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 Phase 1-4 and 4A MSW Landfill	County Home Road, Smithfield, NC	51-03	.0500	October 17-20, & 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

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

14 N. Boylan Ave, Raleigh, NC 27603

Facility Representative Address

C-0828

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

Revised 6/2009

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Johnston County Landfill
Phases 1 through 4 and Phase 4A
Ground Water Monitoring Report

Fall 2012 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 Landfill
Phases 1 through 4 and Phase 4A
Semi-Annual Ground Water Monitoring Report
Fall 2012 Sampling Event

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1 INTRODUCTION

The Johnston County Closed Landfill Phases 1 through 4, that previously operated under Solid Waste Permit #51-03, is required to conduct semi-annual ground water monitoring in accordance with Solid Waste Section Rule 15A NCAC 13B. Phases 1-4 were closed per applicable solid waste regulations. The Johnston County landfill Phase 4A currently accepts municipal solid waste (MSW) in a double-lined landfill located as a "piggy back" over the closed, unlined Phases 3 & 4. This report presents the semi-annual ground water monitoring results for the event conducted October 17-20 & 27, 2011. Due to the proximity of the lined (Phase 4A) and unlined landfills (Phases 1 – 4) the data is presented together in this report.

This report includes a field procedure summary, laboratory analyses and ground water characterization for the site. The laboratory analytical results and a single-day potentiometric surface map are also included.

2 SITE GEOLOGY

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

3.1 Sampling Locations

The ground water monitoring network for Phases 1-4 and 4A comprises 19 well locations (MW-3, MW-4B, MW-4D, MW-5A, MW-6, MW-7, MW-7D, MW-8A, MW-8D, MW-9C, MW-9D, MW-10, MW-11, MW-12B, MW-14D, MW-15D, MW-16D, MW-17 and PZ-3) around the landfill perimeter for the fall sampling event, two surface water locations (SWPT-1A and SWPT-2) up and downstream from the landfill on Middle Creek and two leachate locations (leak detect and leachate jun box). Sampling locations MW-3 and MW-9C were reported as dry for this event. A trip blank (TB) and equipment blank (EB) were also included with this event for quality control.

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

1 fmsl = feet above mean sea level

3.2 Sampling Procedures

The sampling event, performed by trained personnel from Johnston County Landfill, on October 17-20 & 27, 2011 was conducted in accordance with the approved site Water Quality Monitoring Plan[2]. 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 through dedicated Micropurge low flow pumps (MW-3, MW-4B, MW-6, MW-7, MW-10, MW-11 and MW-12B) or by disposable teflon bailers (MW-4D, MW-5A, MW-7D, MW-8A, MW-8D, MW-9C, MW-9D, MW-14D, MW-15D, MW-16D, MW-17 and PZ-3). Ground water samples were properly preserved, placed on ice and transported to the NC certified laboratory facility within the specified hold times for each analysis.

Water table elevations and field parameter results are included as **Table 1 and 2**, respectively.

4 FIELD AND LABORATORY RESULTS

4.1 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. Results are summarized in **Table 2.**

4.2 Laboratory Analysis

The ground and surface water samples were transported to Environment 1, Inc., a North Carolina certified laboratory (NC Wastewater ID #10) located in Greenville, NC for analysis. Due to the facility structure various analysis were used. MW-8A, MW-14D, MW-15D, MW-16D and MW-17 were sampled for Appendix I constituents by EPA Test Method 200.8 for metals and EPA Test Method 8260B for volatile organic compounds (VOCs). Ground and surface water samples were analyzed for Appendix II metals via EPA Test Method 200.8, Landfill Appendix II organics via EPA Test Method 8260B, semi-volatile organics via EPA Test Method 8270C, cyanide via Test Method SM4500-CN-E and sulfide via Test Method SM4500-S2D. Surface water samples were not analyzed for cyanide and sulfide. Samples from MW-7 analyzed for arsenic and selenium used Test Method SM3113B. Samples from PZ-3, MW-4B, MW-4D, MW-5A, MW-6, MW-7, MW-7D, MW-8D, MW-9D and MW-12B were also analyzed for pesticides and PCBs via EPA Test Method 8081B and Landfill Appendix II parameters via EPA Test Method 8151A. Leak detect and leachate jun box samples were analyzed for Appendix I metals and VOCs via EPA Test Methods 200.8 and 8260B respectively; as well as BOD, COD, total suspended residue, ammonia nitrogen, nitrate nitrogen, total phosphorous and sulfate via their SWS approved methods listed in the laboratory analysis. Parameters were reported at NC DWM Solid Waste Section Limits (SWSLs)[3].

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

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[2] G.N. Richardson and Associates, Inc. Permit to Construct Application (Design Hydrogeologic Report), Johnston County MSW Landfill- Phase 4a, Volume 2 of 2, (Appendix J), January 2002.

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

4.3 Laboratory Results

The laboratory analysis results were compared with the 15A NCAC 2L 0200 Groundwater Standard (2L Standard), SWSL or Groundwater Protection (GWP) Standard.

4.3.1 Inorganic Constituents

Inorganic results remain generally consistent with historically reported detections. Eight inorganic constituents were detected: arsenic, barium, cobalt, copper, chromium, lead, vanadium and zinc. Four constituents were detected above the 2L Standard:

- Arsenic (PZ-3);
- Barium (MW-4B);
- Total Chromium (MW-8A) and
- Lead (MW-8A and MW-17).

Turbidity levels for MW-8A and MW-17 were high for this sampling event, likely skewing the metals analysis to more detections for this event.

4.3.2 Organic Constituents

Four volatile organic constituents were detected above their SWSL or 2L Standards: 1,4-dichlorobenzene, benzene, chlorobenzene, and vinyl chloride. Two organic constituents were detected at concentrations above the 2L standard:

- 1,4-dichlorobenzene (MW-7, MW-12B & PZ-3); and
- Benzene (MW-4B, MW-7, MW-17 & PZ-3).

Surface water sample analysis indicated no detectable constituents.

Most detections were "J-qualified" by the laboratory, indicating they are a non-quantifiable level between the MDL and SWSL. "J-qualified" detections were not used for analytical purposes in this report.

The field parameter results were consistent with previous sampling events, results are provided in **Table 2.** Inorganic detections are summarized in **Table 3**. Organic detections are summarized in **Table 4**.

5 STATISTICAL ANALYSIS AND RESULTS

5.1 Statistical Analysis

RSG reviewed and analyzed laboratory data from this sampling event to evaluate trends, observe changes in the results and gauge statistically significant differences between up and down gradient wells. 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 DWM protocols for approved statistical analysis methods for groundwater data.

The data from this monitoring event was added to the existing database for this site, and reviewed to determine the appropriate analysis methods. Non-parametric testing methods were primarily used

due to the lack of normality in the data. Statistical analysis for detected inorganic constituents used MW-3 as the upgradient/background well and MW-4B, MW-4D, MW-6, MW-7, MW-7D, MW-8A, MW-8D, MW-10, MW-12B, MW-17 & PZ-3 as the down gradient/compliance wells. Phases 1 through 4 and Phase 4A were analyzed together due to their close proximity. The statistical analysis summary is presented in **Table 5**. Statistically significant differences from background concentrations were found for:

- arsenic (PZ-3);
- barium (MW-4B & MW-7);
- cobalt (MW- 4B, MW-6, MW-7, MW-7D, MW-8A, MW-12b, MW-17);
- lead (MW-17); and
- zinc (MW-10, MW-17).

Time vs. concentration graphs were reviewed as part of statistical analysis; and indicate the detected concentrations are generally stable at the site. Graphs are included in **Appendix C**.

5.2 2L/MCL Statistical Analysis

For wells that showed a statistically significant difference from background concentrations, additional analysis was performed. This analysis has recently been required as part of ongoing Assessment monitoring for landfills in North Carolina. 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, MCL or Ground Water Protection Standard (GWPS).

The statistical results for this additional analysis are presented in **Table 5**. An upper tolerance limit higher than the GWPS standard was considered to be a statistically significant result. This analysis indicated statistically significant results for:

- arsenic (PZ-3);
- barium (MW-4B & MW-7);
- cobalt (MW-6, MW-7, MW-7D, MW-12b, MW-17);
- lead (MW-8A and MW-17); and
- zinc (MW-10).

6 GROUND WATER CHARACTERIZATION

A potentiometric surface map was prepared from ground water data collected during this event. Data indicates ground water is flowing generally to the north towards Middle Creek, which is consistent with ground water flow patterns previously detected for the site. The potentiometric surface map is included as **Figure 1**.

Ground water flow velocities during the sampling event were calculated for each monitoring well using the equation: $V = KI/n$

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

Available ground water flow velocities ranged from 0.035 ft/day (MW-11) to 5.03 ft/day (MW-

7). These calculated flow velocities are included in **Table 1**.

7 CONCLUSIONS

The data and analyses for Phases 1 through 4, and 4A show generally stable ground water quality at the Johnston County Landfills; indicating impact remains from the unlined landfills and is not perpetuated by current deposition. Elevated inorganic constituents are likely due to naturally occurring levels in the soils and bedrock at the site.

Please note that remedial strategies are ongoing at the site; including construction of Phase 4A (a double-lined landfill) as a "piggy-back" over unlined Phases 3 and 4 which reduced rainwater infiltration into the unlined landfills. Additionally, a lined C&D landfill was constructed over part of Phase 3 to further reduce rainwater infiltration and leachate production. These strategies are expected to help improve ground water quality over time.

The monitoring wells associated with Phase 4A were analyzed with Phases 1 through 4 due to their close proximity. MW-17 is located immediately adjacent to the base of Phase 3, impact in this well is likely from the unlined landfill, rather than impact from Phase 4A (a double-lined landfill).

The next semi-annual sampling event is tentatively scheduled for May 2012. Results will be reported after laboratory data and statistical analyses review.

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.

0 200' 400' 600'

DATE	NO.	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: 1/25/2012

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ENGINEERING & GEOLOGICAL SERVICES

Table 1
Johnston County Phases 1 - 4, and 4A
Ground Water Elevations & Velocities
October 17 - 20 & 27, 2011

Well	Northing	Easting	TOC Elevation	Water Level	GW Elevation	Hydraulic Conductivity	Porosity	Gradient	Velocity
			(feet)	(feet)	(feet)	(ft/day)	(%)	(ft/ft)	(ft/day)
MW-3	641418.01	2169969.56	234.16	IWV	nm	18.288	0.2	NA	NA
MW-4B	642957.03	2171444.05	182.97	6.57	176.40	nm	nm	0.020	NA
MW-4d*	642980.96	2171427.56	nm	3.55	nm	nm	nm	NA	NA
MW-5A	643820.20	2172120.74	173.70	18.62	155.08	25.344	0.2	0.010	1.247
MW-6	644684.58	2171378.66	166.60	42.56	124.04	1.829	0.2	0.014	0.128
MW-7	645068.98	2170795.87	163.24	24.53	138.71	6.941	0.2	0.145	5.032
MW-7d*	645222.32	2170726.50	127.91	8.72	119.19	nm	nm	NA	NA
MW-8a	645147.30	2170177.01	nm	8.08	nm	nm	nm	NA	NA
MW-8d*	645168.55	2170214.84	nm	8.06	nm	1.570	nm	NA	NA
MW-9c	643917.72	2169245.90	167.89	16.35	151.54	4.709	0.2	0.161	3.791
MW-9d*	643868.45	2169252.80	nm	11.55	nm	nm	nm	NA	NA
MW-10	644334.57	2169508.35	175.65	8.34	167.31	0.199	0.2	0.037	0.037
MW-11	644950.77	2169676.72	144.32	11.13	133.19	0.148	0.2	0.047	0.035
MW-12b	645008.00	2171279.00	156.14	31.22	124.92	nm	nm	0.035	NA
MW-14d*	645363.72	2170739.06	128.66	10.5	118.16	nm	nm	NA	NA
MW-15d*	645354.15	2170543.68	128.70	9.8	118.90	nm	nm	NA	NA
MW-16d*	645317.05	2170309.20	133.96	10.17	123.79	nm	nm	NA	NA
MW-17	644963.10	2170393.58	nm	18.21	nm	nm	nm	NA	NA
PZ-3	642528.15	2171107.90	194.91	9.73	185.18	nm	nm	0.011	NA

Velocity Calculated from V=K*I/n
V = velocity
K = Hydraulic Conductivity
I = Gradient
n = Porosity

Hydraulic Conductivity data from April 1998 field testing
Porosity values assumed from Groundwater & Wells (Driscoll)
NA = not applicable
nm = not measured

* Deep wells not included in gradient calculation

By: MG
Date: 1/25/2012

Table 2
Johnston County Phases 1 - 4, and 4A
Field Parameters
October 17 - 20 & 27, 2011

Well Identification #	Static Water Level (ft) (DTW)	Temperature (°Celsius)	Turbidity (NTU)	Specific Conductivity (uS/cm)	pH
MW – 3	IWV	IWV	IWV	IWV	IWV
MW – 4B	6.57	22.41	19.3	1720	6.64
MW-4D	3.55	19.75	2.3	113	7.12
MW – 5A	18.62	18.25	18.4	29	5.79
MW – 6	42.56	20.39	4.63	322	6.07
MW – 7	24.53	19.85	1.68	2200	6.37
MW – 7d	8.72	18.89	1.73	1385	6.25
MW - 8a	8.08	19.15	176	644	5.63
MW-8d	8.06	18.81	38.4	461	6.02
MW – 9c	16.35	IWV	IWV	IWV	IWV
MW-9d	11.55	17.37	1.57	137	7.13
MW – 10	8.34	17.61	103	106	6.93
MW – 11	11.13	17.75	4.92	165	6.73
MW – 12b	31.22	18.62	1.46	402	5.78
MW – 14d	10.50	16.44	1.82	829	6.95
MW – 15d	9.80	17.60	15.6	307	7.11
MW – 16d	10.17	18.11	3.44	276	5.62
MW – 17	18.21	19.90	240	2120	6.13
Piezometer #3	9.73	21.88	4.03	583	6.09
SWPT-1A	N/A	14.39	2.99	240	7.33
SWPT-2	N/A	15.28	5.28	372	7.09

N/A = Not Applicable
IWV = Inadequate Water Volume
Note: Data collected by Kevin Shields of Johnston County

By: MG
Date: 1/25/2012

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Table 3
Johnston County Phases 1 - 4 and Phase 4A
Detected Inorganic Constituents
October 17 - 20 & 27, 2011

Constituents	MDL	SWSL	2L or GWP*	MW-4B	MW-4D	MW-5A	MW-6	MW-7	MW-7d	MW-8a	MW-8d	MW-9d	MW-10	MW-11	MW-12b	MW-14d	MW-15d	MW-16d	MW-17	PZ-3	SW-1A	SW-2
Antimony	0.14	6	1*	0.15 J	<0.14	<0.14	<0.14	<0.14	0.29 J	<0.14	<0.14	<0.14	<0.14	<0.14	0.28 J	<0.14	0.37 J	<0.14	0.30 J	0.14 J	<0.14	<0.14
Arsenic	0.10	10	10	9 J	0.25 J	0.40 J	0.83 J	4.4 J	2.5 J	1.9 J	1.3 J	0.43 J	0.38 J	2.0 J	3.5 J	0.32 J	1.8 J	0.43 J	9 J	**25**	0.27 J	0.39 J
Barium	0.02	100	700	**1219**	26.4 J	6.5 J	42.1 J	**458**	37.9 J	**144**	67.5 J	4.5 J	34.0 J	15.5 J	**201**	2.0 J	23.6 J	70.6 J	**193**	41.0 J	66.4 J	22.5 J
Beryllium	0.02	1	4*	< 0.02	0.08 J	0.20 J	<0.02	<0.02	<0.02	0.42 J	<0.02	<0.02	0.17 J	<0.02	<0.02	<0.02	<0.02	0.17J	0.16 J	<0.02	<0.02	<0.02
Cadmium	0.02	1	2	0.04 J	<0.02	<0.02	<0.02	<0.02	<0.02	0.15 J	0.04 J	<0.02	<0.02	<0.02	<0.02	0.22 J	0.07 J	0.12 J	0.42 J	0.11 J	<0.02	<0.02
Cobalt	0.03	10	1*	**28**	6.2 J	2.0 J	**169**	**84**	**24**	**28**	**47**	1.6 J	9.8 J	7.0 J	**526**	0.36 J	0.56 J	0.68 J	**281**	0.14 J	0.48 J	0.64 J
Copper	0.02	10	1000	0.70 J	0.36 J	1.5 J	0.56 J	1.5 J	0.87 J	**15**	0.49 J	0.30 J	3.2 J	0.41 J	0.56 J	1.2 J	1.2 J	0.72 J	**38**	0.62 J	1.0 J	1.2 J
Total Chromium	0.04	10	10	0.39 J	<0.04	1.5 J	<0.04	0.70 J	<0.04	**11**	0.72 J	<0.04	2.4 J	<0.04	<0.04	0.16 J	0.45 J	1.5 J	7.1 J	0.49 J	0.14 J	0.40 J
Lead	0.02	10	15	0.05 J	0.07 J	0.84 J	0.04 J	0.04 J	0.05 J	**16**	0.04 J	<0.02	1.5 J	0.04 J	0.07 J	1.1 J	1.2 J	045 J	**19**	0.17 J	0.19 J	0.34 J
Mercury	0.05	0.2	1	<0.05	<0.05	<0.05	0.08 J	<0.05	0.08 J	N/A	<0.05	<0.05	<0.05	<0.05	0.09 J	N/A	N/A	N/A	N/A	<0.05	N/A	N/A
Nickel	0.04	50	100	3.7 J	5.7 J	4.0 J	10.1 J	33.4 J	13.5 J	10.7 J	2.5 J	0.48 J	11.0 J	0.84 J	21.0 J	2.0 J	1.7 J	1.2 J	12.7 J	0.43 J	1.5 J	1.9 J
Selenium	0.20	10	20	6.8 J	<0.20	0.40 J	0.40 J	0.96 J	8.5 J	2.2 J	2.3 J	<0.20	0.32 J	0.31 J	1.2 J	1.5 J	0.56 J	0.76 J	8.3 J	1.5 J	0.44 J	0.30 J
Silver	0.02	10	20	<0.02	0.05 J	<0.02	0.07 J	0.04 J	<0.02	0.05 J	<0.02	<0.02	<0.02	<0.02 J	0.07 J	0.09 J	0.04 J	0.04 J	0.05 J	0.04 J	<0.02	<0.02
Thallium	0.02	5.5	0.28*	0.18 J	0.28 J	<0.02	0.26 J	0.08 J	0.04 J	0.06 J	<0.02	<0.02	<0.04 J	<0.02	0.13 J	0.15 J	0.03 J	0.30 J	0.19 J	<0.02	<0.02	<0.02
Tin	0.16	100	2000*	0.41 J	0.21 J	<0.16	<0.16	0.55 J	0.17 J	N/A	0.19 J	<0.16	0.43 J	0.26 J	0.16 J	N/A	N/A	N/A	N/A	<0.16	N/A	N/A
Vanadium	0.14	25	0.3*	0.62 J	<0.14	0.97 J	<0.14	<0.14	<0.14	11.9 J	0.48 J	<0.14	1.8 J	<0.14	<0.14	0.87 J	0.79 J	4.2 J	6.0 J	2.0 J	1.1 J	2.2 J
Zinc	0.24	10	1000	1.2 J	**12**	7.8 J	1.9 J	0.62 J	2.0 J	**32**	1.0 J	0.84 J	**29**	2.6 J	3.3 J	1.5 J	3.3 J	1.3 J	**58**	2.0 J	2.5 J	3.3 J
cyanide	5	10	70	<5	<5	<5	<5	<5	<5	N/A	<5	<5	<5	<5	<5	N/A	N/A	N/A	N/A	<5	N/A	N/A
Sulfide	100	1000	--	251 J	<100	<100	<100	<100	<100	N/A	<100	<100	<100	<100	<100	N/A	N/A	N/A	N/A	<100	N/A	N/A

MDL - Method Detection Limit
SWSL - Solid Waste Section Quantitation Limit
2L - Groundwater Standard (15A NCAC 2L 0200)
GWP Groundwater Protection Standard (indicated by *)
< 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
N/A - not applicable

Results are presented in ug/l.
Data from 10/26/2011 Environment 1, Incorporated Laboratory Report #6031.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

By: MG
Date: 1/25/2012

Table 4
Johnston County Phases 1 - 4 and Phase 4A
Detected Organic Constituents
October 17 - 20 & 27, 2011

Constituents	MDL	SWSL	2L	MW-4B	MW-5A	MW-6	MW-7	MW-7d	MW-8a	MW-8d	MW-11	MW-12b	MW-14d	MW-17	PZ-3
1,1-Dichloroethane	0.2	5	6	<0.2	0.70 J	0.30 J	1.0 J	2.3 J	1.10 J	1.10 J	3.9 J	1.4 J	3.5 J	1.30 J	<0.2
1,2-Dichlorobenzene	0.39	5	20	0.80 J	<0.39	<0.39	1.1 J	0.40 J	0.80 J	<0.39	<0.39	1.0 J	<0.39	4.6 J	1.6 J
1,2-Dichloropropane	0.21	1	0.6	<0.21	<0.21	<0.21	<0.21	0.30 J	<0.21	0.30 J	<0.21	0.30 J	0.60 J	<0.21	<0.21
1,3-Dichlorobenzene	0.41	5	200	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	0.50 J	<0.41	<0.41	<0.41
1,4-Dichlorobenzene	0.32	1	6	**5.2**	<0.32	<0.32	**10.3**	**5.8**	0.80 J	0.90 J	<0.32	**8**	**2.1**	<0.32	**7.4**
Benzene	0.24	1	1	**3.7**	<0.24	<0.24	**2.1**	0.50 J	0.40 J	0.30 J	<0.24	0.7 J	0.30 J	**2.4**	**3.3**
Chlorobenzene	0.3	3	50	**12.3**	<0.3	0.3 J	**23.9**	**8.8**	1.40 J	1.4 J	<0.3	**9.8**	**3.4**	**6.2**	**11.5**
Chloroethane	0.48	10	3000	<0.48	<0.48	<0.48	1.4 J	0.60 J	<0.48	<0.48	<0.48	<0.48	<0.48	1.0 J	<0.48
Cis-1,2-Dichloroethene	0.25	5	70	<0.25	<0.25	0.60 J	0.30 J	4.1 J	0.40 J	0.40 J	<0.25	0.50 J	3.9 J	<0.25	0.50 J
Dichlorodifluoromethane	0.51	5	1000	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51	0.6 J	<0.51	<0.51	<0.51	<0.51
Naphthalene	0.47	10	6	0.60 J	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47
Toluene	0.23	1	600	0.3 J	<0.23	<0.23	0.30 J	<0.23	<0.23	0.30 J	<0.23	0.30 J	<0.23	0.40 J	0.60 J
Vinyl Chloride	0.63	1	0.03	**1.6**	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	0.90 J	0.80 J

NOTE:

MDL	-	Method Detection Limit
SWSL	-	Solid Waste Section Quantitation Limit
2L	-	Groundwater Standard (15A NCAC 2L 0200)
< MDL	-	Not detected at or above the MDL
Shading	-	Levels above 2L Standard
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 Environment 1, Incorporated Laboratory Report #6031.

TB analyzed with PZ-3 had a detected concentration of 5.10 ug/l methylene chloride
EB had a detected concentration of 36.1 J ug/lo chloroform and 0.3 J bromodichloromethane

By: MG
Date: 1/25/2012

Table 5
Johnston County Phases 1 - 4 and Phase 4A
Statistical Analysis Summary
October 17 - 20 & 27, 2011

Location	Parameter	Result	Detection Limit	Test Units	%ND	Test	Statistically Significant?	2nd statistical Analysis	Test
PZ-3	arsenic	25	10	ug/l	39.13	WRS	Y	Y	MCL-PTI (1992)
MW-4B	barium	1219	100	ug/l	6.45	WRS	Y	Y	MCL-PTI (1992)
MW-7	barium	458	100	ug/l	40	WRS	Y	Y	MCL-PTI (1992)
MW-8A	barium	144	100	ug/l	66.66	WRS	N	--	--
MW-12B	barium	201	100	ug/l	72.41	WRS	N	--	--
MW-17	barium	193	100	ug/l	52.63	WRS	N	--	--
MW-4B	cobalt	28	10	ug/l	9.68	WRS	Y	Y	MCL-PTI (1992)
MW-6	cobalt	169	10	ug/l	5.71	WRS	Y	Y	MCL-PTI (1992)
MW-7	cobalt	84	10	ug/l	2.86	WRS	Y	Y	MCL-PTI (1992)
MW-7D	cobalt	24	10	ug/l	0	WRS	Y	Y	MCL-PTI (1992)
MW-8A	cobalt	28	10	ug/l	11.11	WRS	Y	Y	MCL-PTI (1992)
MW-8D	cobalt	47	10	ug/l	9.09	WRS	Y	Y	MCL-PTI (1992)
MW-12B	cobalt	526	10	ug/l	6.9	WRS	Y	Y	MCL-PTI (1992)
MW-17	cobalt	281	10	ug/l	0	WRS	Y	Y	MCL-PTI (1992)
MW-8A	copper	15	10	ug/l	66.67	PPL	N	--	--
MW-17	copper	36	10	ug/l	21.05	PPL	N	--	--
MW-8A	chromium	11	10	ug/l	61.11	PPL	N	--	--
MW-8A	lead	16	10	ug/l	66.66	WRS	N	--	--
MW-17	lead	19	10	ug/l	5.26	WRS	Y	Y	MCL-PTI (1992)
MW-4D	zinc	12	10	ug/l	72.72	WRS	N	--	--
MW-8A	zinc	32	10	ug/l	66.66	WRS	N	--	--
MW-10	zinc	29	10	ug/l	5.71	WRS	Y	Y	MCL-PTI (1992)
MW-17	zinc	58	10	ug/l	0	WRS	Y	Y	MCL-PTI (1992)

Legend:

%ND	Method chosen due to percent non-detects
NPPL	Non-Parametric Prediction Limit
PPL	Poisson Prediction Limit
WRS	Wilcoxon Rank Sum Test

Highlighting indicates statistical significance.

Notes:

MW-3 was used as the background well

** Environment 1, Inc. has reported (letter included in **Appendix B**) that possible contamination occurred during the sampling process or during the field preservation of certain locations.

