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: Joan A. Smyth, P.G. Phone: 919-828-0577 x 221

E-mail: joan@rsgengineers.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Johnston Co. County Closed Phase 5 MSW Landfill	County Home Road Smithfield, NC	51-03	.1600	May 19th - 23rd

Environmental Status: (Check all that apply)

☐ Initial/Background Monitoring ☒ Detection Monitoring ☐ Assessment Monitoring ☐ Corrective Action

Type of data submitted: (Check all that apply)

☒ Groundwater monitoring data from monitoring wells
☐ Groundwater monitoring data from private water supply wells
☐ Leachate monitoring data
☒ Surface water monitoring data
☐ Methane gas monitoring data
☐ Corrective action data (specify) _____
☐ Other(specify) _____

Notification attached?

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

Certification

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

Joan A. Smyth, P.G. — Facility Representative Name (Print)

Senior Hydrogeologist — Title

919-828-0577 x 221 — (Area Code) Telephone Number

Joan A. Smyth — Signature

9/30/11 — Date

Affix NC Licensed/ Professional Geologist Seal

NORTH CAROLINA LICENSED SEAL 1369 GEOLOGIST JOAN A. SMYTH

9/30/11

14 N. Boylan Avenue Raleigh, NC 27603

Facility Representative Address

C-0828

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

Revised 6/2009

Johnston County Landfill
Phase 5

Ground Water Monitoring Report

Spring 2011 Semi-annual
Monitoring Event

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

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

September 2011

RICHARDSON SMITH GARDNER
& ASSOCIATES
ENGINEERING & GEOLOGICAL
SERVICES

Spring 2011 Ground Water Monitoring Report

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309 East Market Street
Smithfield, North Carolina 27577

RSG Project No. **Johnston - 4**

Joan A. Smyth, P.G.
Senior Hydrogeologist

NORTH CAROLINA LICENSED SEAL 1369 GEOLOGIST JOAN A. SMYTH

September 2011

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

PRINTED ON 100% RECYCLED PAPER

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

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1.0 Introduction

Johnston County formerly operated a Subtitle-D landfill under Solid Waste Permit # 51-03 (Phase 5). This report presents the results of the first semi-annual ground water monitoring event for 2011 for Phase 5, conducted on May 19th through May 23rd 2011. This event was performed to comply with the semi-annual monitoring schedule required by NC Solid Waste Regulations.

The ground water monitoring network for the Phase 5 landfill includes 10 ground water monitoring wells and four leachate lagoon monitoring wells. This report includes summaries of the field procedures, laboratory analyses, statistical analyses, and ground water characterization for the Phase 5 unit. Also included are graphs of the data, and laboratory analytical reports.

2.0 Site Geology

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

The thickness of the Middendorf Formation is controlled by topography with the bottom being relatively flat-lying at elevations of approximately 170 fmsl. The thickness of the unconsolidated sediment ranges from approximately 65 feet to less than 10 feet in the lower elevations surrounding the landfill.

3.0 Sampling Procedures

The sampling event, performed by trained personnel from Johnston County Landfill, consisted of collecting samples from 10 ground water monitoring wells (MW-5-1, MW-5-2, MW-5-3, MW-5-4, MW-5-5, MW-5-6, MW-5-7, MW-5-8, MW-5-9, and MW-5-10), shown in **Figure 1**. The sampling was conducted in accordance with the approved site Water Quality Monitoring Plan. Also included in the analysis was a trip blank for quality control. Surface water samples were collected from two locations (SW-5-1 and SW-5-2) up and downstream from the landfill unit on an unnamed tributary of Middle Creek.

Sampling methods followed the protocol outlined in the North Carolina Water Quality Monitoring Guidance Document for Solid Waste Facilities (NCDENR, DWM). The depth to water in each well was gauged prior to purging and sampling. Field measurements of pH, specific conductivity, and temperature were obtained from each well. Water table elevations and field parameter results are included in **Tables 1 and 2**, respectively.

All samples were collected by Johnston County personnel in laboratory prepared containers for the specified analytical procedures. Samples were obtained through dedicated Micropurge low flow pumps. Ground water samples were properly preserved, placed on ice, and transported to the laboratory facility, Environment 1, Inc., within the specified holding times for each analysis.

4.0 Field and Laboratory Results

4.1 Laboratory Analysis

Ground water samples were collected from the monitoring network associated with the Phase 5 landfill unit using dedicated low-flow pumps. These samples were analyzed for Appendix I constituents.

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. This was evident in the EPA 8260 Volatile scan which included detections of organic compounds not previously detected at the site. These results are included in the lab reports from Environment 1. Data from the fall 2011 sampling event will be carefully evaluated in comparison to this data to determine whether sample contamination occurred.

4.2 Field and Laboratory Results

All samples were transported to the laboratory facility under proper chain of custody analyzed at the specified DWM Solid Waste Section Limits (SWSL)[1] for Appendix I constituents. Monitoring well boring logs are included in **Appendix A**. The laboratory analytical report is included as **Appendix B**.

Ground water and field measurements included in **Table 2**, remained similar to results gathered during previous monitoring events. The laboratory analysis detected three (3) inorganic constituents in all monitoring wells: barium, lead, and zinc. Of these, no inorganic constituents were found above the 2L standard in any monitoring wells.

The laboratory analysis detected one (1) organic constituent, 1,2-dichloropropane, in wells MW-5-2 and MW 5-8. This constituent was found above the 2L standard. The detections of chloromethane, acetone, 1,4 dichlorobenzene, 2-butanone, 1,1 dichloroethane, and cis-1,2 dichloroethane are considered to be suspected field contamination from the use of old hydrochloric acid as a preservative. Most of these detections were below the SWSL and are reported as “J-values”.

There are currently two surface water monitoring points associated with Phase 5 (SW-5-1, and SW-5-2). The laboratory analysis detected one (1) inorganic constituent in SW 5-1 (barium). This constituent was found above the 2L standard. This surface water point is located upgradient of the lined landfill.

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

5.0 Statistical Analysis & Results

5.1 Statistical Analysis

The inorganic laboratory analytical results were entered into our statistical database for the site. Data entry and analysis was performed using the Chempoint/Chemstat™ statistical software package developed specifically for RCRA Subtitle D sites (Starpoint Software, Cincinnati, OH). Chemstat follows EPA and DSWM protocols for approved statistical analysis methods for groundwater data.

The data from this monitoring event was added to our existing database for this site and was reviewed to evaluate the most appropriate analysis methods. Initial analysis consisted of a basic review of the data and of time-concentration graphs (**Appendix C**) to determine any major changes or trends in the data. Non-parametric testing methods were used on most wells due to the lack of normality, in the data. Statistical analysis was performed on detected inorganic constituents using MW-5-1 as background well and MW-5-2, MW-5-3, MW-5-4, MW-5-5, MW-5-6, MW-5-7, MW-5-8, MW-5-9 and MW-5-10 as the compliance wells. The statistical analysis reports are summarized in **Table 4**.

The following inorganic constituents were found to be statistically significant:

- barium (MW-5-4 & MW-5-8); and
- lead (MW-5-4).

These are highlighted on **Table 4**.

5.2 2L/MCL Statistical Analysis

For wells that showed statistically significant differences 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. Each compliance well with statistical significance was re-analyzed against the lower of the 2L or MCL standard as a Ground Water Protection Standard (GWPS).

This analysis was performed using tolerance interval analysis. Since a smaller subset of wells was analyzed during this step, the compliance well data were retested for normal distribution. If the data were normally distributed, parametric tolerance intervals were constructed for each well and compared to the GWPS for each parameter. For those wells not exhibiting normal distribution, Poisson tolerance intervals were constructed. If the distribution of the data was marginally normal, both tests were run to cross-check the results. All of these cross-checks yielded the same results from both test methods.

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

This analysis indicated statistically significant results for:

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

It should be noted that the sample from MW-5-4 had a turbidity level of 60.4 NTU. This could account for the elevated metal constituents detected.

6.0 Ground Water Characterization

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

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

Ground water velocities ranged from 0.004 feet/day (MW-5-10) to 0.577 feet/day (MW-5-2). These calculations are included in **Table 1**. The data indicates that ground water is flowing generally to the north toward Middle Creek. This is consistent with ground water flow patterns previously seen at this site. The potentiometric surface map (**Figure 1**) is also attached for your review.

7.0 Ground Water Assessment

During previous events concentrations of 1,2-dichloropropane were detected. 1,2-dichloropropane has several uses, one of which is as a soil fumigant. Due to the historic use of this property for farming, we believe that is the source of this constituent.

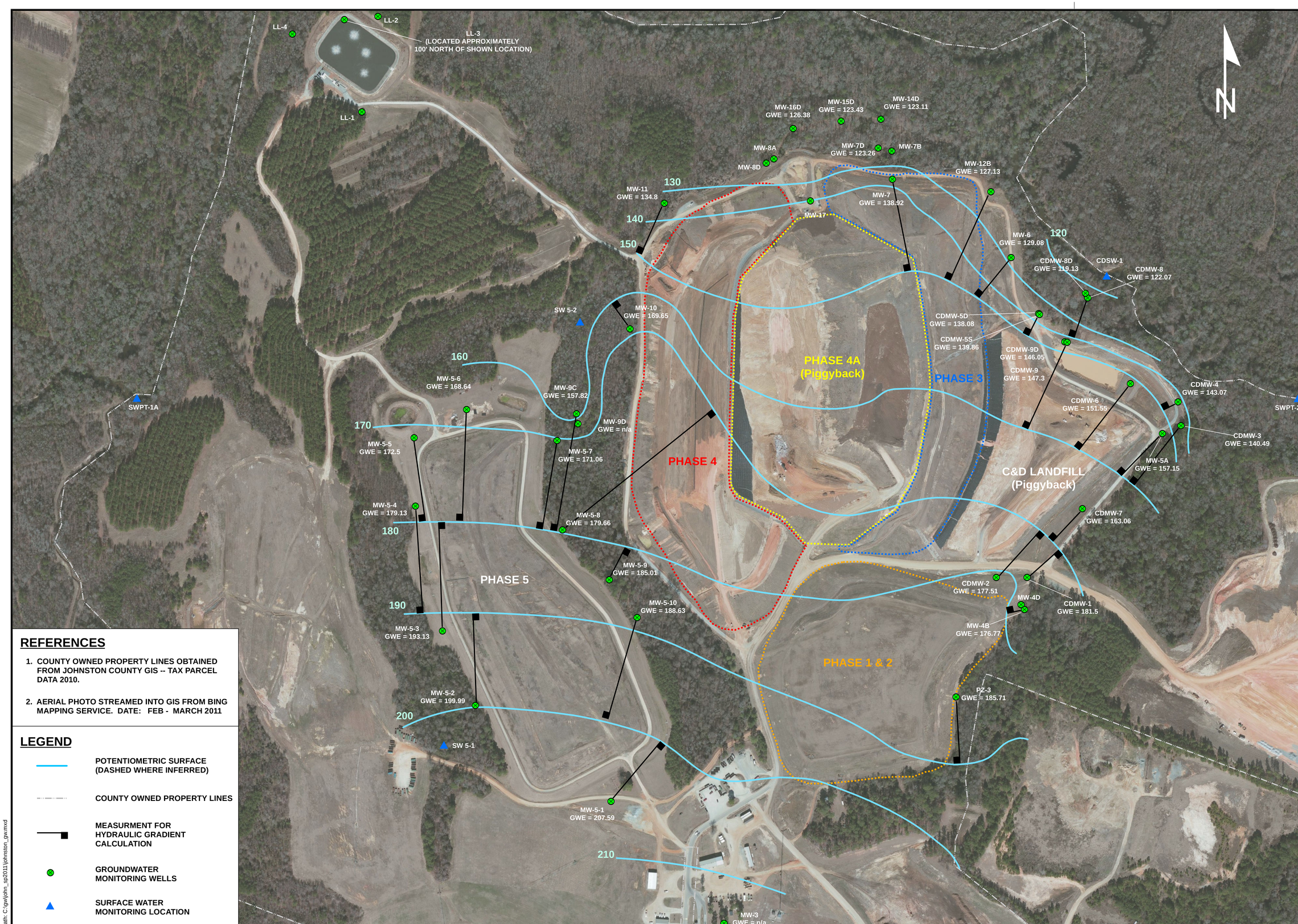
Leachate samples intermittently have had a "J-value" detection of this constituent that is below the Solid Waste Section (SWSL) and orders of magnitude below the detected level in the ground water. During several previous events this constituent has not been detected in leachate at all. Therefore, it is unlikely that the landfill is the source of this impact. Additionally, no other constituent that has been detected in the leachate was found to be present in the samples from these wells. This information further supports the source as historical farming practices.

We will continue to monitor the levels of this constituent during future semi-annual events.

8.0 Conclusions

The results of this monitoring event indicated detection of three constituents; arsenic, cobalt, lead & 1,2-dichloropropane. We believe it to be due to historic farming practices of the site. The next semi-annual sampling event will be performed in fall 2011. These results will be reported upon receipt of the laboratory data and completion of the statistical analyses.

Figures



REFERENCES

1. COUNTY OWNED PROPERTY LINES OBTAINED FROM JOHNSTON COUNTY GIS -- TAX PARCEL DATA 2010.
2. AERIAL PHOTO STREAMED INTO GIS FROM BING MAPPING SERVICE. DATE: FEB - MARCH 2011

LEGEND

- POTENTIOMETRIC SURFACE (DASHED WHERE INFERRED)
- COUNTY OWNED PROPERTY LINES
- MEASURMENT FOR HYDRAULIC GRADIENT CALCULATION
- GROUNDWATER MONITORING WELLS
- SURFACE WATER MONITORING LOCATION

Path: C:\gw\john_sp2011\johnston_gw.mxd

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SEAL

SEAL

PROJECT TITLE:
JOHNSTON COUNTY LANDFILL
SMITHFIELD, NORTH CAROLINA

DRAWING TITLE:
GROUNDWATER
POTENTIOMETRIC SURFACE MAP
SPRING 2010

DESIGNED BY: DMM	DRAWN BY: DMM
CHECKED BY: JAS	PROJECT NO.: John-4
SCALE: AS SHOWN	DATE: 9/4/11
FILE NAME: johnston_gw	
SHEET NO.	DRAWING NO. FIG. 1

Tables

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Table 1
Johnston County Phases 1 - 4, and 4A
Ground Water Elevations & Velocities
5/16-18/2011

Well	Northing	Easting	TOC Elevation	Water Level	GW Elev	Hyd. Cond.	Porosity	Gradient	Velocity
			(feet)	(feet)	(feet)	(ft/day)	(%)	(ft/ft)	(ft/day)
MW-3	641418.01	2169969.56	234.16	nm	nm	18.288	0.2	NA	NA
MW-4B	642957.03	2171444.05	182.97	6.2	176.77	nm	nm	0.032	NA
MW-4d*	642980.96	2171427.56	nm	nm	nm	nm	nm	NA	NA
MW-5A	643820.20	2172120.74	173.70	16.55	157.15	25.344	0.2	0.01	NA
MW-6	644684.58	2171378.66	166.60	37.52	129.08	1.829	0.2	0.082	0.750
MW-7	645068.98	2170795.87	163.24	24.32	138.92	6.941	0.2	0.024	0.833
MW-7d*	645222.32	2170726.50	127.91	4.65	123.26	nm	nm	NA	NA
MW-8a	645147.30	2170177.01	nm	6.12	nm	nm	nm	NA	NA
MW-8d*	645168.55	2170214.84	nm	nm	nm	1.570	nm	NA	NA
MW-9c	643917.72	2169245.90	167.89	10.07	157.82	4.709	0.2	0.037	0.871
MW-9d*	643868.45	2169252.80	nm	nm	nm	nm	nm	NA	NA
MW-10	644334.57	2169508.35	175.65	6	169.65	0.199	0.2	0.062	0.062
MW-11	644950.77	2169676.72	144.32	9.52	134.80	0.148	0.2	0.018	0.013
MW-12b	645008.00	2171279.00	156.14	29.1	127.04	nm	nm	0.047	NA
MW-14d*	645363.72	2170739.06	128.66	5.55	123.11	nm	nm	NA	NA
MW-15d*	645354.15	2170543.68	128.70	5.27	123.43	nm	nm	NA	NA
MW-16d*	645317.05	2170309.20	133.96	7.58	126.38	nm	nm	NA	NA
MW-17	644963.10	2170393.58	nm	18.02	nm	nm	nm	NA	NA
PZ-3	642528.15	2171107.90	194.91	9.2	185.71	nm	nm	0.017	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

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Table 2
Johnston County Phases 1 - 4, and 4A
Field Parameters
5/16-18/2011

Well Identification #	Static Water Level (ft) * (DTW)	Temperature (°Celsius)	Turbidity (NTU)	Specific Conductivity (uS/cm)	pH
MW – 3	BPH	17.26	19.8	57	4.93
MW – 4B	6.2	15.83	21.3	1670	6.48
MW – 5A	16.55	15.26	60.3	31	5.95
MW – 6	37.52	17.65	7.77	342	6.09
MW – 7	24.32	17.96	14.4	2270	6.37
MW – 7d	4.65	15.85	2.79	1400	6.36
MW - 8a	6.12	15.26	60.3	31	5.95
MW – 9c	10.7	14.33	32.7	133	5.12
MW – 10	6	16.34	228	103	6.64
MW – 11	9.52	15.26	1.56	156	6.71
MW – 12b	29.1	17.52	2.72	463	5.76
MW – 14d	5.55	15.13	1.92	758	6.85
MW – 15d	5.27	15.13	2.09	309	6.94
MW – 16d	7.58	14.79	3.87	257	5.64
MW – 17	18.02	17.77	45.3	1319	6.31
Piezometer #3	9.2	16.69	6.42	388	5.83
SWPT-1A	nm	19.89	25.3	136	7.05
SWPT-2	nm	20.14	41	140	7.16

nm = not measured
BPH = Below Pump Head
Note: Data collected by Kevin Shields of Johnston County

