water Points, Direct Leachate, 4A Collection and Leak Detection ⊙

Well Identification #	Static Water Level (ft) **(DTW)**	Temperature (°Celsius)	Turbidity (NTU)	pH	Specific Conductivity (uS/cm)
MW – 5-1	25.85	19.81	111	4.23	160
MW – 5-2	7.03	18.57	47.7	4.01	394
MW – 5-3	12.91	20.45	192	4.29	106
MW – 5-4	10.50	17.88	Off-Scale	4.78	56
MW – 5-5	16.90	20.77	54.4	4.66	49
MW – 5-6	32.13	19.77	7.04	4.86	72
MW – 5-7	13.49	16.93	38.4	4.98	61
MW – 5-8	10.48	18.54	1.51	4.76	345
MW – 5-9	15.11	17.78	15.3	4.58	80
MW – 5-10	15.99	17.47	57.2	5.33	56
Phase 5 Direct Leachate	N/A	21.41	105	7.43	8420
Lchte. Lagoon #1	**BPH**	18.43	1.44	5.50	120
Lchte. Lagoon #2	21.45	17.37	1.57	5.64	119
Lchte. Lagoon #3	**BPH**	20.02	7.82	5.75	68
Lchte. Lagoon #4	13.97	17.66	74.3	5.84	116
SW5 – 1	N/A	13.43	9.67	6.58	321
SW5 – 2	N/A	**IWV**	**IWV**	**IWV**	**IWV**
Phase 4A Leachate (Collection)	N/A	23.13	8.59	6.97	9660
Phase 4A Leak Detection	N/A	21.79	26.4	6.33	1371

DTW = Depth to water from top of PVC casing.
IWV = Insufficient Water Volume to Perform Sampling.
BPH = Below Pump Head.

Johnston County
Department of Public Utilities
Solid Waste Division
P.O. Box 2263 – 680 County Home Rd.
Smithfield, NC 27577
Phone: (919) 938-4747 Fax: (919) 989-7152

November 3rd, 2011

Summary of "Fall 2011" Groundwater Sampling Event for Phase 5 Landfill & Phase 4A Collection/Detection Points.

Phase 5 surface water points and wells were performed on 10/24/11 and lagoon wells on 10/25/11. The Phase 5 leachate point was completed on 10/27/11 along with the Phase 4A collection and detection points.

In-House Data and Sample Collector: Kevin J. Shields

On 10/24/11 Surface Water Points 5-1 and Monitoring Wells 5-1 through 5-10 were completed. Surface Water Point 5-2 was completely dry; therefore, could not be sampled. Then on 10/25/11 LL#1 through LL#4 were sampled. Leachate Points for both Subtitle D landfills were taken on 10/27/11.

Physical locations of Leachate and Leak Detection sampling points:

Phase 5 Landfill Direct Leachate – Samples obtained at the *manhole* located down grade at the north end.

Phase 4A Landfill Leak Detection – Samples obtained at the *pump station vault* at the north end of Phase 4A.

Phase 4A Leachate Collection – Samples obtained at the *collection riser* location at the north end of Phase 4A.

Comments:

- Field-testing included pH, temperature, specific conductivity and turbidity.
- As mentioned above, Surface Water Point 5-2 was completely dry.
- The purging of the wells (all dedicated, except MW 5-8) was performed in accordance with North Carolina State guidelines prior to sampling.
- Static groundwater levels were all low in comparison to previous events and the lagoon well water levels were all notably reduced with LL#1 and LL#3 readings being "below the pump head." In addition, LL#1 and LL#4 struggled to recover groundwater during the sampling process.
- Water from *Well 5-2* again displayed a lower pH value than the other wells and had a higher specific conductivity reading, along with MW 5-8.

- Water extracted from *Well 5-1* would fluctuate between a cloudy red appearance then clear. Also, water received from MW 5-4 was extremely turbid.

- ***MW# 5-8,*** which has been indicating the presence of 1, 2-dichloropropane (5-7 ppb) on a somewhat constant basis for the past several years, is now non-dedicated. During this event, the depth to water and depth to bottom were determined, and then the well water was bailed at the 3X volume measurement: 10/24/11 Sampling - Depth to Bottom = 22.75 ft. – Depth to Water = 10.48 ft. = 23 bails (liters) required for 3X volume water removal. The water retrieved was extremely clear and exhibited very similar readings for the in-house parameters that it has in the past. Note: its specific conductivity reading has always been higher than the rest of the wells in this area.

- The weather for this section of the event was cool in the mornings (high 50's to low 60's) and ranged from 70˚F and 79˚F on the two afternoons, 10/25/11 and 10/27/11, respectively.

- At each sampling site a minimum of *Appendix I* testing, which included a total of at least two 40-ml glass vials for EPA 8260 VOC's and one 950-ml plastic container for 6010 metals were filled for laboratory analysis. In addition to these parameters, sampling at the Leachate and Leak Detection points included BOD, COD, NH_3, NO_3, PO_4, SO_4 and TSR.

- I was assisted during this part of the event by Mr. Darren C. Donnelly of the Johnston County Solid Waste Division.

- After each sampling day, after being placed on ice, sample containers were picked-up the following day by Environment 1's courier.

