

NC DENR
Division of Waste Management - Solid Waste

**Environmental Monitoring
Reporting Form**

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

Instructions:

- Prepare one form for each individually monitored unit.
- Please type or print legibly.
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i)).
- In accordance with NC General Statutes Chapter 89C and 89E and NC Solid Waste Management Rules 15A NCAC 13B, be sure to affix a seal to the bottom of this page, when applicable.
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

Solid Waste Monitoring Data Submittal Information

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

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 122

E-mail: joan@rsgengineers.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Johnston County Phase 1- 4 Landfill and Phase 4A landfill	680 County Home Road	51-03	.0500 and .1600	May 19th - 21st 2009

Environmental Status: (Check all that apply)

- Initial/Background Monitoring Detection Monitoring Assessment Monitoring Corrective Action

Type of data submitted: (Check all that apply)

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

Notification attached?

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

Certification

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

Joan A. Smyth, P.G. Senior Hydrogeologist 919-828-0577 x122

Facility Representative Name (Print)

Title

(Area Code) Telephone Number

Signature

Date

Affix NC Licensed Professional Geologist/Engineer Seal here:



**Johnston County Landfill
Phases 1 through 4 and Phase 4A**

Ground Water Monitoring Report

**May 2009 Semi-annual
Monitoring Event**

**Johnston County Landfill
Smithfield, North Carolina
NC Solid Waste Permit # 51-01 and 51-02**

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

July 2009



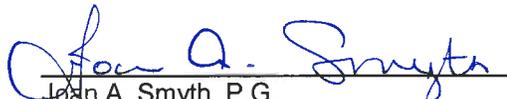
Spring 2009 Ground Water Monitoring Report

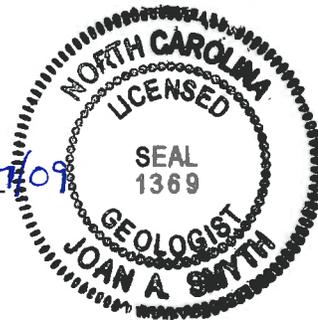
**Johnston County Landfill
Phases 1 through 4 and Phase 4A
Smithfield, North Carolina
NC Solid Waste Permit # 51-01 and 51-02**

Prepared for:

**Johnston County Department of Public Utilities
309 East Market Street
Smithfield, North Carolina 27577**

RSG Project No. **Johnston - 4**

 7/27/09
Joan A. Smyth, P.G.
Senior Hydrogeologist



July 2009



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**Johnston County Landfill
Phases 1 through 4 and Phase 4A
Semi-annual Ground Water Monitoring Report
May 2009 Sampling Event**

1.0 INTRODUCTION	1
2.0 SITE GEOLOGY	1
3.0 SAMPLING PROCEDURES	1
4.0 FIELD AND LABORATORY RESULTS	2
4.1 Laboratory Analysis.....	2
4.2 Field and Laboratory Results.....	2
5.0 STATISTICAL ANALYSIS AND RESULTS.....	3
5.1 Statistical Analysis.....	3
5.2 2L/MCL Statistical Analysis	4
6.0 GROUND WATER CHARACTERIZATION.....	4
7.0 CONCLUSIONS.....	4

FIGURES

Figure 1 – Ground Water Potentiometric Map

TABLES

Table 1 – Ground Water Elevations & Velocities

Table 2 – Field Parameters

Table 3 – Detected Inorganic Constituents

Table 4 – Detected Organic Constituents

Table 5 – Statistical Analysis Summary

APPENDICES

Appendix A – Laboratory Analytical Reports

Appendix B – Time vs. Concentration Graphs

1.0 Introduction

Johnston County previously operated four (4) unlined landfill units under Solid Waste Permit #51-01 (Phases 1 through 4). Phases 1-4 have been closed per applicable solid waste regulations. The Johnston County landfill currently accepts municipal solid waste (MSW) in a double-lined landfill (Phase 4a). Phase 4A is located as a “piggy back” over Phases 3 & 4, both of which are unlined. This report presents the results of the first semi-annual ground water monitoring event for 2009. Due to the proximity of the lined and unlined landfills, the data is presented together in this report. To comply with the semi-annual monitoring schedule required by NC Solid Waste Regulations, this event was conducted on May 19th – 21st, 2009.

The ground water monitoring network for Phases 1-4 consists of 15 wells located around the perimeter of the landfill. The network for Phase 4a consists of three (3) wells (**Figure 1**). Also included in the monitoring network are two surface water sampling points up and downstream of the landfill on Middle Creek (**Figure 1**).