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Table 3
Johnston County Phases 1 - 4 and Phase 4A
Detected Inorganic Constituents
5/16-18/2011

Constituents	SWSL	2L	MW-3	MW-4B	MW-5A	MW-6	MW-7	MW-7d	MW-8a	MW-9c	MW-10	MW-11	MW-12b	MW-14d	MW-15d	MW-16d	MW-17	PZ-3	SW-1A	SW-2
Antimony	6	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.39J	ND	ND
Arsenic	10	10	ND	8J	0.4J	0.38J	**12**	1J	1.4J	1.1J	0.67J	1.3J	1.6J	1.3J	1.2J	0.65J	8J	**66**	0.99J	0.8J
Barium	100	700	15.3J	**1083**	20.5J	33.5J	**446**	16.1J	87.6J	32.3J	43.9J	11.7J	89.8J	1.7J	21.5J	63.2J	**162**	39.4J	36.9J	27.9J
Beryllium	1	4	ND	ND	0.55J	ND	ND	ND	0.18J	**1**	0.24J	ND	ND	ND	ND	0.12J	ND	ND	ND	ND
Cadmium	1	2	0.08J	ND	0.18J	0.05J	ND	0.11J	0.08J	0.33J	0.2J	0.05J	0.08J	0.11J	ND	0.05J	0.06J	0.05J	ND	ND
Cobalt	10	1	0.29J	**32**	6.6J	**90**	**92**	**11**	**36**	**29**	9.2J	7.7J	**255**	0.27J	0.53J	0.52J	**302**	0.15J	0.98J	1J
Copper	10	1000	1.9J	ND	2.1J	1.7J	0.8J	1.7J	6.7J	**19**	3.4J	3.9J	0.95J	ND	ND	ND	5.2J	0.83J	1J	0.95J
Lead	10	15	0.65J	ND	3J	0.12J	0.04J	0.09J	6.4J	**13**	1.4J	0.14J	ND	0.11J	0.26J	0.17J	2.6J	0.55J	0.97J	1.1J
Mercury	0.2	1	ND	ND	ND	ND	ND	ND	NM	ND	ND	ND	0.15J	NM	NM	NM	NM	ND	NM	NM
Nickel	50	100	0.44J	3J	10.7J	7.9J	36J	11.4J	6.1J	33.1J	10.7J	1.1J	9.7J	0.8J	0.34J	0.58J	7.2J	ND	0.66J	0.62J
Selenium	10	20	ND	8.3J	0.38J	ND	ND	3.4J	2.6J	2.1J	ND	ND	0.58J	5.2J	0.75J	1.1J	**10**	0.63J	ND	ND
Silver	10	20	ND	ND	ND	ND	ND	ND	ND	0.07J	ND	ND	ND	0.04J	ND	ND	ND	0.07J	ND	ND
Sulfide	1000	--	ND	141J	ND	ND	ND	ND	NM	ND	ND	ND	ND	NM	NM	NM	NM	215J	ND	ND
Thallium	5.5	0.28	ND	0.54J	0.03J	0.08J	ND	0.11J	0.14J	0.06J	0.04J	0.08J	0.03J	0.18J	0.06J	0.04J	0.13J	0.04J	0.04J	0.03J
Total Chromium	10	10	0.24J	0.36J	5.4J	0.29J	3J	0.18J	5.3J	**14**	2J	ND	0.16J	ND	ND	1.3J	1.5J	0.99J	0.75J	0.94J
Vanadium	25	0.3	0.58J	ND	3J	ND	0.47J	ND	5J	12.2J	1.6J	0.28J	ND	ND	ND	3.7J	1.4J	6.2J	3.1J	3.6J
Zinc	10	1000	1.4J	ND	**32**	4.1J	1.4J	6.4J	**14**	**142**	**35**	5.8J	5.3J	ND	ND	0.57J	7.1J	1.4J	3.7J	4.4J

SWSL - Solid Waste Section Limit
ND - Not detected at or above SWSL
Shading - Levels above 2L standard or not 2L standard
Bold Letters - Constituent detected above SWSL
J - Detected constituents below SWSL limit

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

** Equipment Blank had 2.2 ug/l of 1,4-Dichlorobenzene, 6.7 ug/l of 2-Butanone, 27.3 ug/l of Acetone, 0.3 ug/l of Bromodichloromethane, and 3.2 ug/l of Chloroform

** 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.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Table 4
Johnston County Phases 1 - 4 and Phase 4A
Detected Organic Constituents
5/16-18/2011

Constituents	SWSL	2L	MW-3	MW-4B	MW-5A	MW-6	MW-7	MW-7d	MW-8a	MW-9c	MW-10	MW-11	MW-12b	MW-14d	MW-15d	MW-16d	MW-17	PZ-3	SW-1A	SW-2
1,1-Dichloroethane	5	6	ND	ND	0.5J	0.4J	1.1J	2.8J	1.1J	ND	ND	3J	0.5J	4.3J	ND	ND	1.9J	ND	ND	ND
1,2-Dichlorobenzene	5	20	ND	0.7J	ND	ND	1.2J	0.5J	ND	ND	ND	ND	1J	ND	ND	ND	0.8J	1.8J	ND	ND
1,2-Dichloropropane	1	0.6	ND	ND	ND	ND	ND	0.4J	ND	ND	ND	ND	ND	0.7J	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	1	6	**1.6**	**4.7**	**1.6**	**1.5**	**12.3**	**10.2**	0.6J	**1.1**	**2**	**3.7**	**8.1**	**1.9**	ND	ND	**4.3**	**9**	ND	ND
2,4,5-TP	--	50	ND	0.88J	ND	ND	0.512J	ND	NM	ND	ND	ND	ND	NM	NM	NM	NM	ND	NM	NM
Acetone	100	6000	ND	11.8J	ND	ND	11.1J	12.9J	9.4J	ND	ND	14J	ND	ND	14.1J	11.7J	11.5J	ND	19.2J	12.8J
Benzene	1	1	ND	**3.7**	ND	ND	**2**	0.5J	0.3J	ND	ND	ND	**1**	0.3J	ND	ND	**2.6**	**4.6**	ND	ND
Chlorobenzene	3	50	ND	**11.8**	ND	ND	**24.2**	**10.1**	1.1J	ND	ND	ND	**10.4**	2.8J	ND	ND	**6.4**	**12.9**	ND	ND
Chloroethane	10	3000	ND	ND	ND	ND	1.2J	0.6J	ND	ND	ND	ND	ND	ND	ND	ND	1.2J	0.6J	ND	ND
Chloroform	5	70	0.4J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis-1,2-Dichloroethene	5	70	ND	0.3J	ND	0.7J	0.3J	4.4J	0.4J	ND	ND	ND	ND	**5.4**	ND	ND	ND	0.4J	ND	ND
Endosulfan I	40	0.1	ND	ND	ND	ND	ND	0.059J	NM	ND	ND	ND	ND	NM	NM	NM	NM	ND	NM	NM
Toluene	1	600	ND	ND	ND	ND	0.3J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	1	0.03	ND	**1.5**	ND	ND	ND	0.7J	ND	ND	ND	ND	ND	ND	ND	ND	**1.3**	ND	ND	ND

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

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

** Equipment Blank had 2.2 ug/l of 1,4-Dichlorobenzene, 6.7 ug/l of 2-Butanone, 27.3 ug/l of Acetone, 0.3 ug/l of Bromodichloromethane, and 3.2 ug/l of Chloroform

** 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.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Table 5
Johnston County Phases 1 - 4 and Phase 4A
Statistical Analysis Summary
5/16-18/2011

Location	Parameter	Result	Detection Limit	Test Units	%ND	CL%	Test	Statistically Significant?	2nd statistical Analysis	Test
MW-7	arsenic	12	10	ug/l	63.9	97.2	NPPL	Y	Y	MCL-PTI (1992)
PZ-3	arsenic	66	10	ug/l	37.5	99	WRS	Y	Y	MCL-PTI (1992)
MW-4B	barium	1083	100	ug/l	6.5	99	WRS	Y	Y	MCL-PTI (1992)
MW-7	barium	446	100	ug/l	38.9	99	WRS	Y	Y	MCL-PTI (1992)
MW-17	barium	162	100	ug/l	50	97	NPPL	N	--	--
MW-9c	beryllium	1	1	ug/l	63.6	97.2	NPPL	N	--	--
MW-4B	cobalt	32	10	ug/l	9.7	99	WRS	Y	N	--
MW-6	cobalt	90	10	ug/l	5.5	99	WRS	Y	Y	MCL-PTI (1992)
MW-7	cobalt	92	10	ug/l	2.8	99	WRS	Y	Y	MCL-PTI (1992)
MW-7d	cobalt	11	10	ug/l	0	99	PPL	N	--	--
MW-8a	cobalt	36	10	ug/l	10	99	PPL	N	--	--
MW-9c	cobalt	29	10	ug/l	9.1	99	PPL	N	--	--
MW-12b	cobalt	255	10	ug/l	6.5	99	PPL	Y	Y	MCL-PTI (1992)
MW-17	cobalt	302	10	ug/l	0	99	WRS	Y	Y	MCL-PTI (1992)
MW-9c	copper	19	10	ug/l	68.18	97.2	NPPL	N	--	--
MW-9c	lead	13	10	ug/l	68.18	97.2	NPPL	N	--	--
MW-17	selenium	10	10	ug/l	80	97.2	NPPL	N	--	--
MW-9c	total chromium	14	10	ug/l	54.5	97.2	NPPL	N	--	--
MW-5A	zinc	32	10	ug/l	58.3	94.6	NPPL	N	--	--
MW-8a	zinc	14	10	ug/l	60	97.2	NPPL	N	--	--
MW-9c	zinc	142	10	ug/l	4.5	99	WRS	Y	N	--
MW-10	zinc	35	10	ug/l	5.5	99	WRS	Y	Y	MCL-PTI (1992)

Legend:
%ND Method chosen due to percent non-detects
NPPL Non-Parametric 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.

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

Table 6
Johnston County Phases 1 - 4 and Phase 4A
Leachate Analytical Data
5/25/2011

Parameter	Unit	Leachate Jun Box	Leak Detect
1,1-Dichloroethane	ug/l	0.3J	0.4J
1,2-Dichloroethane	ug/l	3.5	1
1,2-Dichloropropane	ug/l	1	0.6J
1,4-Dichlorobenzene	ug/l	16.8	11.4
2-Butanone	ug/l	1700	27.1J
2-Hexanone	ug/l	7.8J	4.9J
4-Methyl-2-Pentanone	ug/l	118	1.6J
Acetone	ug/l	1870	68.3J
Ammonia Nitrogen as N	ug/l	43800	445000
Antimony	ug/l	ND	2J
Barium	ug/l	178	285
Benzene	ug/l	33.9	12.8
Beryllium	ug/l	0.21J	0.08J
BOD	ug/l	110000	28000
Cadmium	ug/l	ND	0.44J
Chlorobenzene	ug/l	1.8J	2.2J
Chloroethane	ug/l	0.7J	0.9J
Cis-1,2-Dichloroethene	ug/l	8.3	ND
Cobalt	ug/l	3.1J	15
COD	ug/l	230000	681000
Copper	ug/l	1.7J	7.2J
Ethylbenzene	ug/l	90.4	4.3
Lead	ug/l	0.05J	0.74J
Methylene Chloride	ug/l	1.3	ND
Nickel	ug/l	1.7J	74
Selenium	ug/l	0.87J	14
Silver	ug/l	ND	0.24J
Styrene	ug/l	0.4J	0.3J
Sulfate	ug/l	ND	14900J
Toluene	ug/l	127	3.8
Total Chromium	ug/l	0.76J	17
Total Phosphorus as P	ug/l	230	1800
Total Suspended Residue	ug/l	34000	63000
trans-1,2-Dichloroethene	ug/l	0.7J	ND
Trichloroethene	ug/l	0.5J	ND
Vanadium	ug/l	2.5J	10.5
Vinyl Chloride	ug/l	13.1	0.8J
Xylenes	ug/l	149	60.5
Zinc	ug/l	2.6J	79

Appendix A

Monitoring Well Information

Well Construction Record
Soil & Environmental Consultants, Inc

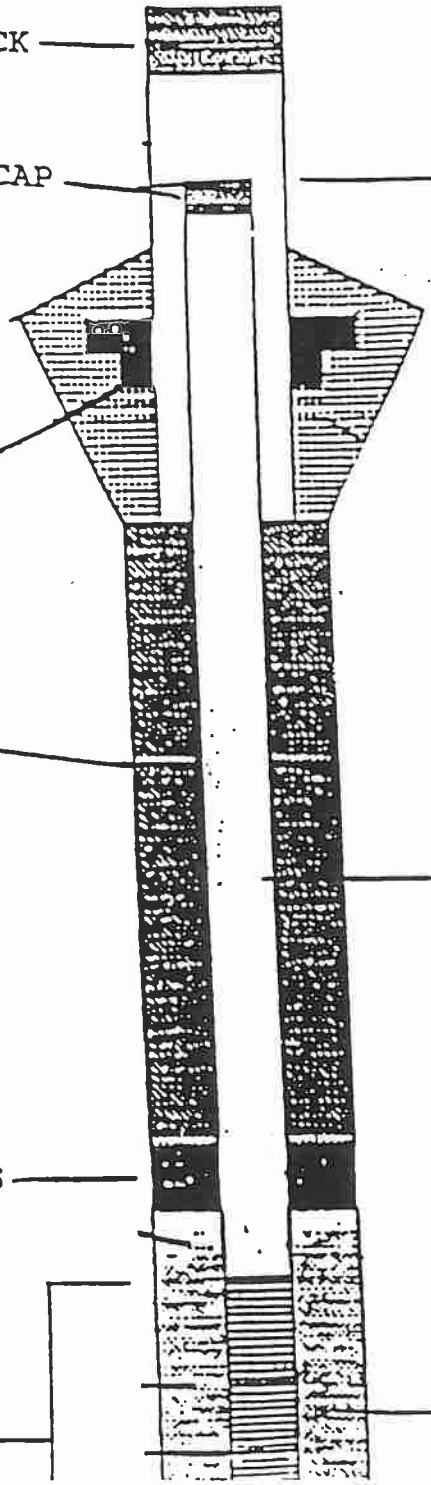
Soil & Environmental Consultants, Inc.
Well Construction Record

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'			