Kevin J. Shields
Johnston County Solid Waste Division

Appendix B

Laboratory Analytical Report

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#: 6033

JOHNSTON CO. LANDFILL (PHASE 5)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD ,NC 27577

DATE COLLECTED: 10/24/11
DATE REPORTED : 11/09/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW5-1	MW5-2	MW5-3	MW5-4	MW5-6	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	--- U	--- U	--- U	--- U	--- U	11/01/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0	0.42 J	--- U	0.34 J	4.4 J	0.21 J	11/01/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0	186	474	126	1779	118	11/01/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0	0.31 J	1	1	2	0.15 J	11/01/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0	--- U	0.24 J	0.12 J	1	0.06 J	11/01/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0	2.0 J	5.7 J	3.7 J	14	5.8 J	11/01/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0	0.93 J	2.1 J	6.0 J	14	1.8 J	11/01/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	0.86 J	1.1 J	2.2 J	3.7 J	0.30 J	11/01/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	2.7 J	6.5 J	6.8 J	41	3.3 J	11/01/11	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	3.3 J	6.3 J	3.7 J	13.0 J	2.6 J	11/01/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0	--- U	--- U	--- U	2.9 J	--- U	11/03/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0	--- U	--- U	--- U	0.27 J	--- U	11/01/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	0.09 J	0.13 J	0.04 J	0.37 J	0.12 J	11/01/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0	1.3 J	2.0 J	5.2 J	4.9 J	0.3 J	11/01/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0	0.89 J	6.8 J	9.8 J	46	6.7 J	11/01/11	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

ID#: 6033

JOHNSTON CO. LANDFILL (PHASE 5)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD ,NC 27577

DATE COLLECTED: 10/24/11
DATE REPORTED : 11/09/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW5-7	MW5-8	MW5-9	Surface Water #5-1	Surface Water #5-2	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	0.19 J	--- U	--- U	--- U	Missing	11/01/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0	--- U	--- U	0.20 J	--- U	Missing	11/01/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0	62.7 J	590	102	279	Missing	11/01/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0	0.25 J	0.35 J	0.29 J	--- U	Missing	11/01/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0	--- U	0.11 J	0.06 J	--- U	Missing	11/01/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0	7.5 J	6.2 J	3.2 J	0.34 J	Missing	11/01/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0	2.0 J	1.2 J	1.3 J	0.74 J	Missing	11/01/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	0.98 J	0.11 J	0.82 J	0.50 J	Missing	11/01/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	1.4 J	4.9 J	2.2 J	0.25 J	Missing	11/01/11	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	7.6 J	6.8 J	3.0 J	1.3 J	Missing	11/01/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0	--- U	--- U	0.37 J	--- U	Missing	11/01/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0	0.06 J	--- U	0.06 J	--- U	Missing	11/01/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	0.05 J	0.14 J	0.04 J	0.06 J	Missing	11/01/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0	0.61 J	--- U	1.5 J	0.45 J	Missing	11/01/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0	11	3.1 J	4.3 J	0.98 J	Missing	11/01/11	LFJ	EPA200.8

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

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

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GREENVILLE, N.C. 27835-7085

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

ID#: 6033

JOHNSTON CO. LANDFILL (PHASE 5)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD ,NC 27577

DATE COLLECTED: 10/24/11
DATE REPORTED : 11/09/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-5(5')	MW-5(10')	Trip Blank	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	--- U	--- U		11/01/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0	--- U	0.66 J		11/01/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0	64.6 J	386		11/01/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0	0.15 J	0.16 J		11/01/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0	--- U	0.16 J		11/01/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0	5.3 J	31		11/01/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0	1.2 J	2.1 J		11/01/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	1.0 J	2.5 J		11/01/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	2.7 J	5.7 J		11/01/11	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	2.2 J	6.2 J		11/01/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0	--- U			11/03/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0		0.79 J		11/01/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0	--- U	--- U		11/01/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	0.03 J	0.33 J		11/01/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0	1.1 J	8.1 J		11/01/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0	2.0 J	5.8 J		11/01/11	LFJ	EPA200.8

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

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

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CLIENT: JOHNSTON CO. LANDFILL (PHASE 5)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6033

ANALYST: MAO
DATE COLLECTED: 10/24/11
DATE REPORTED: 11/09/11

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Date Analyzed: 10/28/11 MW5-1	10/26/11 MW5-2	10/26/11 MW5-3	10/26/11 MW5-4	10/26/11 MW5-6
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	--- U	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U	--- U	--- U	0.50 J
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U	--- U	--- U	0.70 J
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	--- U	--- U	--- U	--- U	0.70 J
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	3.80	0.40 J	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	0.30 J	0.40 J	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	--- U	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	--- U	--- U	--- U	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- 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

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CLIENT: JOHNSTON CO. LANDFILL (PHASE 5)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6033

ANALYST: MAO
DATE COLLECTED: 10/24/11
DATE REPORTED: 11/09/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Date Analyzed: 10/27/11 MW5-7	10/28/11 MW5-8	10/28/11 MW5-9	10/28/11 Surface Water #5-1	10/28/11 MW-5(5')
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	--- U	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U	--- U	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	0.50 J	5.40	0.30 J	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U	--- U	--- U	0.30 J
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	--- U	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	--- U	--- U	--- U	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- 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

CLIENT: JOHNSTON CO. LANDFILL (PHASE 5)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6033

ANALYST: MAO
DATE COLLECTED: 10/24/11
DATE REPORTED: 11/09/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	Date Analyzed: MDL	SWSL	10/28/11 MW-5(10')	10/28/11 Trip Blank
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. 1,1,2,2-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 Quanititation Limits.

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

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

-1 COOLER -

CHAIN OF CUSTODY RECORD

CLIENT: 6033 Week: 42

JOHNSTON COUNTY LANDFILL (PHASE 5)
KEVIN J. SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577
(919) 938-4747

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	BOD	COD	TSS	Ammonia Nitro.	Nitrate	T. Phosphorus	Sulfate	Metals	EPA 8260B	8260 Dup 1	8260 Dup 2	8260 Dup 3				
CHLORINE NEUTRALIZED AT COLLECTION																					
pH CHECK (LAB)													L2	L2	L2	L2					
CONTAINER TYPE, P/G						P	P	P	P	P	P	P	P	G	G	G	G				
CHEMICAL PRESERVATION						A	C	A	C	A	C	A	A	E	E	E	E				
MW-5-1	10/24/11	16:10	N/A	20	4								X	X	X	X					
MW-5-2		14:06		19	3								X	X	X						
MW-5-3		14:45		20	3								X	X	X						
MW-5-4		12:09		18	3								X	X	X						
MW-5-5		12:53		21	3								X	X	X						
MW-5-6		15:25		20	3								X	X	X						
MW-5-7		09:43		17	3								X	X	X						
MW-5-8		10:22		19	3								X	X	X						
MW-5-9		10:50		18	3								X	X	X						
MW-5-10		11:28		17	3								X	X	X						
SURFACE WATER *5-1		08:47		13	3								X	X	X						

PARAMETERS

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 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) KEVIN J. SHIELDS

SAMPLES RECEIVED IN LAB AT 02 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
[signature]	10/25/11 09:00	[signature]	10/25 1345
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

FORM #5

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.