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By: MG
Date: 1/25/2012

Table 6
Johnston County Phases 1 - 4 and Phase 4A
Leachate Analytical Summary
October 17 - 20 & 27, 2011

Parameter	Unit	Leachate Junction Box	Phase 4A Monitoring Zone
BOD	ug/l	21000	18000
COD	ug/l	944000	106000
Ammonia Nitrogen as N	ug/l	549000	84600
Total Phosphorus as P	ug/l	1760	210
Total Suspended Residue	ug/l	40000	34000
Antimony	ug/l	ND	1.4 J
Arsenic	ug/l	8 J	5.1 J
Barium	ug/l	298	253
Beryllium	ug/l	ND	0.11 J
Cadmium	ug/l	0.97 J	ND
Cobalt	ug/l	18	2.0 J
Copper	ug/l	6.2 J	3.4 J
Total Chromium	ug/l	16	0.58 J
Lead	ug/l	0.22 J	0.06 J
Nickel	ug/l	75	2.5 J
Selenium	ug/l	12	1.3 J
Silver	ug/l	0.20 J	ND
Vanadium	ug/l	11.2 J	1.9 J
Zinc	ug/l	42	4.4 J
1,1-Dichloroethane	ug/l	0.30 J	0.80 J
1,2-Dichloroethane	ug/l	3.1	1.2
1,2-Dichloropropane	ug/l	0.30 J	1.5
1,4-Dichlorobenzene	ug/l	10.2	14.1
2-Butanone	ug/l	11.50 J	52.50 J
4-Methyl-2-Pentanone	ug/l	ND	7.4 J
Acetone	ug/l	46.10 J	31.80 J
Benzene	ug/l	11.2	32.7
Chlorobenzene	ug/l	2.50 J	2.10 J
Chloroethane	ug/l	0.50 J	0.80 J
Chloromethane	ug/l	1.3	ND
Cis-1,2-Dichloroethene	ug/l	0.30 J	3.9 J
Ethylbenzene	ug/l	16.4	67.2
Toluene	ug/l	2.9	69.5
trans-1,2-Dichloroethene	ug/l	0.30 J	0.60 J
Trichloroethene	ug/l	ND	0.90 J
Vinyl Chloride	ug/l	ND	20.8
Xylenes	ug/l	55.2	115

Appendix A

Monitoring Well Information

Well Construction Record
Soil & Environmental Consultants, Inc

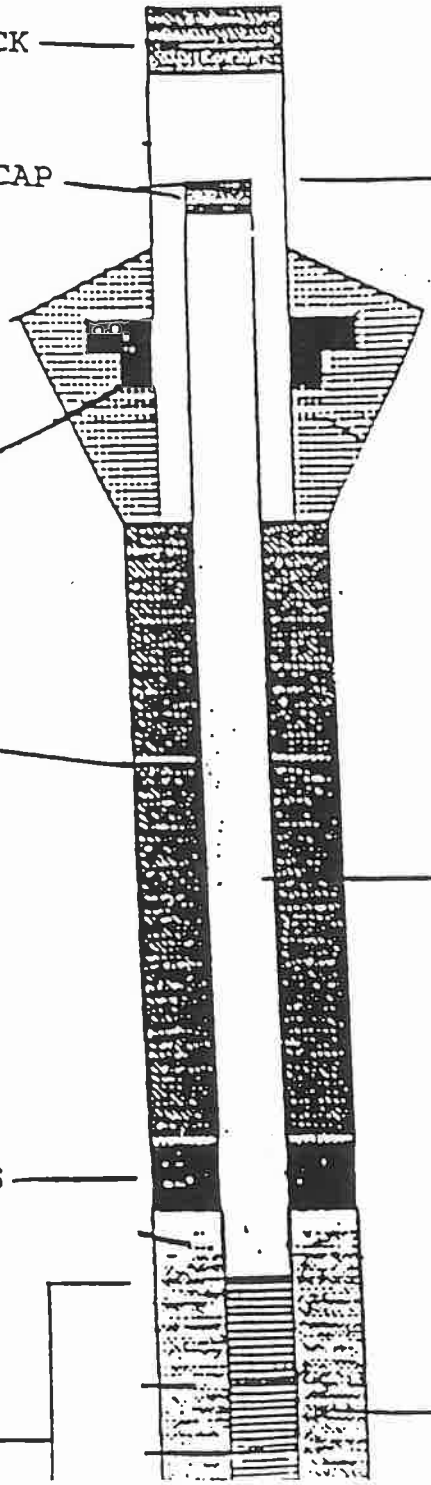
Soil & Environmental Consultants, Inc.
Well Construction Record

Bobby

REGISTRATION NUMBER 1292

Well Number: 3
Location: Johnston County Landfill
Date: April 16, 1991

JUN 20 1991



Boring Log
MW-4

Depth	Soil Type	USDA Soil Classification	
		Soil Horizon	Munsell Color
0-.33'	Sand	A	10YR3/4
.33'-2.25'	Sand	A2	10YR3/4
2.25'-3.17'	Sandy CLay Loam	B	5YR5/8
3.17'-4'	Sandy Loam	B/C	5YR5/8
4'-	Loamy Sand	C	
Seasonal High Water Table @ 12.33'			

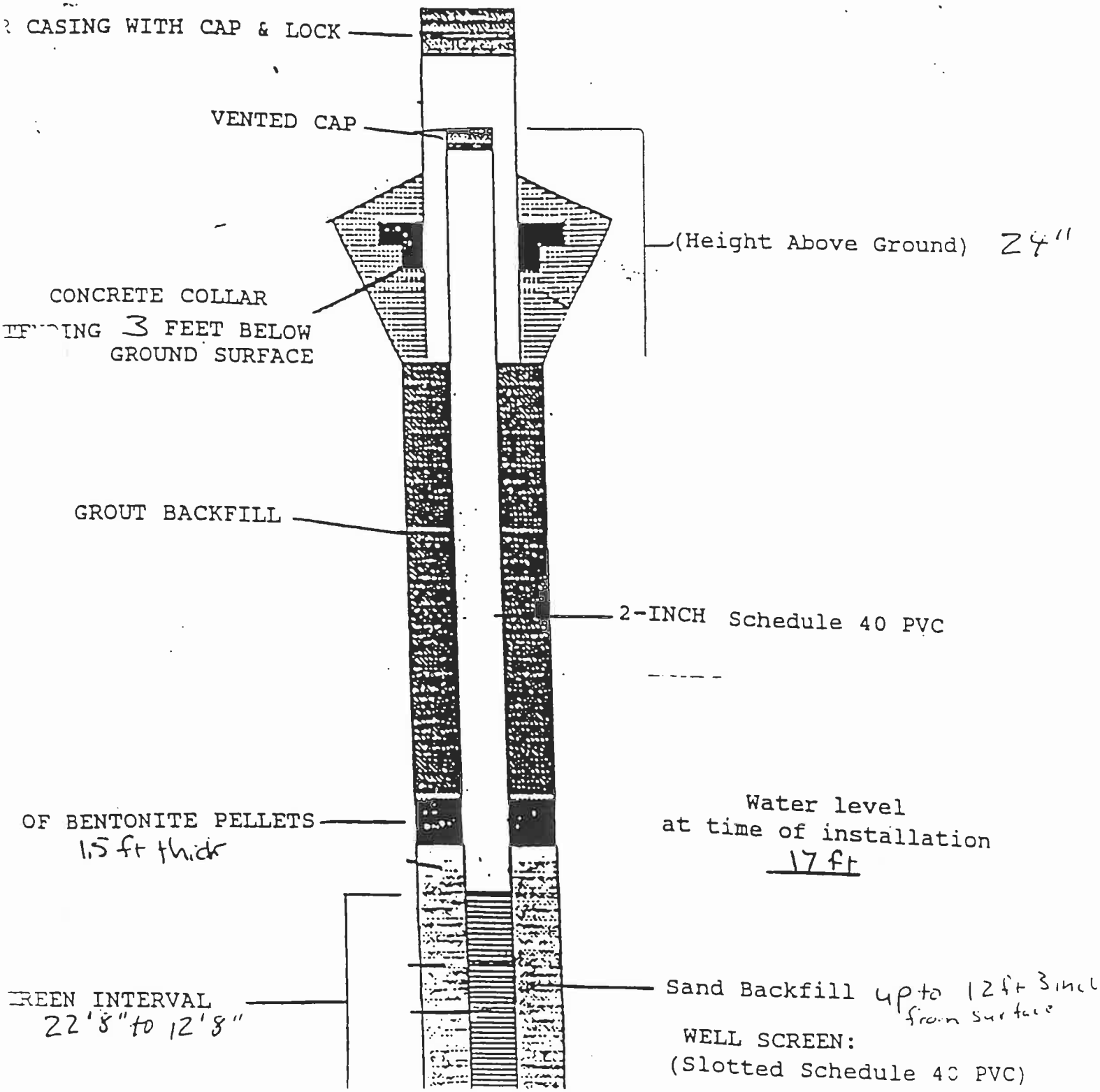
Well Construction Record

REGISTRATION NUMBER 1292

Well Number: 4

Location: Johnston Co. Landfill

Date: April 16th



Boring Log
MW-6

Depth	Soil Type	USDA Soil Classification Munsell Color
0-2'	Sandy Loam	7.5YR5/8
2'-4.5'	Clay	5YR 5/8
4.5'-13'	Silt	2.5 YR 6/8
13'-21'	Silt and Slate	
21'	Slate	

Well Construction Record

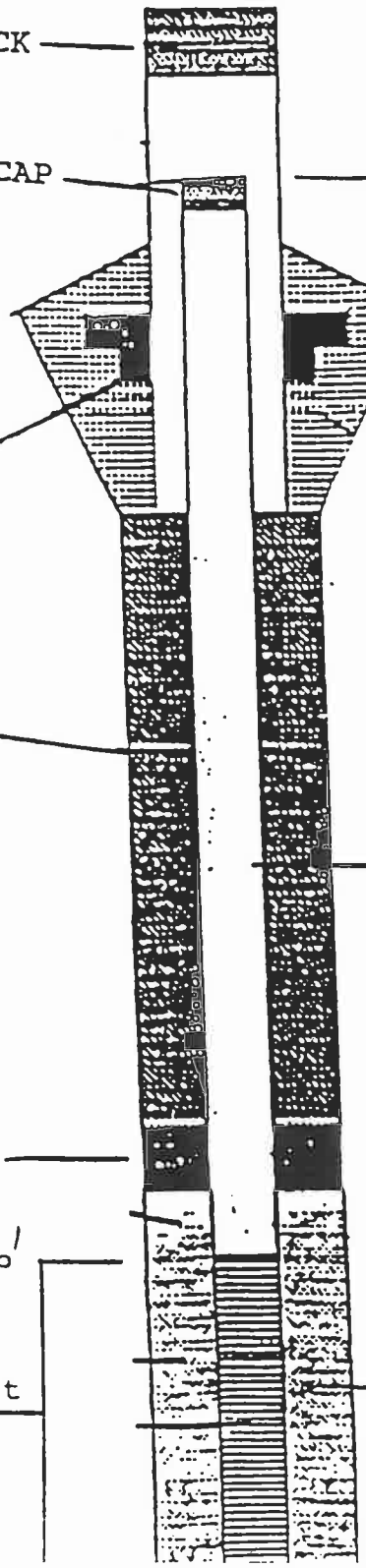
REGISTRATION NUMBER 1292

Well Number: 6

Location: Johnston County Landfill

Date: June 14, 1991

TD - 50'



Boring Log
MW-7

Depth	Soil Type	USDA Soil Classification Munsell Color
0-.67'	Loam	
.67'-8'	Clay	5YR
8'-10'	Sandy Clay	
10'-	Clay	

Well Construction Record

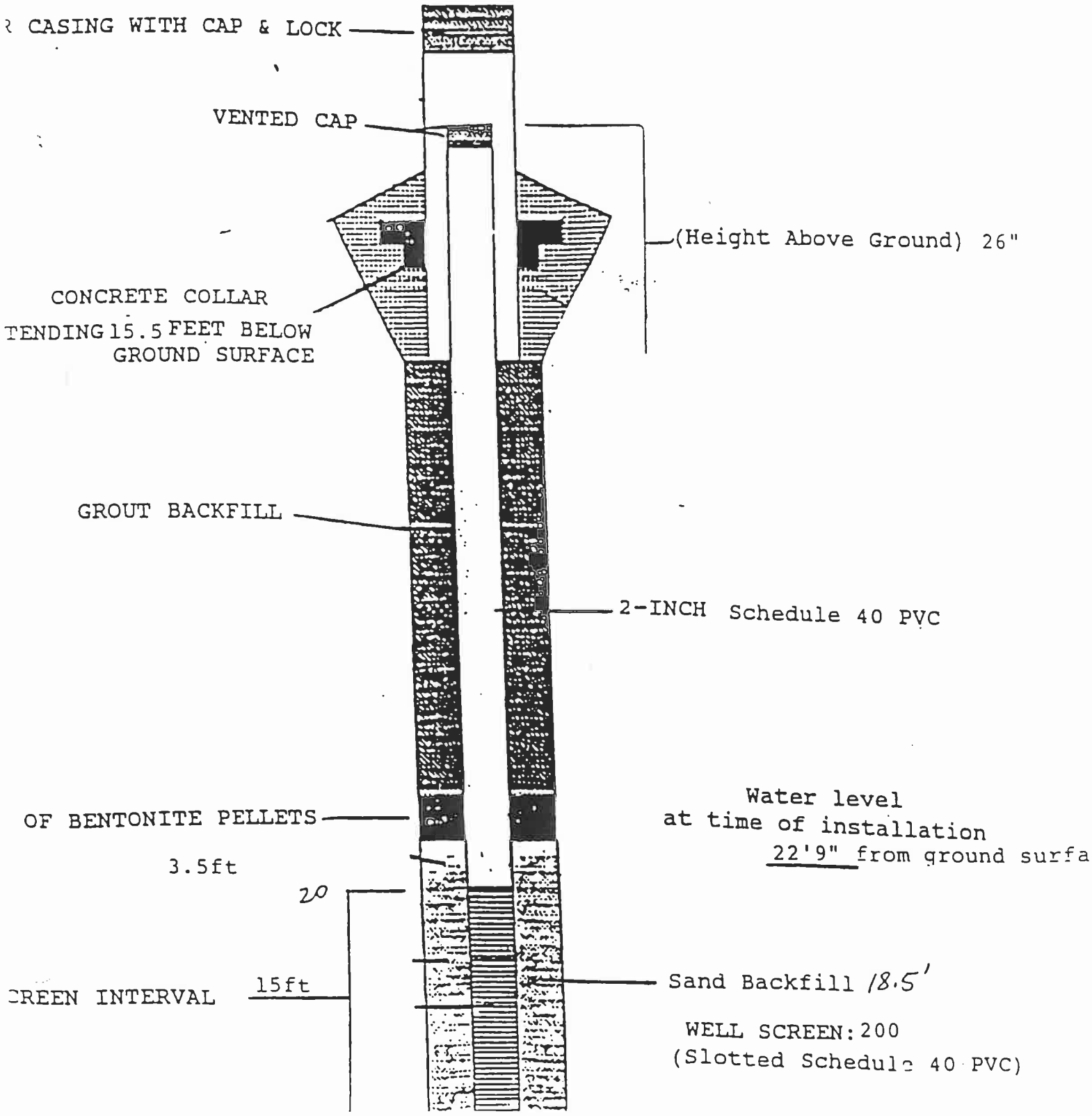
REGISTRATION NUMBER 1292

Well Number: 7

Location: Johnston County Landfill

Date: June 14, 1991

TD = 35'



Well Construction Record

REGISTRATION NUMBER 1292

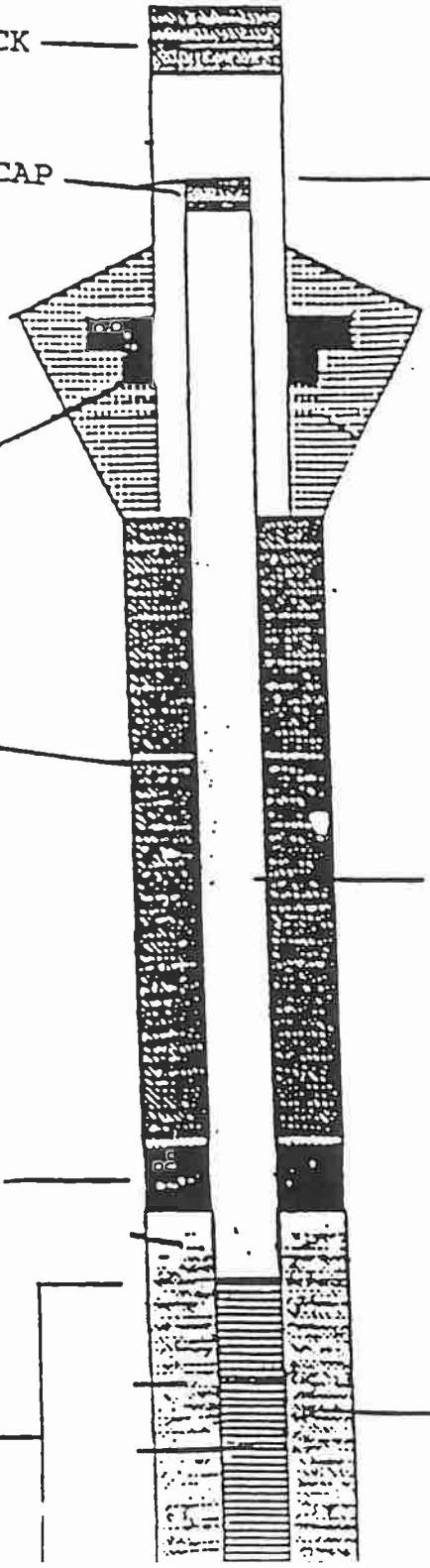
Well Number: 8 OID #5

Location: Old

Date:

* This well was instal
some years ago and
S&EC has no record c
installation data.

T. depth 23.5 ft.



Boring Log
MW-9

Depth	Soil Type	USDA Soil Classification	
		Soil Horizon	Munsell Color
0-.33'	Loamy Sand	A	2.5YR3/2
.33'-1'	Loamy Sand	A2	2.5Y4/4
1'-3.67'	Sand	E	2.5Y5/8
3.67'-5'	Sandy Clay Loam	B	10YR5/8
5'-6'	Clay Loam	B/C	10YR6/8
6'-7'	Sandy Loam		5YR6/8
7'-8'	Loamy Sand		10R7/6
8'-9'	Loamy Sand to Sand		
9.5'-	Sand		10YR6/1

Wel Construction Record

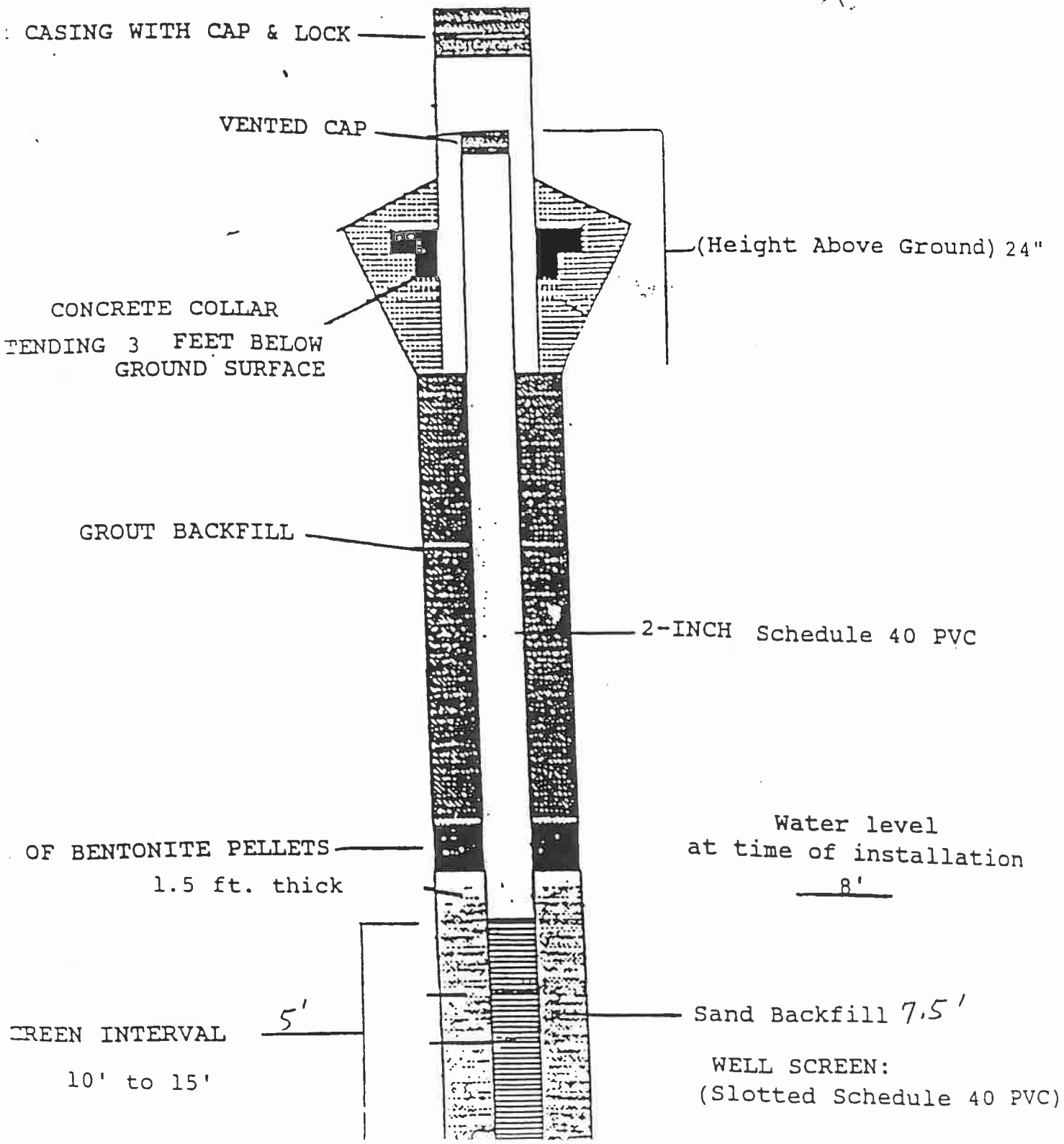
REGISTRATION NUMBER 1292

Well Number: 9

Location: Johnston County Landfill

Date: April 16, 1991

TD = 15'



North Carolina - Department of Envir[illegible]ent, Health, and Natural Resources
Division of Environmental Man[illegible]ement - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat. _____ Long. _____ RO _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: PATTERSON EXPLORATION SERVICES

DRILLER REGISTRATION NUMBER: 351

STATE WELL CONSTRUCTION PERMIT NUMBER: _____

MW-10

1. WELL LOCATION: (Show sketch of the location below)
   Nearest Town: SMITHFIELD County: JOHNSTON
   NC HWY 210, JOHNSTON COUNTY LANDFILL
   (Road, Community, or Subdivision and Lot No.)
2. OWNER JOHNSTON COUNTY
   ADDRESS P.O. Box 2263
   (Street or Route No.)
   SMITHFIELD NC 27577
   City or Town State Zip Code
3. DATE DRILLED 9-15-94 USE OF WELL MONITORING
4. TOTAL DEPTH 35'
5. CUTTINGS COLLECTED YES [ ] NO [X]
6. DOES WELL REPLACE EXISTING WELL? YES [ ] NO [X]
7. STATIC WATER LEVEL Below Top of Casing: 4'-10" FT.
   (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2 FT. Above Land Surface*
   * Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): <1.0 METHOD OF TEST BAILING
   WATER ZONES (depth): 26' - 35'

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0'	3'	TAN SANDY SILT
3'	35'	GRAY CLAYEY SILT

If additional space is needed use back of form

11. CHLORINATION: Type _____ Amount _____
12. CASING:

Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
0'	19 Ft.	2"	SCH 40	PVC
	Ft.			
	Ft.			

13. GROUT:

Depth From	Depth To	Material	Method
0	17 Ft.	NEAT CEMENT	
17	18 Ft.	BENTONITE	

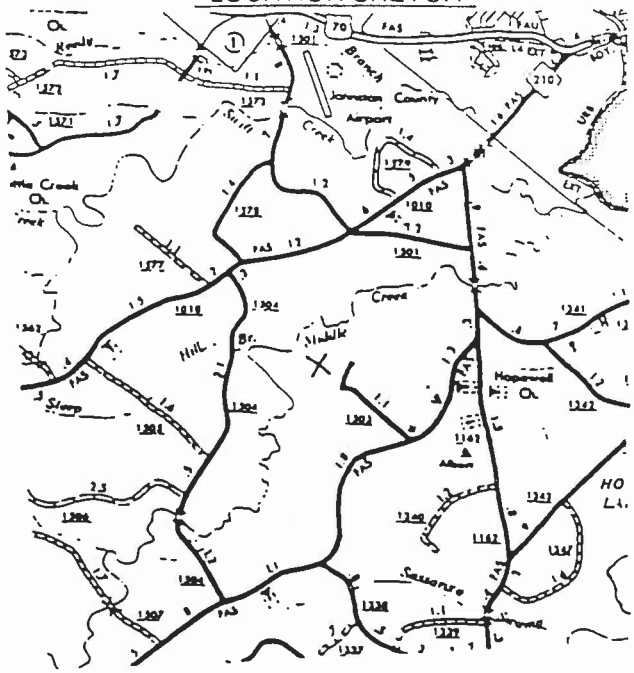
14. SCREEN:

Depth From	Depth To	Diameter	Slot Size	Material
19	34 Ft	2 in.	.010 in.	PVC
	Ft.	in.	in.	
	Ft.	in.	in.	

15. SAND/GRAVEL PACK:

Depth From	Depth To	Size	Material
18	35 Ft.		SAND
	Ft.		