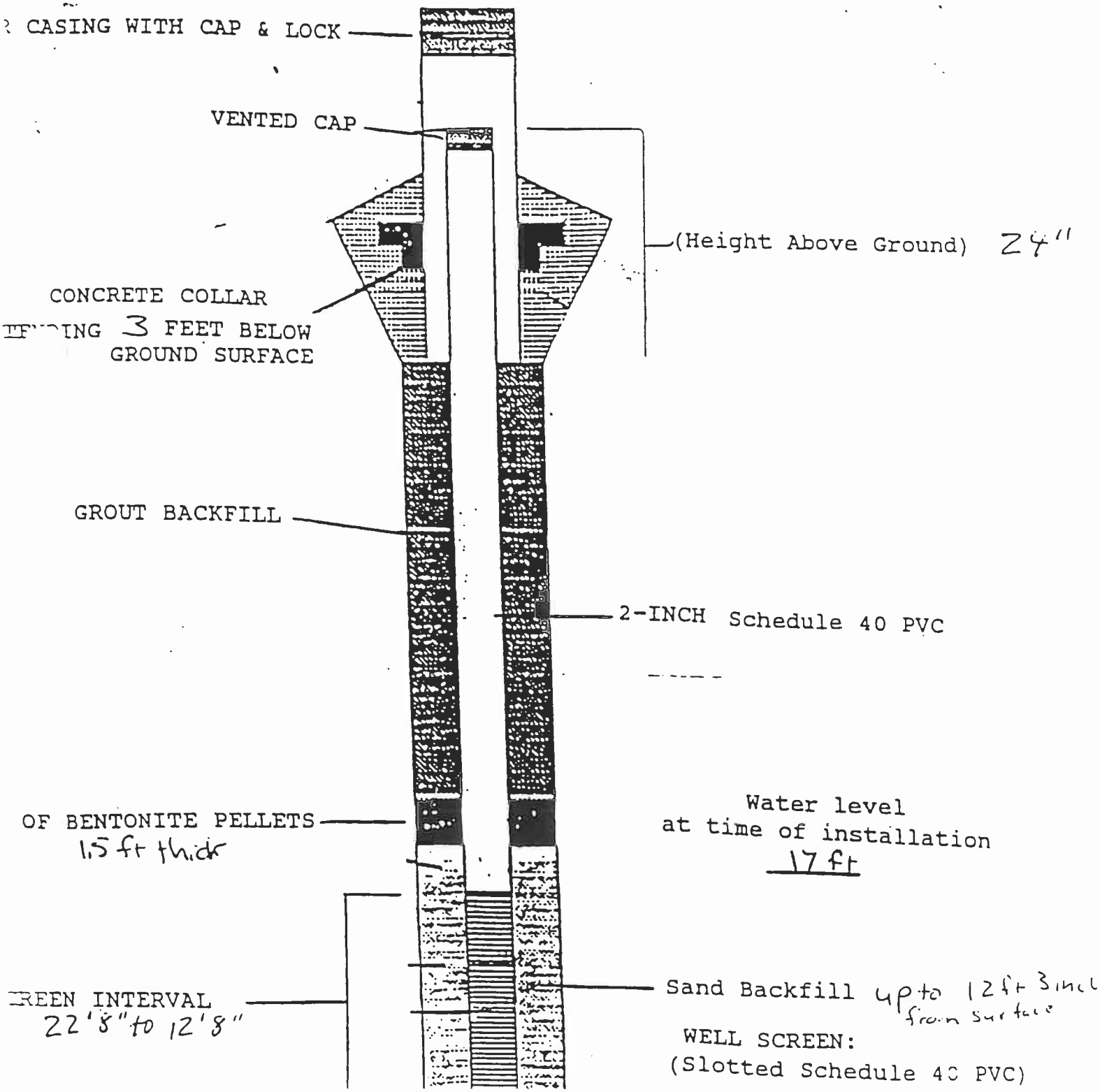
Well Construction Record

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

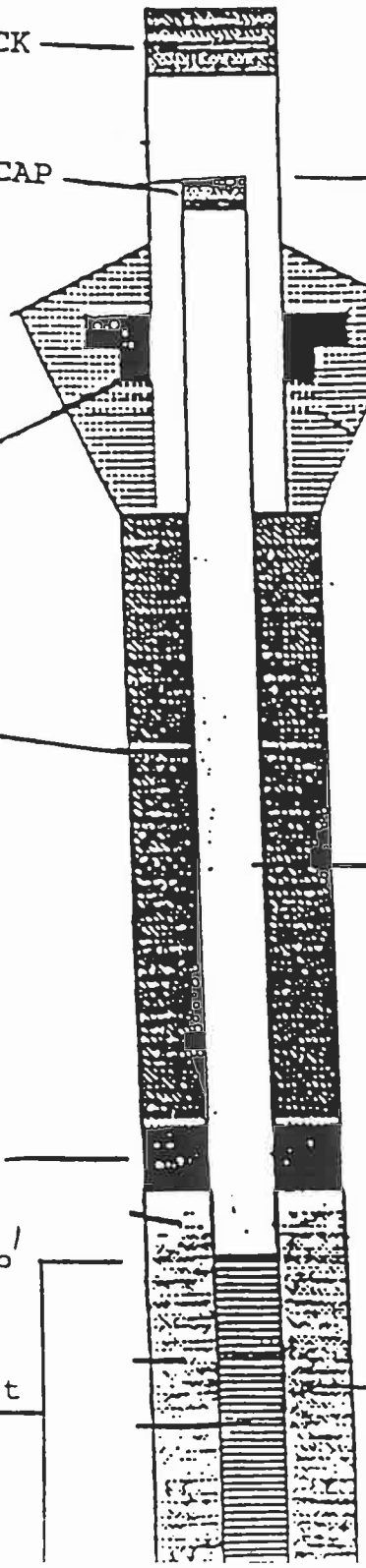
REGISTRATION NUMBER 1292

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

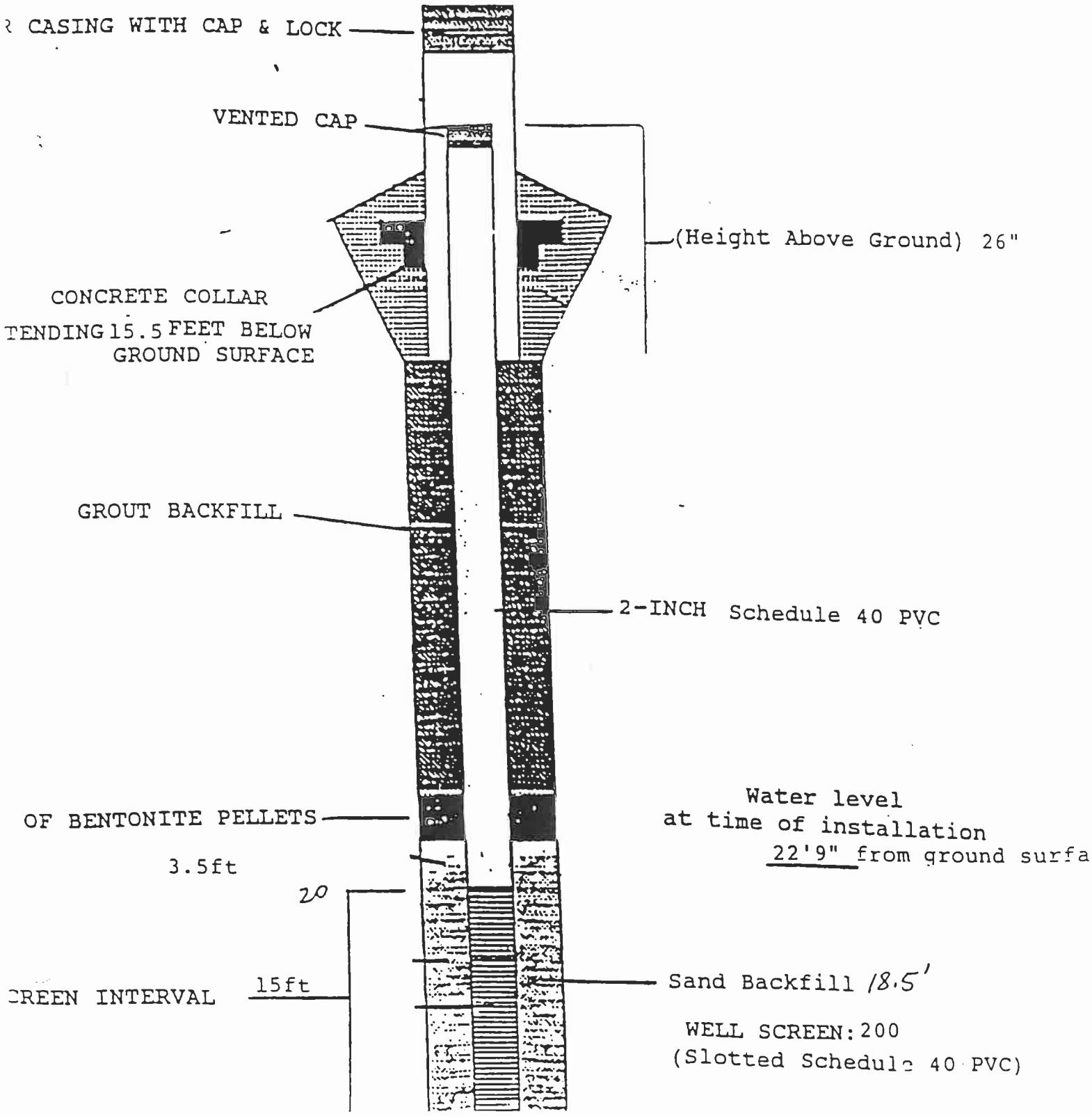
REGISTRATION NUMBER 1292

Well Number: 7

Location: Johnston County Landfill

Date: June 14, 1991

TD = 35'



Well Construction Record

REGISTRATION NUMBER 1292

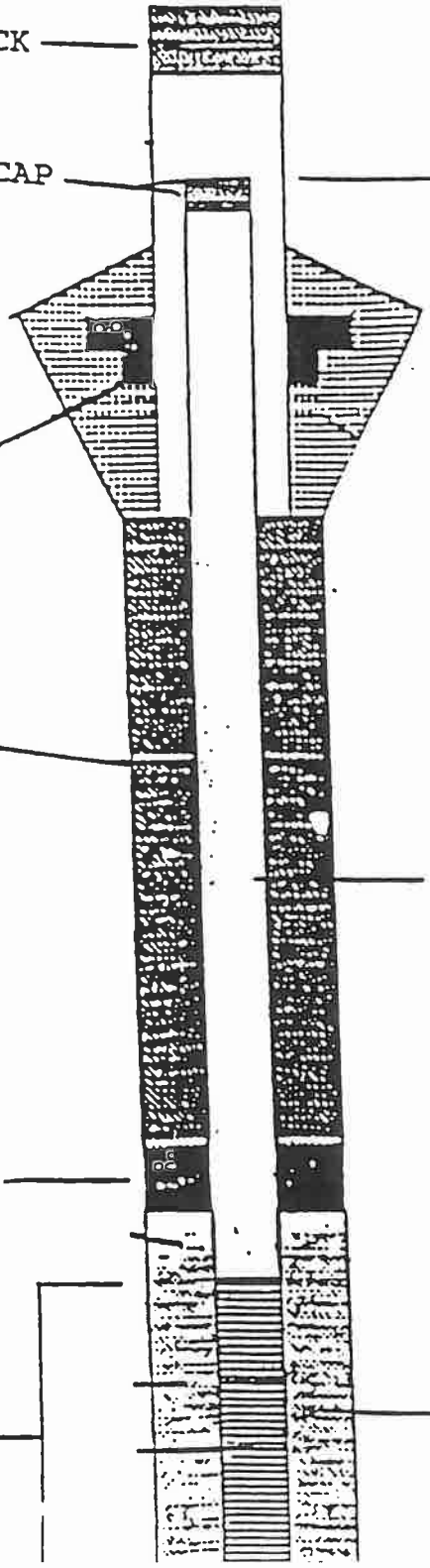
Well Number: 8 OID #5

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

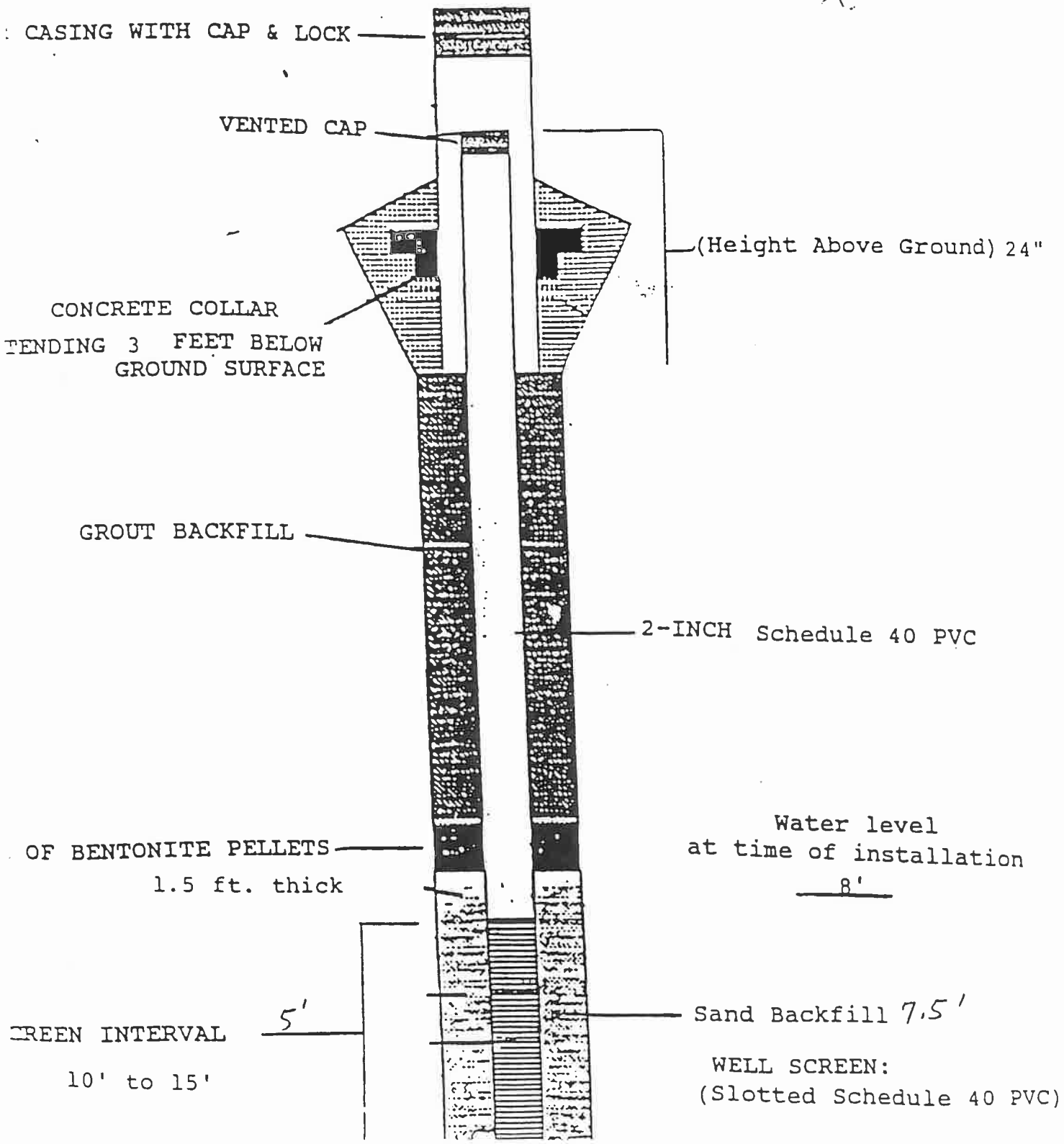
REGISTRATION NUMBER 1292

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

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

13. GROUT:

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

14. SCREEN:

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

15. SAND/GRAVEL PACK:

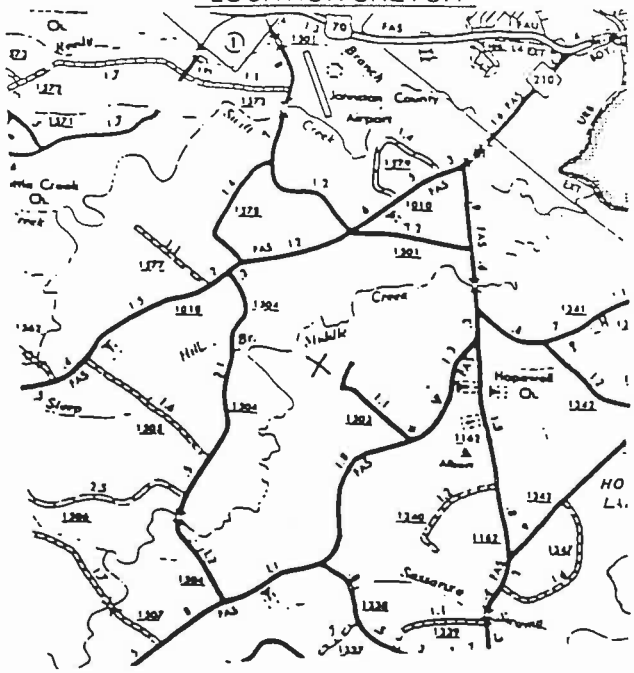
Depth From	To	Ft.	Size	Material
18	35			SAND

REMARKS: _____

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

If additional space is needed use back of form

LOCATION SKETCH



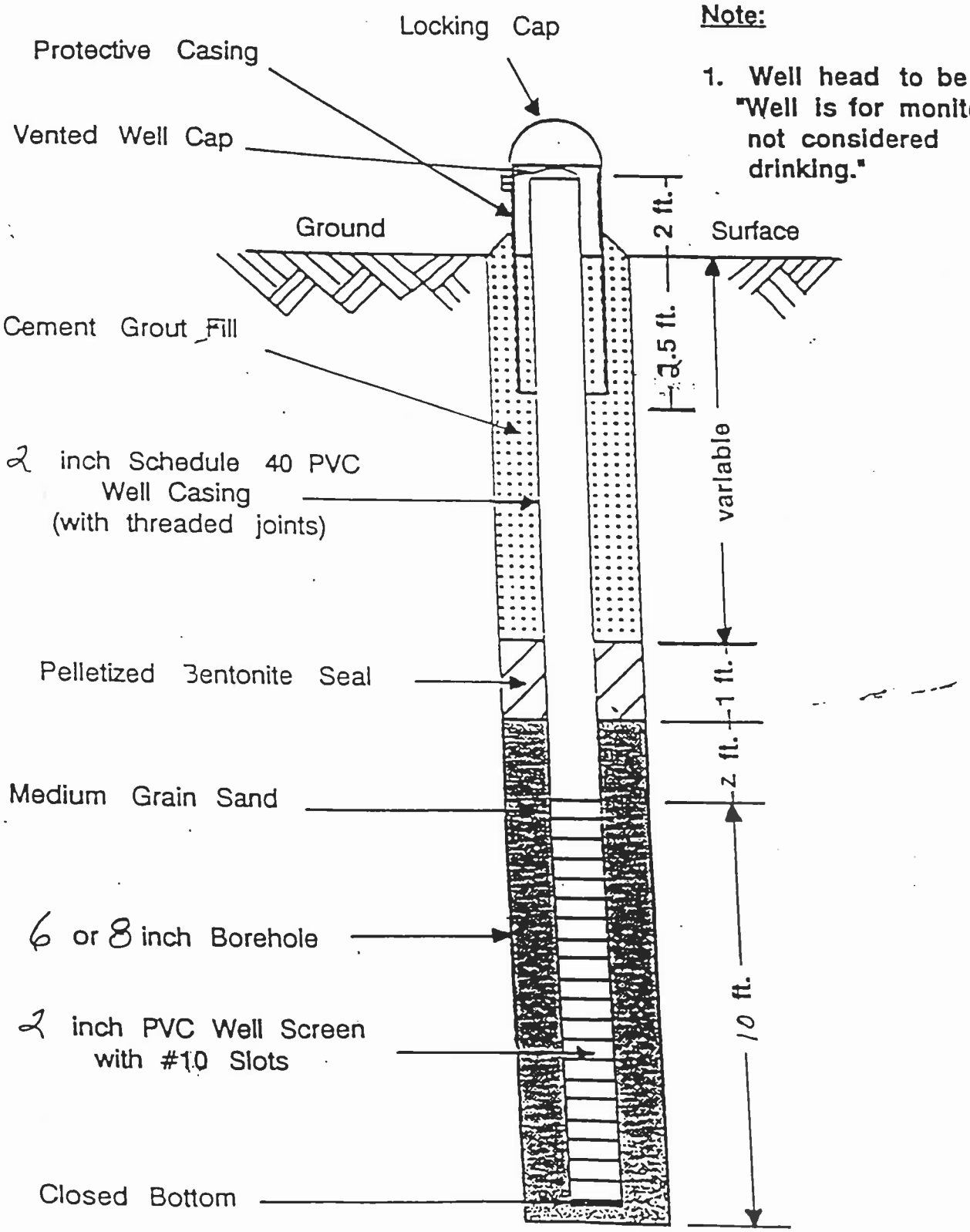
I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