№ 222926

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: 6033 Week: 42
JOHNSTON COUNTY LANDFILL
(PHASE 5)
KEVIN J. SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577
(919) 938-4747

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	BOD	COD	TSS	Ammonia Nitrogen	Nitrate	T. Phosphorus	Sulfate	Metals	EPA 8260 B	EPA 8260 Dup-1	EPA 8260 Dup-2	EPA 8260 Dup-3
CHLORINE NEUTRALIZED AT COLLECTION																	
pH CHECK (LAB)														X			
CONTAINER TYPE, P/G						P	P	P	P	P	P	P	P	G	G	G	G
CHEMICAL PRESERVATION						A	C	A	C	A	C	A	A	E	E	E	E
* ~~SURFACE WATER #5-2~~	~~10/24/11~~	~~09:10~~			IWV												
TRIP BLANK	↓	N/A	N/A	N/A	1									X			

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) KEVIN J. SHIELDS

SAMPLES RECEIVED IN LAB AT 0Z °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
[signature]	10/25/11 09:00	[signature]	10/25/1345
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS: * IWV = INSUFFICIENT WATER VOLUME TO SAMPLE.

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.

FORM #5

№ 222927

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#: 6033

JOHNSTON CO. LANDFILL (PHASE 5)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD ,NC 27577

DATE COLLECTED: 10/25/11
DATE REPORTED : 11/04/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	Leachate Lag #1	Leachate Lag #2	Leachate Lag #3	Leachate Lag #4	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	--- U				11/01/11	LFJ	EPA200.8
Antimony, ug/l	0.14	6.0		--- U	--- U	--- U	11/03/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0	--- U				11/01/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0		--- U	--- U	--- U	11/03/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0	10.6 J				11/01/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0		9.1 J	14.4 J	1.3 J	11/03/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	--- U				11/01/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0		--- U	--- U	--- U	11/03/11	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	--- U				11/01/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0		0.10 J	--- U	--- U	11/03/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	0.29 J				11/01/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0		3.7 J	0.31 J	2.1 J	11/03/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	0.42 J				11/01/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0		0.45 J	0.94 J	1.3 J	11/03/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	0.96 J				11/01/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0		0.92 J	0.52 J	3.9 J	11/03/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	0.07 J				11/01/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0		0.09 J	0.18 J	0.14 J	11/03/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	2.6 J				11/01/11	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0		2.4 J	1.6 J	1.7 J	11/03/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	1.7 J				11/01/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0		--- U	--- U	0.26 J	11/03/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0	--- U				11/01/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0		0.10 J	0.04 J	--- U	11/03/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5	--- U				11/01/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5		0.39 J	0.15 J	0.10 J	11/03/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	--- U				11/01/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0		--- U	--- U	0.46 J	11/03/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	1.7 J				11/01/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0		2.3 J	3.2 J	9.8 J	11/03/11	CMF	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: JOHNSTON CO. LANDFILL (PHASE 5)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6033

ANALYST: MAO
DATE COLLECTED: 10/25/11
DATE ANALYZED: 10/31/11
DATE REPORTED: 11/04/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Leachate Lag #1	Leachate Lag #2	Leachate Lag #3	Leachate Lag #4	Equipment Blank
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	--- U	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	10.70 J	--- U	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U	--- U	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	1.00	--- U	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	--- U	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	--- U	--- U	--- U	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- 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

CLIENT: JOHNSTON CO. LANDFILL (PHASE 5)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6033

ANALYST: MAO
DATE COLLECTED: 10/25/11
DATE ANALYZED: 10/31/11
DATE REPORTED: 11/04/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

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

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

-1 COOLER

CHAIN OF CUSTODY RECORD

CLIENT: 6033 WEEK: 42

JOHNSTON COUNTY LANDFILL (PHASE 5)
KEVIN J. SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577
(919) 938-4747

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	METALS	EPA 8260B	8260 Dup. 1	8260 Dup. 2	8260 Dup. 3
CHLORINE NEUTRALIZED AT COLLECTION										
pH CHECK (LAB)						<2	<2	<2	<2	<2
CONTAINER TYPE, P/G						P	G	G	G	G
CHEMICAL PRESERVATION						A	E	E	E	E
LEACHATE LAGOON #1	10/25/11	09:21	N/A	18	3	X	X	X		
LEACHATE LAGOON #2	↓	10:28	↓	17	3	X	X	X		
LEACHATE LAGOON #3	↓	11:03	↓	20	3	X	X	X		
LEACHATE LAGOON #4	↓	11:45	↓	18	5	X	X	X	X	X
EQUIPMENT BLANK	↓	12:24	↓	N/A	2		X	X		
TRIP BLANK	↓	N/A	↓	N/A	1		X			

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) KEVIN J. SHIELDS

SAMPLES RECEIVED IN LAB AT 02 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
[signature]	10/26/11 09:00	[signature]	10/26 313
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

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.