LOCATION SKETCH



REMARKS: _____

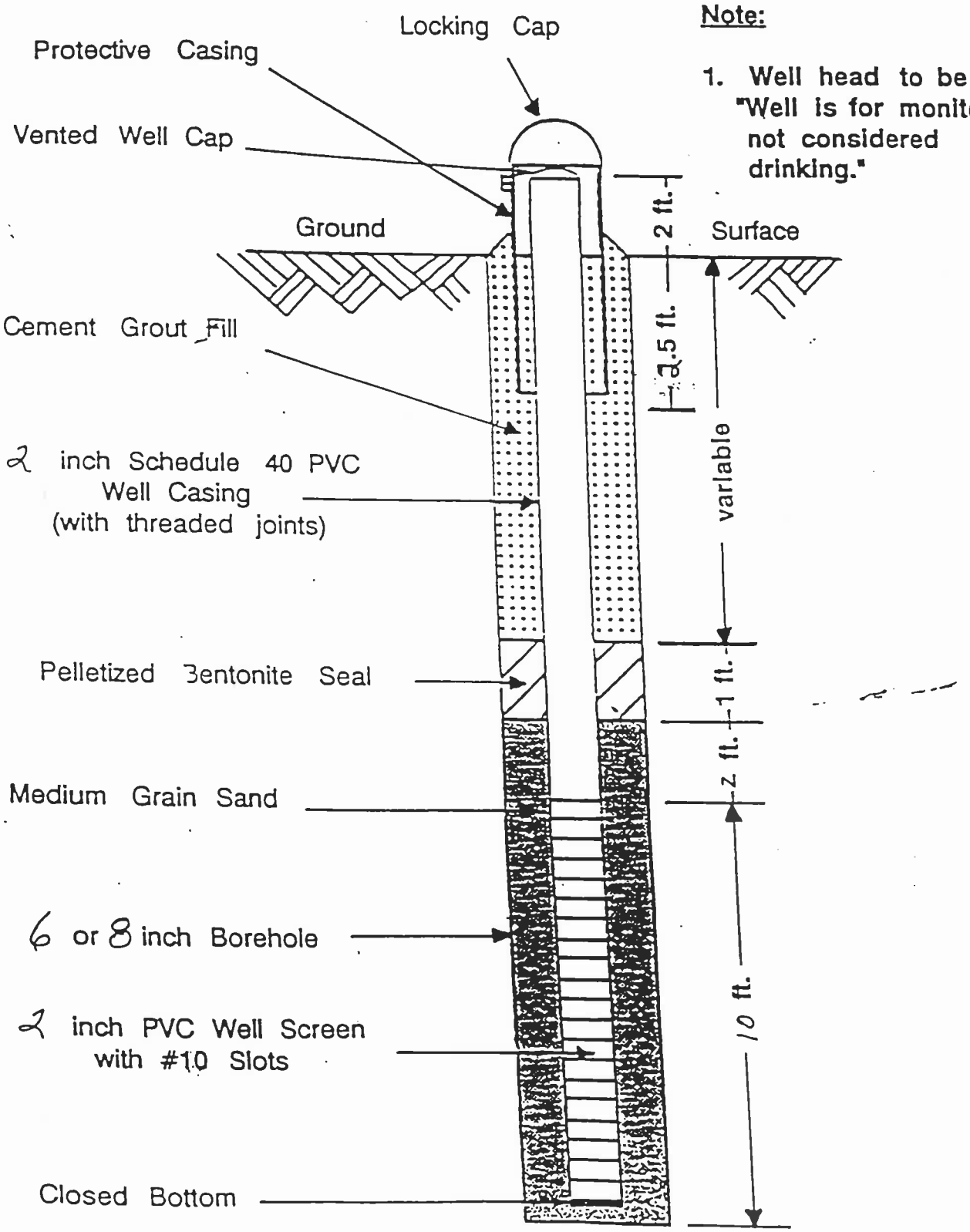
I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

[signature] 9-29-94

SIGNATURE OF CONTRACTOR OR AGENT DATE

MONITORING WELL CONSTRUCTION

JOHNSTON COUNTY LANDFILL (TYP.)



Note:

1. Well head to be labeled: "Well is for monitoring and not considered safe for drinking."

orth Carolina - Department of Enviro nt, Health, and Natural Resources
Division of Environmental Man nent - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat _____ Long. _____ RO _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

.LING CONTRACTOR: PATTERSON EXPLORATION SERVICES

DRILLER REGISTRATION NUMBER: 351

STATE WELL CONSTRUCTION PERMIT NUMBER: _____

MW-11

1. WELL LOCATION: (Show sketch of the location below)
Nearest Town: SMITHFIELD County: JOHNSTON
NC HWY 210, JOHNSTON COUNTY LANDFILL
(Road, Community, or Subdivision and Lot No.)
2. OWNER JOHNSTON COUNTY
ADDRESS P.O. BOX 2263
(Street or Route No.)
SMITHFIELD NC 27577
City or Town State Zip Code
3. DATE DRILLED 9-15-94 USE OF WELL MONITORING
4. TOTAL DEPTH 25'
5. CUTTINGS COLLECTED YES [ ] NO [X]
6. DOES WELL REPLACE EXISTING WELL? YES [ ] NO [X]
7. STATIC WATER LEVEL Below Top of Casing: 10.5 FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2 FT. Above Land Surface*
* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): <1.0 METHOD OF TEST BAILING
10. WATER ZONES (depth): 18' - 25'

CHLORINATION: Type _____ Amount _____

DEPTH From	To	DRILLING LOG Formation Description
0'	3'	TAN SANDY SILT
3'	25'	GRAY CLAYEY SILT

If additional space is needed use back of form

12. CASING:

	Depth From	To	Diameter	Wall Thickness or Weight/Ft.	Material
	0	14 Ft.	2"	SCH 40	PVC
		Ft.			
		Ft.			

13. GROUT:

	Depth From	To	Material	Method
	0	12 Ft.	NEAT CEMENT	
	12	13 Ft.	BENTONITE	

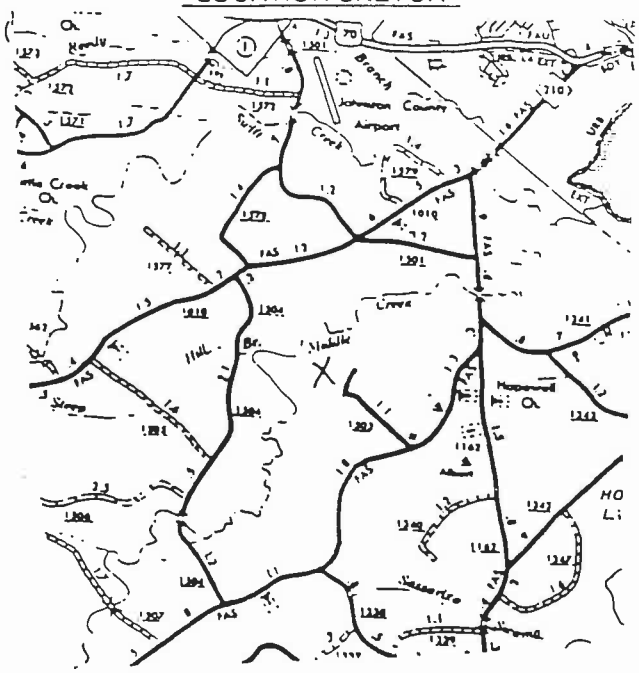
14. SCREEN:

	Depth From	To	Diameter	Slot Size	Material
	14	24 Ft.	2 in.	.010 in.	PVC
		Ft.	in.	in.	
		Ft.	in.	in.	

15. SAND/GRAVEL PACK:

	Depth From	To	Size	Material
	13	25 Ft.		SAND
		Ft.		

LOCATION SKETCH



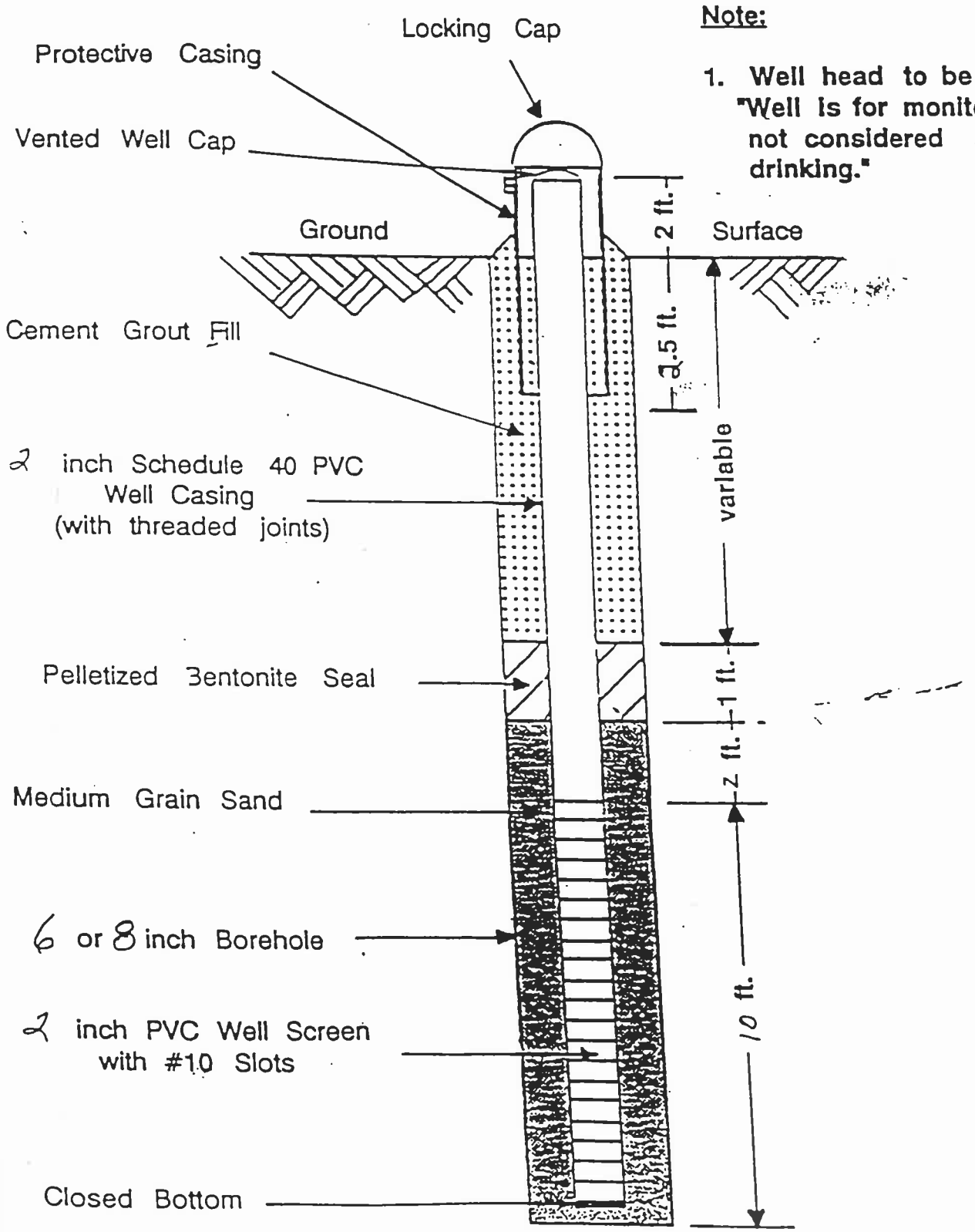
'EMARKS: _____

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT _____ DATE 9-29-94

MONITORING WELL CONSTRUCTION

JOHNSTON COUNTY LANDFILL (TYP.)



Note:

1. **Well head to be labeled: "Well is for monitoring and not considered safe for drinking."**

Division of Environmental Mana ent - Groundwater Section
P.O. Box 29535 - Raleigh, N.C. 27626-0535
Phone (919) 733-3221

FOR OFFICE USE ONLY
QUAD. NO. _____ SERIAL NO. _____
Lat _____ Long. _____ RO _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD

ING CONTRACTOR: PATTERSON EXPLORATION SERVICES

DRILLER REGISTRATION NUMBER: 351

STATE WELL CONSTRUCTION PERMIT NUMBER: _____

MW-12

1. WELL LOCATION: (Show sketch of the location below)
Nearest Town: SMITHFIELD County: JOHNSTON
NC HWY 210 JOHNSTON COUNTY LANDFILL
(Road, Community, or Subdivision and Lot No.)
2. OWNER JOHNSTON COUNTY
ADDRESS P.O. BOX 2263
(Street or Route No.)
SMITHFIELD NC 27577
City or Town State Zip Code
3. DATE DRILLED 9-15-94 USE OF WELL MONITORING
4. TOTAL DEPTH 15'
5. CUTTINGS COLLECTED YES [ ] NO [X]
6. DOES WELL REPLACE EXISTING WELL? YES [ ] NO [X]
7. STATIC WATER LEVEL Below Top of Casing: 8 FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 2 FT. Above Land Surface*
* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
9. YIELD (gpm): <1.0 METHOD OF TEST BAILING
10 WATER ZONES (depth): 6' - 15'

CHLORINATION: Type _____ Amount _____

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0'	15'	SILTY CLAY

If additional space is needed use back of form

12. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	0	4	2"	SCH 40	PVC

13. GROUT:

	Depth From	Depth To	Material	Method
	0	2	NEAT CEMENT	
	2	3	BENTONITE	

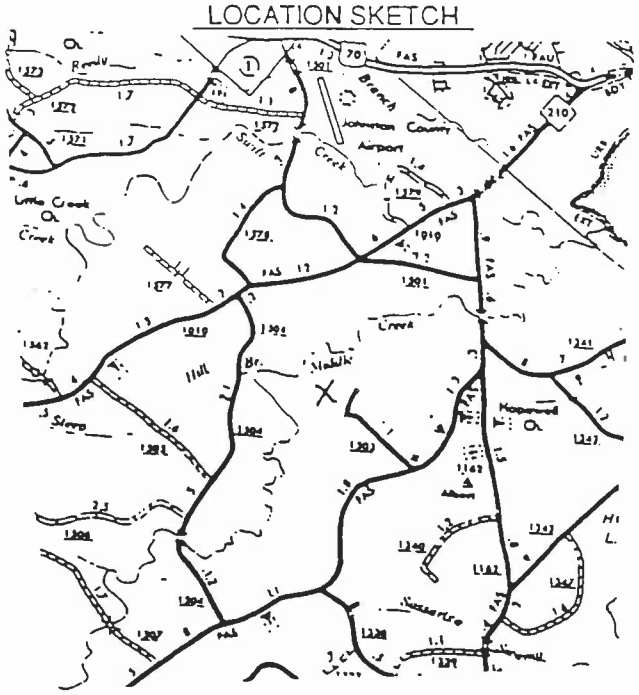
14. SCREEN:

	Depth From	Depth To	Diameter	Slot Size	Material
	4	14	in.	in.	
			in.	in.	
			in.	in.	

15. SAND/GRAVEL PACK:

	Depth From	Depth To	Size	Material
	3	15		SAND

LOCATION SKETCH



REMARKS: _____

DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

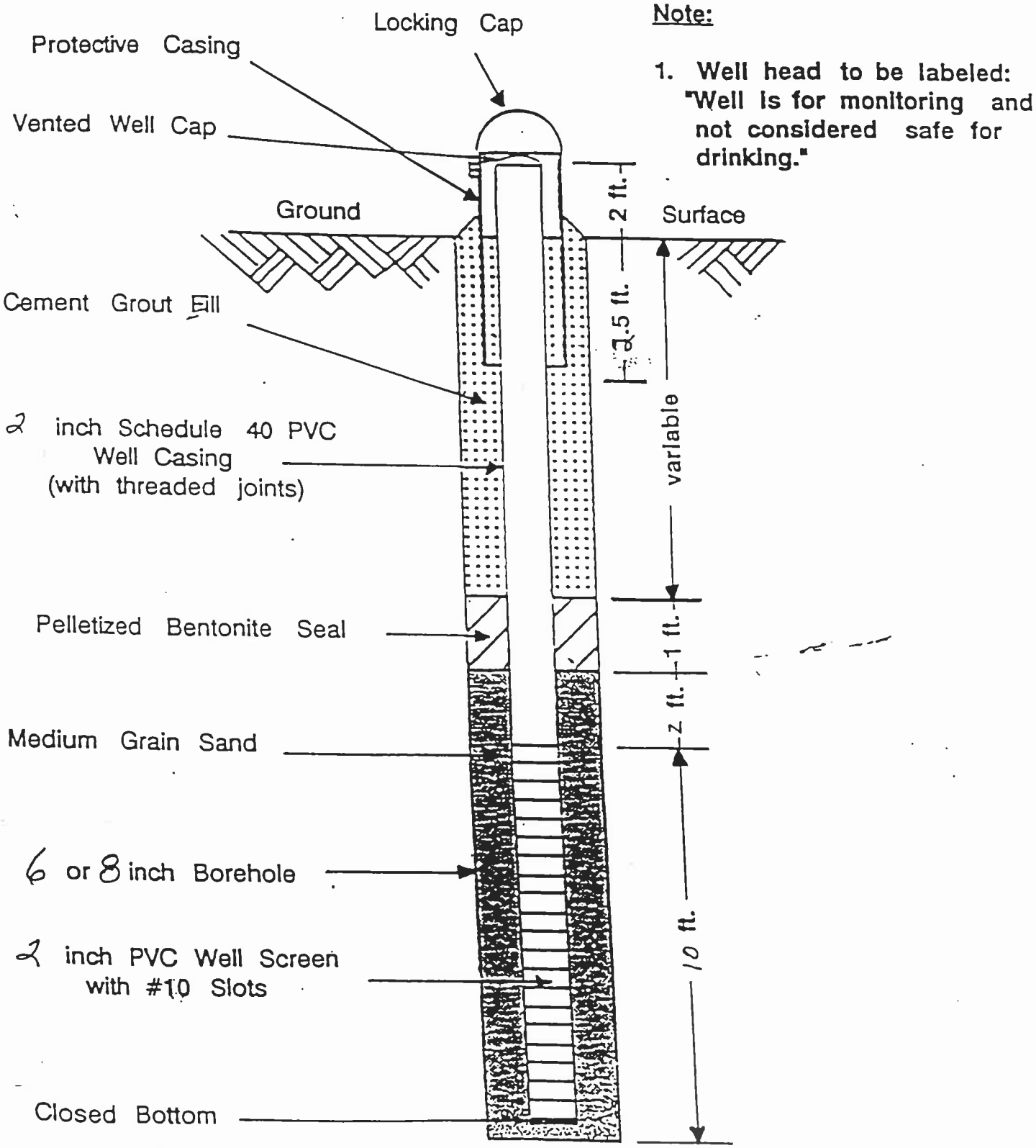
James Spell 9-29-94
SIGNATURE OF CONTRACTOR OR AGENT DATE

GW-1 REV. 88

MW-12

MONITORING WELL CONSTRUCTION

JOHNSTON COUNTY LANDFILL (TYP.)



Note:

1. **Well head to be labeled: "Well is for monitoring and not considered safe for drinking."**

FIELD BOREHOLE LOG

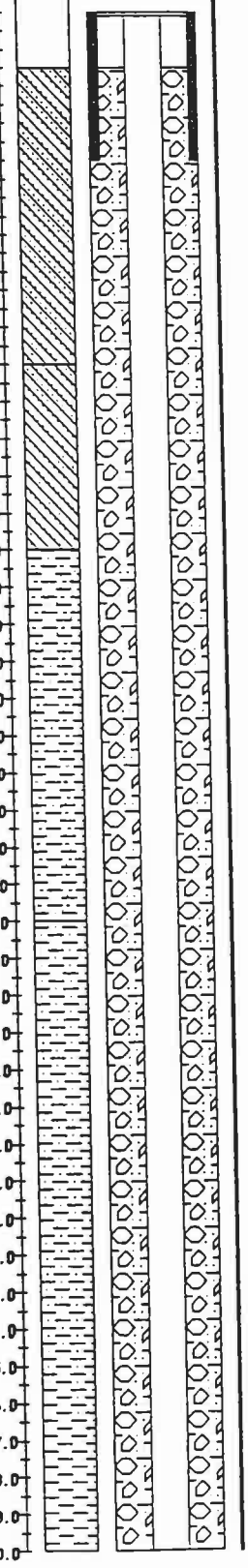
BOREHOLE NUMBER: MW-4D

PROJECT NUMBER: Johnston-1
PROJECT NAME: Johnston County Landfill
LOCATION: Smithfield, North Carolina
DRILLING COMPANY: Engineering Tectonics
RIG TYPE & NUMBER: Mobile B-50
DRILLING METHOD: Mud Rotary
WEATHER: Sunny 70 degrees
FIELD PARTY: Ronnie Barron
GEOLOGIST: Philip May
DATE BEGUN: 12-15-98 DATE COMPLETED: 12-15-98

TOP OF CASING ELEVATION: 182.98
TOTAL DEPTH: 68.0
GROUND SURFACE ELEVATION: 180.20
SHEET: 1 OF: 2

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)	58.0	13.5
Time	4:00 pm	1:00 pm
Date	12-14-98	12-15-98

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION
0.0							MR	SANDY CLAY: Moist tan & red-orange mottled F-M sandy clay; ribbon & cast, SC.
3.0	2 1 4	Ss	61			14"		
8.0	1 1 1	Ss	92			10"		CLAYEY SAND: Wet tan M-C clayey sand; some quartz, SC.
13.0	4 7 15	Ss	23			12"		SILTY SAND: Red-tan wet silty F-M sand; 1" layers of stiff red clayey F sand & grey F sandy clay, SM;
18.0	2 1 3	Ss	84			6"		18' Tan-red wet M-C slightly clayey silty sand; quartz grains up to 5mm, SM-SC.
23.0	4 6 13	Ss	95			8"		SILT: Slightly moist tan silt; alternating layers of light and dark tan, ML;
28.0	5 8 10	Ss	66			10"		28' Moist light grey silt w/ slight clay; 2mm dark clay horiz. band at 29.0'; some 45 degree angle light green-gray layers, ML-CL;
33.0	8 14 19	Ss	97			10"		
38.0	15 30 34	Ss	88			6"		



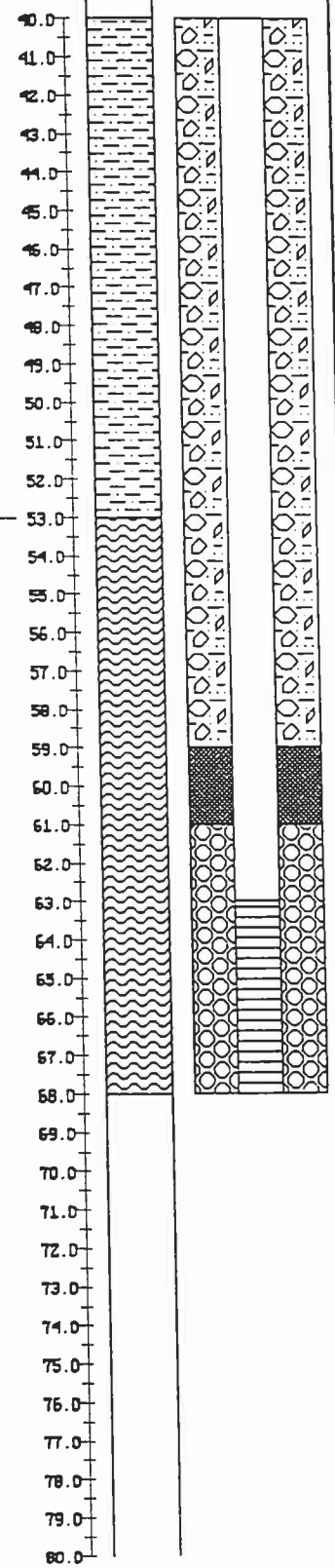
MW-40

PROJECT NUMBER Johnston-4
PROJECT NAME Johnston County Landfill
LOCATION Smithfield, North Carolina
DRILLING COMPANY: Engineering Tectonics
TYPE & NUMBER: Mobile B-50
DRILLING METHOD: Mud Rotary
WEATHER: Sunny 70 degrees
PARTY: Ronnie Barron
GEOLOGIST: Philip May
DATE BEGUN: 12-15-98 DATE COMPLETED: 12-15-98

TOP OF CASING ELEVATION 182.98
TOTAL DEPTH: 68.0
GROUND SURFACE ELEVATION 180.20
SHEET: 2 OF 2

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)	38.0	13.5
Time	4:00 pm	1:00 pm
Date	12-14-98	12-15-98

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION
40.0								
41.0								
42.0								
43.0	50/3	Ss	69			4"		
44.0								
45.0								
46.0								
47.0								
48.0	50/4	Ss	510			4"		
49.0								
50.0								Set outer casing at 53'.
51.0								
52.0								
53.0							AH	METAMUDSTONE: Competent grey metamudstone; Drilled by air hammer; grab samples collected every 5 feet to compare with rock cores previously collected on-site; Rock is the same in this area as in cores; Water encountered at 53';
54.0								
55								
56								
57.0								
58.0								
59.0								
60.0								
61.0								
62.0								
63.0								
64.0								
65.0								Boring terminated at 68.0'.
66.0								
67.0								
68.0								
69.0								
70.0								
71.0								
72.0								
73.0								
74.0								
75.0								
77								
78.0								
79.0								
80.0								



FIELD BOREHOLE LOG

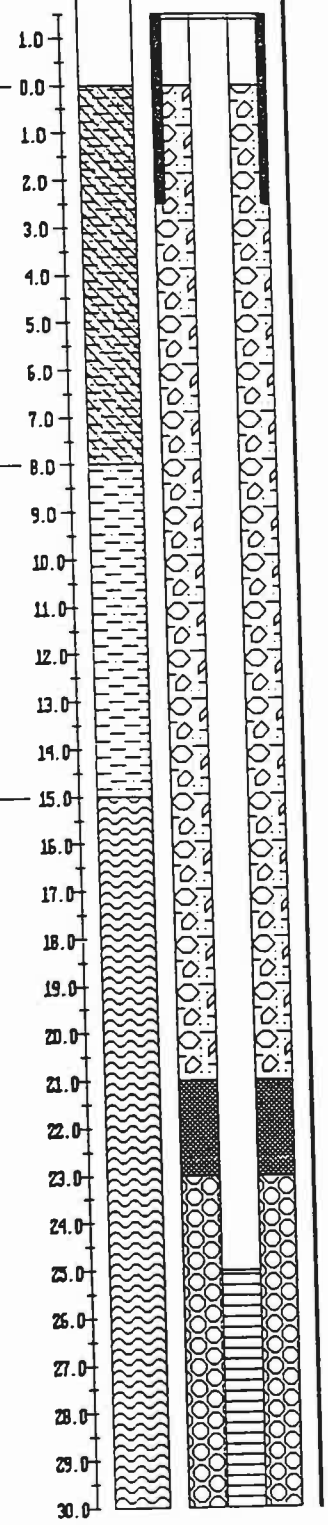
MW-7D

PROJECT NUMBER: Johnston-4
PROJECT NAME: Johnston County LandFill
LOCATION: Smithfield, North Carolina
DRILLING COMPANY: Engineering Tectonics
RIG TYPE & NUMBER: Mobile B-50
DRILLING METHOD: Mud Rotary
WEATHER: Sunny 70 degrees
FIELD PARTY: Ronnie Barron
GEOLOGIST: Philip May
DATE BEGUN: 12-8-98 DATE COMPLETED: 12-14-98

TOP OF CASING ELEVATION: 127.91
TOTAL DEPTH: 30.0
GROUND SURFACE ELEVATION: 126.32
SHEET: 1 OF: 1

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)	15	2.33
Time	9:00 am	8:00 am
Date:	12-10-98	12-14-98

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION
0.0							MR	CLAYEY SILTY SAND: Grey wet clayey silty sand, SC-SM.
3.0	3 5 7	Ss	S1			8"		
8.0	50/1	Ss	S2			6"		SILT: Grey moist silt and PWR, ML;
13.0								13' no recovery;
15.0								15' Auger refusal; set outer casing at 15'.
15.0								METAMUDSTONE: Competent grey metamudstone; Drilled by air hammer; grab samples collected every 5 feet to compare with rock cores previously collected on-site; Rock is the same in this area as in cores collected;
30.0								Boring terminated at 30.0'.