2.0 Site Geology

The site is underlain by bedrock which consists of metamorphic rock types. Within the southern half of Johnston County sediments have been deposited on the bedrock through a series of sea level changes in the geologic past. 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 17 ground water wells (MW-3, MW-4B, MW-5A, MW-6, MW-7, MW-7d, MW-8a, MW-9c, MW-9d, MW-10, MW-11, MW-12b, MW-14d, MW-15d, MW-16d, MW-17 & PZ-3). Monitoring wells MW-8a and MW-17, associated with Phase 4a were analyzed with the Phase 1 through 4 data due to the proximity of these wells to unlined Phases 3 and 4. Monitoring well MW-8d (associated with Phase 4a) is sampled annually during the fall event. The well locations are shown in **Figure 1**. This sampling was conducted in accordance with the approved site Water Quality Monitoring Plan¹. Also included in the analysis were trip and field

¹ G.N. Richardson and Associates, Inc. Permit to Construct Application (Design Hydrogeologic Report), Johnston

blanks for quality control. Surface water samples were collected from two locations (SWPT-1 and SWPT-2) up and downstream from the landfill on 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 (MW-3, MW-4B, MW-6, MW-7, MW-10, MW-11, & MW-12b) or by disposable teflon bailers (MW-5A, MW-7d, MW-8a, MW-9c, MW-9d, MW-14d, MW-15d, MW-16d, MW-17& PZ-3). 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

The ground and surface water samples were transported to Environment 1, Inc., a North Carolina certified laboratory (NC Wastewater ID #10) for analysis. Laboratory analysis for wells associated with Phases 1 through 4 consisted of the full suite of RCRA Subtitle D Appendix II constituents. The wells associated with Phase 4a (MW-8a and MW-17) had samples analyzed for Appendix I constituents. Surface water samples were analyzed for Appendix I constituents only. Parameters were reported at NC DWM Solid Waste Section Limits (SWSLs)². Monitoring well boring logs are included in **Appendix A**. The laboratory analytical report is included as **Appendix B**.

4.2 Field and Laboratory Results

The field parameter results (**Table 2**) have remained consistent with previous sampling events. Detected constituents are presented in **Table 3 & 4**.

Nine (9) inorganic constituents were detected in eleven (11) wells: arsenic, barium, beryllium, cadmium, cobalt, copper, lead, total chromium and zinc. Two (2) constituents were detected above the 2L standard (NCAC T15A:2L.0202(g)):

- cobalt; and
- lead.

These are summarized in **Table 3**.

Five (5) volatile organic constituents were detected in seven (7) wells: 1,4-dichlorobenzene, benzene, chlorobenzene, cis-1,2 dichloroethene and vinyl chloride, shown in **Table 4**. Three (3) constituents were found at concentrations above the 2L standard:

County MSW Landfill- Phase 4a, Volume 2 of 2, (Appendix J), January 2002.

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

- 1,4-dichlorobenzene;
- benzene; and
- vinyl chloride.

These are summarized in **Table 4**.

None of the analyzed constituents were detected in any of the surface water samples. Constituents detected below the SWSL are denoted as “J” values and are also included in **Tables 3 and 4**.

5.0 Statistical Analysis and Results

5.1 Statistical Analysis

The laboratory data from the sampling event was reviewed and analyzed in order to evaluate trends and changes in the results as well as statistically significant differences between up and down gradient wells. Data entry and analysis was performed using the Chempoint/Chemstat statistical software package developed specifically for RCRA Subtitle D sites (Starpoint Software, Cincinnati, OH). Chemstat follows EPA and DWM protocols for approved statistical analysis methods for groundwater data.

The data from this monitoring event were added to our existing database for this site. The data were reviewed to evaluate the most appropriate analysis methods. Non-parametric testing methods were used on most wells due to the lack of normality in the data. Statistical analysis was performed using MW-3 as the upgradient or background well and MW-4B, MW-4d, MW-5a, MW-6, MW-7, MW-7d, MW-8a, MW-9c, MW-9d, MW-10, MW-11, MW-12b, MW-14d, MW-15d, MW-16d & PZ-3 as the down gradient or compliance wells. Additionally, the two monitoring wells associated with Phase 4a (MW-8a and MW-17), were also statistically analyzed using MW-3 as the upgradient well. These wells were analyzed with Phases 1 through 4 due to their close proximity to unlined Phases 3 and 4. The statistical analysis reports are summarized in **Table 5**. Statistically significant differences from background concentrations (**Table 5**) were found for:

- arsenic (PZ-3);
- barium (MW-4B);
- cobalt (MW-12b, MW-17, MW-4B, MW-5A, MW-6, MW-7, MW-7d, MW-8a, and MW-9c);
- lead (MW-9c);
- zinc (MW-10, MW-17 & MW-9c);
- 1,4-dichlorobenzene (MW-12b, MW-14d, MW-17, MW-4B, MW-7, MW-7d & PZ-3); &
- chlorobenzene (MW-12b, MW-17, MW-4B, MW-7, MW-7d & PZ-3).