FORM #5

№ 222925

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#: 6033

JOHNSTON CO. LANDFILL (PHASE 5)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD ,NC 27577

DATE COLLECTED: 10/27/11
DATE REPORTED : 11/17/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	Leachate Jun Box	Analysis Date	Analyst	Method Code
BOD, mg/l	2.0	2.0	30	10/28/11	TRB	SM5210B
COD, mg/l	20.0	20.0	874	11/03/11	TRB	HACH8000
Total Suspended Residue, mg/l	1.0	1.0	39	10/28/11	MEL	SM2540D
Ammonia Nitrogen as N, mg/l	0.04	0.04	583	11/01/11	ANO	EPA350.1
Nitrate Nitrogen as N, mg/l	0.03	10.0	--- U	11/02/11	ANO	EPA353.2
Total Phosphorus as P, mg/l	0.04	0.04	1.24	11/03/11	SEJ	EPA365.4
Sulfate, mg/l	5.0	250.0	10.7 J	11/01/11	TRB	SM426C
Antimony, ug/l	0.14	6.0	3.2 J	11/07/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0	21	11/07/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0	454	11/07/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0	--- U	11/07/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0	0.58 J	11/07/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0	9.7 J	11/07/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0	5.9 J	11/07/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	8.8 J	11/07/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.57 J	11/07/11	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	71	11/07/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0	28	11/07/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0	0.18 J	11/07/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	--- U	11/07/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0	7.3 J	11/07/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0	6.7 J	11/07/11	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: JOHNSTON CO. LANDFILL (PHASE 5)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6033

ANALYST: MAO
DATE COLLECTED: 10/27/11
DATE ANALYZED: 11/04/11
DATE REPORTED: 11/17/11

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Leachate Jun Box	Equipment Blank	Trip Blank
1. Chloromethane	0.77	1.0	1.90	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U
7. Acetone	9.06	100.0	141.00	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	0.50 J	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	0.30 J	--- U	--- U
15. 2-Butanone	2.21	100.0	120.00	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	2.90 J	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U
20. Benzene	0.24	1.0	3.60	--- U	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	0.30 J	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	1.90 J	--- U	--- U
27. Toluene	0.23	1.0	3.80	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	0.90 J	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	7.70	--- U	--- U
37. Xylenes	0.68	5.0	18.20	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U
39. Styrene	0.19	1.0	0.30 J	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	6.70	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U

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

-2 COOLERS -

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

WEEK: 42

CLIENT: 6058, 6054 & 6033
JOHNSTON COUNTY LANDFILL
(4A)(PHASE 5)(NEW C&D LANDFILL)
KEVIN J. SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577
(919) 938-4747

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	BOD	COD	TSR	AMMONIA NITRO.	NITRATE	T. PHOSPHORUS	ALKALINITY	CHLORIDE	TDS	SULFATE	METALS	EPA 8260B	8260 Dup. 1	8260 Dup. 2		
CHLORINE NEUTRALIZED AT COLLECTION																					
pH CHECK (LAB)							<2		<2		<2					<2	<2	<2	<2		
CONTAINER TYPE, P/G						P	P	P	P	P	P	P	P	P	P	P	G	G	G		
CHEMICAL PRESERVATION						A	C	A	C	A	C	A	A	A	A	A	E	E	E		
CHEMICAL PRESERVATION (PARAMETERS)						BOD	COD	TSR	AMMONIA NITRO.	NITRATE	T. PHOSPHORUS	ALKALINITY	CHLORIDE	TDS	SULFATE	METALS	EPA 8260B	8260 Dup. 1	8260 Dup. 2		
CDMW-1 (6058)	10/27/11	08:47	N/A	20	8							X	X	X	X	X	X	X	X		
CDMW-2 (6058)		09:12		20	7							X	X	X	X	X	X	X			
CDMW-3 (6058)		09:54		16	7							X	X	X	X	X	X	X			
LEACHATE (C&D) (6058)		10:35		20	10	X	X	X	X	X	X				X	X	X	X			
PHASE 4A JUNC. BOX (6054)		14:27		23	10	X	X	X	X	X	X				X	X	X	X			
PHASE 4A LEAK DETECT. (6054)		15:29		22	10	X	X	X	X	X	X				X	X	X	X			
PHASE 5 LEACHATE JUNC. BOX (6033)		11:42		22	10	X	X	X	X	X	X				X	X	X	X			
TRIP BLANK (6033)		N/A		N/A	2												X	X			
EQUIPMENT BLANK (6033)		16:41		N/A	2												X	X			

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

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) KEVIN J. SHIELDS

SAMPLES RECEIVED IN LAB AT 0.4 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
[signature]	10/28/11 09:00	[signature]	10/28 325
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

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.

FORM #5

№ 222924

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#: 6033 A

JOHNSTON CO. LANDFILL (PHASE 5)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD ,NC 27577

DATE COLLECTED: 10/31/11
DATE REPORTED : 11/22/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	Leachate	Trip Blank	Analysis Date	Analyst	Method Code
BOD, mg/l	2.0	2.0	42		11/02/11	TRB	SM5210B
COD, mg/l	20.0	20.0	935		11/03/11	TRB	HACH8000
Total Suspended Residue, mg/l	1.0	1.0	29		11/02/11	HLB	SM2540D
Ammonia Nitrogen as N, mg/l	0.04	0.04	447		11/03/11	ANO	EPA350.1
Nitrate Nitrogen as N, mg/l	0.03	10.0	--- U		11/02/11	ANO	EPA353.2
Total Phosphorus as P, mg/l	0.04	0.04	0.68		11/03/11	SEJ	EPA365.4
Sulfate, mg/l	5.0	250.0	--- U		11/07/11	TRB	SM426C
Antimony, ug/l	0.14	6.0	2.8 J		11/11/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0	19		11/11/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0	374		11/11/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0	--- U		11/11/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0	0.60 J		11/11/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0	17		11/11/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0	4.4 J		11/11/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	7.2 J		11/11/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.09 J		11/11/11	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	61		11/11/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0	29		11/11/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0	0.15 J		11/11/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	--- U		11/11/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0	5.2 J		11/11/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0	3.2 J		11/11/11	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: JOHNSTON CO. LANDFILL (PHASE 5)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6033 A

ANALYST: MAO
DATE COLLECTED: 10/31/11
DATE ANALYZED: 11/08/11
DATE REPORTED: 11/22/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Leachate	Trip Blank
1. Chloromethane	0.77	1.0	1.20	--- 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	94.50 J	--- 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	0.50 J	--- 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	57.20 J	--- 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	1.30 J	--- U
27. Toluene	0.23	1.0	0.30 J	--- 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	0.50 J	--- U
37. Xylenes	0.68	5.0	1.50 J	--- 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. 1,1,2,2-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	5.50	--- 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 Quanititation Limits.