[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	

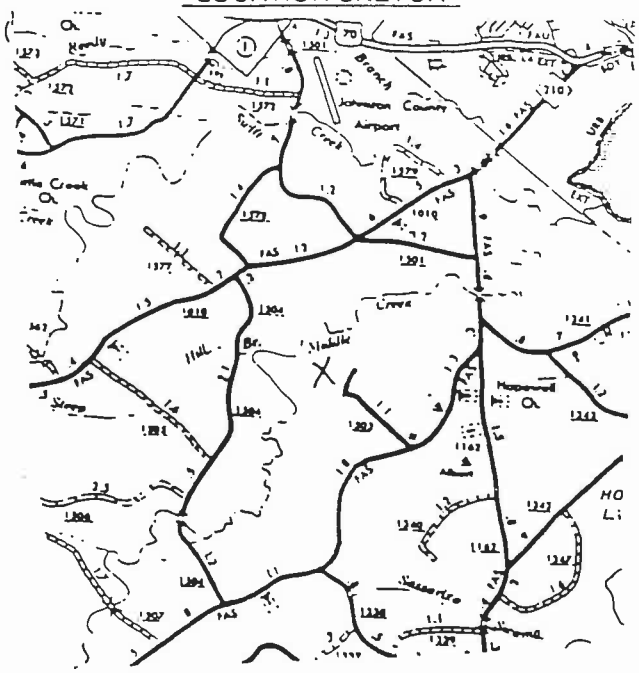
14. SCREEN:

	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



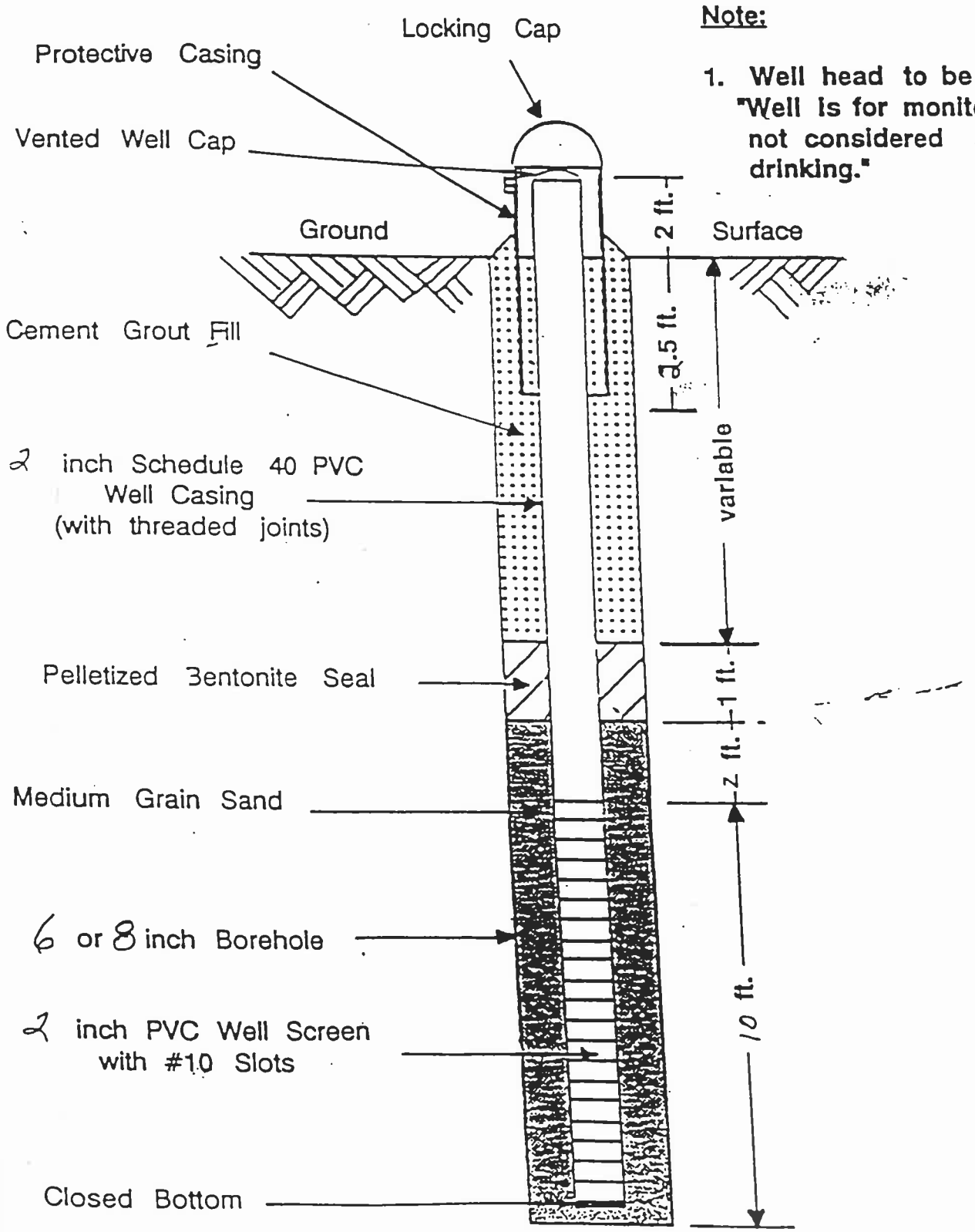
'EMARKS: _____

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	

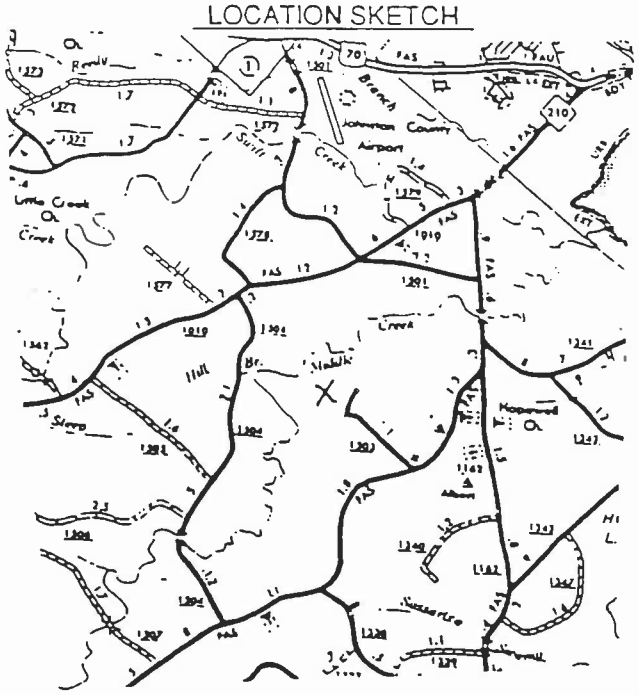
14. SCREEN:

	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.

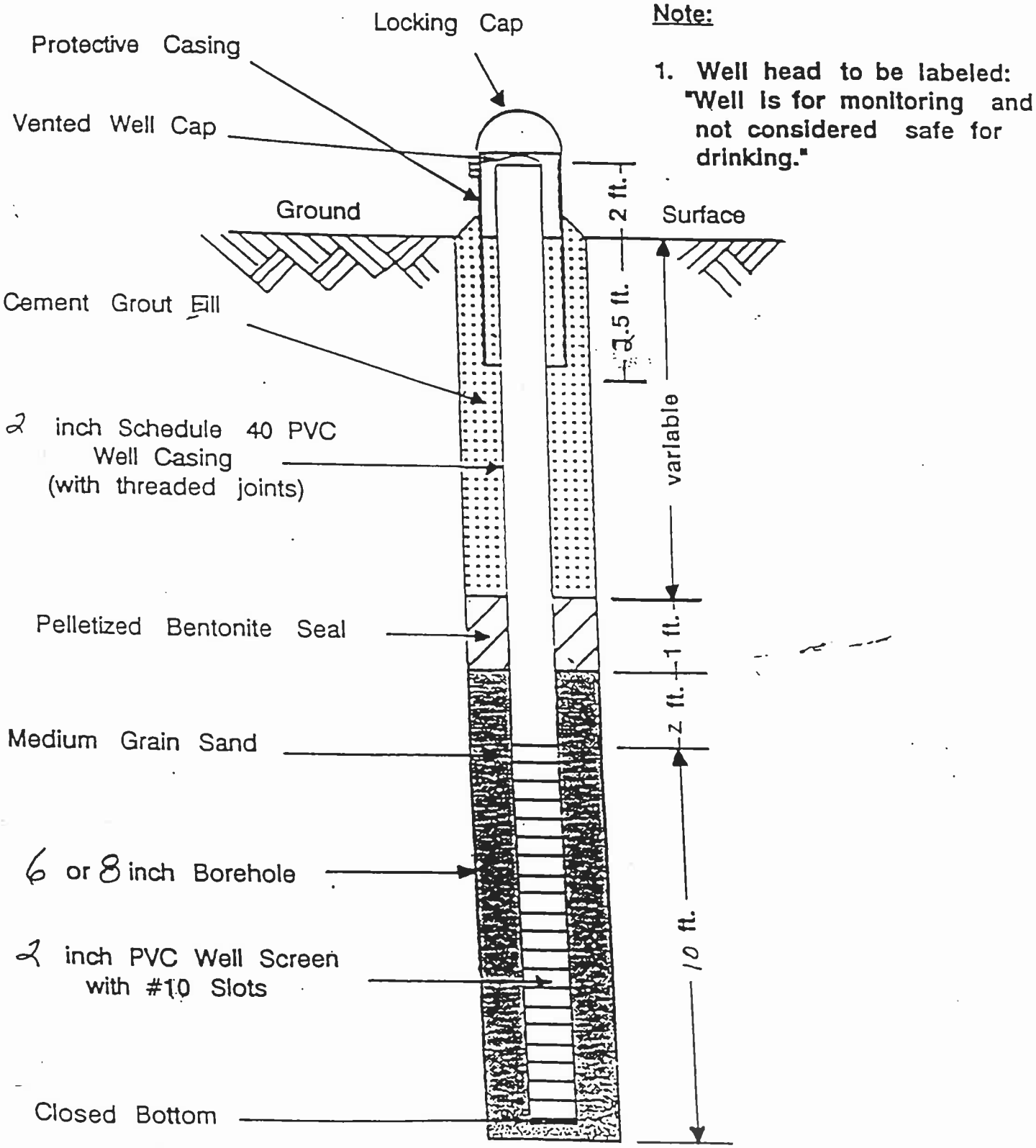
James Spell 9-29-94
SIGNATURE OF CONTRACTOR OR AGENT DATE

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

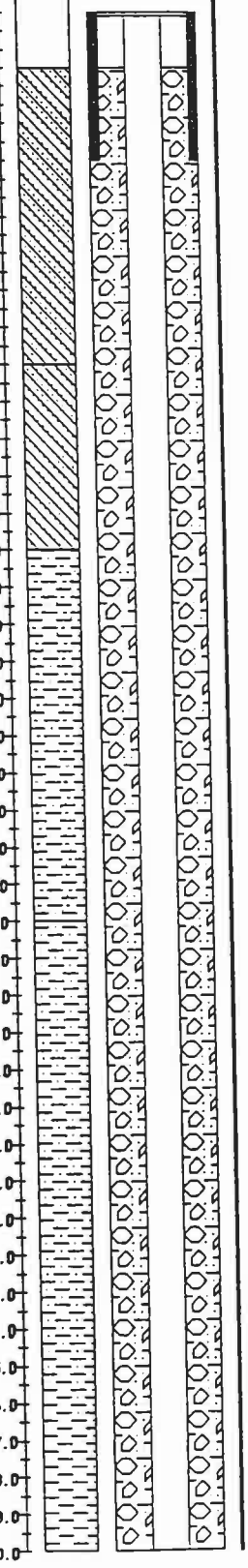
BOREHOLE NUMBER: MW-4D

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"		



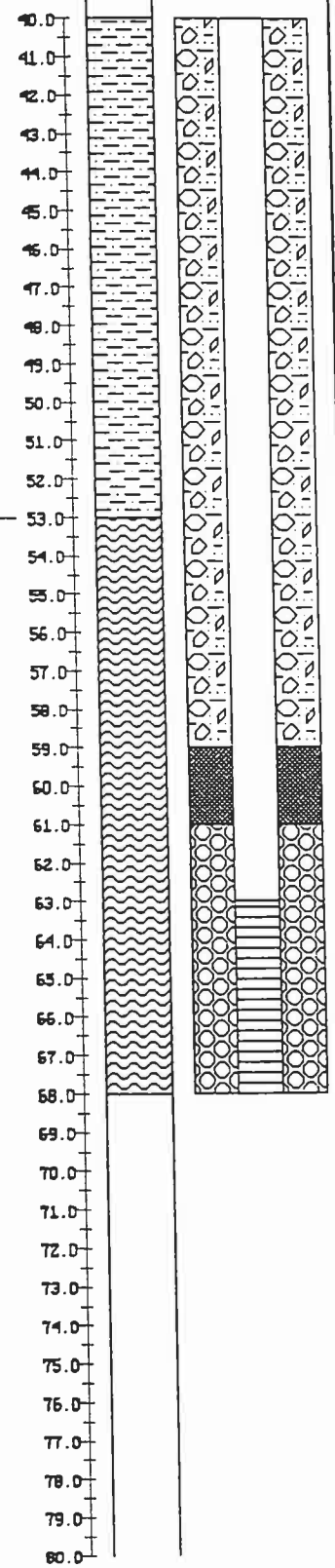
MW-40

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

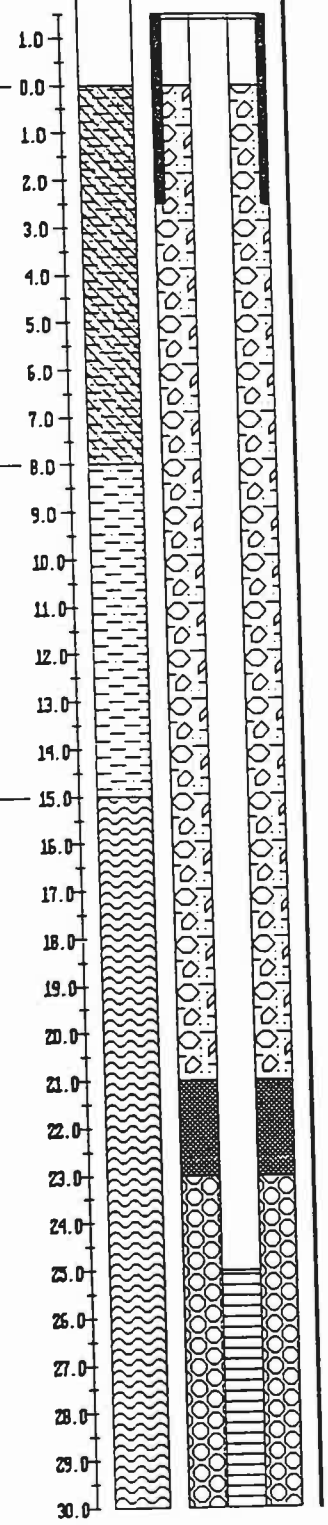
MW-7D

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

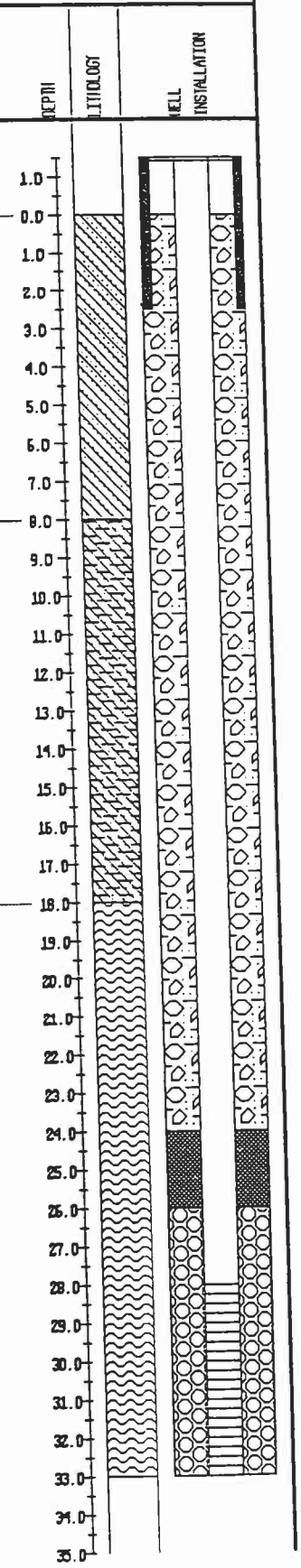
BOREHOLE NUMBER: MW-8D

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

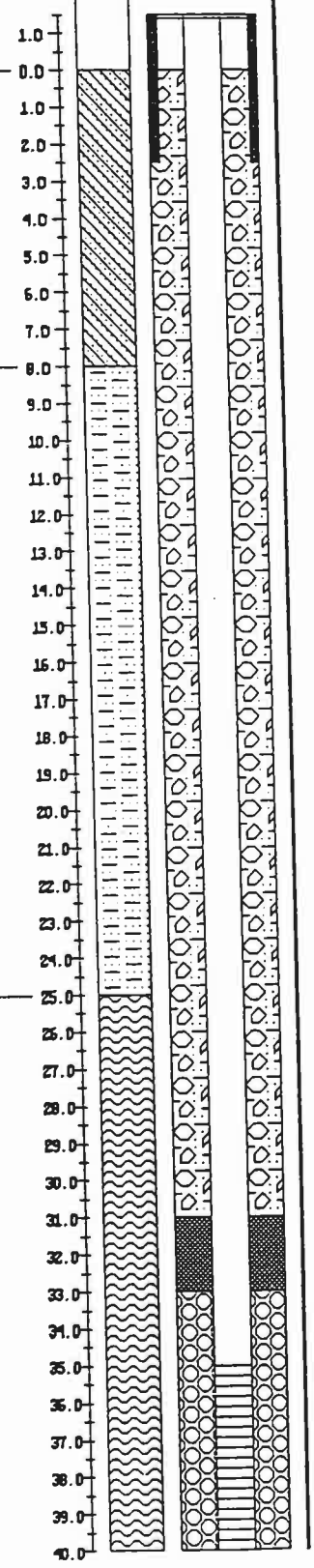
PROJECT NUMBER: Johnston-1
PROJECT NAME: Johnston County Landfill
LOCATION: Smithfield, North Carolina
DRILLING COMPANY: Engineering Tectonics
RIG TYPE & NUMBER: Mobile B-50
DRILLING METHOD: Mud Rotary
WEATHER: Sunny 70 degrees
FIELD PARTY: Ronnie Barron
GEOLOGIST: Philip May
DATE BEGUN: 12-7-98 DATE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