During statistical analysis, time vs. concentration graphs were also reviewed. These graphs indicate the detected concentrations are generally stable at the site. These graphs are included in **Appendix C**. It should be noted that concentrations of cis-1, 2-dichloroethene are decreasing.

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, MCL or Ground Water Protection Standard (GWPS).

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

- arsenic (PZ-3);
- barium (MW-4B);
- cobalt (MW-12b, MW-17, MW-4B, MW-5A, MW-6, MW-7, MW-7d, MW-8a, and MW-9c);
- lead (MW-9c);
- zinc (MW-10, MW-17 & MW-9c); &
- 1,4-dichlorobenzene (MW-12b, MW-14d, MW-17, MW-4B, MW-7, MW-7d & PZ-3).

6.0 Ground Water Characterization

A potentiometric surface map was prepared from ground water elevation data collected. The data indicates that ground water is flowing generally to the north towards Middle Creek. This is consistent with ground water flow patterns previously detected for the site. The potentiometric surface map is attached as **Figure 1**.

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

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

Ground water flow velocities ranged from 0.039 ft/day (MW-11) to 0.824 ft/day (MW-9c). These calculated flow velocities are included in **Table 1**.

7.0 Conclusions

The data and analyses from Phases 1 through 4, and 4a show relatively stable ground water quality at the Johnston County Landfills indicating impact from the unlined landfills. Elevated inorganic constituents appear to be due to high turbidity levels.

It should be noted that remedial strategies are ongoing at the site. These include the construction of Phase 4A (a double-lined landfill) as a “piggy-back” over unlined Phases 3 and 4 which has reduced rainwater infiltration into the unlined landfills. Additionally, a lined C&D landfill has been constructed over a portion of Phase 3 to further reduce rainwater infiltration and the production of leachate. Due to these strategies, ground water quality is expected to improve over time.

It should be noted that the two monitoring wells from Phase 4a were analyzed with Phases 1 through 4 due to the close proximity of these wells to the unlined Phases 3 and 4. Since MW-17

is located immediately adjacent to the base of Phase 3, it is likely an indicator of impact from the unlined landfill, rather than an indicator of impact from Phase 4a (a double-lined landfill).

The next semi-annual sampling event will be performed in fall 2009. These results will be reported upon receipt of the laboratory data and completion of the statistical analyses.

Figures

Tables

Table 1
Johnston County Phases 1 - 4, and 4A
Ground Water Elevations & Velocities
5/19/2009 - 5/21/2009

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	22.17	211.99	18.288	0.2	0.009	NA
MW-4B	642957.03	2171444.05	182.97	6.25	176.72	nm	nm	NA	NA
MW-4d*	642980.96	2171427.56	nm	nm	nm	nm	nm	NA	NA
MW-5A	643820.20	2172120.74	173.70	16.29	157.41	25.344	0.2	0.0058	0.735
MW-6	644684.58	2171378.66	166.60	38.65	127.95	1.829	0.2	0.085	0.777
MW-7	645068.98	2170795.87	163.24	23.91	139.33	6.941	0.2	0.023	0.798
MW-7b	645206.96	2170792.55	nm	nm	nm	nm	nm	NA	NA
MW-7d*	645222.32	2170726.50	127.91	4.48	123.43	nm	nm	NA	NA
MW-8a	645147.30	2170177.01	nm	5.1	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	9.19	158.70	4.709	0.2	0.035	0.824
MW-9d*	643868.45	2169252.80	nm	nm	nm	nm	nm	NA	NA
MW-10	644334.57	2169508.35	175.65	5.45	170.20	0.199	0.2	0.068	0.068
MW-11	644950.77	2169676.72	144.32	9.61	134.71	0.148	0.2	0.053	0.039
MW-12b	645008.00	2171279.00	156.14	29.01	127.13	nm	nm	0.046	NA
MW-13	644112.50	2171413.83	179.57	nm	nm	0.549	0.2	NA	NA
MW-13d*	644108.25	2171440.53	172.70	nm	nm	nm	nm	NA	NA
MW-14d*	645363.72	2170739.06	128.66	5.71	122.95	nm	nm	NA	NA
MW-15d*	645354.15	2170543.68	128.70	5.3	123.40	nm	nm	NA	NA
MW-16d*	645317.05	2170309.20	133.96	6.99	126.97	nm	nm	NA	NA
MW-17	644963.10	2170393.58	nm	17.32	nm	nm	nm	NA	NA
PZ-3	642528.15	2171107.90	194.91	9.18	185.73	nm	nm	NA	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