-1 Cooler-

CHAIN OF CUSTODY RECORD

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

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

CLIENT: 6033 A **Week:** 39

JOHNSTON CO. LANDFILL (PHASE 5)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD NC 27577

(919) 938-4747

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	BOD	COD	TSR	Ammonia Nitro.	Nitrate	T. Phosphorus	Sulfate	Metals	EPA 8260B	8260 Dup. 1
CHLORINE NEUTRALIZED AT COLLECTION															
pH CHECK (LAB)							<2		<2		<2		<2	<2	<2
CONTAINER TYPE, P/G						P	P	P	P	P	P	P	P	G	G
CHEMICAL PRESERVATION						A	C	A	C	A	C	A	A	E	E
Leachate	10/31/11	09:24	N/A	18	10										
Trip Blank	↓	N/A	N/A	N/A	2										

PARAMETERS

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 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) KEVIN J. SHIELDS

SAMPLES RECEIVED IN LAB AT 04 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
[signature]	11/01/11 09:00	[signature]	11/1 436
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

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.

№ 222580

FORM #5

Appendix C

Time vs. Concentration Graphs

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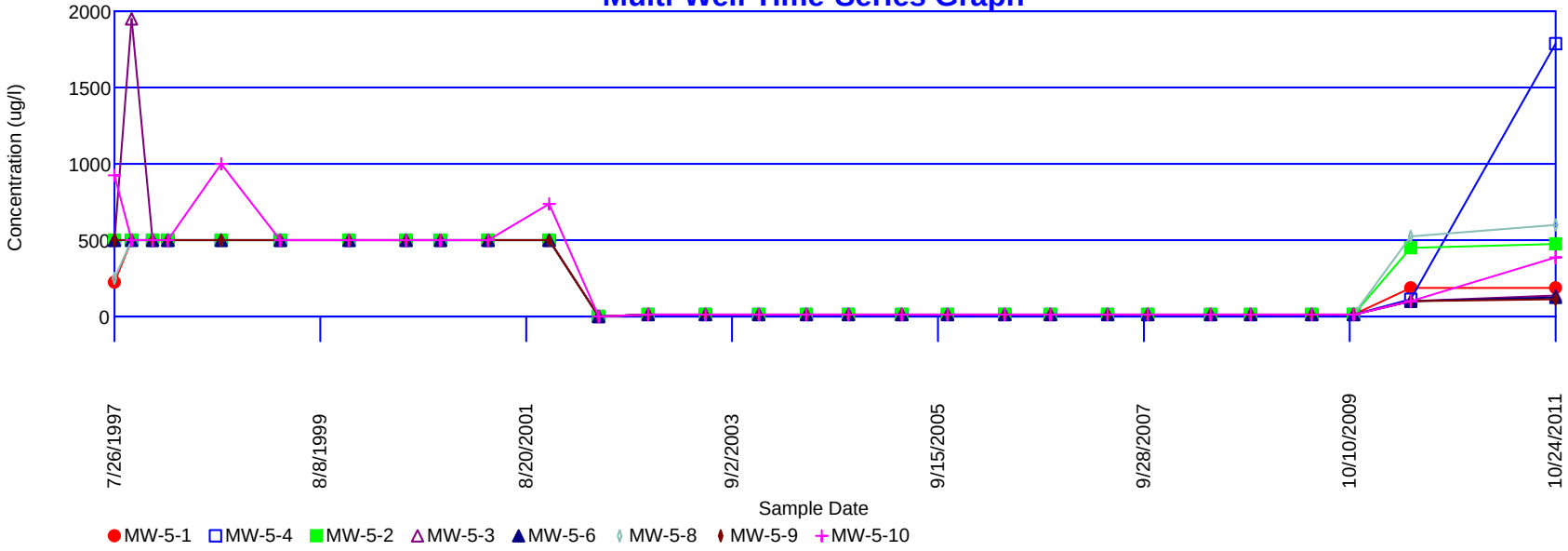
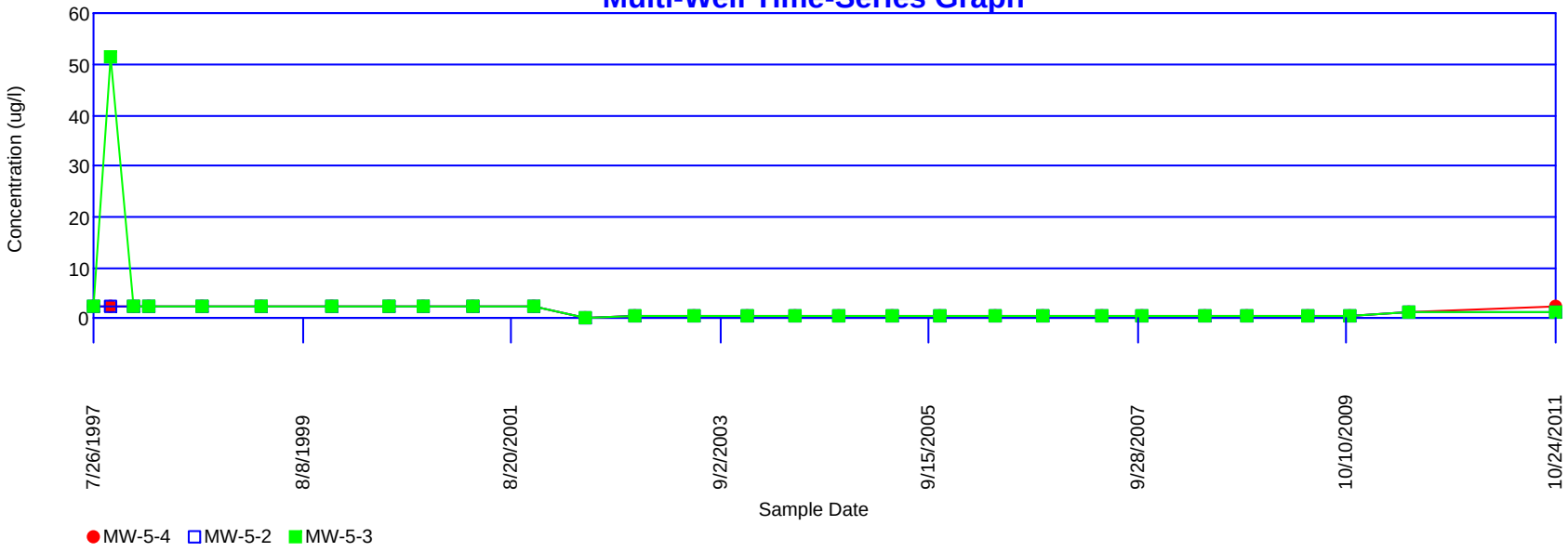
Barium