FIELD BOREHOLE LOG

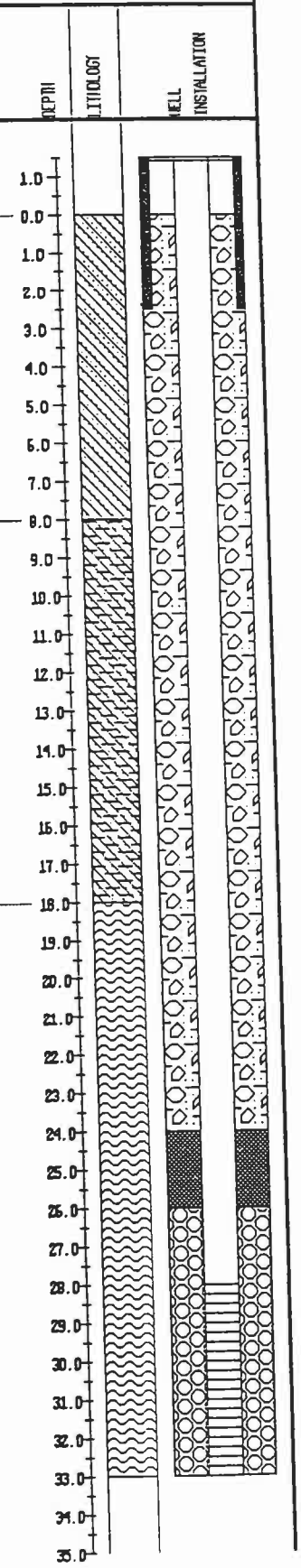
BOREHOLE NUMBER: MW-8D

PROJECT NUMBER: Johnston-4
PROJECT NAME: Johnston County Landfill
LOCATION: Smithfield, North Carolina
DRILLING COMPANY: Engineering Tectonics
RIG TYPE & NUMBER: Mobile B-50
DRILLING METHOD: Mud Rotary
WEATHER: Sunny 70 degrees
FIELD PARTY: Ronnie Barron
GEOLOGIST: Philip May
DATE BEGUN: 12-7-98 DATE COMPLETED: 12-10-98

TOP OF CASING ELEVATION: 153.44
TOTAL DEPTH: 33.0
GROUND SURFACE ELEVATION: 152.26
SHEET: 1 OF: 1

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)	18	8.46
Time	1:00 pm	8:00 am
Date	12-10-98	12-14-98

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION
0.0–3.0	1 1 1	Ss	S1			8"	MR	CLAYEY SAND: Wet, dark brown slightly silty clayey F sand; redox mottles (iron and manganese); some quartz <2mm, SC.
8.0–13.0	6 8 10	Ss	S2			6"		CLAYEY SILT: Moist grey clayey silt; PWR, ML-CL;
13.0	50/5	Ss	S3			3"		
17.0								Set outer casing at 18 feet.
18.0–33.0								METAMUDSTONE: Competent grey metamudstone; Drilled by water rotary rock coring in one 10 foot run; REC 89% RQD 78% Predominant frx angle 60 degrees. Water bearing fracture at 25'. Boring terminated at 33.0'.



FIELD BOREHOLE LOG

MW-9D

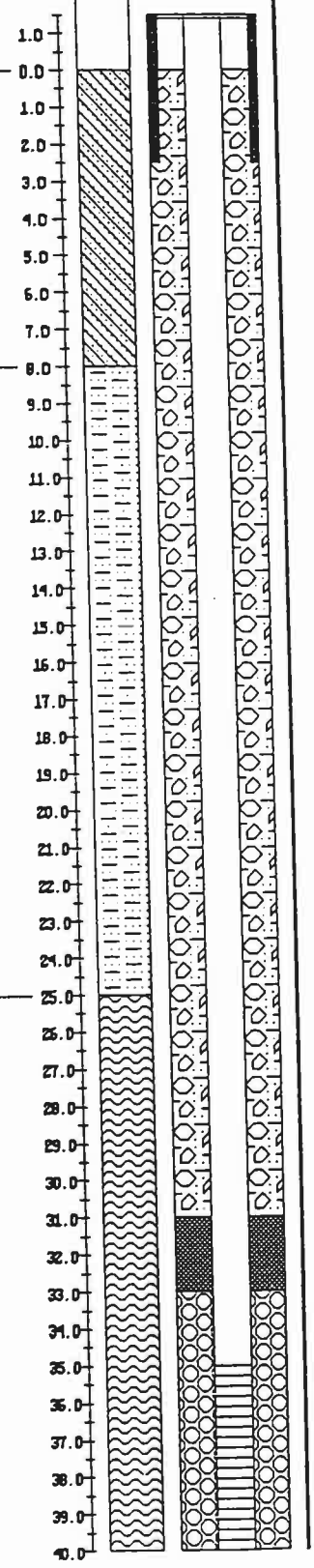
PROJECT NUMBER: Johnston-1
PROJECT NAME: Johnston County Landfill
LOCATION: Smithfield, North Carolina
DRILLING COMPANY: Engineering Tectonics
RIG TYPE & NUMBER: Mobile B-50
DRILLING METHOD: Mud Rotary
WEATHER: Sunny 70 degrees
FIELD PARTY: Ronnie Barron
GEOLOGIST: Philip May
DATE BEGUN: 12-7-98 DATE COMPLETED: 12-14-98

TOP OF CASING ELEVATION: 170.25
TOTAL DEPTH 40.0
GROUND SURFACE ELEVATION: 167.46
SHEET: 1 OF: 1

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)	39	16.17
Time	3:00 pm	8:00 am
Date:	12-14-98	12-15-98

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION
1.0								
0.0							MR	CLAYEY SAND: Moist light grey slightly clayey sand, some cast, dark to medium orange-red mottles througout (30%), SC.
1.0								
2.0								
3.0	4 3 6	Ss	61			12"		
4.0								
5.0								
6.0								
7.0								
8.0	3 7 14	Ss	62			12"		SANDY SILT: Dry fine red/tan-orange fine sandy silt, some Mn streaks starting at 9.0', SM;
9.0								
10.0								
11.0								
12.0								
13.0	13 26 40	Ss	63			10"		13' Slightly moist grey slightly sandy silt;
14.0								
15.0								
16.0								
17.0								
18.0	50/4	Ss	64			3"		18' Moist, slightly sandy
19.0								
20.0								
21.0								
22.0								23' No recovery from sample
23.0	50/0	Ss	65			0"		Set outer casing at 25'.
24.0								
25.0								METAMUDSTONE: Competent grey metamudstone; Drilled by air hammer; grab samples collected every 5 feet to compare with rock cores previously collected on-site; Rock is the same in this area as in cores;
26.0								
27.0								
28.0								
29.0								
30.0								
31.0								
32.0								
33.0								
34.0								
35.0								
36.0								Boring terminated at 40.0'.
37.0								
38.0								
39.0								
40.0								

DEPTH | LITHOLOGY | WELL INSTALLATION



G. N. Richardson & Associates, Inc.
14 North Boylan Avenue, Raleigh NC 27603
(919) 828-0577

FIELD BOREHOLE LOG

BOREHOLE NUMBER **MW-14d**

PROJECT NAME: **Johnston County C&D Area**
LOCATION: **Smithfield, NC**
DRILLING CO: **Engineering Tectonics, P.A.**
DRILLING METHOD: **HSA/RC/AH**
FIELD PARTY: **R. Barron**
GEOLOGIST: **J. Smyth**
DATE BEGUN: **6/26/03** DATE COMPLETED: **6/30/03**

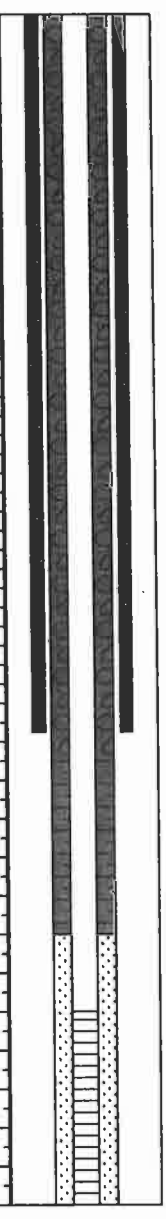
TOTAL DEPTH: **31**
GROUND SURFACE ELEVATION: **na**
TOP OF CASING ELEVATION: **128.66**

STATIC WATER LEVEL (BLS)		
Depth (ft)	25	6.03
Time		3:30
Date	6/30/03	7/1/03

DEPTH	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION
0.0	1,2,2	SS	18"	HSA	CLAYEY SILT: Dark brown moist clayey silt.
5.0	5,8,9	SS	16"		CLAYEY SILT: Wet dark brown clayey silt.
10.0	50/3	SS	3"		PWR: Gray partially weathered rock. Auger refusal at 18.75 feet. Set outer casing at 18.75 feet.
15.0	50/0	SS	0"		
19.0				RC/AH	METAMUDSTONE: Light gray metamudstone with minor pyrite. Cored rock from 18.75' to 28.75'. 100% recovery. RQD=39%. Water bearing fracture noted at 25-26 feet below grade. Boring terminated at 31 feet.
31.0					

LITHOLOGY

WELL INSTALLATION



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14 North Boylan Avenue, Raleigh NC 27603
(919) 828-0577

FIELD BOREHOLE LOG

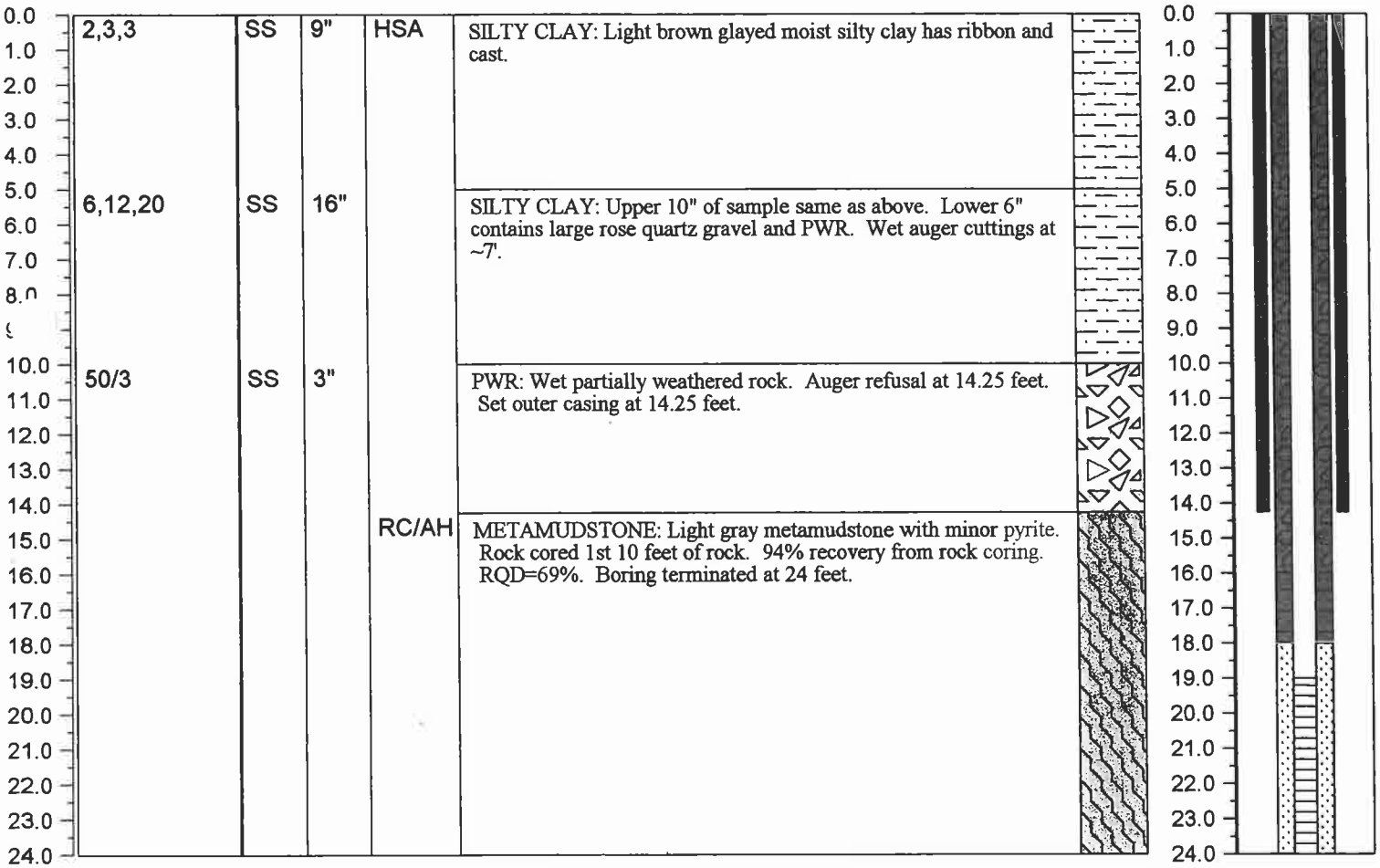
BOREHOLE NUMBER **MW-15d**

PROJECT NAME: **Johnston County C&D Area**
LOCATION: **Smithfield, NC**
DRILLING CO: **Engineering Tectonics, P.A.**
DRILLING METHOD: **HSA/RC/AH**
FIELD PARTY: **R. Barron**
GEOLOGIST: **J. Smyth**
DATE BEGUN: **6/26/03** DATE COMPLETED: **7/1/03**

TOTAL DEPTH: **24**
GROUND SURFACE ELEVATION: **na**
TOP OF CASING ELEVATION: **128.70**

STATIC WATER LEVEL (BLS)		
Depth (ft)	5.75	na
Time	3:30	na
Date	7/1/03	na

DEPTH	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION	LITHOLOGY
0.0	2,3,3	SS	9"	HSA	SILTY CLAY: Light brown glayed moist silty clay has ribbon and cast.	
5.0	6,12,20	SS	16"		SILTY CLAY: Upper 10" of sample same as above. Lower 6" contains large rose quartz gravel and PWR. Wet auger cuttings at ~7'.	
10.0	50/3	SS	3"		PWR: Wet partially weathered rock. Auger refusal at 14.25 feet. Set outer casing at 14.25 feet.	
14.0				RC/AH	METAMUDSTONE: Light gray metamudstone with minor pyrite. Rock cored 1st 10 feet of rock. 94% recovery from rock coring. RQD=69%. Boring terminated at 24 feet.	



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14 North Boylan Avenue, Raleigh NC 27603
(919) 828-0577

FIELD BOREHOLE LOG

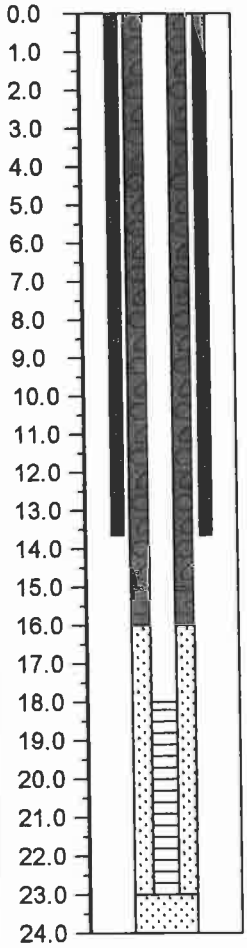
BOREHOLE NUMBER **MW-16d** Page 1 of 1

PROJECT NAME: **Johnston County C&D Area**
LOCATION: **Smithfield, NC**
DRILLING CO: **Engineering Tectonics, P.A.**
DRILLING METHOD: **HSA/RC/AH**
FIELD PARTY: **R. Barron**
GEOLOGIST: **J. Smyth**
DATE BEGUN: **6/26/03** DATE COMPLETED: **7/1/03**

TOTAL DEPTH: **23**
GROUND SURFACE ELEVATION: **na**
TOP OF CASING ELEVATION: **133.06**

STATIC WATER LEVEL (BLS)		
Depth (ft)	16	6.75
Time		3:30
Date	7/1/03	7/1/03

DEPTH	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION	LITHOLOGY
0.0		SS	18"	HSA	CLAY: Red clay fill dirt.	
5.0	1,1,1	SS	16"		CLAYEY SILT: Wet split spoon. No recovery but clayey silt traces on split spoon.	
10.0	3,50/3	SS	3"		PWR: Gray partially weathered rock. Auger refusal at 13.66 feet. Set outer casing at 13.66 feet.	
14.0				RC/AH	METAMUDSTONE: Cored rock from 13.66 to 23.66'. 100% recovery. RQD=99%. Water bearing fracture noted at 16 feet below grade. Boring terminated at 24 feet.	



FIELD BOREHOLE LOG

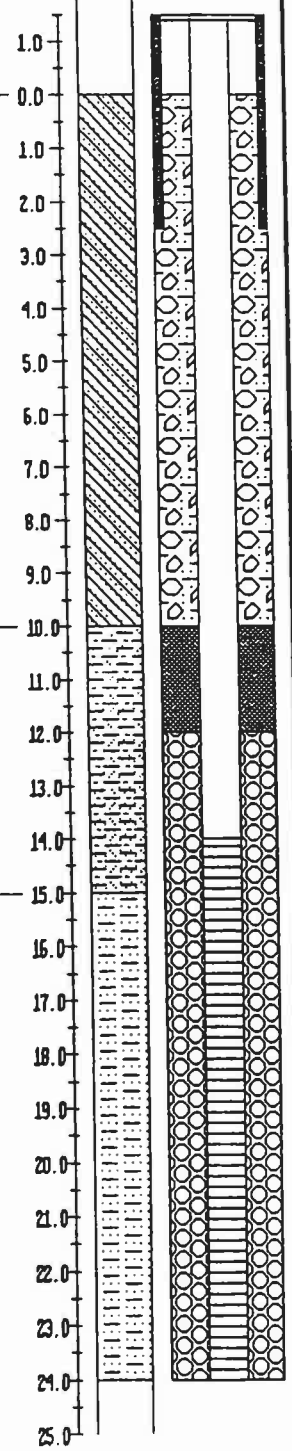
PZ-2 (MW-5A)

PROJECT NUMBER: Johnston-1
PROJECT NAME: Johnston County Landfill
LOCATION: Smithfield, North Carolina
DRILLING COMPANY: Engineering Tectonics
RIG TYPE & NUMBER: Mobile B-57
DRILLING METHOD: Hollow Stem Auger
WEATHER: Sunny 70 degrees
FIELD PARTY: David Barron
GEOLOGIST: Philip May
DATE BEGUN: 12-8-98 DATE COMPLETED: 12-8-98

TOP OF CASING ELEVATION: 173.70
TOTAL DEPTH: 24.0
GROUND SURFACE ELEVATION: 170.91
SHEET: 1 OF: 1

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth(ft)	23.5	8.6
Time	3:30 pm	8:00 am
Date:	12-8-98	12-9-98

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTANCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION
1.0								
0.0							HS	CLAYEY SAND: Red-orange moist clayey sand alternating in layers with grey-white silty sandy clay, SC.
1.0								
2.0								
3.0								
4.0								
5.0	5	Ss	S1			10"		
6.0	7							
	7							
7.0								
8.0								
9.0								
10.0	8	Ss	S2			12"		SILTY SAND: Slightly moist rust-yellow silty sand; light whitish grey mottling (20-30%); some Mn at 11.5', SM.
11.0	9							
	11							
12.0								
13.0								
14.0								
15.0	4	Ss	S3			12"		SANDY SILT: Moist whitish grey sandy silt with Mn staining throughout; tan-orange layers at 16'; heavy black staining at top feels slimy - slightly organic, SM;
16.0	6							
	10							
17.0								
18.0								
19.0								
20.0	8	Ss	S4			14"		20' Slightly moist tan fine sandy silt; Mn; rock fragments at 21.5', Fe at 21';
	24							
21.0	27							
22.0								
23.0								Water at 23.5' after 10 minutes; Auger refusal at 24.0'.
24.0								
25.0								



DRILL LOGS

WELL #

D-2 -B

0'-2' : SAND
2'-20' : TAN SAPROLITE
WATER AT 13' (THIN WET ZONE)

7.6' TOP OF CASING TO STATIC WATER LEVEL
32" TOC TO GROUND
SCREEN INTERVAL 19.7'-9.7'

1-C

0'-1' : SAND & GRAVEL
1'-14' : TAN SAPROLITE
WATER AT 11'

7.3' TOC TO STATIC H_2O
18" TOC TO GROUND
SCREEN INTERVAL 15.3'-10.3' BELOW TOC

8-B

0'-2' : SAND & GRAVEL, SILTY
2'-10' : GRAY FIRM SAPROLITE
WATER AT 7'

1.8' TOC TO STATIC H_2O
12" TOC TO GROUND
SCREEN INTERVAL 9'-4' BELOW GROUND SURFACE

7-B

0'-2' : SILTY SAND
2'-19.5' : GRAY SAPROLITE
STATIC WATER AT 5.6'

32" TOC TO GROUND
SCREEN INTERVAL 9.5'-19.5'

7-C

0'-2' : SILTY SAND
2'-15' : GRAY SAPROLITE
5.5' TOC TO STATIC WATER
1.5' TOC TO GROUND
SCREEN INTERVAL 10'-15'

WELL #

1-B

0'-4': CLAYEY SAND

4'-18': TAN SAPROLITE

5.5' TOC TO STATIC WATER

2.0' TOC TO GROUND

SCREEN INTERVAL 8'-18'

A-C

0'-2': SILTY SAND

2'-8.5': TAN SAPROLITE

3.6': TOP OF CASING TO STATIC WATER

1.5': TOC TO GROUND

SCREEN INTERVAL 8.5'-3.5'

N.C. Department of Human Resources
Division of Health Services

WELL COMPLETION RECORD

COMPLETE ALL INFORMATION REQUESTED BELOW FOR EACH WELL INSTALLED, AND RETURN FORM TO THE NORTH CAROLINA SOLID WASTE SECTION, POST OFFICE BOX 27687, RALEIGH, NC 27611-7687

NAME OF SITE: Johnston County Landfill

PERMIT NO.: MW-3B

ADDRESS: P.O. Box 2263, Smithfield, NC 27577

OWNER: Johnston County

DRILLING CONTRACTOR: Patterson Exploration Services

REGISTRATION NO.: 351

Casing Type: PVC dia. 2 in.

Casing Depth: from +2.0 to 13.0 ft.

Screen Type: 0.010 dia. 2 in.

Screen Depth: from 13.0 to 23.0 ft.

Grout Depth: from 0 to 10 ft.

Bentonite Seal: from 10 to 12 ft.

Sand/Gravel PK: from 12 to 24 ft.

Total Well Depth: 24 ft.

Static Water Level: 20.0 feet from top of casing

Date Measured: 9-10-93

Yield (gpm): <1.0 gpm

Method of Testing: Bailing

Casing is 2.0 feet above land surface

DRILLING LOG

DEPTH FROM	TO	FORMATION DESCRIPTION
0.0 - 18.0		Orange Silty Clayey SAND, Loose to Firm (Middendorf FM)
18.0 - 24.0		Coarse to Fine Grained Pink Silty SAND Moist to Wet @ 20.0' BLS

LOCATION SKETCH

(Show distance to numbered roads, or other map reference points)

See Attached Map MW-3B

REMARKS:

DATE: 9-10-93

SIGNATURE: [signature] PG.

geo\wellrec\080993

PATTERSON EXPLORATION SERVICES

N.C. Department of Human Resources
Division of Health Services

WELL COMPLETION RECORD

COMPLETE ALL INFORMATION REQUESTED BELOW FOR EACH WELL INSTALLED, AND RETURN FORM TO THE NORTH CAROLINA SOLID WASTE SECTION, POST OFFICE BOX 27687, RALEIGH, NC 27611-7687

MW-4B

NAME OF SITE: Johnston County Landfill

PERMIT NO.:

ADDRESS: P.O. Box 2263, Smithfield, NC 27577

OWNER: Johnston County

DRILLING CONTRACTOR: Patterson Exploration Services

REGISTRATION NO.: 351

Casing Type: PVC dia. 2 in.

Casing Depth: from +2 to 8.0 ft.

Screen Type: 0.010 dia. 2 in.

Screen Depth: from 8.0 to 18.0 ft.

Grout Depth: from 0 to 4 ft.

Bentonite Seal: from 3 to 6 ft.

Sand/Gravel PK: from 6 to 20 ft.

Total Well Depth: 20 ft.

Static Water Level: 9.0 feet from top of casing

Date Measured: 9-10-93

Yield (gpm): <1.0 gpm

Method of Testing: Bailing

Casing is 2.0 feet above land surface

DRILLING LOG

DEPTH TO	FORMATION DESCRIPTION
2.5	Grayish Brown TOPSOIL - SAND Disturbed from Landfill Clearance
2.5 - 6.0	Yellow & Orange Sandy CLAY, Stiff (Middendorf FM)
6.0 - 9.0	Interbedded Yellow & Orange Mottled Sandy CLAY to Clayey SAND
9.0 - 14.0	Reddish Orange Mottled Tan & Yellow Coarse Clayey SAND, Stiff
14.0 - 20.0	Interbedded Red & Purple Silty Clayey SAND & Sandy Silty CLAY; Wet @ 16.0' & 18.8'
20.0 - 22.0	Tan SILT, Saprolite of Metavolcanic Rock Badly Weathered - Dry

LOCATION SKETCH

(Show distance to numbered roads, or other map reference points)

See Attached Map MW-4B

REMARKS:

DATE: 9-10-93

SIGNATURE: O. F. Patterson III, P.G.

geo\wellrec\060993

PATTERSON EXPLORATION SERVICES

N.C. Department of Human Resources
Division of Health Services

WELL COMPLETION RECORD

COMPLETE ALL INFORMATION REQUESTED BELOW FOR EACH WELL INSTALLED, AND RETURN FORM TO THE NORTH CAROLINA SOLID WASTE SECTION, POST OFFICE BOX 27687, RALEIGH, NC 27611-7687

MW-7B

NAME OF SITE: Johnston County Landfill

PERMIT NO.:

ADDRESS: P.O. Box 2263, Smithfield, NC 27577

OWNER: Johnston County

DRILLING CONTRACTOR: Patterson Exploration Services

REGISTRATION NO.: 351

Casing Type: PVC dia. 2 in.

Casing Depth: from +2 to 6.0 ft.

Screen Type: 0.010 dia. 2 in.

Screen Depth: from 6.0 to 16.0 ft.

Grout Depth: from 0 to 3 ft.

Bentonite Seal: from 3 to 4 ft.

Sand/Gravel PK: from 4 to 18 ft.

Total Well Depth: 18 ft.