BPH = Below Pump Hk

* Deep wells not included in gradient calculation



Table 2
Johnston County Phases 1 - 4, and 4A
Field Parameters
5/19/2009 - 5/21/2009

Well Identification #	Static Water Level (ft) * (DTW)	Temperature (°Celsius)	Turbidity (NTU)	Specific Conductivity (uS/cm)	pH
MW – 3	22.17	16.79	1.8	37	4.08
MW – 4B	6.25	15.59	11.5	1540	6.34
MW – 4d	nm	nm	nm	nm	nm
MW – 5A	16.29	15.5	828	25	5.65
MW – 6	38.65	17.98	14.7	271	5.72
MW – 7	23.91	18.21	62.2	1850	6.34
MW – 7d	4.48	16.24	5.34	1099	6.36
MW - 8a	5.1	17.52	93.1	341	5.64
MW – 8d	nm	nm	nm	nm	nm
MW – 9c	9.19	14.49	9.83	116	4.72
MW – 9d	nm	nm	nm	nm	nm
MW – 10	5.45	16.21	311	87	5.99
MW – 11	9.61	15.33	0.95	126	6.46
MW – 12b	29.01	17.71	7.47	378	5.46
MW – 14d	5.71	14.8	2.65	572	6.77
MW – 15d	5.3	14.77	11.6	255	6.88
MW – 16d	6.99	14.51	4.95	280	5.52
MW – 17	17.32	17.15	254	1064	6.13
Piezometer #3	9.18	16.26	68	581	6.16
SWPT-1A	nm	17.42	74.7	97	7.02
SWPT-2	nm	17.57	45.3	121	7.01

nm = not measured

BPH = Below Pump Head

Note: Data collected by Kevin Shields of Johnston County



Table 3
Johnston County Phases 1 - 4 and Phase 4A
Detected Inorganic Constituents
5/19/2009 - 5/21/2009

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	1.4	ND	0.2 J	0.1 J	0.9 J	1 J	0.1 J	0.2 J	0.1 J	0.1 J	0.1 J	0.1 J	0.1 J	0.2 J	0.1 J	0.5 J	0.3 J	0.1 J	0.1 J
Arsenic	10	50	ND	10	1.6 J	0.7 J	5.4 J	5.7 J	2.5 J	2 J	0.3 J	1.5 J	4.1 J	1.5 J	2.3 J	1.2 J	7.1 J	24	0.8 J	0.8 J
Barium	100	2000	15.9 J	1211	60.7 J	40.1 J	483	17 J	92.6 J	38.8 J	37.5 J	16.3 J	202	1.8 J	28.3 J	94.4 J	157	63.9 J	37.9 J	35.7 J
Beryllium	1	4	ND	ND	2	ND	0.1 J	ND	0.2 J	2	0.2 J	ND	ND	ND	ND	0.1 J	0.2 J	0.1 J	0.1 J	0.1 J
Cadmium	1	1.75	ND	ND	1	ND	ND	ND	ND	0.9 J	ND	0.1 J	ND	0.1 J	ND	0.1 J	0.5 J	0.1 J	ND	ND
Cobalt	10	70	0.3 J	33	21	172	86	12	20	31	8.5 J	9.5 J	624	0.6 J	1.4 J	0.7 J	368	0.7 J	1.8 J	1.8 J
Copper	10	1000	0.2 J	1 J	10	0.6 J	7.7 J	1.3 J	6.3 J	22	2.8 J	0.4 J	2.1 J	2.5 J	2.3 J	0.6 J	45	6.6 J	5.4 J	2.8 J
Lead	10	15	0.1 J	ND	9.6 J	ND	0.3 J	ND	5.8 J	18	1.5 J	ND	0.2 J	2.1 J	4.4 J	0.4 J	27	2.3 J	2.2 J	1.8 J
Mercury	0.2	1.05	ND	0.04 J	ND	0.08 J	0.05 J	0.04 J	ND	ND	ND	ND	0.03 J	ND	ND	ND	ND	ND	ND	ND
Nickel	50	100	0.6 J	3.9 J	35 J	11.3 J	46.8 J	12.2 J	5.9 J	38.8 J	9.4 J	1.2 J	23.9 J	2.1 J	3.2 J	1.6 J	18.2 J	2.1 J	1.8 J	1.7 J
Selenium	10	50	ND	ND	2.7 J	ND	ND	ND	5.4 J	4 J	ND	ND	1.8 J	4 J	0.6 J	2.8 J	ND	4.8 J	ND	ND
Silver	10	17.5	ND	0.1 J	0.1 J	0.1 J	0.1 J	ND	0.1 J	0.2 J	ND	0.1 J	0.1 J	0.1 J	0.1 J	ND	0.2 J	0.3 J	0.2 J	ND
Thallium	5	---	ND	0.2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Chromium	10	50	ND	0.3 J	17	0.7 J	5.4 J	ND	5.2 J	20	1.1 J	ND	1.2 J	ND	1.3 J	1.4 J	11	3.8 J	2.2 J	1.8 J
Vanadium	25	---	0.3 J	1.1 J	10.5 J	ND	5.7 J	0.8 J	6.1 J	19.2 J	1 J	0.4 J	0.5 J	1.3 J	2.3 J	4.2 J	9.4 J	6.8 J	8.6 J	7.1 J
Zinc	10	1050	0.9 J	4.1 J	141	14	9.4 J	7.1 J	18	226	30	7.5 J	8.2 J	6.3 J	7 J	2 J	62	11	14	16