Multi-Well Time-Series Graph



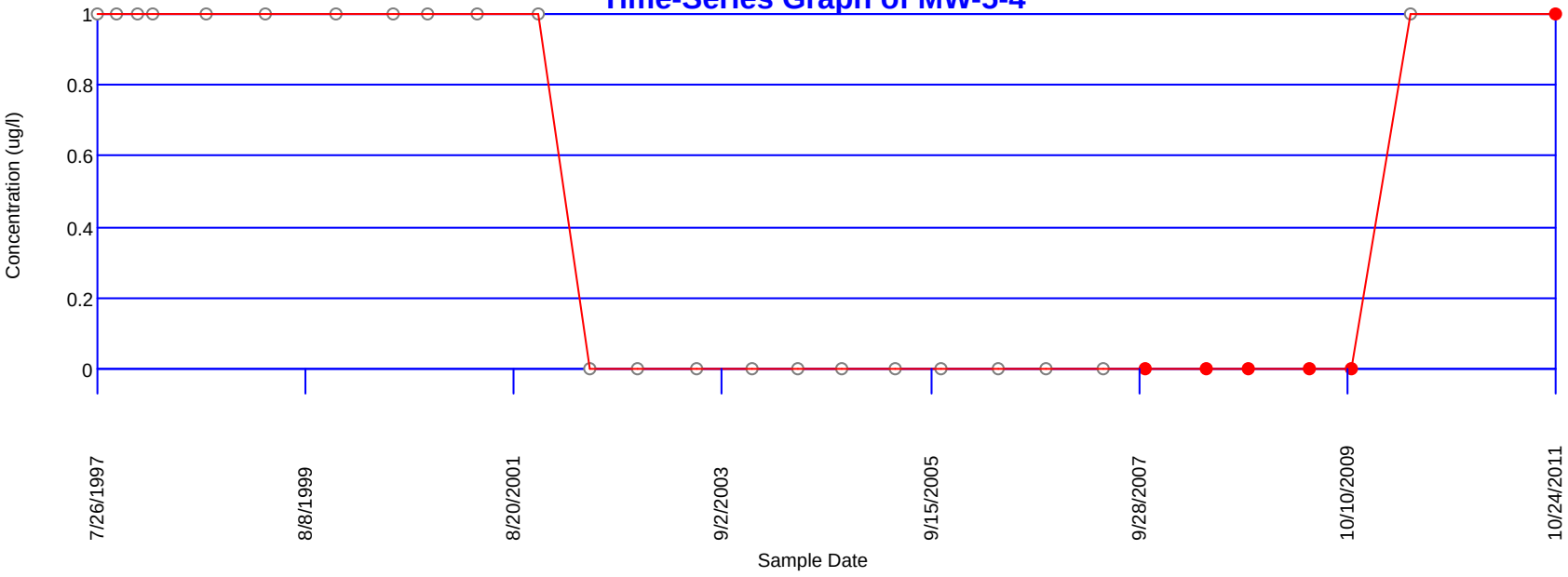
Beryllium

Multi-Well Time-Series Graph



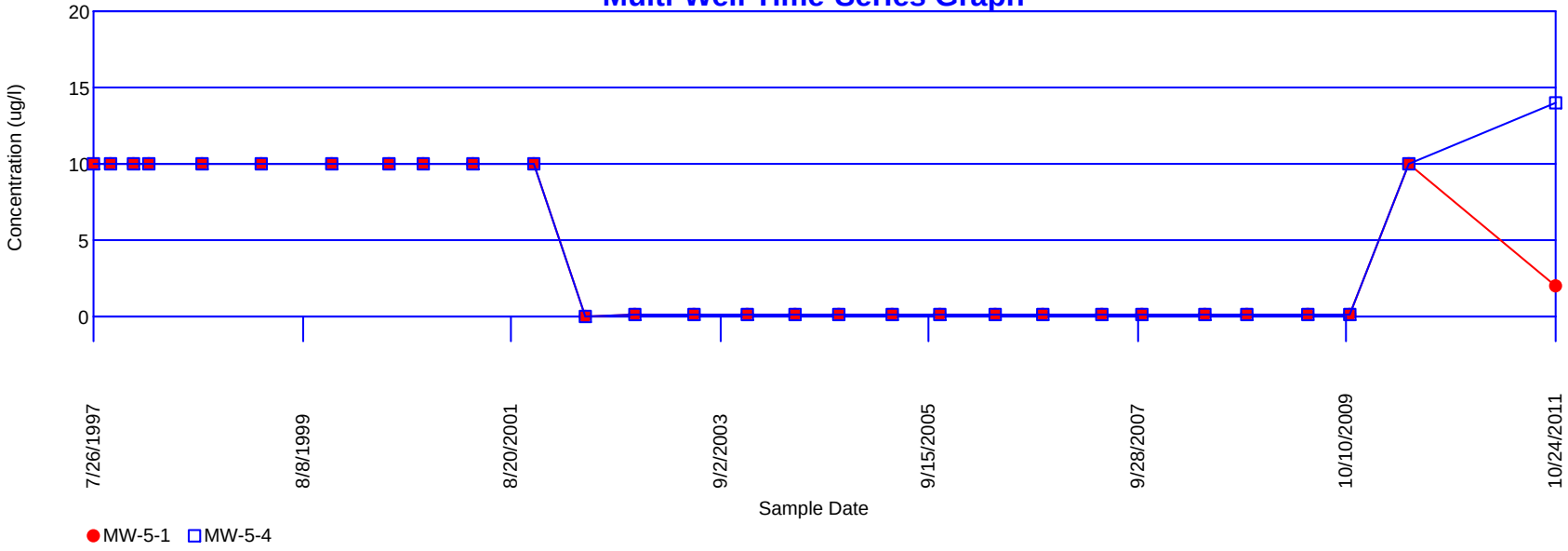
Cadmium

Time-Series Graph of MW-5-4