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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**

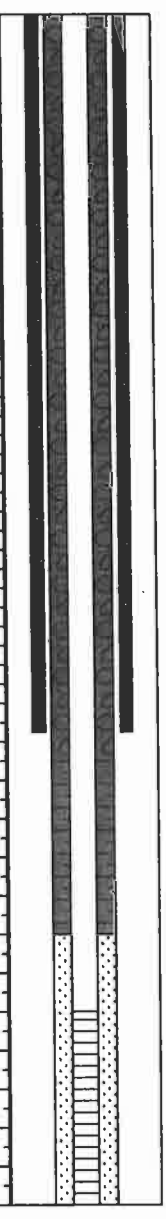
TOTAL DEPTH: **31**
GROUND SURFACE ELEVATION: **na**
TOP OF CASING ELEVATION: **128.66**

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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FIELD BOREHOLE LOG

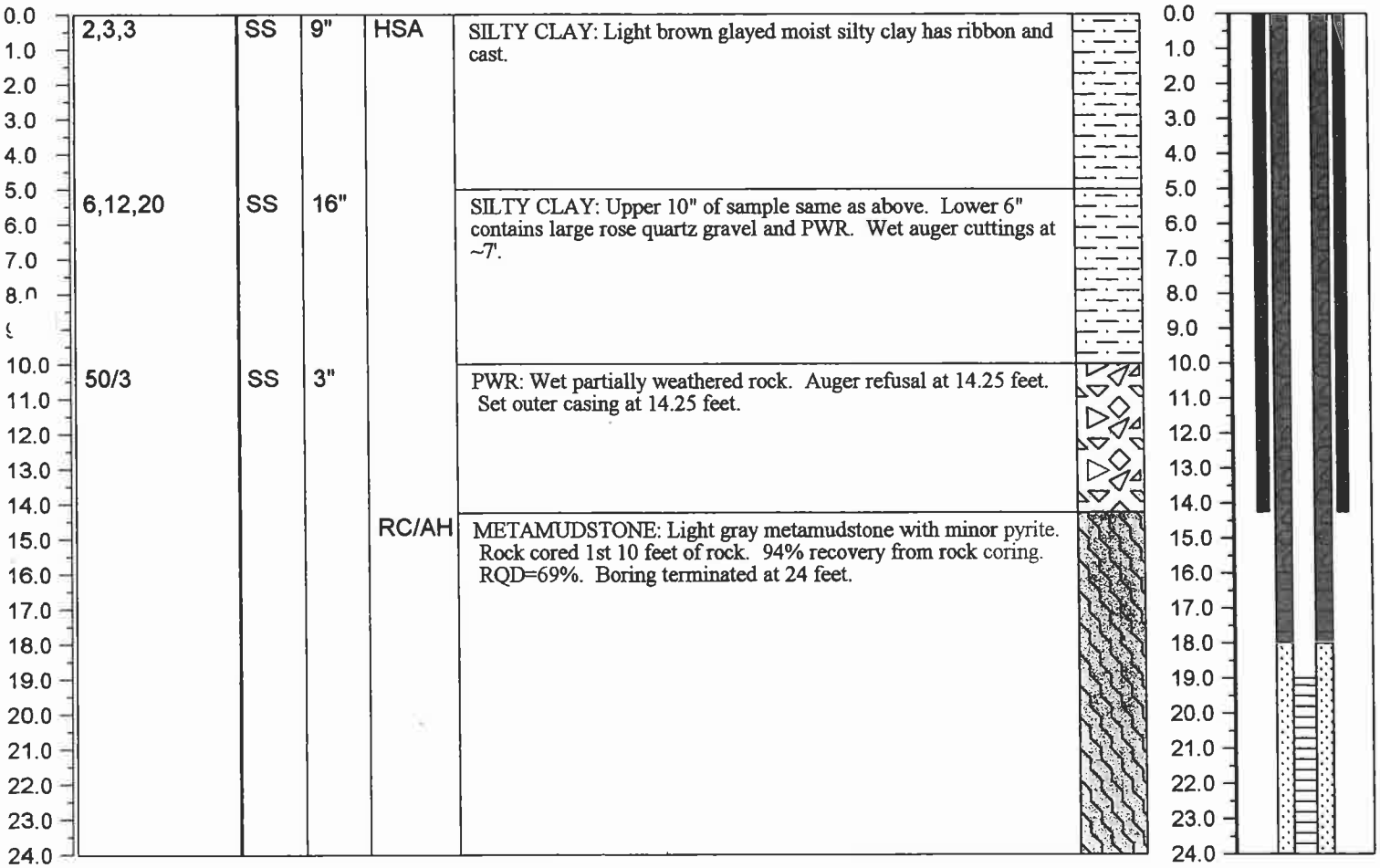
BOREHOLE NUMBER **MW-15d**

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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FIELD BOREHOLE LOG

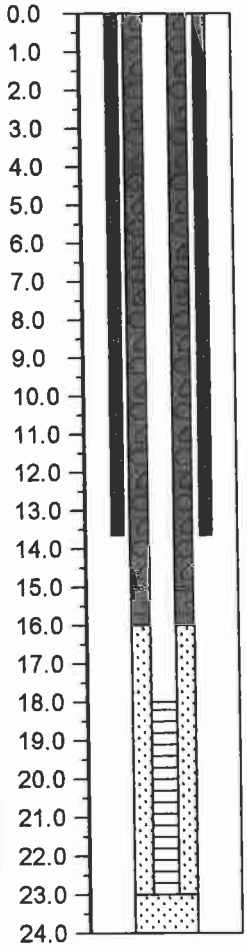
BOREHOLE NUMBER **MW-16d** Page 1 of 1

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

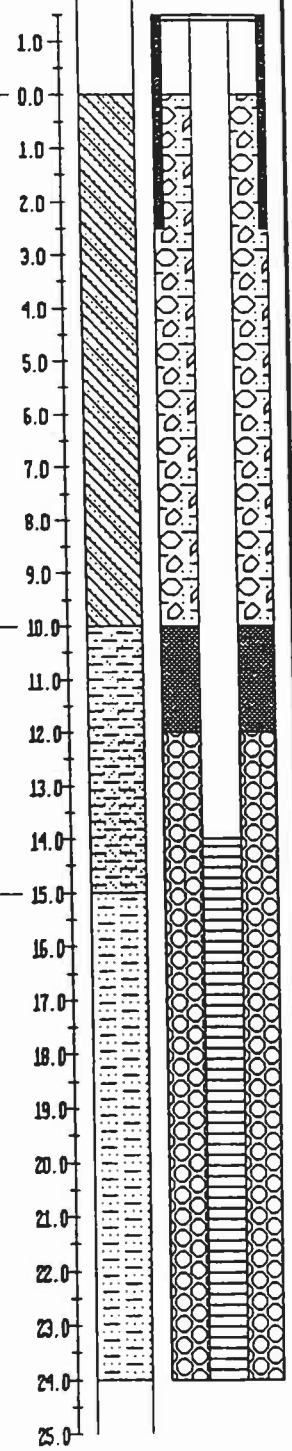
PZ-2 (MW-5A)

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.

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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.

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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

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

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

July 5, 2011

Mr. Kevin Shields
Johnston County Public Works
P.O. Box 2263
Smithfield, NC 27577

Dear Kevin,

Enclosed herewith is data for samples collected during May of this year. A duplicate copy of the data is also being sent to Joan Smyth with Richardson Smith Gardner. Detects for certain compounds in some of the 8260 scans show compounds that are not normally detected in your samples. It appears that these detects may be the result of contamination during the sampling process. Early this year Environment 1 also experienced contamination problems which were traced to contaminated hydrochloric acid used for preservation. In a telephone conversation today we discussed the usage of older hydrochloric acid containers from previous sampling events as being a potential source of contamination. I do not know if this is the problem with your samples, but I would suggest that you always use the fresh hydrochloric acid containers we supply with each set of sample containers and never use any older, left over hydrochloric acid from previous sampling events. Please review the data and if you would like to re-sample any suspect locations for 8260 compounds we would provide the analysis at no additional charge.

Best regards,

Steve Jones

cc: Joan Smyth

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: 05/16/11
DATE REPORTED : 06/30/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-4B	MW-8A	MW-17	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	--- U	--- U	--- U	05/23/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0	8 J	1.4 J	8 J	05/23/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0	1083	87.6 J	162	05/23/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	--- U	0.18 J	--- U	05/23/11	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	--- U	0.08 J	0.06 J	05/23/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	32	36	302	05/23/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	--- U	6.7 J	5.2 J	05/23/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	0.36 J	5.3 J	1.5 J	05/23/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	--- U	6.4 J	2.6 J	05/23/11	CMF	EPA200.8
Mercury, ug/l	0.05	0.20	--- U			05/23/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	3.0 J	6.1 J	7.2 J	05/23/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	8.3 J	2.6 J	10	05/23/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0	--- U	--- U	--- U	05/23/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5	0.54 J	0.14 J	0.13 J	05/23/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	--- U	5.0 J	1.4 J	05/23/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	--- U	14	7.1 J	05/23/11	CMF	EPA200.8
Sulfide, ug/l	100	1000	141 J			05/20/11	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: 05/16/11
DATE EXTRACTED: 05/23/11
DATE ANALYZED: 06/16/11
DATE REPORTED: 06/30/11

REVIEWED BY:

PESTICIDES AND PCB'S
EPA METHOD 8081B

PARAMETERS, ug/l	MDL	SWSL	MW-4B
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

NOTE: Surrogate recovery for location MW4B was outside control limits

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

ANALYST: CHS
DATE COLLECTED: 05/16/11
DATE EXTRACTED: 05/24/11
DATE ANALYZED: 06/01/11
DATE REPORTED: 06/30/11

LANDFILL APPENDIX II
EPA METHOD 8151A

PARAMETERS, ug/l	MDL	SWSL	MW-4B
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	0.88 J
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

ANALYST: MAO
DATE COLLECTED: 05/16/11
DATE ANALYZED: 05/23/11
DATE REPORTED: 06/30/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-4B	MW-8A	MW-17	Equipment Blank	Trip Blank
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	1.50	--- U	1.30	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	1.20 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	11.80 J	9.40 J	11.50 J	27.30 J	--- 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	1.10 J	1.90 J	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	0.30 J	0.40 J	--- U	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	6.70 J	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	0.40 J	--- 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	0.30 J	2.60	--- U	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	11.80	1.10 J	6.40	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	4.70	0.60 J	4.30	2.20	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	0.70 J	--- U	0.80 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

ID#: 6031 B

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

DATE COLLECTED: 05/16/11
DATE REPORTED : 05/25/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-14D	MW-15D	MW-16D	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	--- U	--- U	--- U	05/23/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0	1.3 J	1.2 J	0.65 J	05/23/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0	1.7 J	21.5 J	63.2 J	05/23/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	--- U	--- U	0.12 J	05/23/11	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	0.11 J	--- U	0.05 J	05/23/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	0.27 J	0.53 J	0.52 J	05/23/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	--- U	--- U	--- U	05/23/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	--- U	--- U	1.3 J	05/23/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	0.11 J	0.26 J	0.17 J	05/23/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	0.80 J	0.34 J	0.58 J	05/23/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	5.2 J	0.75 J	1.1 J	05/23/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0	0.04 J	--- U	--- U	05/23/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5	0.18 J	0.06 J	0.04 J	05/23/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	--- U	--- U	3.7 J	05/23/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	--- U	--- U	0.57 J	05/23/11	CMF	EPA200.8

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

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

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

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

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

CLIENT ID: 6031 B

ANALYST: MAO
DATE COLLECTED: 05/16/11
DATE ANALYZED: 05/23/11
DATE REPORTED: 05/25/11

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	14.10 J	11.70 J
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	4.30 J	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	5.40	--- 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	0.70 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	2.80 J	--- 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	1.90	--- 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

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: 05/16/11
DATE REPORTED : 06/30/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	SW-1A	SW-2	Piezometer #3	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	--- U	--- U	0.39 J	05/23/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0	0.99 J	0.80 J	66	05/23/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0	36.9 J	27.9 J	39.4 J	05/23/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	--- U	--- U	--- U	05/23/11	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	--- U	--- U	0.05 J	05/23/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	0.98 J	1.0 J	0.15 J	05/23/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	1.00 J	0.95 J	0.83 J	05/23/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	0.75 J	0.94 J	0.99 J	05/23/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	0.97 J	1.1 J	0.55 J	05/23/11	CMF	EPA200.8
Mercury, ug/l	0.05	0.20			--- U	05/23/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	0.66 J	0.62 J	--- U	05/23/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	--- U	--- U	0.63 J	05/23/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0	--- U	--- U	0.07 J	05/23/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5	0.04 J	0.03 J	0.04 J	05/23/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	3.1 J	3.6 J	6.2 J	05/23/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	3.7 J	4.4 J	1.4 J	05/23/11	CMF	EPA200.8
Sulfide, ug/l	100	1000			215 J	05/20/11	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

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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: 05/16/11
DATE EXTRACTED: 05/23/11
DATE ANALYZED: 06/16/11
DATE REPORTED: 06/30/11

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

NOTE: Surrogate recovery for location Piezometer #3 was outside control limits

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: 05/16/11
DATE EXTRACTED: 05/24/11
DATE ANALYZED: 06/01/11
DATE REPORTED: 06/30/11

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
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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: 05/16/11
DATE REPORTED: 06/30/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	05/23/11 SW-1A	05/24/11 SW-2	05/24/11 Piezometer #3
	Date Analyzed:				
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	0.60 J
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	19.20 J	12.80 J	--- 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	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U	0.40 J
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	--- U	--- U	4.60
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- 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	--- U	--- U	12.90
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	--- U	--- U	9.00
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	1.80 J
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

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: 05/17/11
DATE REPORTED : 06/30/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-5A	MW-7	MW-7D	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	--- U	--- U		05/23/11	CMF	EPA200.8
Antimony, ug/l	0.14	6.0			--- U	05/26/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0	0.40 J	12		05/23/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0			1.0 J	05/26/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0	20.5 J	446		05/23/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0			16.1 J	05/26/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0	0.55 J	--- U		05/23/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0			--- U	05/26/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0	0.18 J	--- U		05/23/11	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0			0.11 J	05/26/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0	6.6 J	92		05/23/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0			11	05/26/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0	2.1 J	0.80 J		05/23/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0			1.7 J	05/26/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	5.4 J	3.0 J		05/23/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0			0.18 J	05/26/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	3.0 J	0.04 J		05/23/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0			0.09 J	05/26/11	LFJ	EPA200.8
Mercury, ug/l	0.05	0.20	--- U	--- U		05/23/11	CMF	EPA200.8
Mercury, ug/l	0.05	0.20			--- U	06/04/11	ADD	EPA245.1
Nickel, ug/l	0.04	50.0	10.7 J	36.0 J		05/23/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0			11.4 J	05/26/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0	0.38 J			05/23/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0		--- U		06/02/11	CMF	SM3113B
Selenium, ug/l	0.20	10.0			3.4 J	05/26/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0	--- U	--- U		05/23/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0			--- U	05/26/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	0.03 J	--- U		05/23/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5			0.11 J	05/26/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0	3.0 J	0.47 J		05/23/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0			--- U	05/26/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0	32	1.4 J		05/23/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0			6.4 J	05/26/11	LFJ	EPA200.8
Sulfide, ug/l	100	1000	--- U	--- U	--- U	05/20/11	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: 05/17/11
DATE EXTRACTED: 05/23/11
DATE ANALYZED: 06/16/11
DATE REPORTED: 06/30/11

REVIEWED BY:

PESTICIDES AND PCB'S
EPA METHOD 8081B

PARAMETERS, ug/l	MDL	SWSL	MW-5A	MW-7	MW-7D
1. Aldrin	0.029	0.05	--- U	--- U	--- U
2. Alpha-BHC	0.032	0.05	--- U	--- U	--- U
3. Beta-BHC	0.031	0.05	--- U	--- U	--- U
4. Delta-BHC	0.030	0.05	--- U	--- U	--- U
5. Gamma-BHC (Lindane)	0.032	0.05	--- U	--- U	--- U
6. Chlordane	0.320	0.50	--- U	--- U	--- U
7. 4,4-DDD	0.051	0.10	--- U	--- U	--- U
8. 4,4-DDE	0.049	0.10	--- U	--- U	--- U
9. 4,4-DDT	0.052	0.10	--- U	--- U	--- U
10. Dieldrin	0.042	0.075	--- U	--- U	--- U
11. Endosulfan I	0.056	0.10	--- U	--- U	0.059 J
12. Endosulfan II	0.046	0.10	--- U	--- U	--- U
13. Endosulfan Sulfate	0.072	0.10	--- U	--- U	--- U
14. Endrin	0.053	0.10	--- U	--- U	--- U
15. Endrin Aldehyde	0.068	0.10	--- U	--- U	--- U
16. Heptachlor	0.039	0.05	--- U	--- U	--- U
17. Heptachlor Epoxide	0.042	0.075	--- U	--- U	--- U
18. Methoxychlor	0.530	1.00	--- U	--- U	--- U
19. Pcb's (Aroclors)	0.500	2.00	--- U	--- U	--- U
20. Toxaphene	0.690	1.50	--- U	--- U	--- U

NOTE: Surrogate recovery for locations MW-7 & MW-7D were outside control limits

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

ANALYST: MAO
DATE COLLECTED: 05/17/11
DATE ANALYZED: 05/25/11
DATE REPORTED: 06/30/11

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-5A	MW-7	MW-7D	Trip Blank
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U	0.70 J	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	1.20 J	0.60 J	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	11.10 J	12.90 J	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	0.50 J	1.10 J	2.80 J	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	0.30 J	4.40 J	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	--- U	2.00	0.50 J	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	0.40 J	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	0.30 J	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	24.20	10.10	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	1.60	12.30	10.20	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	1.20 J	0.50 J	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U	--- U

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

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Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
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ID#: 6031 B

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

DATE COLLECTED: 05/17/11
DATE REPORTED : 06/30/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-9C	MW-10	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	--- U	--- U	05/26/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0	1.1 J	0.67 J	05/26/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0	32.3 J	43.9 J	05/26/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0	1	0.24 J	05/26/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0	0.33 J	0.20 J	05/26/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0	29	9.2 J	05/26/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0	19	3.4 J	05/26/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	14	2.0 J	05/26/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	13	1.4 J	05/26/11	LFJ	EPA200.8
Mercury, ug/l	0.05	0.20	--- U	--- U	05/26/11	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	33.1 J	10.7 J	05/26/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0	2.1 J	--- U	05/26/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0	0.07 J	--- U	05/26/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	0.06 J	0.04 J	05/26/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0	12.2 J	1.6 J	05/26/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0	142	35	05/26/11	LFJ	EPA200.8
Sulfide, ug/l	100	1000	--- U	--- U	05/20/11	LFJ	SM4500-S2D

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Environment 1, Incorporated

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

CLIENT ID: 6031 B

ANALYST: CHS
DATE COLLECTED: 05/17/11
DATE EXTRACTED: 05/23/11
DATE ANALYZED: 06/16/11
DATE REPORTED: 06/30/11

REVIEWED BY:

PESTICIDES AND PCB'S
EPA METHOD 8081B

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

NOTE: Surrogate recovery for location MW-10 was outside control limits

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 B

ANALYST: CHS
DATE COLLECTED: 05/17/11
DATE EXTRACTED: 05/24/11
DATE ANALYZED: 06/01/11
DATE REPORTED: 06/30/11

LANDFILL APPENDIX II
EPA METHOD 8151A

PARAMETERS, ug/l	MDL	SWSL	MW-9C	MW-10
1. 2,4-D	0.36	2.0	--- U	--- U
2. Dinoseb	0.54	1.0	--- U	--- U
3. 2,4,5-TP	0.42	2.0	--- U	--- U
4. 2,4,5-T	0.47	2.0	--- 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 B

ANALYST: MAO
DATE COLLECTED: 05/17/11
DATE ANALYZED: 05/25/11
DATE REPORTED: 06/30/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-9C	MW-10
1. Chloromethane	0.77	1.0	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U
20. Benzene	0.24	1.0	--- U	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	1.10	2.00
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

ID#: 6031

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

DATE COLLECTED: 05/18/11
DATE REPORTED : 06/30/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-3	MW-6	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	--- U	--- U	05/26/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0	--- U	0.38 J	05/26/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0	15.3 J	33.5 J	05/26/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0	--- U	--- U	05/26/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0	0.08 J	0.05 J	05/26/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0	0.29 J	90	05/26/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0	1.9 J	1.7 J	05/26/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	0.24 J	0.29 J	05/26/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.65 J	0.12 J	05/26/11	LFJ	EPA200.8
Mercury, ug/l	0.05	0.20	--- U		05/26/11	LFJ	EPA200.8
Mercury, ug/l	0.05	0.20		--- U	06/04/11	ADD	EPA245.1
Nickel, ug/l	0.04	50.0	0.44 J	7.9 J	05/26/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0	--- U	--- U	05/26/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0	--- U	--- U	05/26/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	--- U	0.08 J	05/26/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0	0.58 J	--- U	05/26/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0	1.4 J	4.1 J	05/26/11	LFJ	EPA200.8
Sulfide, ug/l	100	1000	--- U	--- U	05/20/11	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
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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: 05/18/11
DATE EXTRACTED: 05/23/11
DATE ANALYZED: 06/16/11
DATE REPORTED: 06/30/11

REVIEWED BY:

PESTICIDES AND PCB'S
EPA METHOD 8081B

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

ANALYST: CHS
DATE COLLECTED: 05/18/11
DATE EXTRACTED: 05/24/11
DATE ANALYZED: 06/01/11
DATE REPORTED: 06/30/11

LANDFILL APPENDIX II
EPA METHOD 8151A

PARAMETERS, ug/l	MDL	SWSL	MW-3	MW-6
1. 2,4-D	0.36	2.0	--- U	--- U
2. Dinoseb	0.54	1.0	--- U	--- U
3. 2,4,5-TP	0.42	2.0	--- U	--- U
4. 2,4,5-T	0.47	2.0	--- 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: 05/18/11
DATE REPORTED: 06/30/11

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	Date Analyzed: MDL	SWSL	05/25/11 MW-3	05/25/11 MW-6	05/27/11 Equipment Blank	05/27/11 Trip Blank
1. Chloromethane	0.77	1.0	--- U	--- U	1.40	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	0.40 J	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	0.70 J	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	0.40 J	--- U	3.20 J	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	--- U	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	0.30 J	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	1.60	1.50	1.70	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U	--- U

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

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

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

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

ID#: 6031 B

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

DATE COLLECTED: 05/18/11
DATE REPORTED : 06/30/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-11	MW-12B	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.14	6.0	--- U	--- U	05/26/11	LFJ	EPA200.8
Arsenic, ug/l	0.10	10.0	1.3 J	1.6 J	05/26/11	LFJ	EPA200.8
Barium, ug/l	0.02	100.0	11.7 J	89.8 J	05/26/11	LFJ	EPA200.8
Beryllium, ug/l	0.02	1.0	--- U	--- U	05/26/11	LFJ	EPA200.8
Cadmium, ug/l	0.02	1.0	0.05 J	0.08 J	05/26/11	LFJ	EPA200.8
Cobalt, ug/l	0.03	10.0	7.7 J	255	05/26/11	LFJ	EPA200.8
Copper, ug/l	0.02	10.0	3.9 J	0.95 J	05/26/11	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	--- U	0.16 J	05/26/11	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.14 J	--- U	05/26/11	LFJ	EPA200.8
Mercury, ug/l	0.05	0.20	--- U	0.15 J	05/26/11	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0	1.1 J	9.7 J	05/26/11	LFJ	EPA200.8
Selenium, ug/l	0.20	10.0	--- U	0.58 J	05/26/11	LFJ	EPA200.8
Silver, ug/l	0.02	10.0	--- U	--- U	05/26/11	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	0.08 J	0.03 J	05/26/11	LFJ	EPA200.8
Vanadium, ug/l	0.14	25.0	0.28 J	--- U	05/26/11	LFJ	EPA200.8
Zinc, ug/l	0.24	10.0	5.8 J	5.3 J	05/26/11	LFJ	EPA200.8
Sulfide, ug/l	100	1000	--- U	--- U	05/20/11	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
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CLIENT: JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC, 27577

REVIEWED BY:

CLIENT ID: 6031 B

ANALYST: CHS
DATE COLLECTED: 05/18/11
DATE EXTRACTED: 05/23/11
DATE ANALYZED: 06/16/11
DATE REPORTED: 06/30/11

PESTICIDES AND PCB'S
EPA METHOD 8081B

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

NOTE: Surrogate recovery for location MW-11 was outside control limits

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 B

ANALYST: CHS
DATE COLLECTED: 05/18/11
DATE EXTRACTED: 05/24/11
DATE ANALYZED: 06/01/11
DATE REPORTED: 06/30/11

REVIEWED BY:

LANDFILL APPENDIX II
EPA METHOD 8151A

PARAMETERS, ug/l	MDL	SWSL	MW-11	MW-12B
1. 2,4-D	0.36	2.0	--- U	--- U
2. Dinoseb	0.54	1.0	--- U	--- U
3. 2,4,5-TP	0.42	2.0	--- U	--- U
4. 2,4,5-T	0.47	2.0	--- 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 B

ANALYST: MAO
DATE COLLECTED: 05/18/11
DATE ANALYZED: 05/27/11
DATE REPORTED: 06/30/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-11	MW-12B
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	14.00 J	--- U
8. Iodomethane	0.26	10.0	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	3.00 J	0.50 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	1.00
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	10.40
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	3.70	8.10
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	1.00 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.

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

6031
CLIENT: 6031 C **Week: 16**
6031B

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 OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Metals	Sulfide	EPA 8260B	8260 Dup. 1	EPA 8081B	8081B Duplicate	8151A Landfill	8260 Dup. 2
CHLORINE NEUTRALIZED AT COLLECTION													
pH CHECK (LAB)						12	9	12					12
CONTAINER TYPE, P/G						P	P	G	G	G	G	G	
CHEMICAL PRESERVATION						A	FD	E	E	A	A	A	
SW-1A	5/16/11	~~08:51~~ 09:31	N/A	20	3								
SW-2		08:51	N/A	20	3								
Piezometer #3		16:19	N/A	17	7								
MW-8A		14:52	N/A	17	3	X		X	X				
MW-17		14:19	N/A	18	3	X		X	X				
MW-14D		10:54	N/A	15	3	X		X	X				
MW-15D		11:44	N/A	15	3	X		X	X				
MW-16D		12:55	N/A	15	4	X		X	X				X
EQUIPMENT BLANK		18:02	N/A	N/A	1			X					
TRIP BLANK		N/A	N/A	N/A	1			X					
MW-4B		17:03	N/A	16	7	X	X	X	X	X	X	X	

PARAMETERS

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

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

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

SAMPLES COLLECTED BY: (Please Print) KEVIN J. SHIELDS

SAMPLES RECEIVED IN LAB AT 1.8 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
[signature]	5/17/11 09:00	[signature]	5/17/11 8:15 AM
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

№ 220835

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

Page 1 of 1

CLIENT: 6031 & 6031B

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

DISINFECTION
- [ ] CHLORINE
- [ ] UV
- [ ] NONE
- [ ] _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	METALS	SULFIDE	EPA 8260B	EPA 8260 Rep. 1	EPA 8081B	8081B Pollicare	8151A LANDFILL
						22	29	22	22			
						P	P	G	G	G	G	G
						A	FD	E	E	A	A	A
MW-9C *	5/17/11	09:15	N/A	14	7	X	X	X	X	X	X	X
MW-10	↓	10:05	↓	16	7	X	X	X	X	X	X	X
MW-7	↓	13:52	↓	18	7	X	X	X	X	X	X	X
MW-7D	↓	13:03	↓	16	7	X	X	X	X	X	X	X
MW-5A	↓	15:41	↓	15	7	X	X	X	X	X	X	X
TRIP BLANK	↓	N/A	↓	N/A	1			X				

PARAMETERS

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

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

CLASSIFICATION:
- [ ] WASTEWATER (NPDES)
- [ ] DRINKING WATER
- [ ] DWQ/GW
- [X] 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 0.2 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
[signature]	5/18/11 09:00	[signature]	5/18 4:11
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS: * COULD NOT COMPLETELY FILL SULFIDE CONTAINER FROM WELL # 9C; POOR RECOVERY.

Instructions for completing this form are on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

№ 103180

-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

Page 1 of 1

6031B

CLIENT: 6031 WEEK: 16

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

DISINFECTION
- [ ] CHLORINE
- [ ] UV
- [ ] NONE
- [ ] _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	METALS	SULFIDE	EPA 8260B	8260 Dup. 1	8260 Dup. 2	EPA 8081B	8081B Duplicate	8151A LANDFILL
						L2	D9	L2	L2				
						P	P	G	G	G	G	G	G
						A	FD	E	E	E	A	A	A
MW-6	5/18/11	10:14	N/A	18	7	x	x	x	x		x	x	x
MW-12B	↓	09:16	N/A	18	7	x	x	x	x		x	x	x
MW-11		11:25	N/A	15	7	x	x	x	x		x	x	x
MW-3		13:41	N/A	17	8	x	x	x	x	x	x	x	x
TRIP BLANK		N/A	N/A	N/A	1			x					
EQUIPMENT BLANK		14:28	N/A	N/A	1			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
- [x] 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 0-2 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
[signature]	5/19/11 09:00	[signature]	5/19 435
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

Instructions for completing this form are on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

№ 129391

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: 05/25/11
DATE REPORTED : 06/15/11

REVIEWED BY:

PARAMETERS	MDL	SWSL	Leak Detect	Leachate Jun Box	Analysis Date	Analyst	Method Code
BOD, mg/l	2.0	2.0	110	28	05/26/11	TRB	SM5210B
COD, mg/l	20.0	20.0	230	681	06/07/11	TRB	HACH8000
Total Suspended Residue, mg/l	1.0	1.0	34	63	05/27/11	HLB	SM2540D
Ammonia Nitrogen as N, mg/l	0.04	0.04	43.80	445	05/31/11	ANO	EPA350.1
Nitrate Nitrogen as N, mg/l	0.03	10.0	--- U	--- U	05/27/11	ANO	EPA353.2
Total Phosphorus as P, mg/l	0.04	0.04	0.23	1.80	06/02/11	MPH	EPA365.4
Sulfate, mg/l	5.0	250.0	--- U	14.9 J	06/01/11	TRB	SM426C
Antimony, ug/l	0.14	6.0	--- U	2.0 J	06/01/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0	3.5 J	9 J	06/01/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0	178	285	06/01/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	0.21 J	0.08 J	06/01/11	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	--- U	0.44 J	06/01/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	3.1 J	15	06/01/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	1.7 J	7.2 J	06/01/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	0.76 J	17	06/01/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	0.05 J	0.74 J	06/01/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	1.7 J	74	06/01/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	0.87 J	14	06/01/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0	--- U	0.24 J	06/01/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5	--- U	--- U	06/01/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	2.5 J	10.5 J	06/01/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	2.6 J	79	06/01/11	CMF	EPA200.8

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

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

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

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

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

CLIENT ID: 6054

ANALYST: MAO
DATE COLLECTED: 05/25/11
DATE ANALYZED: 06/07/11
DATE REPORTED: 06/15/11

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Leak Detect	Leachate Jun Box	Trip Blank
1. Chloromethane	0.77	1.0	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	13.10	0.80 J	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	0.70 J	0.90 J	--- 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	1870.00	68.30 J	--- 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	1.30	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	0.70 J	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	0.30 J	0.40 J	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	8.30	--- U	--- U
15. 2-Butanone	2.21	100.0	1700.00	27.10 J	--- 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	33.90	12.80	--- U
21. 1,2-Dichloroethane	0.27	1.0	3.50	1.00	--- U
22. Trichloroethene	0.23	1.0	0.50 J	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	1.00	0.60 J	--- 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	118.00	1.60 J	--- U
27. Toluene	0.23	1.0	127.00	3.80	--- 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	7.80 J	4.90 J	--- 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	1.80 J	2.20 J	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	90.40	4.30	--- U
37. Xylenes	0.68	5.0	149.00	60.50	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U
39. Styrene	0.19	1.0	0.40 J	0.30 J	--- 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	16.80	11.40	--- 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, Inc.
P.O. Box 7085, 114 Oakmont Dr.
Greenville, NC 27858

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

CHAIN OF CUSTODY RECORD

CLIENT: 6054 **Week: 16**

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

(919) 938-4747

DISINFECTION
- ☐ CHLORINE
- ☐ UV
- ☐ NONE
- ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	BOD	COD	TSR	Ammonia Nitro.	Nitrate	T. Phosphorus	Sulfate	Metals	EPA 8260B	8260 Dup. 1	8260 Dup. 2
							<2		<2		<2		<2	<2	<2	
						P	P	P	P	P	P	P	P	G	G	G
						A	C	A	C	A	C	A	A	E	E	E
Leak Detect	5/25/11	16:03	N/A	19	11											
Leachate Jun Box	5/25/11	15:18	N/A	23	10											
TRIP BLANKS	5/25/11	N/A	N/A	N/A	2									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 0.2 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
[signature]	09:00 5/26/11	[signature]	5/26 306
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.