- 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.

Table 4
Johnston County Phases 1 - 4 and Phase 4A
Detected Organic Constituents
5/19/2009 - 5/21/2009

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	70	ND	ND	0.6 J	0.3 J	1.4 J	2.9 J	1.1 J	ND	ND	1 J	0.5 J	3.4 J	ND	ND	1.5 J	ND	ND	ND
1,2-Dichlorobenzene	5	24	ND	0.8 J	ND	ND	1.2 J	0.5 J	ND	ND	ND	ND	1.2 J	ND	ND	ND	0.9 J	1.6 J	ND	ND
1,2-Dichloroethane	1	0.38	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	1	0.51	ND	ND	ND	ND	0.2 J	0.4 J	ND	ND	ND	ND	ND	0.6 J	ND	ND	0.2 J	ND	ND	ND
1,3-Dichlorobenzene	5	170	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	1	1.4	ND	5	ND	ND	9.9	5.8	0.5 J	0.3 J	ND	ND	8.6	2.1	ND	ND	5	7.4	ND	ND
2-Butanone	100	4200	3.2 J	ND	ND	ND	ND	ND	ND	0.9 J	ND	ND	0.9 J	ND	ND	ND		1.4 J	ND	ND
2,4,5-T	2	---	ND	1.51 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Alpha-BHC	0.05	0.006	ND	ND	ND	ND	0.039 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Beta-BHC	0.05	0.019	ND	0.038 J	ND	ND	ND	0.037 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	100	700	6.4 J	5.4 J	4.9 J	4.6 J	8.7 J	18 J	5 J	8.6 J	4.7 J	4.5 J	6.7 J	5 J	4.4 J	4.6 J	4.6 J	6.9 J	6.1 J	5.9 J
Benzene	1	1	ND	3.8	ND	ND	2.5	0.6 J	0.4 J	ND	ND	ND	1.6	ND	ND	ND	2.1	2.5	ND	ND
Chlorobenzene	3	50	ND	11.9	ND	ND	22.5	9.2	0.7 J	ND	ND	ND	14.9	2.8 J	ND	ND	6.9	10.6	ND	ND
Chloroethane	10	2.8	ND	ND	ND	ND	1.6 J	ND	ND	ND	ND	ND	0.5 J	ND	ND	ND	1 J	ND	ND	ND
Chloroform	5	70	0.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	1	2.6	ND	ND	ND	ND	ND	ND	ND	0.3 J	ND	ND	0.2 J	ND	ND	ND	ND	ND	ND	0.2 J
Cis-1,2-Dichloroethene	5	70	ND	0.3 J	ND	0.7 J	0.2 J	5	0.5 J	ND	ND	ND	0.2 J	4.7 J	ND	ND	0.3 J	0.6 J	ND	ND
Methylene Chloride	1	4.6	ND	ND	ND	ND	ND	0.2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Gamma-BHC (Lindane)	0.05	0.2	ND	ND	ND	ND	0.036 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1	1000	ND	0.2 J	ND	ND	0.2 J	ND	0.2 J	ND	ND	ND	ND	0.2 J	ND	0.2 J	0.3 J	0.3 J	ND	ND
Trichloroethene	1	2800	ND	ND	ND	ND	ND	0.3 J	ND	ND	ND	ND	ND	0.3 J	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	1	2100	ND	ND	ND	ND	ND	ND	0.5 J	ND	ND	ND	ND	0.7 J	0.6 J	0.9 J	0.4 J	ND	ND	0.6 J
Vinyl Chloride	1	0.015	ND	1.4	ND	ND	ND	0.8 J	ND	ND	ND	ND	0.7 J	0.5 J	ND	ND	1.3	0.7 J	ND	ND
Xylenes	5	530	ND	ND	ND	ND	2 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	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.