Static Water Level: 9.0 feet from top of casing

Date Measured: 9-10-93

Yield (gpm): <1.0 gpm

Method of Testing: Bailing

Casing is 2.0 feet above land surface

DRILLING LOG

DEPTH TO	FORMATION DESCRIPTION
3.0	Tan & Brown Silty SAND, Topsoil
3.0 - 8.0	Soft Tan Severely Weathered Saprolite of Metavolcanic Rock Tan SILT, Moist Zones @ 12.0' & 16.0' BLS, ie., Highly Weathered Rock, Tan SILT
8.0 - 18.0	Soft Tan Severely Weathered Saprolite of Metavolcanic Rock Tan SILT, Moist Zones @ 12.0' & 16.0' BLS, Crunchy Zones Below 16.0' ie., Highly Weathered Rock Tan SILT

LOCATION SKETCH

(Show distance to numbered roads, or other map reference points)

See Attached Map MW-7B

REMARKS:

DATE: 9-10-93

SIGNATURE: O. Patterson P.G.

geo\wellrec\060993

N.C. Department of Human Resources
Division of Health Services

WELL COMPLETION RECORD

COMPLETE ALL INFORMATION REQUESTED BELOW FOR EACH WELL INSTALLED, AND RETURN FORM TO THE NORTH CAROLINA SOLID WASTE SECTION, POST OFFICE BOX 27687, RALEIGH, NC 27611-7687

MW-9B

NAME OF SITE: Johnston County Landfill

PERMIT NO.:

ADDRESS: P.O. Box 2263, Smithfield, NC 27577

OWNER: Johnston County

DRILLING CONTRACTOR: Patterson Exploration Services

REGISTRATION NO.: 351

Casing Type: PVC dia. 2 in.

Casing Depth: from +2.5 to 5.0 ft.

Screen Type: 0.010 dia. 2 in.

Screen Depth: from 5.0 to 15.0 ft.

Grout Depth: from 0 to 3 ft.

Bentonite Seal: from 3 to 4 ft.

Sand/Gravel PK: from 4 to 18 ft.

Total Well Depth: 18 ft.

Static Water Level: 13.5 feet from top of casing

Date Measured: 9-10-93

Yield (gpm): <1.0 gpm

Method of Testing: Bailing

Casing is 2.5 feet above land surface

DRILLING LOG

DEPTH TO	FORMATION DESCRIPTION
3.0	Tan SAND
3.0 - 6.0	Moist Gray Clayey SAND to Sandy CLAY, Leachate Odors (Middendorf FM)
6.0 - 16.0	Tan SILT, Soft, Saprolite of Metavolcanic Highly Weathered Rock, Wet Streaks @ 8.0' & 12.0'
16.0 - 18.0	Dust Dry Tan SILT

LOCATION SKETCH

(Show distance to numbered roads, or other map reference points)

See Attached Map MW-9B

REMARKS:

DATE: 9-10-93

SIGNATURE: O.T. Patterson III, P.G.

geo\wellrec\08C9S3

– PATTERSON EXPLORATION SERVICES –

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#: 6031

JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD ,NC 27577

DATE COLLECTED: 10/17/11
DATE REPORTED : 10/26/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-8A	MW-17	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	--- U	0.30 J	10/21/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0	1.9 J	9 J	10/21/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0	144	193	10/21/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0	0.42 J	0.16 J	10/21/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0	0.15 J	0.42 J	10/21/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0	28	281	10/21/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0	15	38	10/21/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	11	7.1 J	10/21/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	16	19	10/21/11	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	10.7 J	12.7 J	10/21/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0	2.2 J	8.3 J	10/21/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0	0.05 J	0.05 J	12/14/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	0.06 J	0.19 J	10/21/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0	11.9 J	6.0 J	10/21/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0	32	58	10/21/11	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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031

ANALYST: MAO
DATE COLLECTED: 10/17/11
DATE ANALYZED: 10/21/11
DATE REPORTED: 10/26/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-8A	MW-17
1. Chloromethane	0.77	1.0	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	0.90 J
3. Bromomethane	0.67	10.0	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	1.00 J
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	1.10 J	1.30 J
13. Vinyl Acetate	0.20	50.0	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	0.40 J	--- 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	0.40 J	2.40
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	0.40 J
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	1.40 J	6.20
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	0.80 J	4.60
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	0.80 J
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

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

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

Page 1 of 1

CLIENT: 6031 6031 C & 6031 D Week: 42

JOHNSTON COUNTY LANDFILL (OLD)
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 AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Cyanide	Metals	Sulfide	EPA 8260B	8260 Dup. 1	8260 Dup. 2	EPA 8270C	8270C Dup. 1	EPA 8081B	8081B Duplicate	8260B App. II	8260 App. II 1	8151A Landfill
						Vol												
						>12	<2	>9	<2	<2	<2							
						P	P	P	G	G	G	G	G	G	G	G	G	G
						D	A	F D	E	E	E	A	A	A	A	E	E	A
SW-1A	10/17/11	09:30	N/A	14 ~~15~~	3 ~~4~~						X							
SW-2		08:52		15	3													
Piezometer #3		15:46		22	10													
Equipment Blank		16:18		N/A	1 ~~2~~				X									
Trip Blank		N/A		N/A	1 ~~2~~				X									
MW-14D		10:38		16	4		X		X	X	X							
MW-15D		11:30		18	3		X		X	X								
MW-16D		12:12		18	3		X		X	X								
MW-8A		14:37		19	3		X		X	X								
MW-17		14:10		20	3		X		X	X								

PARAMETERS

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

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]	10/18/11 09:00	B [signature]	10/18 440
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

№ 231027

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#: 6031 C

JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD ,NC 27577

DATE COLLECTED: 10/17/11
DATE REPORTED : 11/15/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	SW-1A	SW-2	Piezometer #3	Equipment Blank	Trip Blank	Analysis Date	Analyst	Method Code
Cyanide, ug/l	5.0	10.0			--- U			10/25/11	SEJ	SM4500 CN-
Antimony, ug/l	0.14	6.0	--- U	--- U	0.14 J			10/21/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0	0.27 J	0.39 J	25			10/21/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0	66.4 J	22.5 J	41.0 J			10/21/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0	--- U	--- U	--- U			10/21/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0	--- U	--- U	0.11 J			10/21/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0	0.48 J	0.64 J	0.14 J			10/21/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0	1.0 J	1.2 J	0.62 J			10/21/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	0.14 J	0.40 J	0.49 J			10/21/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.19 J	0.34 J	0.17 J			10/21/11	LFJ	EPA200.8
Mercury, ug/l	0.05	0.20			--- U			10/21/11	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	1.5 J	1.9 J	0.43 J			10/21/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0	0.44 J	0.30 J	1.5 J			10/21/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0	--- U	--- U	0.04 J			12/14/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	--- U	--- U	--- U			10/21/11	LFJ	EPA200.8
Tin, ug/l	0.16	100.0			--- U			10/21/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0	1.1 J	2.2 J	2.0 J			10/21/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0	2.5 J	3.3 J	2.0 J			10/21/11	LFJ	EPA200.8
Sulfide, ug/l	100	1000			--- U			10/19/11	LFJ	SM4500-S2D

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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 C

ANALYST: CHS
DATE COLLECTED: 10/17/11
DATE EXTRACTED: 10/20/11
DATE ANALYZED: 11/02/11
DATE REPORTED: 11/15/11

REVIEWED BY:

PESTICIDES AND PCB'S
EPA METHOD 8081B

PARAMETERS, ug/l	MDL	SWSL	Piezometer #3
1. Aldrin	0.029	0.05	--- U
2. Alpha-BHC	0.032	0.05	--- U
3. Beta-BHC	0.031	0.05	--- U
4. Delta-BHC	0.030	0.05	--- U
5. Gamma-BHC (Lindane)	0.032	0.05	--- U
6. Chlordane	0.320	0.50	--- U
7. 4,4-DDD	0.051	0.10	--- U
8. 4,4-DDE	0.049	0.10	--- U
9. 4,4-DDT	0.052	0.10	--- U
10. Dieldrin	0.042	0.075	--- U
11. Endosulfan I	0.056	0.10	--- U
12. Endosulfan II	0.046	0.10	--- U
13. Endosulfan Sulfate	0.072	0.10	--- U
14. Endrin	0.053	0.10	--- U
15. Endrin Aldehyde	0.068	0.10	--- U
16. Heptachlor	0.039	0.05	--- U
17. Heptachlor Epoxide	0.042	0.075	--- U
18. Methoxychlor	0.530	1.00	--- U
19. Pcb's (Aroclors)	0.500	2.00	--- U
20. Toxaphene	0.690	1.50	--- 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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 C

ANALYST: CHS
DATE COLLECTED: 10/17/11
DATE EXTRACTED: 10/21/11
DATE ANALYZED: 11/11/11
DATE REPORTED: 11/15/11

REVIEWED BY:

LANDFILL APPENDIX II
EPA METHOD 8151A

PARAMETERS, ug/l	MDL	SWSL	Piezometer #3
1. 2,4-D	0.36	2.0	--- U
2. Dinoseb	0.54	1.0	--- U
3. 2,4,5-TP	0.42	2.0	--- U
4. 2,4,5-T	0.47	2.0	--- 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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 C

ANALYST: MAO
DATE COLLECTED: 10/17/11
DATE ANALYZED: 10/24/11
DATE REPORTED: 11/15/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	SW-1A	SW-2
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-Dichlorobenzena	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, 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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 C

ANALYST: CHS
DATE COLLECTED: 10/17/11
DATE EXTRACTED: 10/20/11
DATE ANALYZED: 11/07/11
DATE REPORTED: 11/15/11

REVIEWED BY:

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	Piezometer #3
1. Acenaphthene	2.66	10.0	--- U
2. Acenaphthylene	2.60	10.0	--- U
3. Anthracene	2.97	10.0	--- U
4. Benzo[a]antrhacene	4.16	10.0	--- U
5. Benzo[b]fluoranthene	3.32	10.0	--- U
6. Benzo[k]fluoranthene	4.23	10.0	--- U
7. Benzo[g,h,i]perylene	2.61	10.0	--- U
8. Benzo[a]pyrene	3.27	10.0	--- U
9. 4-Bromophenyl Phenyl Ether	2.63	10.0	--- U
10. Butyl Benzyl Phthalate	5.78	10.0	--- U
11. Bis-(2-Chloroethoxy) Methane	3.14	10.0	--- U
12. Bis-(2-Chloroethyl) Ether	2.58	10.0	--- U
13. Bis-(2-Chloroisopropyl) Ether	2.58	10.0	--- U
14. 2-Chloronaphthalene	2.17	10.0	--- U
15. 4-Chlorophenyl Phenyl Ether	2.42	10.0	--- U
16. Chrysene	4.04	10.0	--- U
17. Dibenzo[a,h]anthracene	2.78	10.0	--- U
18. Di-N-Butyl Phthalate	3.09	10.0	--- U
19. Dimethyl Phthalate	3.78	10.0	--- U
20. Diethyl Phthalate	3.92	6000	--- U
21. 2,4-Dinitrotoluene	3.95	10.0	--- U
22. 2,6-Dinitrotoluene	3.88	10.0	--- U
23. Di-N-Octyl Phthalate	2.81	10.0	--- U
24. Bis-(2-Ethylhexyl) Phthalate	9.97	15.0	--- U
25. Fluoranthene	3.92	10.0	--- U
26. Fluorene	2.95	10.0	--- U
27. Hexachlorobenzene	2.61	10.0	--- U
28. Hexachlorocyclopentadiene	4.16	10.0	--- U
29. Indeno[1,2,3-Cd]pyrene	2.91	10.0	--- U
30. Isophorone	3.74	10.0	--- U
31. Nitrobenzene	2.85	10.0	--- U
32. N-Nitrosodimethylamine	4.25	10.0	--- U
33. N-Nitrosodiphenylamine	3.95	10.0	--- U
34. N-Nitrosodi-N-Propylamine	4.06	10.0	--- U
35. Phenanthrene	3.24	10.0	--- U
36. Pyrene	3.63	10.0	--- U
37. 4-Chloro-3-Methylphenol	3.79	20.0	--- U
38. 2-Chlorophenol	2.75	10.0	--- U
39. O-Cresol	3.68	10.0	--- U
40. P-Cresol	4.12	10.0	--- U
41. 2,4-Dichlorophenol	5.19	10.0	--- U
42. 2,6-Dichlorophenol	4.89	10.0	--- U
43. 2,4-Dimethylphenol	3.21	10.0	--- U
44. 4,6-Dinitro-2-Methylphenol	4.77	50.0	--- U
45. 2,4-Dinitrophenol	4.37	50.0	--- U
46. Ethyl Methanesulfonate	5.26	20.0	--- U
47. Methyl Methanesulfonate	4.92	10.0	--- U
48. 2-Nitrophenol	3.64	10.0	--- 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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FAX (252) 756-0633

CLIENT: JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 C

ANALYST: CHS
DATE COLLECTED: 10/17/11
DATE EXTRACTED: 10/20/11
DATE ANALYZED: 11/07/11
DATE REPORTED: 11/15/11

REVIEWED BY: _____

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	Piezometer #3
49. 4-Nitrophenol	3.17	50.0	--- U
50. Pentachlorophenol	5.33	25.0	--- U
51. Phenol	1.86	10.0	--- U
52. 2,3,4,6-Tetrachlorophenol	3.12	10.0	--- U
53. 2,4,5-Trichlorophenol	4.17	10.0	--- U
54. 2,4,6-Trichlorophenol	3.84	10.0	--- U
55. Acetophenone	2.89	10.0	--- U
56. 2-Acetylaminofluorene	3.98	20.0	--- U
57. 4-Aminobiphenyl	4.12	20.0	--- U
58. Benzyl Alcohol	4.47	20.0	--- U
59. 4-Chloroaniline	3.36	20.0	--- U
60. Chlorobenzilate	5.12	10.0	--- U
61. Diallate	2.98	10.0	--- U
62. Dibenzofuran	4.28	10.0	--- U
63. 3,3-Dichlorobenzidine	4.22	20.0	--- U
64. Dimethoate	3.98	20.0	--- U
65. P-Dimethylaminoazobenzene	2.89	10.0	--- U
66. 7,12-Dimethylbenz[a]anthracene	5.26	10.0	--- U
67. 3,3-Dimethylbenzadine	3.21	10.0	--- U
68. 1,3-Dinitrobenzene	2.89	20.0	--- U
69. Diphenylamine	5.10	10.0	--- U
70. Disulfoton	4.28	10.0	--- U
71. Famphur	3.98	20.0	--- U
72. Hexachloropropene	4.31	10.0	--- U
73. Isosafrole	2.88	10.0	--- U
74. Kepone	2.78	20.0	--- U
75. Methapyrilene	3.54	100.0	--- U
76. 3-Methylchloroanthrene	4.21	10.0	--- U
77. 2-Methylnaphthalene	3.79	10.0	--- U
78. Methyl Parathion	4.32	10.0	--- U
79. m-Cresol	3.81	10.0	--- U
80. 1,4-Naphthoquinone	4.00	10.0	--- U
81. 1-Naphthylamine	5.61	10.0	--- U
82. 2-Naphthylamine	4.62	10.0	--- U
83. 2-Nitroaniline	3.61	50.0	--- U
84. 3-Nitroaniline	4.81	50.0	--- U
85. 4-Nitroaniline	4.22	20.0	--- U
86. 5-Nitro-O-Toluidine	4.01	10.0	--- U
87. N-Nitrosodi-n-butylamine	3.63	10.0	--- U
88. N-Nitrosodiethylamine	3.83	20.0	--- U
89. N-Nitrosomethylethylamine	3.83	10.0	--- U
90. N-Nitrosopiperidine	5.19	20.0	--- U
91. N-Nitrosopyrrolidine	2.89	10.0	--- U
92. Parathion	3.12	10.0	--- U
93. Pentachlorobenzene	3.92	10.0	--- U
94. Pentachloronitrobenzene	3.71	20.0	--- U
95. Phenacetin	4.41	20.0	--- U
96. 1,4 Benzenediamine	2.99	10.0	--- U

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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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 C

ANALYST: CHS
DATE COLLECTED: 10/17/11
DATE EXTRACTED: 10/20/11
DATE ANALYZED: 11/07/11
DATE REPORTED: 11/15/11

REVIEWED BY:

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	Piezometer #3
97. Phorate	3.86	10.0	--- U
98. Pronamide	3.69	10.0	--- U
99. Safrole	4.12	10.0	--- U
100. 1,2,4,5-Tetrachlorobenzene	5.01	10.0	--- U
101. Thionazin	4.62	20.0	--- U
102. O-Toluidine	4.11	10.0	--- U
103. 1,3,5-Trinitrobenzene	3.98	10.0	--- U
104. 0,0,0-Triethyl Phosphorothioate	3.61	10.0	--- U
105. Hexachloroethane	1.49	10.0	--- U
106. Isodrin	3.11	20.0	--- U

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Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

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GREENVILLE, N.C. 27835-7085

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CLIENT: JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 C

ANALYST: MAO
DATE COLLECTED: 10/17/11
DATE ANALYZED: 10/24/11
DATE REPORTED: 11/15/11

REVIEWED BY: _____

LANDFILL APPENDIX II
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Piezometer #3	Equipment Blank	Trip Blank
1. Chloromethane	0.77	1.0	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	0.80 J	--- 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	--- U	--- 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	5.10
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	0.50 J	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- 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	3.30	--- U	--- U
21. 1,2-Dichloroethane	0.21	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	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U
27. Toluene	0.23	1.0	0.60 J	--- 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	11.50	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- 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	7.40	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	1.60 J	--- 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
48. Acrolein	40.57	53.0	--- 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
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CLIENT: JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 C

ANALYST: MAO
DATE COLLECTED: 10/17/11
DATE ANALYZED: 10/24/11
DATE REPORTED: 11/15/11

REVIEWED BY:

LANDFILL APPENDIX II
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Piezometer #3	Equipment Blank	Trip Blank
49. Allyl Chloride	0.20	10.0	--- U	--- U	--- U
50. Chloroprene	0.21	20.0	--- U	--- U	--- U
51. 1,3-Dichlorobenzene	0.41	5.0	--- U	--- U	--- U
52. Dichlorodifluoromethane	0.51	5.0	--- U	--- U	--- U
53. 1,3-Dichloropropane	0.28	1.0	--- U	--- U	--- U
54. 2,2-Dichloropropane	0.17	15.0	--- U	--- U	--- U
55. 1,1-Dichloropropene	0.22	5.0	--- U	--- U	--- U
56. Ethyl Methacrylate	0.16	10.0	--- U	--- U	--- U
57. Hexachlorobutadiene	0.57	10.0	--- U	--- U	--- U
58. Isobutyl Alcohol	12.80	100.0	--- U	--- U	--- U
59. Methacrylonitrile	1.93	100.0	--- U	--- U	--- U
60. Methyl Methacrylate	0.25	30.0	--- U	--- U	--- U
61. Naphthalene	0.47	10.0	--- U	--- U	--- U
62. Propionitrile	3.26	150.0	--- U	--- U	--- U
63. 1,2,4-Trichlorobenzene	0.50	10.0	--- U	--- U	--- U
64. Acetonitrile	36.29	55.0	--- 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
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PHONE (252) 756-6208
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ID#: 6031 D

JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD ,NC 27577

DATE COLLECTED: 10/17/11
DATE REPORTED : 10/31/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-14D	MW-15D	MW-16D	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	--- U	0.37 J		10/21/11	LFJ	EPA200.8
Antimony, ug/l	0.14	6.0			--- U	10/25/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0	0.32 J	1.8 J		10/21/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0			0.43 J	10/25/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0	2.0 J	23.6 J		10/21/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0			70.6 J	10/25/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	--- U	--- U		10/21/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0			0.17 J	10/25/11	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	0.22 J	0.07 J		10/21/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0			0.12 J	10/25/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	0.36 J	0.56 J		10/21/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0			0.68 J	10/25/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	1.2 J	1.2 J		10/21/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0			0.72 J	10/25/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	0.16 J	0.45 J		10/21/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0			1.5 J	10/25/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	1.1 J	1.2 J		10/21/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0			0.45 J	10/25/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	2.0 J	1.7 J		10/21/11	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0			1.2 J	10/25/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	1.5 J	0.56 J		10/21/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0			0.76 J	10/25/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0	0.09 J	0.04 J		12/14/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0			0.04 J	10/25/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5	0.15 J	0.03 J		10/21/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5			0.30 J	10/25/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	0.87 J	0.79 J		10/21/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0			4.2 J	10/25/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	1.5 J	3.3 J		10/21/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0			1.3 J	10/25/11	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

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CLIENT: JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 D

ANALYST: MAO
DATE COLLECTED: 10/17/11
DATE ANALYZED: 10/24/11
DATE REPORTED: 10/31/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-14D	MW-15D	MW-16D
1. Chloromethane	0.77	1.0	--- U	--- 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	--- U	--- 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	3.50 J	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	3.90 J	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- 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	0.30 J	--- 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	0.60 J	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- 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	3.40	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- 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	2.10	--- 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.

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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ID#: 6031

JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD ,NC 27577

DATE COLLECTED: 10/18/11
DATE REPORTED : 11/15/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-3	MW-4B	MW-6	MW-7	MW-12B	Analysis Date	Analyst	Method Code
Cyanide, ug/l	5.0	10.0	Missing	--- U	--- U	--- U	--- U	10/25/11	SEJ	SM4500 CN-
Antimony, ug/l	0.14	6.0	Missing	0.15 J				10/21/11	LFJ	EPA200.8
Antimony, ug/l	0.14	6.0			--- U	--- U	0.28 J	10/25/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0	Missing	9 J				10/21/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0			0.83 J		3.5 J	10/25/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0				4.4 J		11/02/11	CMF	SM3113B
Barium, ug/l	0.02	100.0	Missing	1219				10/21/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0			42.1 J	458	201	10/25/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	Missing	--- U				10/21/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0			--- U	--- U	--- U	10/25/11	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	Missing	0.04 J				10/21/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0			--- U	--- U	--- U	10/25/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	Missing	28				10/21/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0			169	84	526	10/25/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	Missing	0.70 J				10/21/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0			0.56 J	1.5 J	0.56 J	10/25/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	Missing	0.39 J				10/21/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0			--- U	0.70 J	--- U	10/25/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	Missing	0.05 J				10/21/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0			0.04 J	0.04 J	0.07 J	10/25/11	CMF	EPA200.8
Mercury, ug/l	0.05	0.20	Missing	--- U				10/21/11	LFJ	EPA200.8
Mercury, ug/l	0.05	0.20			0.08 J	--- U	0.09 J	10/25/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	Missing	3.7 J				10/21/11	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0			10.1 J	33.4 J	21.0 J	10/25/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	Missing	6.8 J				10/21/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0			0.40 J		1.2 J	10/25/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0				0.96 J		11/03/11	CMF	SM3113B
Silver, ug/l	0.02	10.0	Missing	--- U				12/14/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0			0.07 J	0.04 J	0.07 J	10/25/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5	Missing	0.18 J				10/21/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5			0.26 J	0.08 J	0.13 J	10/25/11	CMF	EPA200.8
Tin, ug/l	0.16	100.0	Missing	0.41 J				10/21/11	LFJ	EPA200.8
Tin, ug/l	0.16	100.0			--- U	0.55 J	0.16 J	10/25/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	Missing	0.62 J				10/21/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0			--- U	--- U	--- U	10/25/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	Missing	1.2 J				10/21/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0			1.9 J	0.62 J	3.3 J	10/25/11	CMF	EPA200.8
Sulfide, ug/l	100	1000	Missing	251 J	--- U	--- U	--- U	10/20/11	LFJ	SM4500-S2D

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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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031

ANALYST: CHS
DATE COLLECTED: 10/18/11
DATE EXTRACTED: 10/20/11
DATE ANALYZED: 11/02/11
DATE REPORTED: 11/15/11

REVIEWED BY: _____

PESTICIDES AND PCB'S
EPA METHOD 8081B

PARAMETERS, ug/l	MDL	SWSL	MW-4B	MW-6	MW-7	MW-12B
1. Aldrin	0.029	0.05	--- U	--- U	--- U	--- U
2. Alpha-BHC	0.032	0.05	--- U	--- U	--- U	--- U
3. Beta-BHC	0.031	0.05	--- U	--- U	--- U	--- U
4. Delta-BHC	0.030	0.05	--- U	--- U	--- U	--- U
5. Gamma-BHC (Lindane)	0.032	0.05	--- U	--- U	--- U	--- U
6. Chlordane	0.320	0.50	--- U	--- U	--- U	--- U
7. 4,4-DDD	0.051	0.10	--- U	--- U	--- U	--- U
8. 4,4-DDE	0.049	0.10	--- U	--- U	--- U	--- U
9. 4,4-DDT	0.052	0.10	--- U	--- U	--- U	--- U
10. Dieldrin	0.042	0.075	--- U	--- U	--- U	--- U
11. Endosulfan I	0.056	0.10	--- U	--- U	--- U	--- U
12. Endosulfan II	0.046	0.10	--- U	--- U	--- U	--- U
13. Endosulfan Sulfate	0.072	0.10	--- U	--- U	--- U	--- U
14. Endrin	0.053	0.10	--- U	--- U	--- U	--- U
15. Endrin Aldehyde	0.068	0.10	--- U	--- U	--- U	--- U
16. Heptachlor	0.039	0.05	--- U	--- U	--- U	--- U
17. Heptachlor Epoxide	0.042	0.075	--- U	--- U	--- U	--- U
18. Methoxychlor	0.530	1.00	--- U	--- U	--- U	--- U
19. Pcb's (Aroclors)	0.500	2.00	--- U	--- U	--- U	--- U
20. Toxaphene	0.690	1.50	--- U	--- U	--- U	--- U

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ANALYST: CHS
DATE COLLECTED: 10/18/11
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DATE ANALYZED: 11/11/11
DATE REPORTED: 11/15/11

REVIEWED BY:

LANDFILL APPENDIX II
EPA METHOD 8151A

PARAMETERS, ug/l	MDL	SWSL	MW-4B	MW-6	MW-7	MW-12B
1. 2,4-D	0.36	2.0	--- U	--- U	--- U	--- U
2. Dinoseb	0.54	1.0	--- U	--- U	--- U	--- U
3. 2,4,5-TP	0.42	2.0	--- U	--- U	--- U	--- U
4. 2,4,5-T	0.47	2.0	--- U	--- U	--- U	--- U

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Environment 1, Incorporated

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ANALYST: CHS
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REVIEWED BY: _____