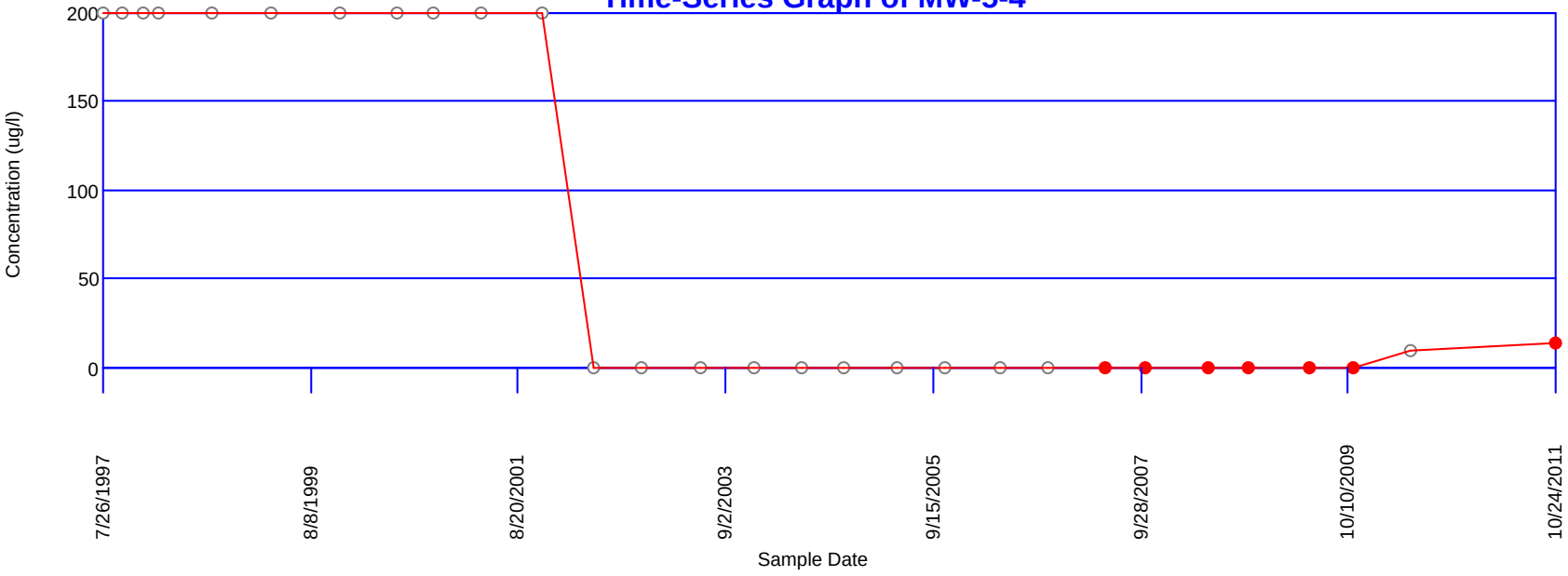
Cobalt

Multi-Well Time-Series Graph



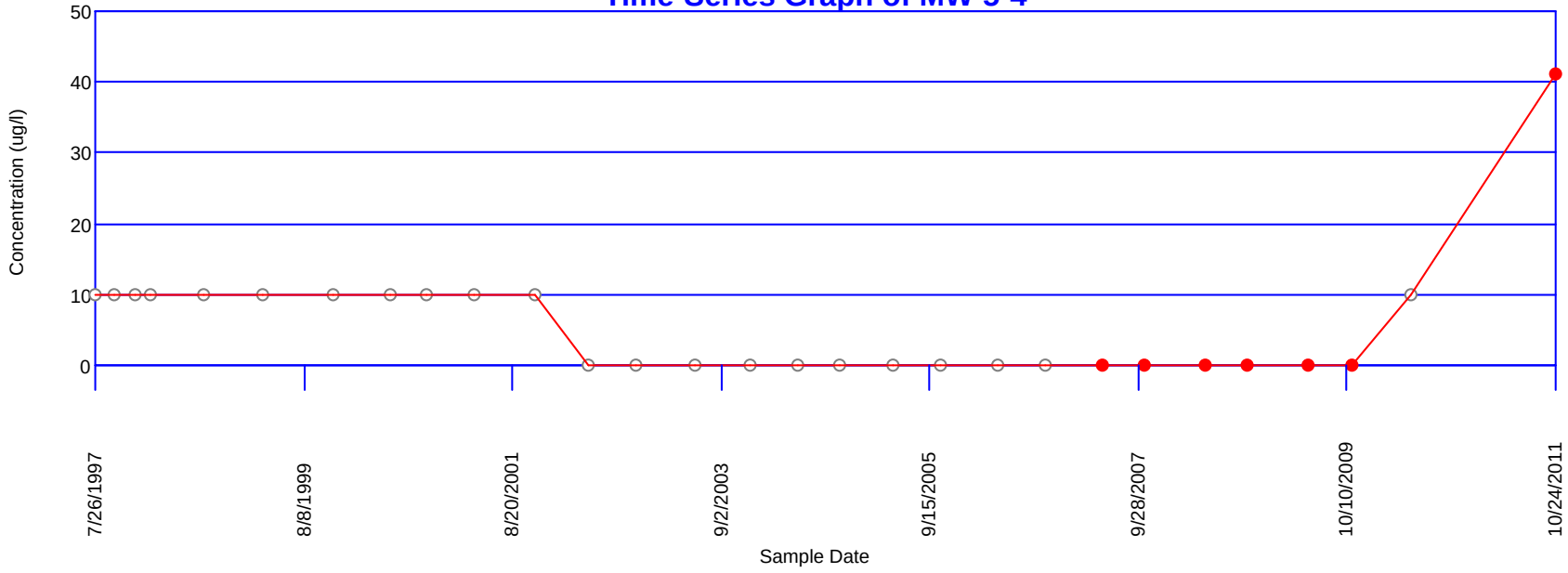
Copper

Time-Series Graph of MW-5-4