№ 220832

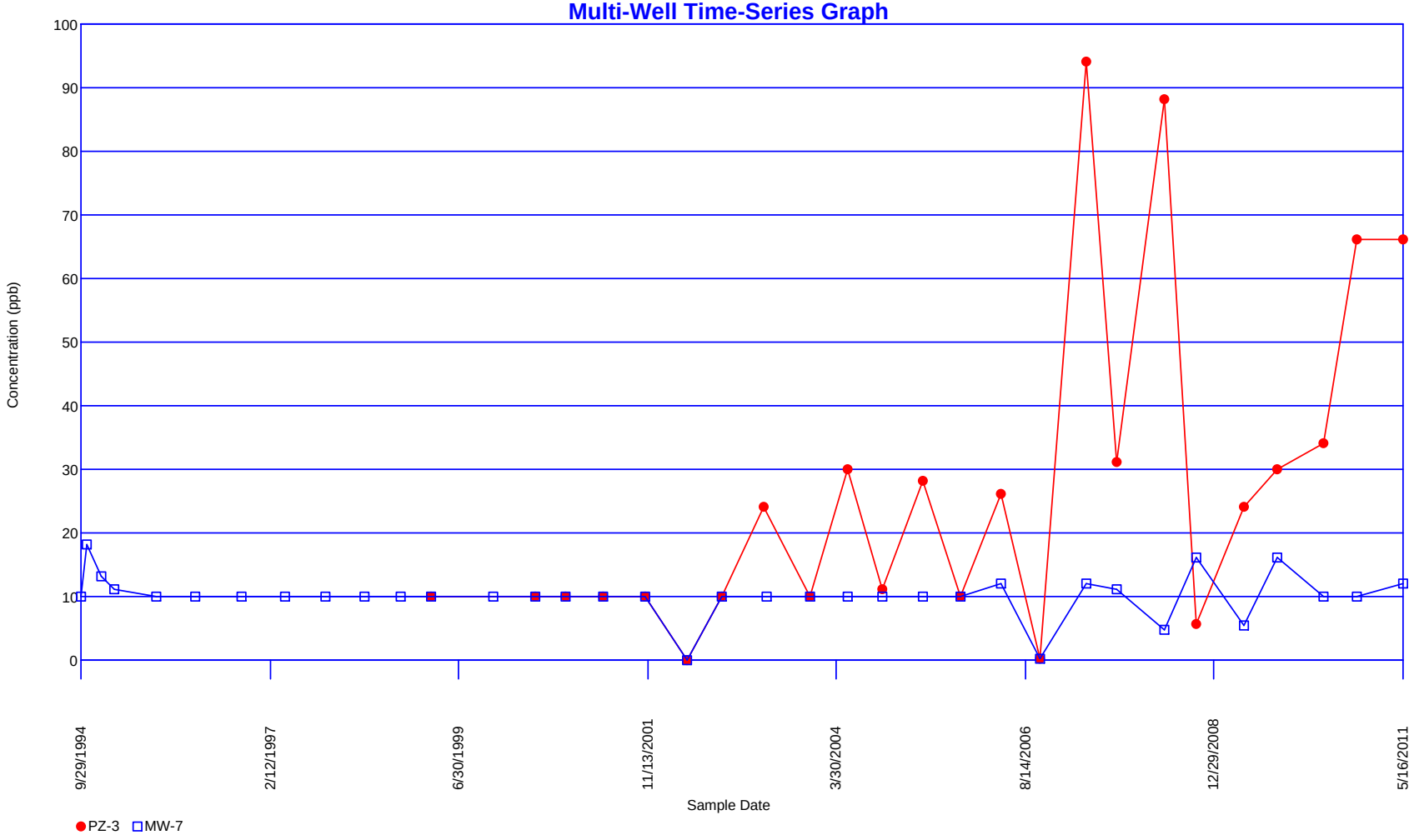
FORM #5

Appendix C

Time Vs. concentration Graphs

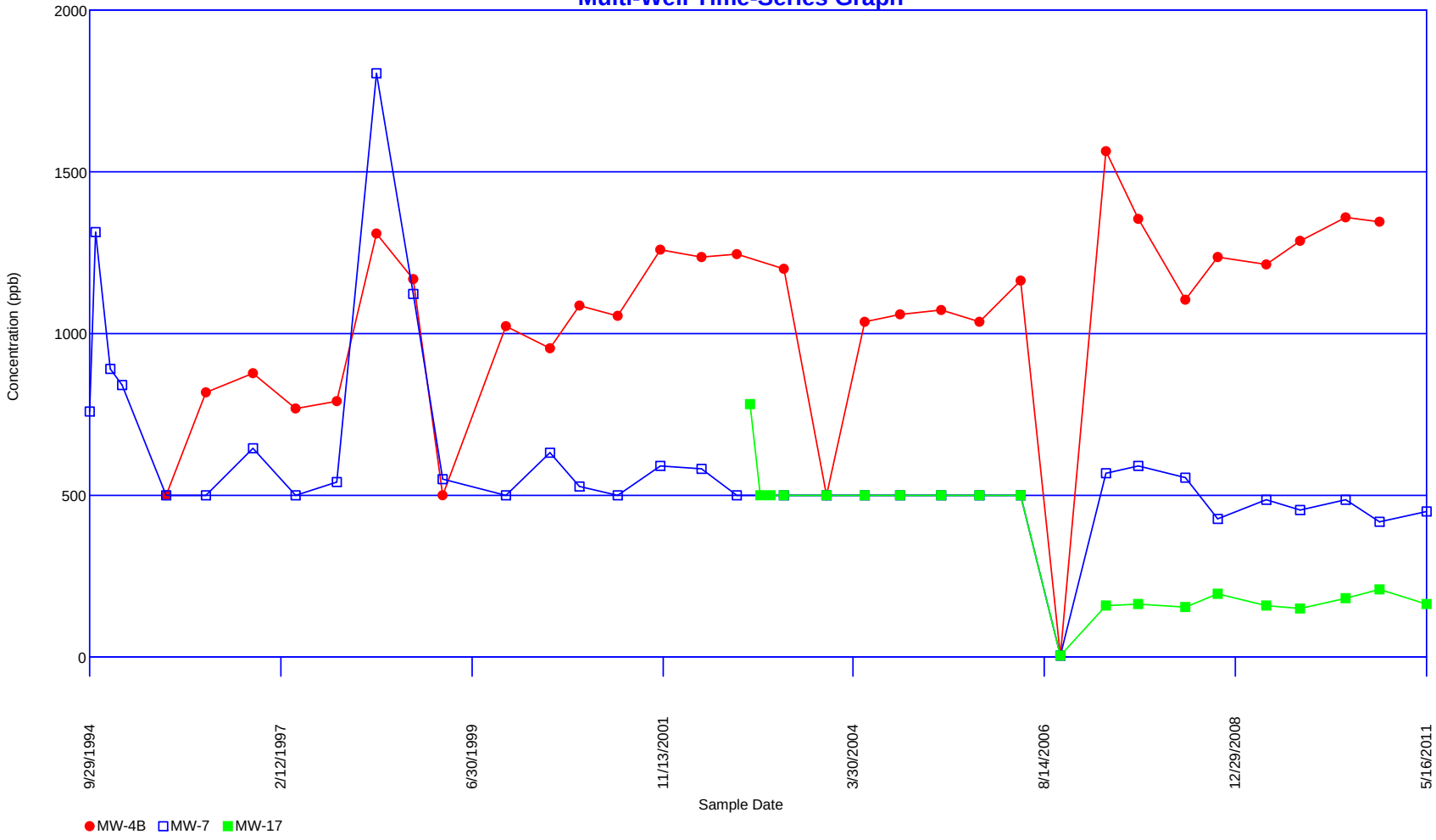
Arsenic

Multi-Well Time-Series Graph



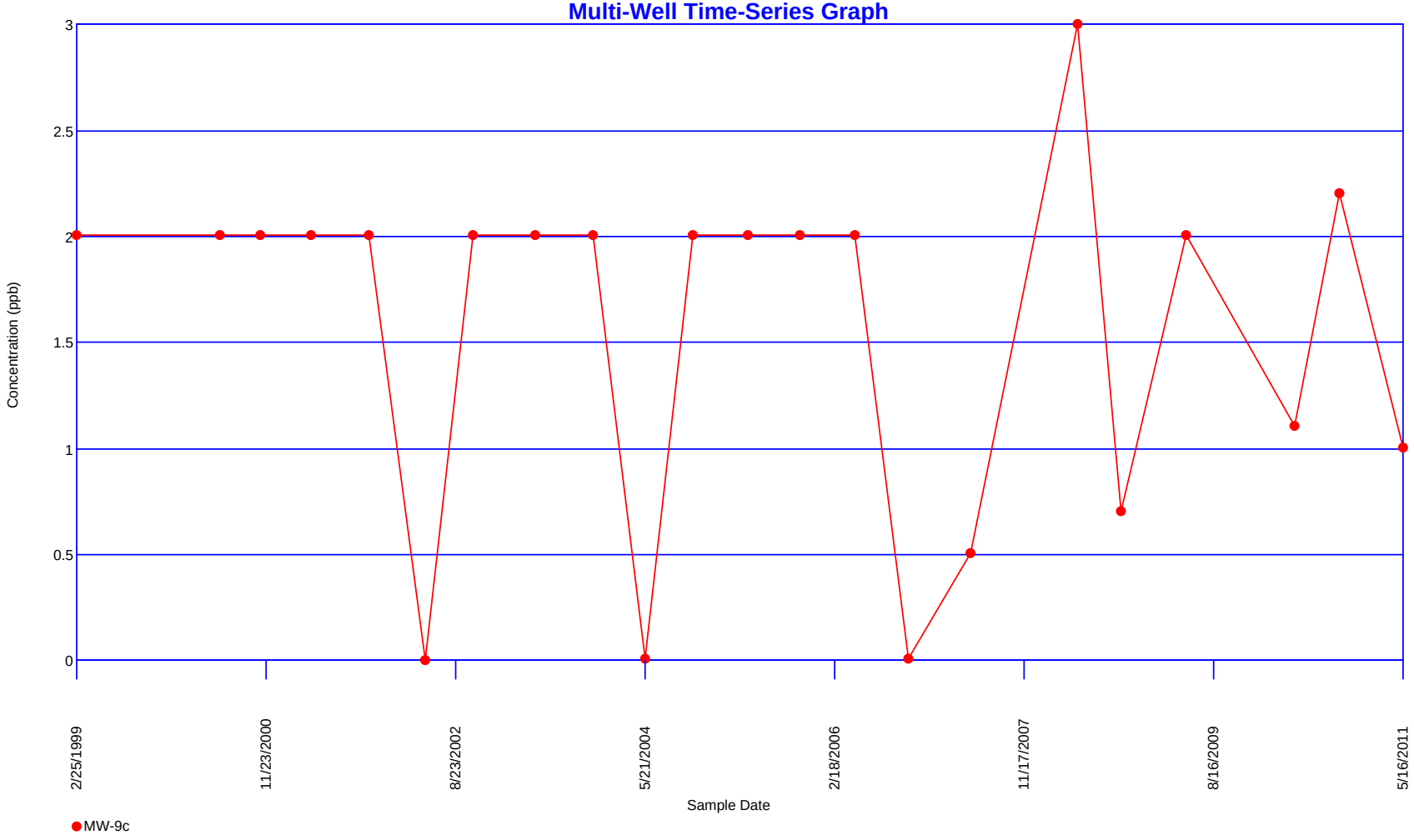
Barium

Multi-Well Time-Series Graph



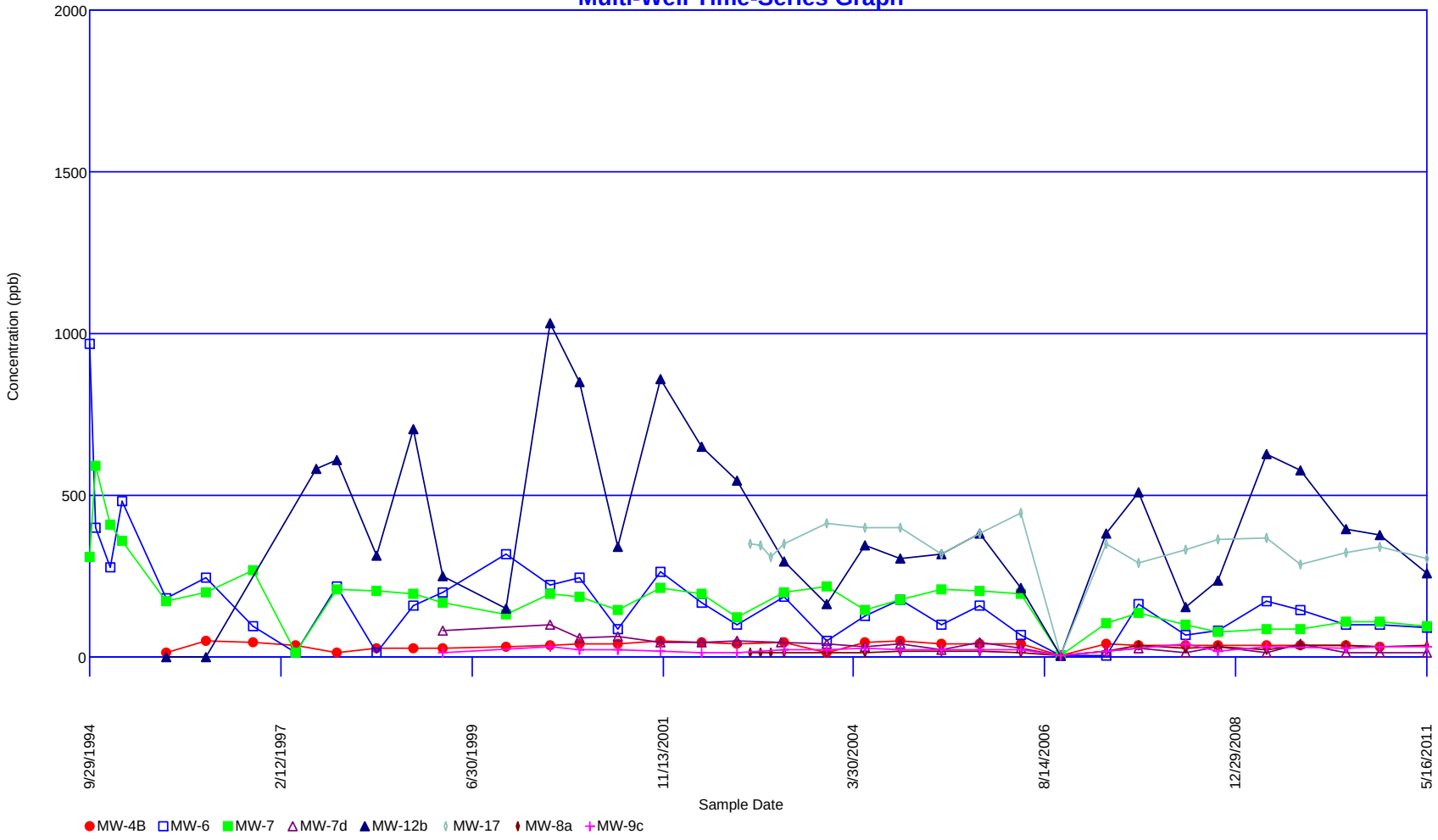
Beryllium

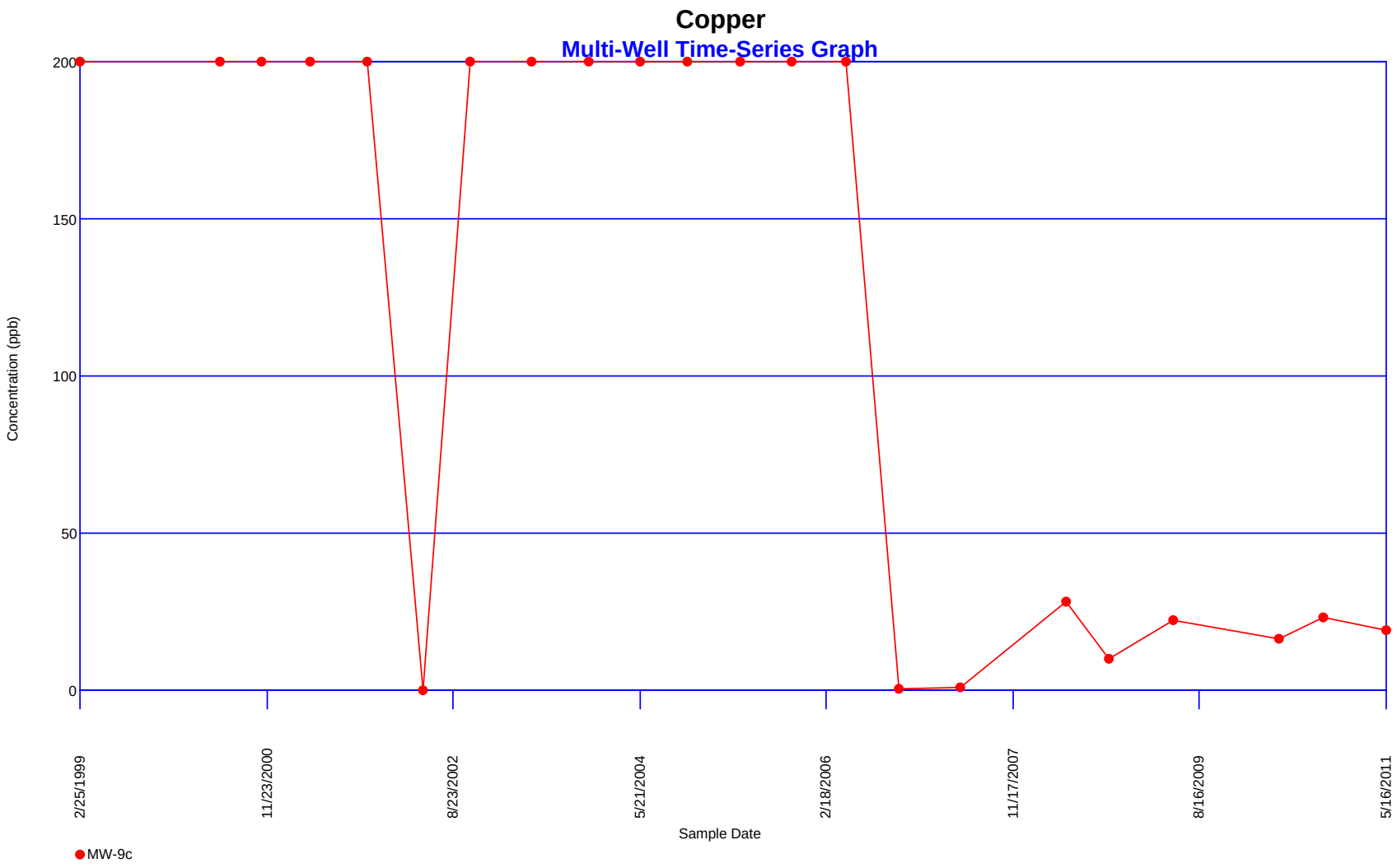
Multi-Well Time-Series Graph



Cobalt

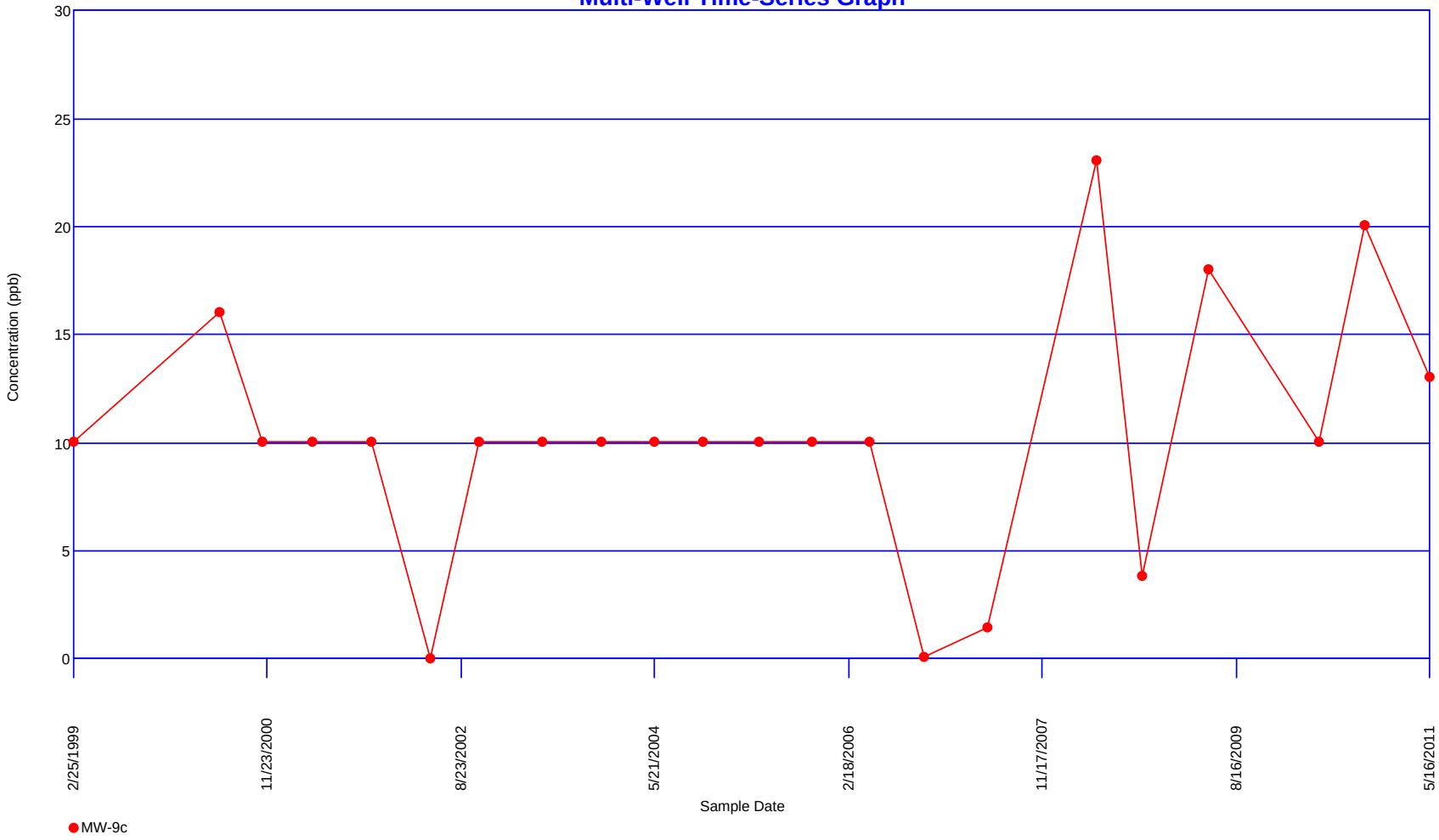
Multi-Well Time-Series Graph

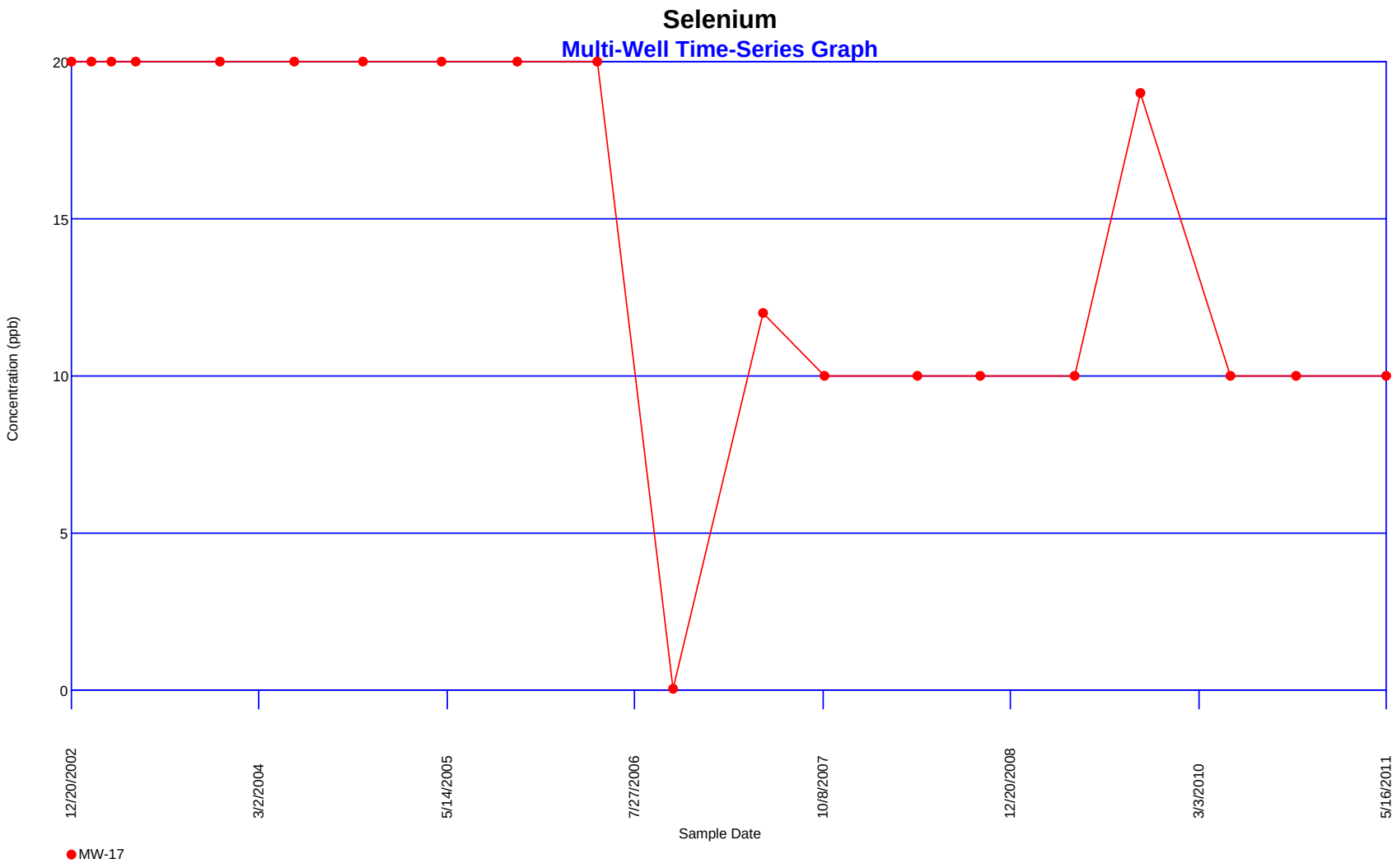



Copper