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	MW-4B	MW-6	MW-7	MW-12B
1. Acenaphthene	2.66	10.0	--- U	--- U	--- U	--- U
2. Acenaphthylene	2.60	10.0	--- U	--- U	--- U	--- U
3. Anthracene	2.97	10.0	--- U	--- U	--- U	--- U
4. Benzo[a]antrhacene	4.16	10.0	--- U	--- U	--- U	--- U
5. Benzo[b]fluoranthene	3.32	10.0	--- U	--- U	--- U	--- U
6. Benzo[k]fluoranthene	4.23	10.0	--- U	--- U	--- U	--- U
7. Benzo[g,h,i]perylene	2.61	10.0	--- U	--- U	--- U	--- U
8. Benzo[a]pyrene	3.27	10.0	--- U	--- U	--- U	--- U
9. 4-Bromophenyl Phenyl Ether	2.63	10.0	--- U	--- U	--- U	--- U
10. Butyl Benzyl Phthalate	5.78	10.0	--- U	--- U	--- U	--- U
11. Bis-(2-Chloroethoxy) Methane	3.14	10.0	--- U	--- U	--- U	--- U
12. Bis-(2-Chloroethyl) Ether	2.58	10.0	--- U	--- U	--- U	--- U
13. Bis-(2-Chloroisopropyl) Ether	2.58	10.0	--- U	--- U	--- U	--- U
14. 2-Chloronaphthalene	2.17	10.0	--- U	--- U	--- U	--- U
15. 4-Chlorophenyl Phenyl Ether	2.42	10.0	--- U	--- U	--- U	--- U
16. Chrysene	4.04	10.0	--- U	--- U	--- U	--- U
17. Dibenzo[a,h]anthracene	2.78	10.0	--- U	--- U	--- U	--- U
18. Di-N-Butyl Phthalate	3.09	10.0	--- U	--- U	--- U	--- U
19. Dimethyl Phthalate	3.78	10.0	--- U	--- U	--- U	--- U
20. Diethyl Phthalate	3.92	6000	--- U	--- U	--- U	--- U
21. 2,4-Dinitrotoluene	3.95	10.0	--- U	--- U	--- U	--- U
22. 2,6-Dinitrotoluene	3.88	10.0	--- U	--- U	--- U	--- U
23. Di-N-Octyl Phthalate	2.81	10.0	--- U	--- U	--- U	--- U
24. Bis-(2-Ethylhexyl) Phthalate	9.97	15.0	--- U	--- U	--- U	--- U
25. Fluoranthene	3.92	10.0	--- U	--- U	--- U	--- U
26. Fluorene	2.95	10.0	--- U	--- U	--- U	--- U
27. Hexachlorobenzene	2.61	10.0	--- U	--- U	--- U	--- U
28. Hexachlorocyclopentadiene	4.16	10.0	--- U	--- U	--- U	--- U
29. Indeno[1,2,3-Cd]pyrene	2.91	10.0	--- U	--- U	--- U	--- U
30. Isophorone	3.74	10.0	--- U	--- U	--- U	--- U
31. Nitrobenzene	2.85	10.0	--- U	--- U	--- U	--- U
32. N-Nitrosodimethylamine	4.25	10.0	--- U	--- U	--- U	--- U
33. N-Nitrosodiphenylamine	3.95	10.0	--- U	--- U	--- U	--- U
34. N-Nitrosodi-N-Propylamine	4.06	10.0	--- U	--- U	--- U	--- U
35. Phenanthrene	3.24	10.0	--- U	--- U	--- U	--- U
36. Pyrene	3.63	10.0	--- U	--- U	--- U	--- U
37. 4-Chloro-3-Methylphenol	3.79	20.0	--- U	--- U	--- U	--- U
38. 2-Chlorophenol	2.75	10.0	--- U	--- U	--- U	--- U
39. O-Cresol	3.68	10.0	--- U	--- U	--- U	--- U
40. P-Cresol	4.12	10.0	--- U	--- U	--- U	--- U
41. 2,4-Dichlorophenol	5.19	10.0	--- U	--- U	--- U	--- U
42. 2,6-Dichlorophenol	4.89	10.0	--- U	--- U	--- U	--- U
43. 2,4-Dimethylphenol	3.21	10.0	--- U	--- U	--- U	--- U
44. 4,6-Dinitro-2-Methylphenol	4.77	50.0	--- U	--- U	--- U	--- U
45. 2,4-Dinitrophenol	4.37	50.0	--- U	--- U	--- U	--- U
46. Ethyl Methanesulfonate	5.26	20.0	--- U	--- U	--- U	--- U
47. Methyl Methanesulfonate	4.92	10.0	--- U	--- U	--- U	--- U
48. 2-Nitrophenol	3.64	10.0	--- U	--- U	--- U	--- U

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Environment 1, Incorporated

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MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031

ANALYST: CHS
DATE COLLECTED: 10/18/11
DATE EXTRACTED: 10/20/11
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DATE REPORTED: 11/15/11

REVIEWED BY:

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	MW-4B	MW-6	MW-7	MW-12B
49. 4-Nitrophenol	3.17	50.0	--- U	--- U	--- U	--- U
50. Pentachlorophenol	5.33	25.0	--- U	--- U	--- U	--- U
51. Phenol	1.86	10.0	--- U	--- U	--- U	--- U
52. 2,3,4,6-Tetrachlorophenol	3.12	10.0	--- U	--- U	--- U	--- U
53. 2,4,5-Trichlorophenol	4.17	10.0	--- U	--- U	--- U	--- U
54. 2,4,6-Trichlorophenol	3.84	10.0	--- U	--- U	--- U	--- U
55. Acetophenone	2.89	10.0	--- U	--- U	--- U	--- U
56. 2-Acetylaminofluorene	3.98	20.0	--- U	--- U	--- U	--- U
57. 4-Aminobiphenyl	4.12	20.0	--- U	--- U	--- U	--- U
58. Benzyl Alcohol	4.47	20.0	--- U	--- U	--- U	--- U
59. 4-Chloroaniline	3.36	20.0	--- U	--- U	--- U	--- U
60. Chlorobenzilate	5.12	10.0	--- U	--- U	--- U	--- U
61. Diallate	2.98	10.0	--- U	--- U	--- U	--- U
62. Dibenzofuran	4.28	10.0	--- U	--- U	--- U	--- U
63. 3,3-Dichlorobenzidine	4.22	20.0	--- U	--- U	--- U	--- U
64. Dimethoate	3.98	20.0	--- U	--- U	--- U	--- U
65. P-Dimethylaminoazobenzene	2.89	10.0	--- U	--- U	--- U	--- U
66. 7,12-Dimethylbenz[a]anthracene	5.26	10.0	--- U	--- U	--- U	--- U
67. 3,3-Dimethylbenzadine	3.21	10.0	--- U	--- U	--- U	--- U
68. 1,3-Dinitrobenzene	2.89	20.0	--- U	--- U	--- U	--- U
69. Diphenylamine	5.10	10.0	--- U	--- U	--- U	--- U
70. Disulfoton	4.28	10.0	--- U	--- U	--- U	--- U
71. Famphur	3.98	20.0	--- U	--- U	--- U	--- U
72. Hexachloropropene	4.31	10.0	--- U	--- U	--- U	--- U
73. Isosafrole	2.88	10.0	--- U	--- U	--- U	--- U
74. Kepone	2.78	20.0	--- U	--- U	--- U	--- U
75. Methapyrilene	3.54	100.0	--- U	--- U	--- U	--- U
76. 3-Methylchloroanthrene	4.21	10.0	--- U	--- U	--- U	--- U
77. 2-Methylnaphthalene	3.79	10.0	--- U	--- U	--- U	--- U
78. Methyl Parathion	4.32	10.0	--- U	--- U	--- U	--- U
79. m-Cresol	3.81	10.0	--- U	--- U	--- U	--- U
80. 1,4-Naphthoquinone	4.00	10.0	--- U	--- U	--- U	--- U
81. 1-Naphthylamine	5.61	10.0	--- U	--- U	--- U	--- U
82. 2-Naphthylamine	4.62	10.0	--- U	--- U	--- U	--- U
83. 2-Nitroaniline	3.61	50.0	--- U	--- U	--- U	--- U
84. 3-Nitroaniline	4.81	50.0	--- U	--- U	--- U	--- U
85. 4-Nitroaniline	4.22	20.0	--- U	--- U	--- U	--- U
86. 5-Nitro-O-Toluidine	4.01	10.0	--- U	--- U	--- U	--- U
87. N-Nitrosodi-n-butylamine	3.63	10.0	--- U	--- U	--- U	--- U
88. N-Nitrosodiethylamine	3.83	20.0	--- U	--- U	--- U	--- U
89. N-Nitrosomethylethylamine	3.83	10.0	--- U	--- U	--- U	--- U
90. N-Nitrosopiperidine	5.19	20.0	--- U	--- U	--- U	--- U
91. N-Nitrosopyrrolidine	2.89	10.0	--- U	--- U	--- U	--- U
92. Parathion	3.12	10.0	--- U	--- U	--- U	--- U
93. Pentachlorobenzene	3.92	10.0	--- U	--- U	--- U	--- U
94. Pentachloronitrobenzene	3.71	20.0	--- U	--- U	--- U	--- U
95. Phenacetin	4.41	20.0	--- U	--- U	--- U	--- U
96. 1,4 Benzenediamine	2.99	10.0	--- U	--- U	--- U	--- U

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Environment 1, Incorporated

Drinking Water ID: 37715
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P.O. BOX 7085, 114 OAKMONT DRIVE
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P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031

ANALYST: CHS
DATE COLLECTED: 10/18/11
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REVIEWED BY:

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	MW-4B	MW-6	MW-7	MW-12B
97. Phorate	3.86	10.0	--- U	--- U	--- U	--- U
98. Pronamide	3.69	10.0	--- U	--- U	--- U	--- U
99. Safrole	4.12	10.0	--- U	--- U	--- U	--- U
100. 1,2,4,5-Tetrachlorobenzene	5.01	10.0	--- U	--- U	--- U	--- U
101. Thionazin	4.62	20.0	--- U	--- U	--- U	--- U
102. O-Toluidine	4.11	10.0	--- U	--- U	--- U	--- U
103. 1,3,5-Trinitrobenzene	3.98	10.0	--- U	--- U	--- U	--- U
104. 0,0,0-Triethyl Phosphorothioate	3.61	10.0	--- U	--- U	--- U	--- U
105. Hexachloroethane	1.49	10.0	--- U	--- U	--- U	--- U
106. Isodrin	3.11	20.0	--- U	--- U	--- U	--- U

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ANALYST: MAO
DATE COLLECTED: 10/18/11
DATE REPORTED: 11/15/11

REVIEWED BY:

LANDFILL APPENDIX II
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Date Analyzed: 10/24/11 MW-4B	10/24/11 MW-6	10/24/11 MW-7	10/24/11 MW-12B	10/25/11 Trip Blank
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	1.60	--- U	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	1.40 J	--- 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	0.30 J	1.00 J	1.40 J	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	0.60 J	0.30 J	0.50 J	--- 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	3.70	--- U	2.10	0.70 J	--- U
21. 1,2-Dichloroethane	0.21	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	0.30 J	--- 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	0.30 J	--- U	0.30 J	0.30 J	--- 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	12.30	0.30 J	23.90	9.80	--- 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	5.20	--- U	10.30	8.00	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	0.80 J	--- U	1.10 J	1.00 J	--- 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 Limite.

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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031

ANALYST: MAO
DATE COLLECTED: 10/18/11
DATE REPORTED: 11/15/11

REVIEWED BY:

LANDFILL APPENDIX II
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	10/24/11 MW-4B	10/24/11 MW-6	10/24/11 MW-7	10/24/11 MW-12B	10/25/11 Trip Blank
	Date Analyzed:						
48. Acrolein	40.57	53.0	--- U	--- U	--- U	--- U	--- U
49. Allyl Chloride	0.20	10.0	--- U	--- U	--- U	--- U	--- U
50. Chloroprene	0.21	20.0	--- U	--- U	--- U	--- U	--- U
51. 1,3-Dichlorobenzene	0.41	5.0	--- U	--- U	--- U	0.50 J	--- U
52. Dichlorodifluoromethane	0.51	5.0	--- U	--- U	--- U	--- U	--- U
53. 1,3-Dichloropropane	0.28	1.0	--- U	--- U	--- U	--- U	--- U
54. 2,2-Dichloropropane	0.17	15.0	--- U	--- U	--- U	--- U	--- U
55. 1,1-Dichloropropene	0.22	5.0	--- U	--- U	--- U	--- U	--- U
56. Ethyl Methacrylate	0.16	10.0	--- U	--- U	--- U	--- U	--- U
57. Hexachlorobutadiene	0.57	10.0	--- U	--- U	--- U	--- U	--- U
58. Ieobutyl Alcohol	12.80	100.0	--- U	--- U	--- U	--- U	--- U
59. Methacrylonitrile	1.93	100.0	--- U	--- U	--- U	--- U	--- U
60. Methyl Methacrylate	0.25	30.0	--- U	--- U	--- U	--- U	--- U
61. Naphthalene	0.47	10.0	0.60 J	--- U	--- U	--- U	--- U
62. Propionitrile	3.26	150.0	--- U	--- U	--- U	--- U	--- U
63. 1,2,4-Trichlorobenzene	0.50	10.0	--- U	--- U	--- U	--- U	--- U
64. Acetonitrile	36.29	55.0	--- U	--- U	--- 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

CLIENT: 6031 **Week:** 42

JOHNSTON COUNTY LANDFILL (OLD)
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 AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Cyanide	Metals	Sulfide	EPA 8260B	8260 Dup. 1	EPA 8270C	8270C Dup. 1	EPA 8081B	8081B Duplicate	8260B App. II	8260 App. II 1	8260 App. II 2	8151A Landfill			
CHLORINE NEUTRALIZED AT COLLECTION			Y																		
pH CHECK (LAB)			>12	<2	>9	<2									<2	<2	<2				
CONTAINER TYPE, P/G			P	P	P	G	G	G	G	G	G	G	G	G	G	G	G	G			
CHEMICAL PRESERVATION			D	A	F D	E	E	A	A	A	A	E	E	E	A						
* MW-3	10/18/11	—	IWV		11																
MW-4B	↓	14:00	N/A	22	10																
MW-6		10:40	N/A	20	10																
MW-7		12:22	N/A	20	10																
~~MW-8A~~					~~3~~																
~~MW-10~~					~~10~~																
~~MW-11~~					~~10~~																
~~MW-17~~					~~3~~																
MW-12B	10/18/11	09:21	N/A	19	10																
TRIP BLANK	↓	N/A	N/A	N/A	1				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 0.4 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
[signature]	10/18/11 09:00	[signature]	10/19/400
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS: * = INSUFFICIENT WATER VOLUME TO PERFORM SAMPLING.

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

№ 231029

Environment 1, Incorporated

[illegible]

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

PHONE (252) 756-5308
FAX (252) 756-0133

ID#: 6031

JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD ,NC 27577

DATE COLLECTED: 10/20/11
DATE REPORTED : 11/15/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-10	MW-11	Analysis Date	Analyst	Method Code
Cyanide, ug/l	5.0	10.0	--- U	--- U	10/25/11	SEJ	SM4500 CN-E
Antimony, ug/l	0.14	6.0	--- U	--- U	10/25/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0	0.38 J	2.0 J	10/25/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0	34.0 J	15.5 J	10/25/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	0.17 J	--- U	10/25/11	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	--- U	--- U	10/25/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	9.8 J	7.0 J	10/25/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	3.2 J	0.41 J	10/25/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	2.4 J	--- U	10/25/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	1.5 J	0.04 J	10/25/11	CMF	EPA200.8
Mercury, ug/l	0.05	0.20	--- U	--- U	10/25/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	11.0 J	0.84 J	10/25/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	0.32 J	0.31 J	10/25/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0	--- U	--- U	10/25/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5	0.04 J	--- U	10/25/11	CMF	EPA200.8
Tin, ug/l	0.16	100.0	0.43 J	0.26 J	10/25/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	1.8 J	--- U	10/25/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	29	2.6 J	10/25/11	CMF	EPA200.8
Sulfide, ug/l	100	1000	--- U	--- U	10/26/11	LFJ	SM4500-S2D

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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031

ANALYST: CHS
DATE COLLECTED: 10/20/11
DATE EXTRACTED: 10/25/11
DATE ANALYZED: 11/08/11
DATE REPORTED: 11/15/11

REVIEWED BY: _____

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	MW-10	MW-11
49. 4-Nitrophenol	3.17	50.0	--- U	--- U
50. Pentachlorophenol	5.33	25.0	--- U	--- U
51. Phenol	1.86	10.0	--- U	--- U
52. 2,3,4,6-Tetrachlorophenol	3.12	10.0	--- U	--- U
53. 2,4,5-Trichlorophenol	4.17	10.0	--- U	--- U
54. 2,4,6-Trichlorophenol	3.84	10.0	--- U	--- U
55. Acetophenone	2.89	10.0	--- U	--- U
56. 2-Acetylaminofluorene	3.98	20.0	--- U	--- U
57. 4-Aminobiphenyl	4.12	20.0	--- U	--- U
58. Benzyl Alcohol	4.47	20.0	--- U	--- U
59. 4-Chloroaniline	3.36	20.0	--- U	--- U
60. Chlorobenzilate	5.12	10.0	--- U	--- U
61. Diallate	2.98	10.0	--- U	--- U
62. Dibenzofuran	4.28	10.0	--- U	--- U
63. 3,3-Dichlorobenzidine	4.22	20.0	--- U	--- U
64. Dimethoate	3.98	20.0	--- U	--- U
65. P-Dimethylaminoazobenzene	2.89	10.0	--- U	--- U
66. 7,12-Dimethylbenz[a]anthracene	5.26	10.0	--- U	--- U
67. 3,3-Dimethylbenzadine	3.21	10.0	--- U	--- U
68. 1,3-Dinitrobenzene	2.89	20.0	--- U	--- U
69. Diphenylamine	5.10	10.0	--- U	--- U
70. Disulfoton	4.28	10.0	--- U	--- U
71. Famphur	3.98	20.0	--- U	--- U
72. Hexachloropropene	4.31	10.0	--- U	--- U
73. Isosafrole	2.88	10.0	--- U	--- U
74. Kepone	2.78	20.0	--- U	--- U
75. Methapyrilene	3.54	100.0	--- U	--- U
76. 3-Methylchloroanthrene	4.21	10.0	--- U	--- U
77. 2-Methylnaphthalene	3.79	10.0	--- U	--- U
78. Methyl Parathion	4.32	10.0	--- U	--- U
79. m-Cresol	3.81	10.0	--- U	--- U
80. 1,4-Naphthoquinone	4.00	10.0	--- U	--- U
81. 1-Naphthylamine	5.61	10.0	--- U	--- U
82. 2-Naphthylamine	4.62	10.0	--- U	--- U
83. 2-Nitroaniline	3.61	50.0	--- U	--- U
84. 3-Nitroaniline	4.81	50.0	--- U	--- U
85. 4-Nitroaniline	4.22	20.0	--- U	--- U
86. 5-Nitro-O-Toluidine	4.01	10.0	--- U	--- U
87. N-Nitrosodi-n-butylamine	3.63	10.0	--- U	--- U
88. N-Nitrosodiethylamine	3.83	20.0	--- U	--- U
89. N-Nitrosomethylethylamine	3.83	10.0	--- U	--- U
90. N-Nitrosopiperidine	5.19	20.0	--- U	--- U
91. N-Nitrosopyrrolidine	2.89	10.0	--- U	--- U
92. Parathion	3.12	10.0	--- U	--- U
93. Pentachlorobenzene	3.92	10.0	--- U	--- U
94. Pentachloronitrobenzene	3.71	20.0	--- U	--- U
95. Phenacetin	4.41	20.0	--- U	--- U
96. 1,4 Benzenediamine	2.99	10.0	--- 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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031

ANALYST: CHS
DATE COLLECTED: 10/20/11
DATE EXTRACTED: 10/25/11
DATE ANALYZED: 11/08/11
DATE REPORTED: 11/15/11

REVIEWED BY:

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	MW-10	MW-11
97. Phorate	3.86	10.0	--- U	--- U
98. Pronamide	3.69	10.0	--- U	--- U
99. Safrole	4.12	10.0	--- U	--- U
100. 1,2,4,5-Tetrachlorobenzene	5.01	10.0	--- U	--- U
101. Thionazin	4.62	20.0	--- U	--- U
102. O-Toluidine	4.11	10.0	--- U	--- U
103. 1,3,5-Trinitrobenzene	3.98	10.0	--- U	--- U
104. 0,0,0-Triethyl Phosphorothioate	3.61	10.0	--- U	--- U
105. Hexachloroethane	1.49	10.0	--- U	--- U
106. Isodrin	3.11	20.0	--- 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
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CLIENT: JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031

ANALYST: MAO
DATE COLLECTED: 10/20/11
DATE ANALYZED: 10/24/11
DATE REPORTED: 11/15/11

REVIEWED BY:

LANDFILL APPENDIX II
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-10	MW-11
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	3.90 J
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	0.21	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
48. Acrolein	40.57	53.0	--- 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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031

ANALYST: MAO
DATE COLLECTED: 10/20/11
DATE ANALYZED: 10/24/11
DATE REPORTED: 11/15/11

REVIEWED BY:

LANDFILL APPENDIX II
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-10	MW-11
49. Allyl Chloride	0.20	10.0	--- U	--- U
50. Chloroprene	0.21	20.0	--- U	--- U
51. 1,3-Dichlorobenzene	0.41	5.0	--- U	--- U
52. Dichlorodifluoromethane	0.51	5.0	--- U	0.60 J
53. 1,3-Dichloropropane	0.28	1.0	--- U	--- U
54. 2,2-Dichloropropane	0.17	15.0	--- U	--- U
55. 1,1-Dichloropropene	0.22	5.0	--- U	--- U
56. Ethyl Methacrylate	0.16	10.0	--- U	--- U
57. Hexachlorobutadiene	0.57	10.0	--- U	--- U
58. Isobutyl Alcohol	12.80	100.0	--- U	--- U
59. Methacrylonitrile	1.93	100.0	--- U	--- U
60. Methyl Methacrylate	0.25	30.0	--- U	--- U
61. Naphthalene	0.47	10.0	--- U	--- U
62. Propionitrile	3.26	150.0	--- U	--- U
63. 1,2,4-Trichlorobenzene	0.50	10.0	--- U	--- U
64. Acetonitrile	36.29	55.0	--- 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

— 3 COOLERS —

CHAIN OF CUSTODY RECORD

CLIENT: 6031 A & 6031 Week: 42

JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD NC 27577

(919) 938-4747

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

CHLORINE NEUTRALIZED AT COLLECTION	Y																			
pH CHECK (LAB)	>12	12	8				12	12	12	12										
CONTAINER TYPE, P/G	P	P	P	G	G	G	G	G	G	G	G									
CHEMICAL PRESERVATION	D	A	F D	A	A	A	A	E	E	E	A									
SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Cyanide	Metals	Sulfide	EPA 8270C	8270C Dup. 1	EPA 8081B	8081B Duplicate	8260B App. II	8260 App. II 1	8260 App. II 2	8151A Landfill					
MW-4D	10/20/11	08:35	N/A	20	11															
MW-5A		09:07		18	10															
MW-7D		09:58		19	10															
MW-8D		10:39		19	10															
* ~~MW-9C~~		IWV			~~10~~															
MW-9D		11:20		17	10															
MW-10		12:58		18	10	X	X	X	X	X	X	X	X	X		X				
MW-11		14:30		18	10	X	X	X	X	X	X	X	X	X		X				
TRIP BLANK		N/A		N/A	1								X							
EQUIPMENT BLANK		15:30		N/A	1								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 0.C °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
[signature]	10/21/11 09:00	[signature]	10/21 400
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 PERFORM SAMPLING @ MW-9C.