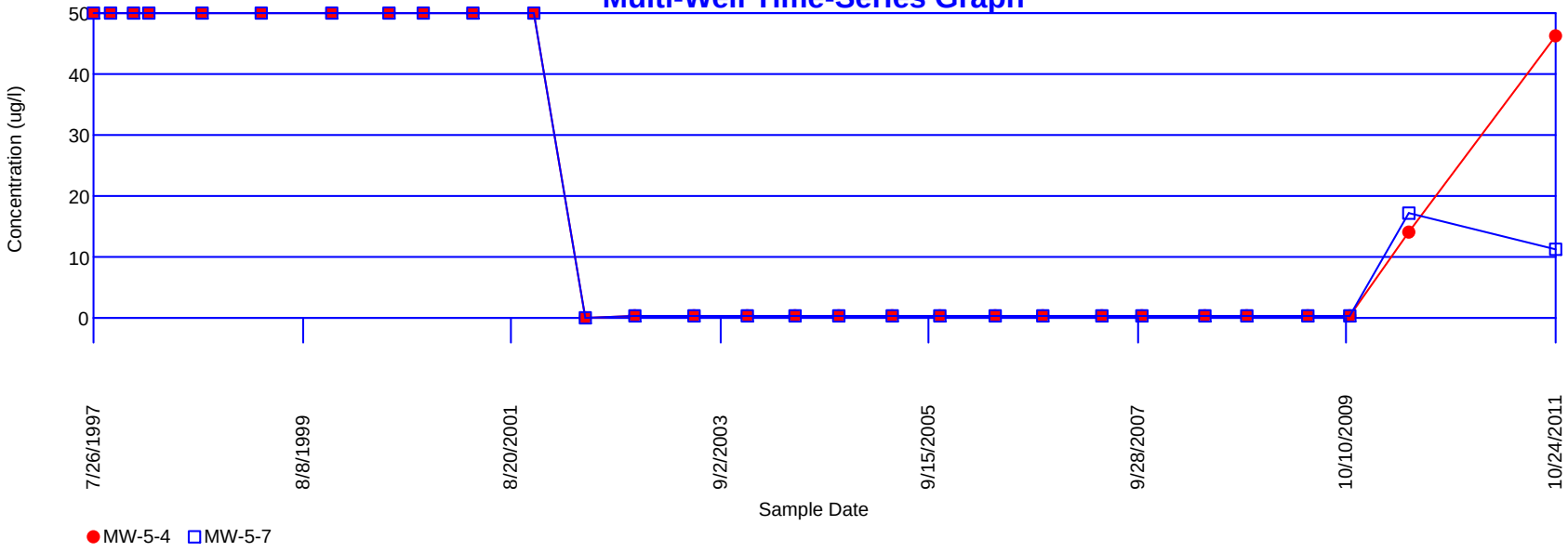
Lead

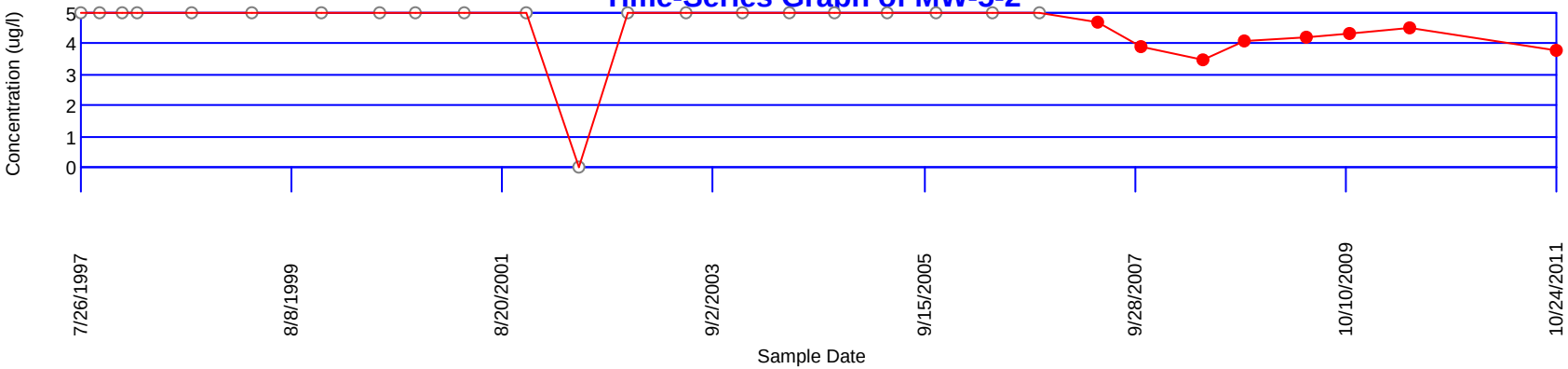
Time-Series Graph of MW-5-4



Zinc

Multi-Well Time-Series Graph



1,2-Dichloropropane

Time-Series Graph of MW-5-2