Multi-Well Time-Series Graph
Concentration (ppb)
200
150
100
50
0
2/25/1999
11/23/2000
8/23/2002
5/21/2004
2/18/2006
11/17/2007
8/16/2009
5/16/2011
Sample Date
MW-9c

Lead

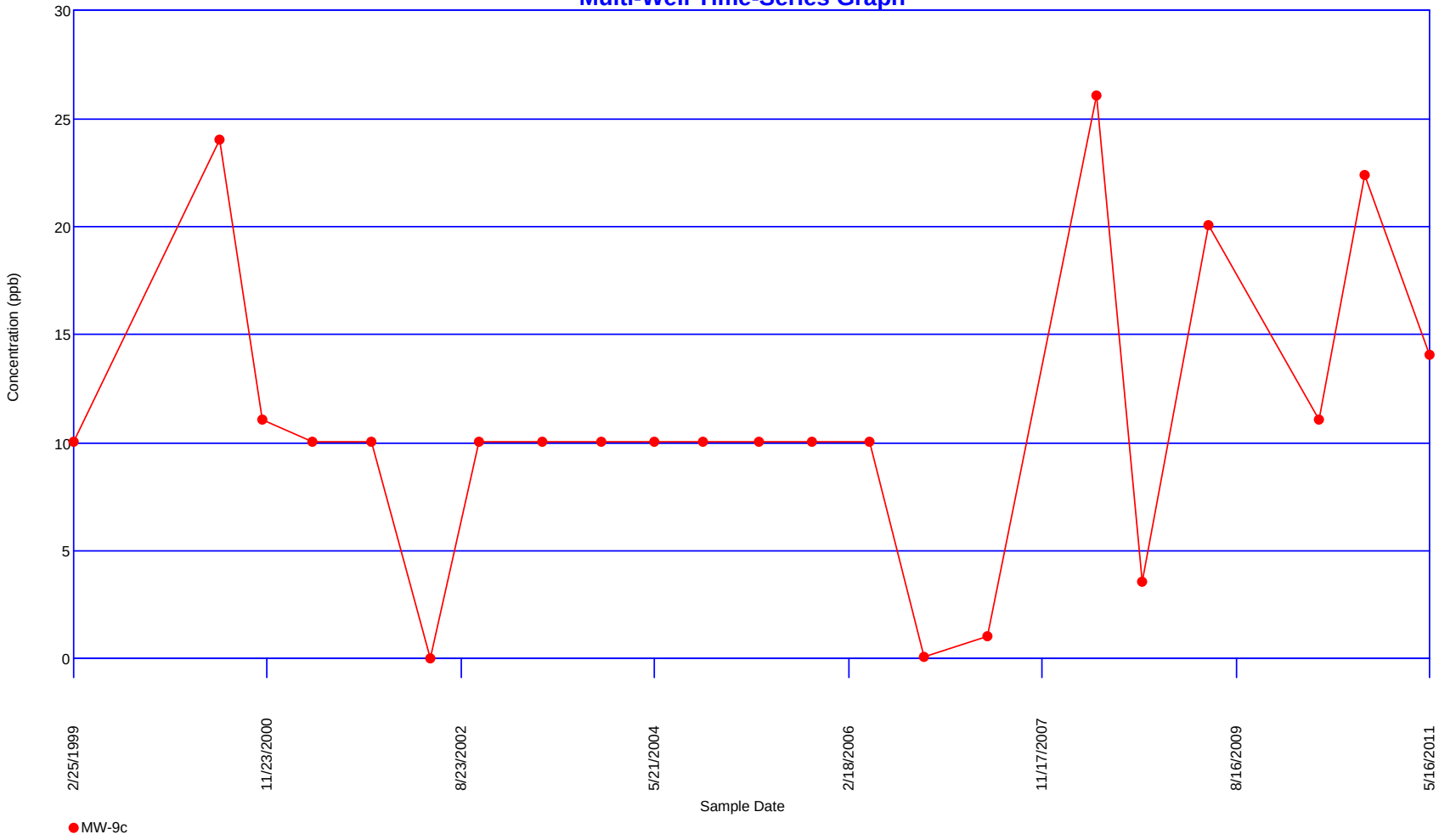
Multi-Well Time-Series Graph

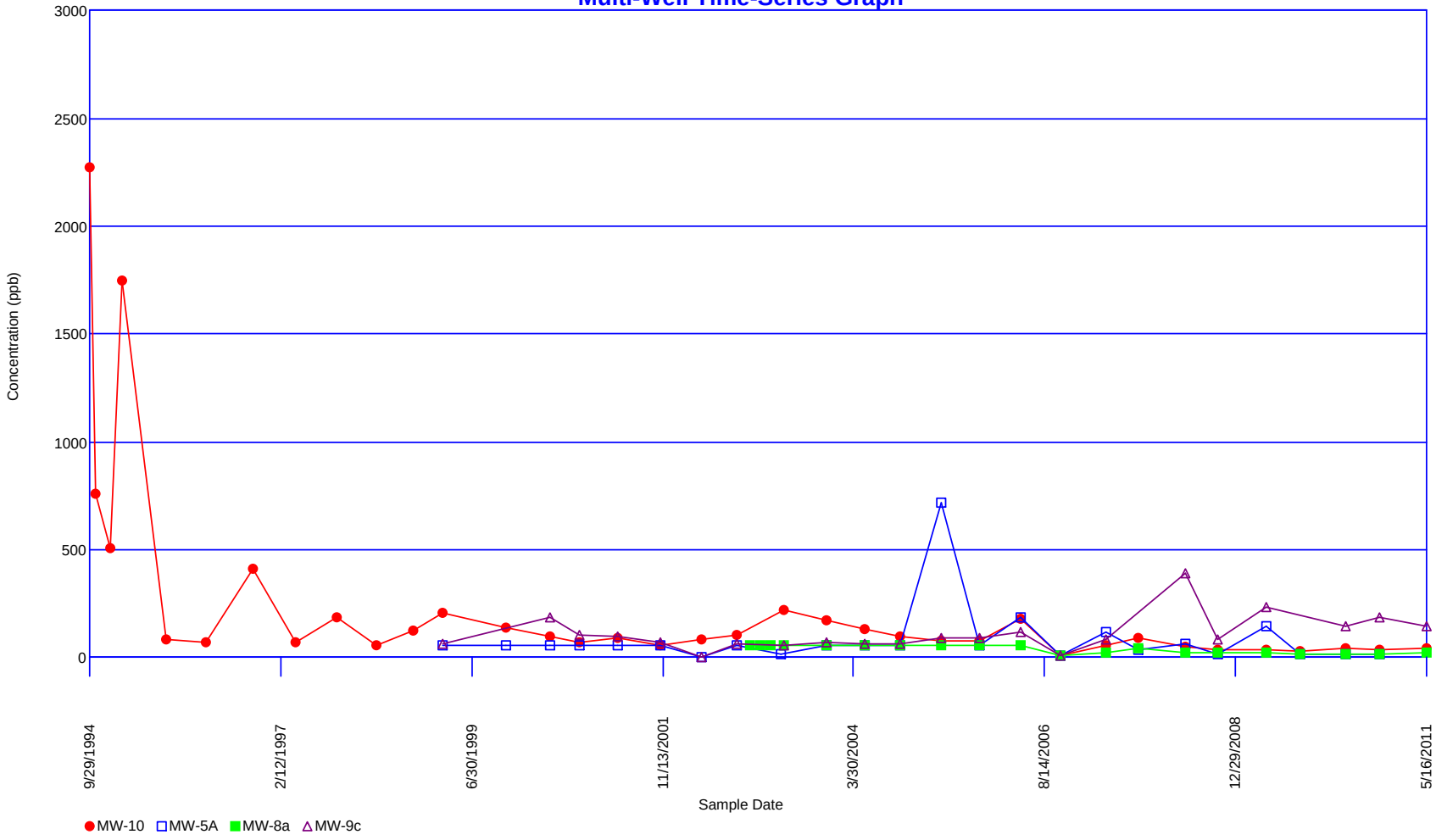



Selenium
Multi-Well Time-Series Graph
Concentration (ppb)
20
15
10
5
0
12/20/2002
3/2/2004
5/14/2005
7/27/2006
10/8/2007
12/20/2008
3/3/2010
5/16/2011
Sample Date
MW-17

Total Chromium

Multi-Well Time-Series Graph



Zinc

Multi-Well Time-Series Graph