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

№ 231028

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#: 6031 A

JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD ,NC 27577

DATE COLLECTED: 10/20/11
DATE REPORTED : 11/15/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-4D	MW-5A	MW-7D	MW-8D	MW-9C	Analysis Date	Analyst	Method Code
Cyanide, ug/l	5.0	10.0	--- U	--- U	--- U	--- U	Missing	10/25/11	SEJ	SM4500 CN-
Antimony, ug/l	0.14	6.0	--- U	--- U	0.29 J	--- U	Missing	10/25/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0	0.25 J	0.40 J	2.5 J	1.3 J	Missing	10/25/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0	26.4 J	6.5 J	37.9 J	67.5 J	Missing	10/25/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	0.08 J	0.20 J	--- U	--- U	Missing	10/25/11	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	--- U	--- U	--- U	0.04 J	Missing	10/25/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	6.2 J	2.0 J	24	47	Missing	10/25/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	0.36 J	1.5 J	0.87 J	0.49 J	Missing	10/25/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	--- U	1.5 J	--- U	0.72 J	Missing	10/25/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	0.07 J	0.84 J	0.05 J	0.04 J	Missing	10/25/11	CMF	EPA200.8
Mercury, ug/l	0.05	0.20	--- U	--- U	0.08 J	--- U	Missing	10/25/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	5.7 J	4.0 J	13.5 J	2.5 J	Missing	10/25/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	--- U	0.40 J	8.5 J	2.3 J	Missing	10/25/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0	0.05 J	--- U	--- U	--- U	Missing	10/25/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5	0.28 J	--- U	0.04 J	--- U	Missing	10/25/11	CMF	EPA200.8
Tin, ug/l	0.16	100.0	0.21 J	--- U	0.17 J	0.19 J	Missing	10/25/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	--- U	0.97 J	--- U	0.48 J	Missing	10/25/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	12	7.8 J	2.0 J	1.0 J	Missing	10/25/11	CMF	EPA200.8
Sulfide, ug/l	100	1000	--- U	--- U	--- U	--- U	Missing	10/26/11	LFJ	SM4500-S2D

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#: 6031 A

JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD ,NC 27577

DATE COLLECTED: 10/20/11
DATE REPORTED : 11/15/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-9D		Analysis Date	Analyst	Method Code
Cyanide, ug/l	5.0	10.0	---	U	10/25/11	SEJ	SM4500 CN-E
Antimony, ug/l	0.14	6.0	---	U	10/25/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0	0.43	J	10/25/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0	4.5	J	10/25/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	---	U	10/25/11	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	---	U	10/25/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	1.6	J	10/25/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	0.30	J	10/25/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	---	U	10/25/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	---	U	10/25/11	CMF	EPA200.8
Mercury, ug/l	0.05	0.20	---	U	10/25/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	0.48	J	10/25/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	---	U	10/25/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0	---	U	10/25/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5	---	U	10/25/11	CMF	EPA200.8
Tin, ug/l	0.16	100.0	---	U	10/25/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	---	U	10/25/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	0.84	J	10/25/11	CMF	EPA200.8
Sulfide, ug/l	100	1000	---	U	10/26/11	LFJ	SM4500-S2D

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
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CLIENT: JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 A

ANALYST: CHS
DATE COLLECTED: 10/20/11
DATE EXTRACTED: 10/25/11
DATE ANALYZED: 10/26/11
DATE REPORTED: 11/15/11

REVIEWED BY:

PESTICIDES AND PCB'S
EPA METHOD 8081B

PARAMETERS, ug/l	MDL	SWSL	MW-4D	MW-5A	MW-7D	MW-8D	MW-9D
1. Aldrin	0.029	0.05	--- U	--- U	--- U	--- U	--- U
2. Alpha-BHC	0.032	0.05	--- U	--- U	--- U	--- U	--- U
3. Beta-BHC	0.031	0.05	--- U	--- U	--- U	--- U	--- U
4. Delta-BHC	0.030	0.05	--- U	--- U	--- U	--- U	--- U
5. Gamma-BHC (Lindane)	0.032	0.05	--- U	--- U	--- U	--- U	--- U
6. Chlordane	0.320	0.50	--- U	--- U	--- U	--- U	--- U
7. 4,4-DDD	0.051	0.10	--- U	--- U	--- U	--- U	--- U
8. 4,4-DDE	0.049	0.10	--- U	--- U	--- U	--- U	--- U
9. 4,4-DDT	0.052	0.10	--- U	--- U	--- U	--- U	--- U
10. Dieldrin	0.042	0.075	--- U	--- U	--- U	--- U	--- U
11. Endosulfan I	0.056	0.10	--- U	--- U	--- U	--- U	--- U
12. Endosulfan II	0.046	0.10	--- U	--- U	--- U	--- U	--- U
13. Endosulfan Sulfate	0.072	0.10	--- U	--- U	--- U	--- U	--- U
14. Endrin	0.053	0.10	--- U	--- U	--- U	--- U	--- U
15. Endrin Aldehyde	0.068	0.10	--- U	--- U	--- U	--- U	--- U
16. Heptachlor	0.039	0.05	--- U	--- U	--- U	--- U	--- U
17. Heptachlor Epoxide	0.042	0.075	--- U	--- U	--- U	--- U	--- U
18. Methoxychlor	0.530	1.00	--- U	--- U	--- U	--- U	--- U
19. Pcb's (Aroclors)	0.500	2.00	--- U	--- U	--- U	--- U	--- U
20. Toxaphene	0.690	1.50	--- 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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 A

ANALYST: CHS
DATE COLLECTED: 10/20/11
DATE EXTRACTED: 10/26/11
DATE ANALYZED: 11/11/11
DATE REPORTED: 11/15/11

REVIEWED BY:

LANDFILL APPENDIX II
EPA METHOD 8151A

PARAMETERS, ug/l	MDL	SWSL	MW-4D	MW-5A	MW-7D	MW-8D	MW-9D
1. 2,4-D	0.36	2.0	--- U	--- U	--- U	--- U	--- U
2. Dinoseb	0.54	1.0	--- U	--- U	--- U	--- U	--- U
3. 2,4,5-TP	0.42	2.0	--- U	--- U	--- U	--- U	--- U
4. 2,4,5-T	0.47	2.0	--- U	--- U	--- U	--- U	--- U

NOTE: Surrogate recoveries for locations MW-8D and MW-9D were outside control limits

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

Environment 1, Incorporated

Drinking Water ID: 37745
Wastewater ID: 10

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

PHONE (252) 756-6208
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CLIENT: JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 A

ANALYST: CHS
DATE COLLECTED: 10/20/11
DATE EXTRACTED: 10/25/11
DATE ANALYZED: 11/07/11
DATE REPORTED: 11/15/11

REVIEWED BY:

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	MW-4D	MW-5A	MW-7D	MW-8D	MW-9D
1. Acenaphthene	2.66	10.0	--- U	--- U	--- U	--- U	--- U
2. Acenaphthylene	2.60	10.0	--- U	--- U	--- U	--- U	--- U
3. Anthracene	2.97	10.0	--- U	--- U	--- U	--- U	--- U
4. Benzo[a]antrhacene	4.16	10.0	--- U	--- U	--- U	--- U	--- U
5. Benzo[b]fluoranthene	3.32	10.0	--- U	--- U	--- U	--- U	--- U
6. Benzo[k]fluoranthene	4.23	10.0	--- U	--- U	--- U	--- U	--- U
7. Benzo[g,h,i]perylene	2.61	10.0	--- U	--- U	--- U	--- U	--- U
8. Benzo[a]pyrene	3.27	10.0	--- U	--- U	--- U	--- U	--- U
9. 4-Bromophenyl Phenyl Ether	2.63	10.0	--- U	--- U	--- U	--- U	--- U
10. Butyl Benzyl Phthalate	5.78	10.0	--- U	--- U	--- U	--- U	--- U
11. Bis-(2-Chloroethoxy) Methane	3.14	10.0	--- U	--- U	--- U	--- U	--- U
12. Bis-(2-Chloroethyl) Ether	2.58	10.0	--- U	--- U	--- U	--- U	--- U
13. Bis-(2-Chloroisopropyl) Ether	2.58	10.0	--- U	--- U	--- U	--- U	--- U
14. 2-Chloronaphthalene	2.17	10.0	--- U	--- U	--- U	--- U	--- U
15. 4-Chlorophenyl Phenyl Ether	2.42	10.0	--- U	--- U	--- U	--- U	--- U
16. Chrysene	4.04	10.0	--- U	--- U	--- U	--- U	--- U
17. Dibenzo[a,h]anthracene	2.78	10.0	--- U	--- U	--- U	--- U	--- U
18. Di-N-Butyl Phthalate	3.09	10.0	--- U	--- U	--- U	--- U	--- U
19. Dimethyl Phthalate	3.78	10.0	--- U	--- U	--- U	--- U	--- U
20. Diethyl Phthalate	3.92	6000	--- U	--- U	--- U	--- U	--- U
21. 2,4-Dinitrotoluene	3.95	10.0	--- U	--- U	--- U	--- U	--- U
22. 2,6-Dinitrotoluene	3.88	10.0	--- U	--- U	--- U	--- U	--- U
23. Di-N-Octyl Phthalate	2.81	10.0	--- U	--- U	--- U	--- U	--- U
24. Bis-(2-Ethylhexyl) Phthalate	9.97	15.0	--- U	--- U	--- U	--- U	--- U
25. Fluoranthene	3.92	10.0	--- U	--- U	--- U	--- U	--- U
26. Fluorene	2.95	10.0	--- U	--- U	--- U	--- U	--- U
27. Hexachlorobenzene	2.61	10.0	--- U	--- U	--- U	--- U	--- U
28. Hexachlorocyclopentadiene	4.16	10.0	--- U	--- U	--- U	--- U	--- U
29. Indeno[1,2,3-Cd]pyrene	2.91	10.0	--- U	--- U	--- U	--- U	--- U
30. Isophorone	3.74	10.0	--- U	--- U	--- U	--- U	--- U
31. Nitrobenzene	2.85	10.0	--- U	--- U	--- U	--- U	--- U
32. N-Nitrosodimethylamine	4.25	10.0	--- U	--- U	--- U	--- U	--- U
33. N-Nitrosodiphenylamine	3.95	10.0	--- U	--- U	--- U	--- U	--- U
34. N-Nitrosodi-N-Propylamine	4.06	10.0	--- U	--- U	--- U	--- U	--- U
35. Phenanthrene	3.24	10.0	--- U	--- U	--- U	--- U	--- U
36. Pyrene	3.63	10.0	--- U	--- U	--- U	--- U	--- U
37. 4-Chloro-3-Methylphenol	3.79	20.0	--- U	--- U	--- U	--- U	--- U
38. 2-Chlorophenol	2.75	10.0	--- U	--- U	--- U	--- U	--- U
39. O-Cresol	3.68	10.0	--- U	--- U	--- U	--- U	--- U
40. P-Cresol	4.12	10.0	--- U	--- U	--- U	--- U	--- U
41. 2,4-Dichlorophenol	5.19	10.0	--- U	--- U	--- U	--- U	--- U
42. 2,6-Dichlorophenol	4.89	10.0	--- U	--- U	--- U	--- U	--- U
43. 2,4-Dimethylphenol	3.21	10.0	--- U	--- U	--- U	--- U	--- U
44. 4,6-Dinitro-2-Methylphenol	4.77	50.0	--- U	--- U	--- U	--- U	--- U
45. 2,4-Dinitrophenol	4.37	50.0	--- U	--- U	--- U	--- U	--- U
46. Ethyl Methanesulfonate	5.26	20.0	--- U	--- U	--- U	--- U	--- U
47. Methyl Methanesulfonate	4.92	10.0	--- U	--- U	--- U	--- U	--- U
48. 2-Nitrophenol	3.64	10.0	--- 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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

REVIEWED BY:

CLIENT ID: 6031 A

ANALYST: CHS
DATE COLLECTED: 10/20/11
DATE EXTRACTED: 10/25/11
DATE ANALYZED: 11/07/11
DATE REPORTED: 11/15/11

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	MW-4D	MW-5A	MW-7D	MW-8D	MW-9D
49. 4-Nitrophenol	3.17	50.0	--- U	--- U	--- U	--- U	--- U
50. Pentachlorophenol	5.33	25.0	--- U	--- U	--- U	--- U	--- U
51. Phenol	1.86	10.0	--- U	--- U	--- U	--- U	--- U
52. 2,3,4,6-Tetrachlorophenol	3.12	10.0	--- U	--- U	--- U	--- U	--- U
53. 2,4,5-Trichlorophenol	4.17	10.0	--- U	--- U	--- U	--- U	--- U
54. 2,4,6-Trichlorophenol	3.84	10.0	--- U	--- U	--- U	--- U	--- U
55. Acetophenone	2.89	10.0	--- U	--- U	--- U	--- U	--- U
56. 2-Acetylaminofluorene	3.98	20.0	--- U	--- U	--- U	--- U	--- U
57. 4-Aminobiphenyl	4.12	20.0	--- U	--- U	--- U	--- U	--- U
58. Benzyl Alcohol	4.47	20.0	--- U	--- U	--- U	--- U	--- U
59. 4-Chloroaniline	3.36	20.0	--- U	--- U	--- U	--- U	--- U
60. Chlorobenzilate	5.12	10.0	--- U	--- U	--- U	--- U	--- U
61. Diallate	2.98	10.0	--- U	--- U	--- U	--- U	--- U
62. Dibenzofuran	4.28	10.0	--- U	--- U	--- U	--- U	--- U
63. 3,3-Dichlorobenzidine	4.22	20.0	--- U	--- U	--- U	--- U	--- U
64. Dimethoate	3.98	20.0	--- U	--- U	--- U	--- U	--- U
65. P-Dimethylaminoazobenzene	2.89	10.0	--- U	--- U	--- U	--- U	--- U
66. 7,12-Dimethylbenz[a]anthracene	5.26	10.0	--- U	--- U	--- U	--- U	--- U
67. 3,3-Dimethylbenzadine	3.21	10.0	--- U	--- U	--- U	--- U	--- U
68. 1,3-Dinitrobenzene	2.89	20.0	--- U	--- U	--- U	--- U	--- U
69. Diphenylamine	5.10	10.0	--- U	--- U	--- U	--- U	--- U
70. Disulfoton	4.28	10.0	--- U	--- U	--- U	--- U	--- U
71. Famphur	3.98	20.0	--- U	--- U	--- U	--- U	--- U
72. Hexachloropropene	4.31	10.0	--- U	--- U	--- U	--- U	--- U
73. Isosafrole	2.88	10.0	--- U	--- U	--- U	--- U	--- U
74. Kepone	2.78	20.0	--- U	--- U	--- U	--- U	--- U
75. Methapyrilene	3.54	100.0	--- U	--- U	--- U	--- U	--- U
76. 3-Methylchloroanthrene	4.21	10.0	--- U	--- U	--- U	--- U	--- U
77. 2-Methylnaphthalene	3.79	10.0	--- U	--- U	--- U	--- U	--- U
78. Methyl Parathion	4.32	10.0	--- U	--- U	--- U	--- U	--- U
79. m-Cresol	3.81	10.0	--- U	--- U	--- U	--- U	--- U
80. 1,4-Naphthoquinone	4.00	10.0	--- U	--- U	--- U	--- U	--- U
81. 1-Naphthylamine	5.61	10.0	--- U	--- U	--- U	--- U	--- U
82. 2-Naphthylamine	4.62	10.0	--- U	--- U	--- U	--- U	--- U
83. 2-Nitroaniline	3.61	50.0	--- U	--- U	--- U	--- U	--- U
84. 3-Nitroaniline	4.81	50.0	--- U	--- U	--- U	--- U	--- U
85. 4-Nitroaniline	4.22	20.0	--- U	--- U	--- U	--- U	--- U
86. 5-Nitro-O-Toluidine	4.01	10.0	--- U	--- U	--- U	--- U	--- U
87. N-Nitrosodi-n-butylamine	3.63	10.0	--- U	--- U	--- U	--- U	--- U
88. N-Nitrosodiethylamine	3.83	20.0	--- U	--- U	--- U	--- U	--- U
89. N-Nitrosomethylethylamine	3.83	10.0	--- U	--- U	--- U	--- U	--- U
90. N-Nitrosopiperidine	5.19	20.0	--- U	--- U	--- U	--- U	--- U
91. N-Nitrosopyrrolidine	2.89	10.0	--- U	--- U	--- U	--- U	--- U
92. Parathion	3.12	10.0	--- U	--- U	--- U	--- U	--- U
93. Pentachlorobenzene	3.92	10.0	--- U	--- U	--- U	--- U	--- U
94. Pentachloronitrobenzene	3.71	20.0	--- U	--- U	--- U	--- U	--- U
95. Phenacetin	4.41	20.0	--- U	--- U	--- U	--- U	--- U
96. 1,4 Benzenediamine	2.99	10.0	--- U	--- U	--- U	--- U	--- U

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

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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 A

ANALYST: CHS
DATE COLLECTED: 10/20/11
DATE EXTRACTED: 10/25/11
DATE ANALYZED: 11/07/11
DATE REPORTED: 11/15/11

REVIEWED BY:

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	MW-4D	MW-5A	MW-7D	MW-8D	MW-9D
97. Phorate	3.86	10.0	--- U	--- U	--- U	--- U	--- U
98. Pronamide	3.69	10.0	--- U	--- U	--- U	--- U	--- U
99. Safrole	4.12	10.0	--- U	--- U	--- U	--- U	--- U
100. 1,2,4,5-Tetrachlorobenzene	5.01	10.0	--- U	--- U	--- U	--- U	--- U
101. Thionazin	4.62	20.0	--- U	--- U	--- U	--- U	--- U
102. O-Toluidine	4.11	10.0	--- U	--- U	--- U	--- U	--- U
103. 1,3,5-Trinitrobenzene	3.98	10.0	--- U	--- U	--- U	--- U	--- U
104. 0,0,0-Triethyl Phosphorothioate	3.61	10.0	--- U	--- U	--- U	--- U	--- U
105. Hexachloroethane	1.49	10.0	--- U	--- U	--- U	--- U	--- U
106. Isodrin	3.11	20.0	--- 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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 A

ANALYST: MAO
DATE COLLECTED: 10/20/11
DATE REPORTED: 11/15/11

REVIEWED BY:

LANDFILL APPENDIX II
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	10/24/11 MW-4D	10/24/11 MW-5A	10/25/11 MW-7D	10/25/11 MW-8D	10/25/11 MW-9D
	Date Analyzed:						
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	0.60 J	--- 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. trana-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	0.70 J	2.30 J	1.10 J	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U	4.10 J	0.40 J	--- 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	0.50 J	0.30 J	--- U
21. 1,2-Dichloroethane	0.21	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	0.30 J	0.30 J	--- 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	0.30 J	--- 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	8.80	1.40 J	--- 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	5.80	0.90 J	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	0.40 J	--- 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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 A

ANALYST: MAO
DATE COLLECTED: 10/20/11
DATE REPORTED: 11/15/11

REVIEWED BY:

LANDFILL APPENDIX II
EPA METHOD 8260B

PARAMETERS, ug/l	Date Analyzed: MDL	SWSL	10/24/11 MW-4D	10/24/11 MW-5A	10/25/11 MW-7D	10/25/11 MW-8D	10/25/11 MW-9D
48. Acrolein	40.57	53.0	--- U	--- U	--- U	--- U	--- U
49. Allyl Chloride	0.20	10.0	--- U	--- U	--- U	--- U	--- U
50. Chloroprene	0.21	20.0	--- U	--- U	--- U	--- U	--- U
51. 1,3-Dichlorobenzene	0.41	5.0	--- U	--- U	--- U	--- U	--- U
52. Dichlorodifluoromethane	0.51	5.0	--- U	--- U	--- U	--- U	--- U
53. 1,3-Dichloropropane	0.28	1.0	--- U	--- U	--- U	--- U	--- U
54. 2,2-Dichloropropane	0.17	15.0	--- U	--- U	--- U	--- U	--- U
55. 1,1-Dichloropropene	0.22	5.0	--- U	--- U	--- U	--- U	--- U
56. Ethyl Methacrylate	0.16	10.0	--- U	--- U	--- U	--- U	--- U
57. Hexachlorobutadiene	0.57	10.0	--- U	--- U	--- U	--- U	--- U
58. Ieobutyl Alcohol	12.80	100.0	--- U	--- U	--- U	--- U	--- U
59. Methacrylonitrile	1.93	100.0	--- U	--- U	--- U	--- U	--- U
60. Methyl Methecrylate	0.25	30.0	--- U	--- U	--- U	--- U	--- U
61. Naphthalene	0.47	10.0	--- U	--- U	--- U	--- U	--- U
62. Propionitrile	3.26	150.0	--- U	--- U	--- U	--- U	--- U
63. 1,2,4-Trichlorobenzene	0.50	10.0	--- U	--- U	--- U	--- U	--- U
64. Acetonitrile	36.29	55.0	--- U	--- U	--- U	--- U	--- U

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

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
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CLIENT: JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 E

ANALYST: MAO
DATE COLLECTED: 10/20/11
DATE ANALYZED: 10/24/11
DATE REPORTED: 10/31/11

REVIEWED BY: _____

LANDFILL APPENDIX II
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Equipment Blank	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	3.10 J	--- 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	0.21	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	0.30 J	--- 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
48. Acrolein	40.57	53.0	--- 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 COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 E

ANALYST: MAO
DATE COLLECTED: 10/20/11
DATE ANALYZED: 10/24/11
DATE REPORTED: 10/31/11

REVIEWED BY:

LANDFILL APPENDIX II
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Equipment Blank	Trip Blank
49. Allyl Chloride	0.20	10.0	--- U	--- U
50. Chloroprene	0.21	20.0	--- U	--- U
51. 1,3-Dichlorobenzene	0.41	5.0	--- U	--- U
52. Dichlorodifluoromethane	0.51	5.0	--- U	--- U
53. 1,3-Dichloropropane	0.28	1.0	--- U	--- U
54. 2,2-Dichloropropane	0.17	15.0	--- U	--- U
55. 1,1-Dichloropropene	0.22	5.0	--- U	--- U
56. Ethyl Methacrylate	0.16	10.0	--- U	--- U
57. Hexachlorobutadiene	0.57	10.0	--- U	--- U
58. Isobutyl Alcohol	12.80	100.0	--- U	--- U
59. Methacrylonitrile	1.93	100.0	--- U	--- U
60. Methyl Methacrylate	0.25	30.0	--- U	--- U
61. Naphthalene	0.47	10.0	--- U	--- U
62. Propionitrile	3.26	150.0	--- U	--- U
63. 1,2,4-Trichlorobenzene	0.50	10.0	--- U	--- U
64. Acetonitrile	36.29	55.0	--- U	--- U

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

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

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

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

ID#: 6054

JOHNSTON CO., (PHASE 4A)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD ,NC 27577

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

REVIEWED BY:

PARAMETERS	MDL	Leak SWSL	Leak Detect	Leachate Jun Box	Analysis Date	Analyst	Method Code
BOD, mg/l	2.0	2.0	18	21	10/28/11	TRB	SM5210B
COD, mg/l	20.0	20.0	106	944	11/03/11	TRB	HACH8000
Total Suspended Reeidue, mg/l	1.0	1.0	34	40	10/28/11	MEL	SM2540D
Ammonia Nitrogen ae N, mg/l	0.04	0.04	84.60	549	11/01/11	ANO	EPA350.1
Nitrate Nitrogen as N, mg/l	0.03	10.0	--- U	--- U	11/02/11	ANO	EPA353.2
Total Phosphorus as P, mg/l	0.04	0.04	0.21	1.76	11/03/11	SEJ	EPA365.4
Sulfate, mg/l	5.0	250.0	--- U	--- U	11/01/11	TRB	SM426C
Antimony, ug/l	0.14	6.0	--- U	1.4 J	11/10/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0	5.1 J	8 J	11/10/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0	253	298	11/10/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	0.11 J	--- U	11/10/11	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	--- U	0.97 J	11/10/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	2.0 J	18	11/10/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	3.4 J	6.2 J	11/10/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	0.58 J	16	11/10/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	0.06 J	0.22 J	11/10/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	2.5 J	75	11/10/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	1.3 J	12	11/10/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0	--- U	0.20 J	11/10/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5	--- U	--- U	11/10/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	1.9 J	11.2 J	11/10/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	4.4 J	42	11/10/11	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

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FAX (252) 756-0633

CLIENT: JOHNSTON CO., (PHASE 4A)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6054

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	Leak Detect	Leachate Jun Box
1. Chloromethane	0.77	1.0	--- U	1.30
2. Vinyl Chloride	0.63	1.0	20.80	--- U
3. Bromomethane	0.67	10.0	--- U	--- U
4. Chloroethane	0.48	10.0	0.80 J	0.50 J
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U
7. Acetone	9.06	100.0	31.80 J	46.10 J
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	0.60 J	0.30 J
12. 1,1-Dichloroethane	0.20	5.0	0.80 J	0.30 J
13. Vinyl Acetate	0.20	50.0	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	3.90 J	0.30 J
15. 2-Butanone	2.21	100.0	52.50 J	11.50 J
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	32.70	11.20
21. 1,2-Dichloroethane	0.27	1.0	3.10	1.20
22. Trichloroethene	0.23	1.0	0.90 J	--- U
23. 1,2-Dichloropropane	0.21	1.0	1.50	0.30 J
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	7.40 J	--- U
27. Toluene	0.23	1.0	69.50	2.90
28. trane-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	2.10 J	2.50 J
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U
36. Ethylbenzene	0.21	1.0	67.20	16.40
37. Xylenes	0.68	5.0	115.00	55.20
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	14.10	10.20
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.

Johnston County

DEPARTMENT of PUBLIC UTILITIES

Solid Waste Division

FIELD MEASUREMENTS

Old Landfill (Phases 1 - 4)

November 3rd, 2011

"Fall 2011" Groundwater Sampling Event (performed 10/17/11 through 10/20/11)

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

⊙DEDICATED WELLS⊙

Well Identification #	Static Water Level (ft) **(DTW)**	Temperature (°Celsius)	Turbidity (NTU)	Specific Conductivity (uS/cm)	pH
MW – 3	**BPH**	**IWV**	**IWV**	**IWV**	**IWV**
MW – 4B	6.57	22.41	19.3	1720	6.64
MW – 6	42.56	20.39	4.63	322	6.07
MW – 7	24.53	19.85	1.68	2200	6.37
MW – 10	8.34	17.61	103	106	6.93
MW – 11	11.13	17.75	4.92	165	6.73
MW – 12B	31.22	18.62	1.46	402	5.78

⊙NON – DEDICATED WELLS and Surface Water Points⊙

Well Identification #	Static Water Level (ft.) **(DTW)**	Depth of Well (ft.)	Amount Bailed (Liters)	Temperature (°Celsius)	Turbidity (NTU)	Specific Conductivity (uS/cm)	pH
Piezometer #3	9.73	17.91	16	21.88	4.03	583	6.09
MW – 4D	3.55	71.31	127	19.75	2.30	113	7.12
MW – 5A	18.62	26.52	15	18.25	18.4	29	5.79
MW – 7D	8.72	33.02	46	18.89	1.73	1385	6.25
MW-8A	8.08	16.94	10*	19.15	176	644	5.63
MW-8D	8.06	36.03	53	18.81	38.4	461	6.02
MW – 9C	16.35	16.62	<1/10*	**IWV**	**IWV**	**IWV**	**IWV**
MW – 9D	11.55	43.22	59	17.37	1.57	137	7.13
MW – 14D	10.50	33.91	44	16.44	1.82	829	6.95
MW - 15D	9.80	27.02	33	17.60	15.6	307	7.11
MW – 16D	10.17	26.17	30	18.11	3.44	276	5.62
MW – 17	18.21	32.19	27	19.90	240	2120	6.13
SWPT-1A	N/A	N/A	N/A	14.39	2.99	240	7.33
SWPT-2	N/A	N/A	N/A	15.28	5.28	372	7.09

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

Johnston County
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Solid Waste Division
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November 3rd, 2011

Summary of "Fall 2011" Groundwater Sampling Event for Old Landfill (Phases 1 – 4) performed 10/17/2011 through 10/20/2011.

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

On 10/17/11, Surface Water Points 1A, 2 and non-dedicated wells MW-14D, MW-15D, MW-16D, MW-8A, MW-17 and Piezometer #3 were bailed and sampled. On the following day, 10/18/11, dedicated wells MW-12B, MW-6, MW-7, MW-4B were purged and sampled. In addition, while attempting to purge MW-3 it was determined that it did not have the ability to produce water. On 10/19/11, bailing was performed on MW-4D, MW-5A, MW-7D, MW-8D, MW-9C and MW-9D. Less than 1/10th of a bailer was retrieved from MW-9C before it went dry. On the final day, 10/20/11, these aforementioned wells were sampled within the 24 hour time limit along with dedicated wells MW-10 and MW-11. However, Well-9C was completely dry; therefore, no sampling could be performed.

Appendix I sampling was performed on Surface Water Points – 1A & 2 and Monitoring Wells 14D, 15D, 16D, 8A & 17. All other wells were sampled for Appendix II parameters (see list at bottom).

Comments:

- Field analysis included pH, specific conductivity, temperature and turbidity.
- All wells were in good physical and mechanical condition; however, a large nest of ants was established in the Teflon tubing of MW-11. This was however successfully cleared.
- All wells both dedicated and non-dedicated were purged or bailed, respectively, in accordance with North Carolina State guidelines prior to sampling.
- Once again, MW-3 and MW-9C were not able to be sampled because of no water generation.
- Water from *Wells MW-16D, PZ # 3, 4B, 7, & 12B* again emitted a sulfur odor and all exhibited higher specific conductivity readings. Water from wells PZ # 3, MW-4B, MW-7 & MW-12B caused flocculation in the cyanide and sulfide containers with preservative.
- Water from *MW-4B* had a slight amount of black particulate matter floating in it.
- Water from *Well 10* would fluctuate in appearance between a cloudy brown to clear.
- For the first two days, 10/17/11 and 10/18/11, ambient air temperatures ranged from the low- 60's in morning to approximately 80 (°F) in the afternoon. 10/19/11 and 10/20/11 were cooler with temperatures in the mid-60's and mid-50's to low-60's (°F), respectively.
- After each sampling day, all containers were placed on ice and then picked up by Environment 1 the next day at the landfill.
- Surface water and groundwater levels were noticeably lower than usual.

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

Appendix I sample containers consisted of:

- At least two 40-ml glass vials – EPA 8260B VOC and Duplicate.
- One 947-ml plastic bottle – 6010 Metals.

At each Appendix II well site the following containers were filled for their corresponding analytes:

- At least two 40-ml glass vials – EPA 8260B VOC and Duplicate.
- (Two) 1liter glass bottles – EPA 8081B & Duplicate.
- (Two) 1liter glass bottles – EPA 8270C & Duplicate.
- (One) 1liter glass bottle – EPA 8151A.
- One 947-ml plastic bottle – 6010 Metals.
- One 237 ml plastic bottle – Sulfide.
- One 237 ml plastic bottle – Cyanide.

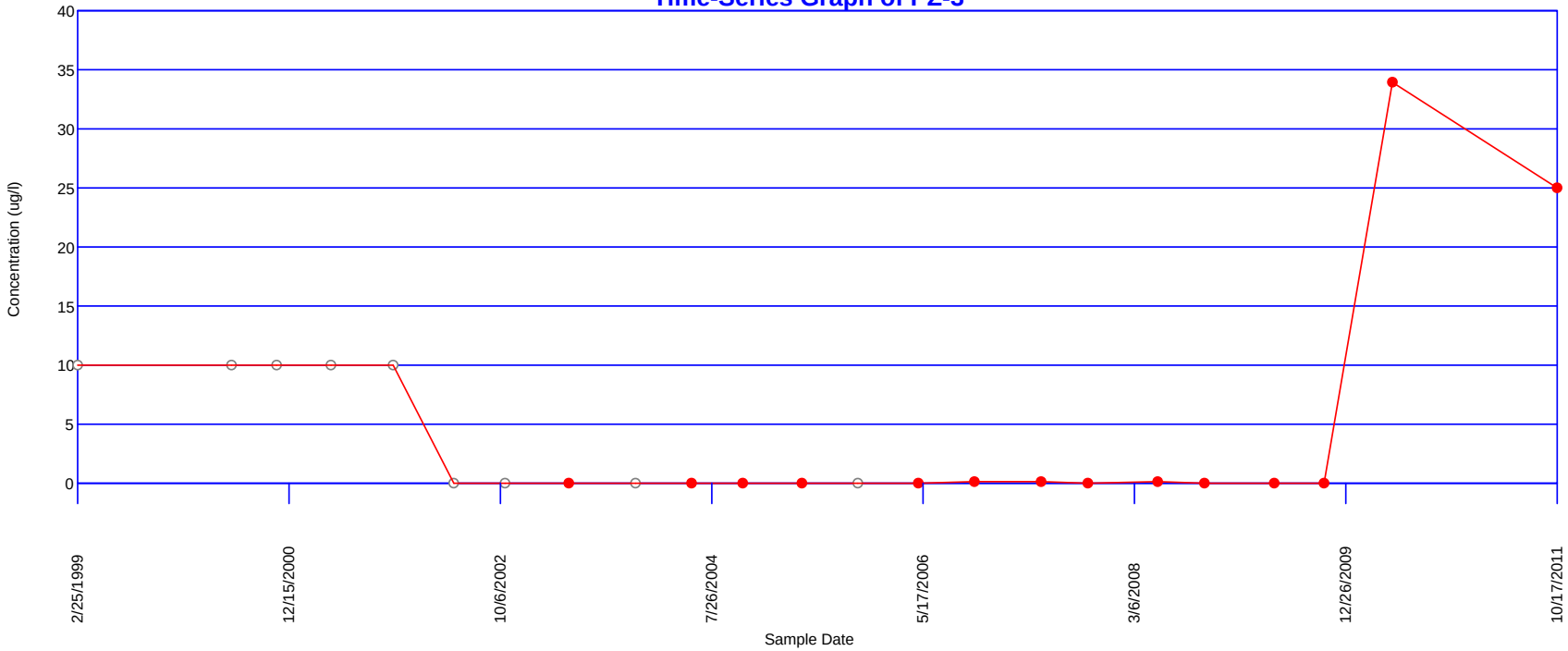
Kevin J. Shields
Johnston County Solid Waste Division

Appendix C

Time vs. Concentration Graphs

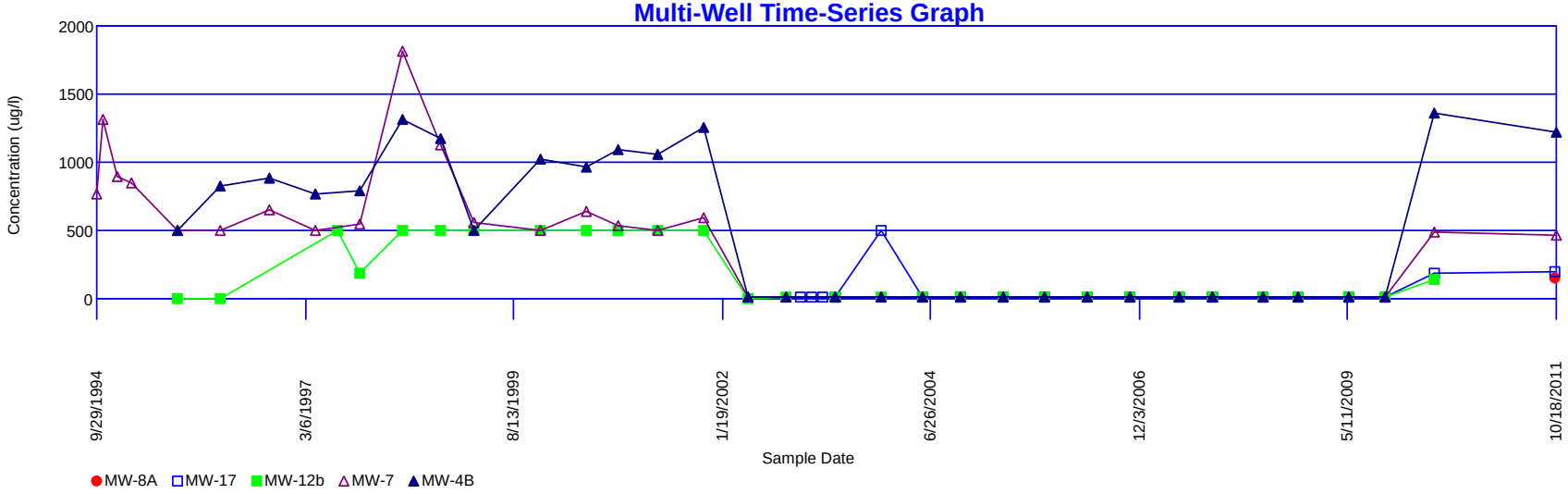
Arsenic

Time-Series Graph of PZ-3



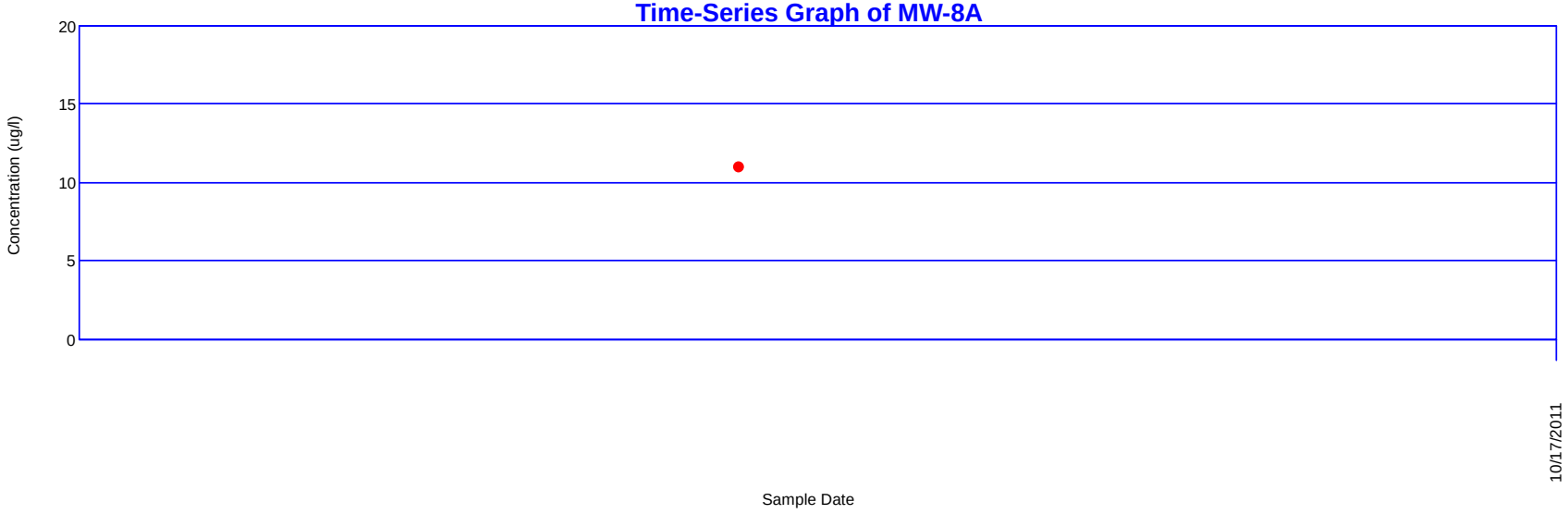
Barium

Multi-Well Time-Series Graph



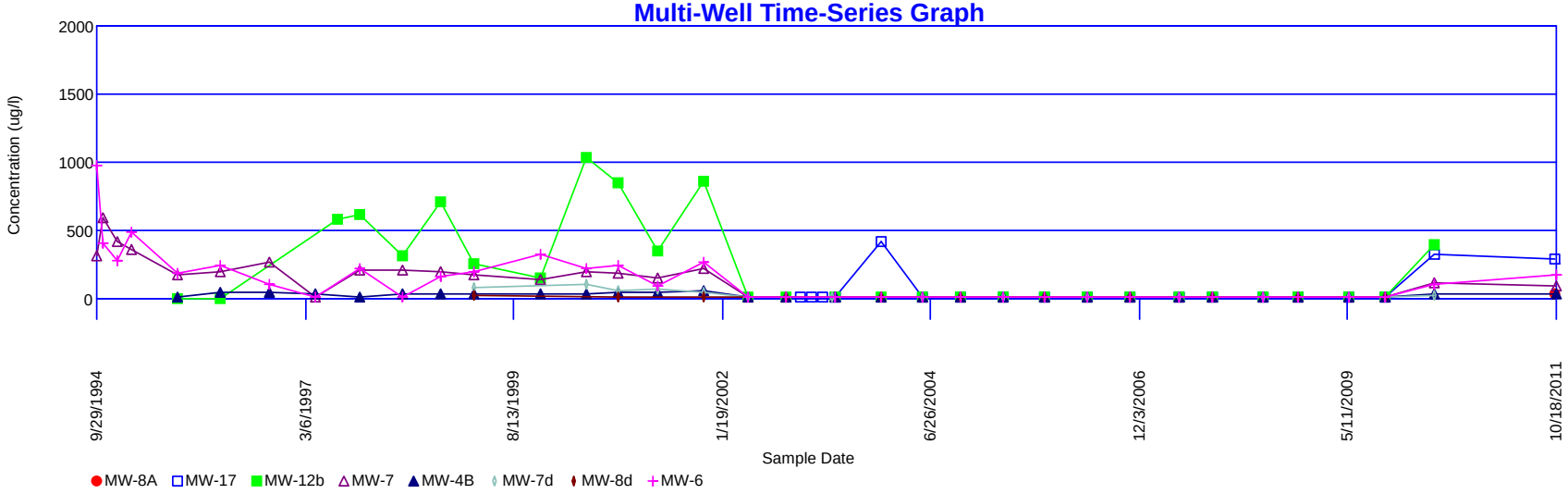
Total Chromium

Time-Series Graph of MW-8A



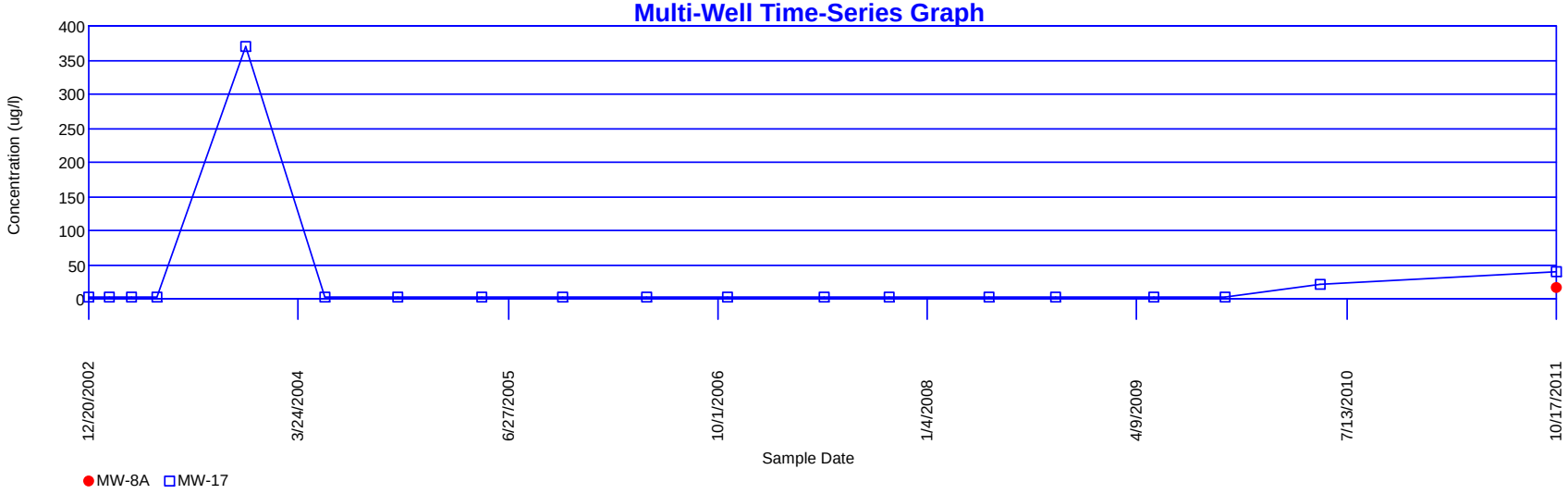
Cobalt

Multi-Well Time-Series Graph



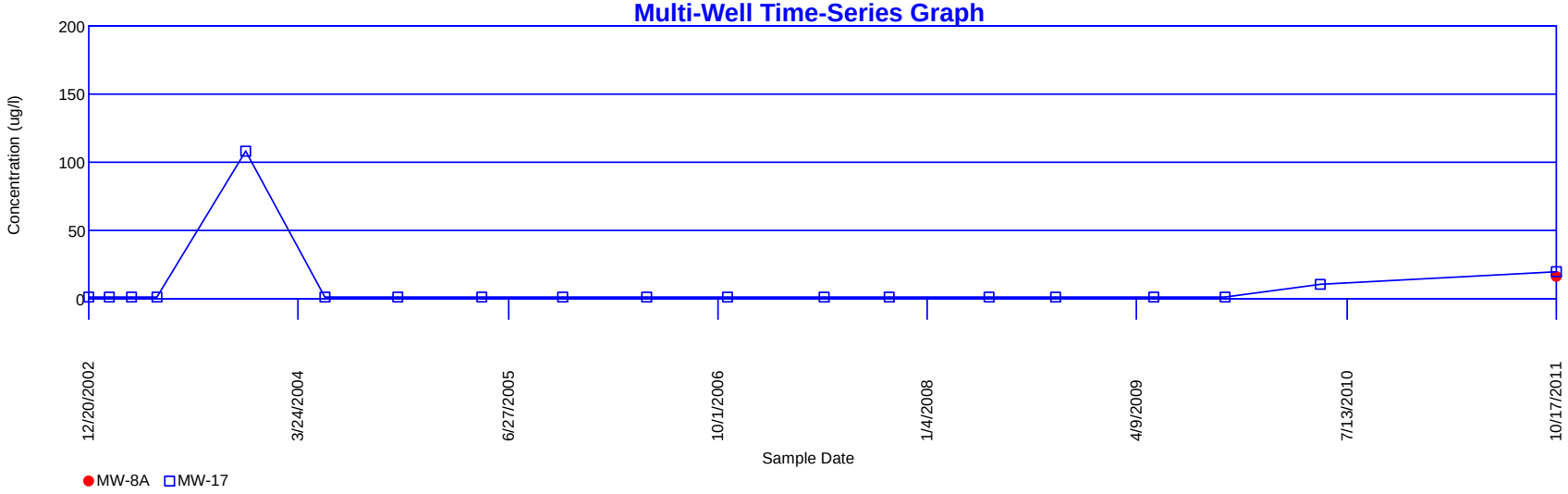
Copper

Multi-Well Time-Series Graph



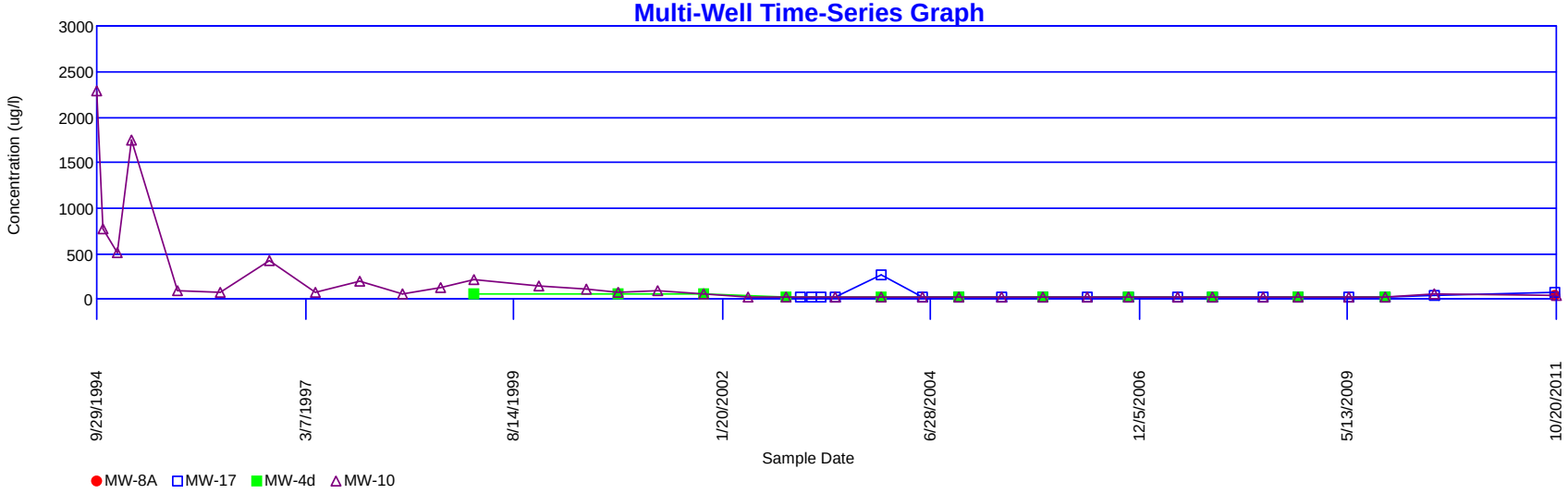
Lead, total

Multi-Well Time-Series Graph



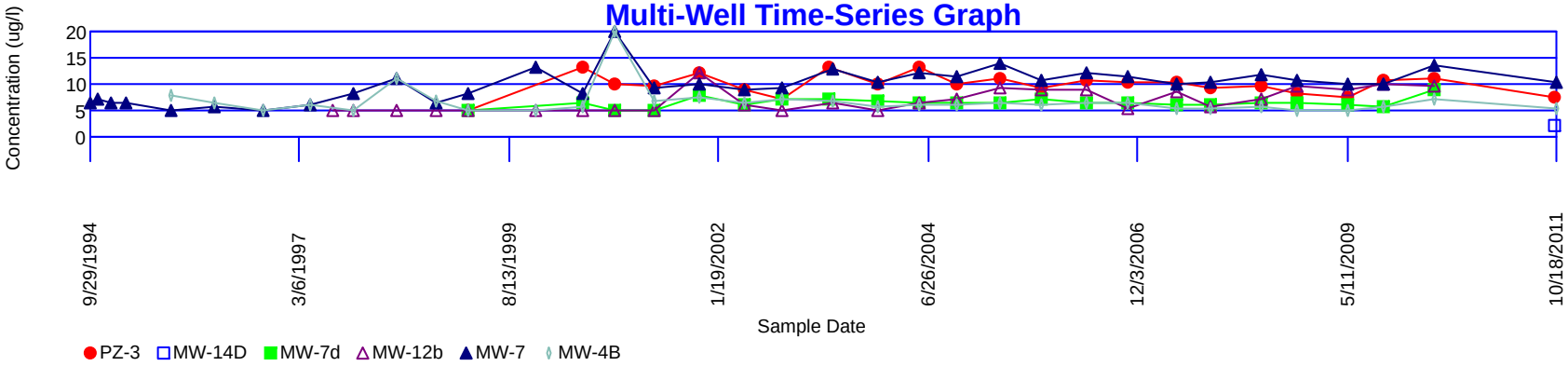
Zinc

Multi-Well Time-Series Graph



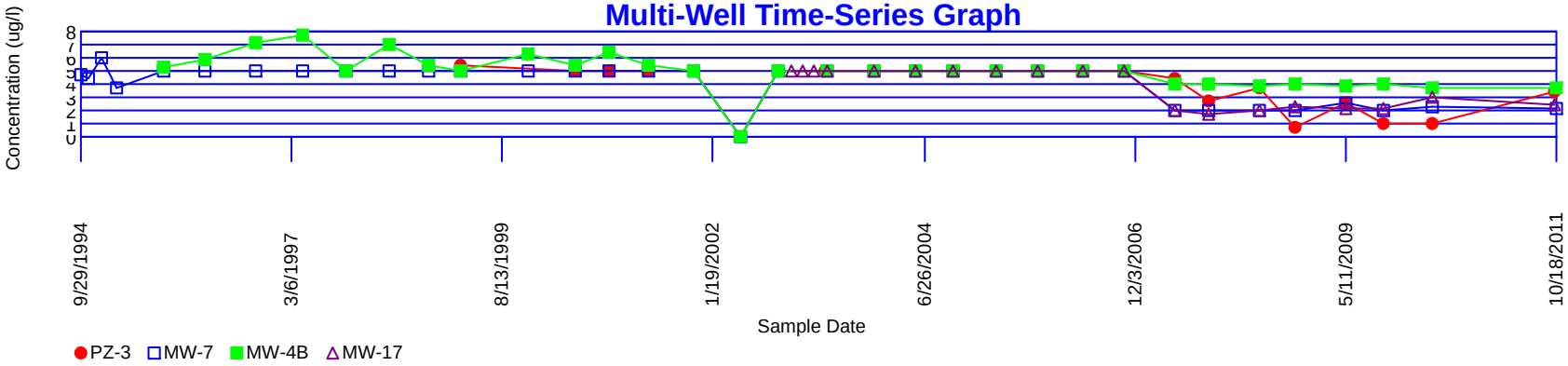
1,4-Dichlorobenzene

Multi-Well Time-Series Graph



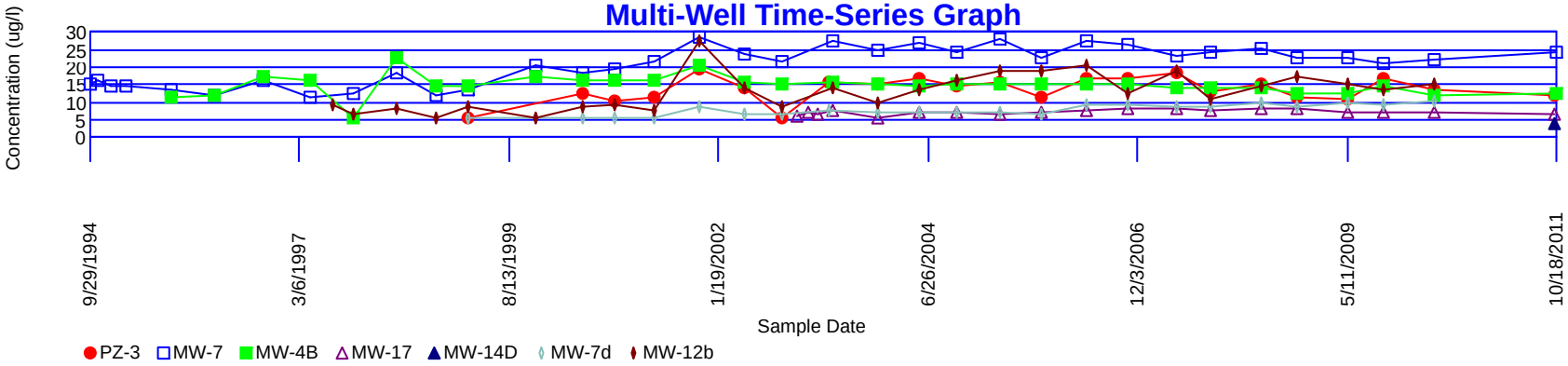
Benzene

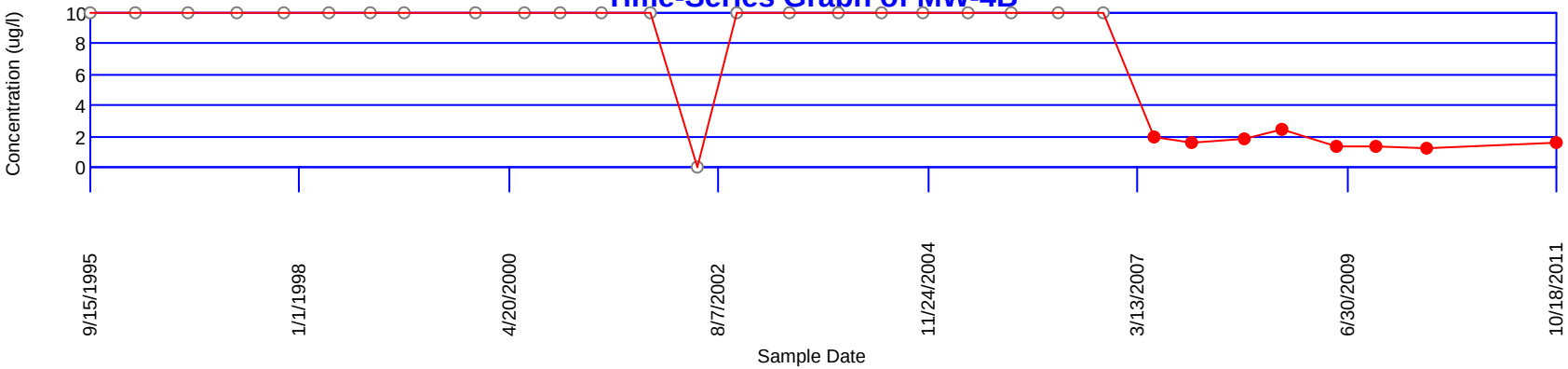
Multi-Well Time-Series Graph



Chlorobenzene

Multi-Well Time-Series Graph



Vinyl chloride

Time-Series Graph of MW-4B