Table 5
Johnston County Phases 1 - 4 and Phase 4A
Statistical Analysis Summary
5/19/2009 - 5/21/2009

Location	Parameter	Result	Detection Limit	Test Units	%ND	CL%	Test	Statistically Significant?	2nd statistical Analysis	Test
MW-12B	1,4-Dichlorobenzene	8.6	<1	ug/l	36.95		WILCOXON	Y	Y	MCL-PTI
MW-14D	1,4-Dichlorobenzene	2.1	<1	ug/l	36.95		WILCOXON	Y	Y	MCL-PTI
MW-17	1,4-Dichlorobenzene	5	<1	ug/l	36.95		WILCOXON	Y	Y	MCL-PTI
MW-4B	1,4-Dichlorobenzene	5	<1	ug/l	36.95		WILCOXON	Y	Y	MCL-PTI
MW-7	1,4-Dichlorobenzene	9.9	<1	ug/l	36.95		WILCOXON	Y	Y	MCL-PTI
MW-7D	1,4-Dichlorobenzene	5.8	<1	ug/l	36.95		WILCOXON	Y	Y	MCL-PTI
PZ-3	1,4-Dichlorobenzene	7.4	<1	ug/l	36.95		WILCOXON	Y	Y	MCL-PTI
MW-4B	Arsenic	0.01	<0.010	mg/l	70	93.9	NPPL	N	---	---
PZ-3	Arsenic	0.024	<0.010	mg/l	70	93.9	NPPL	Y	Y	MCL-PTI
MW-12B	Barium	0.202	<0.100	mg/l	51.9	86	NPPL	N	---	---
MW-17	Barium	0.157	<0.100	mg/l	51.9	86	NPPL	N	---	---
MW-4B	Barium	1.211	<0.100	mg/l	51.9	86	NPPL	Y	Y	MCL-PTI
MW-7	Barium	0.483	<0.100	mg/l	51.9	86	NPPL	N	---	---
MW-12B	Benzene	1.6	<1	ug/l	73.68	86	NPPL	N	---	---
MW-17	Benzene	2.1	<1	ug/l	73.68	86	NPPL	N	---	---
MW-4B	Benzene	3.8	<1	ug/l	73.68	86	NPPL	N	---	---
MW-7	Benzene	2.5	<1	ug/l	73.68	86	NPPL	N	---	---
PZ-3	Benzene	2.5	<1	ug/l	73.68	86	NPPL	N	---	---
MW-5A	Beryllium	0.002	<0.001	mg/l	78.87	93.9	NPPL	N	---	---
MW-9C	Beryllium	0.002	<0.001	mg/l	78.87	93.9	NPPL	N	---	---
MW-5A	Cadmium	0.001	<0.001	mg/l	80.76	96	NPPL	N	---	---
MW-12B	Chlorobenzene	14.9	<3	ug/l	28.25	---	WILCOXON	Y	N	MCL-PTI
MW-17	Chlorobenzene	6.9	<3	ug/l	28.25	---	WILCOXON	Y	N	MCL-PTI
MW-4B	Chlorobenzene	11.9	<3	ug/l	28.25	---	WILCOXON	Y	N	MCL-PTI
MW-7	Chlorobenzene	22.5	<3	ug/l	28.25	---	WILCOXON	Y	N	MCL-PTI
MW-7D	Chlorobenzene	9.2	<3	ug/l	28.25	---	WILCOXON	Y	N	MCL-PTI
PZ-3	Chlorobenzene	10.6	<3	ug/l	28.25	---	WILCOXON	Y	N	MCL-PTI
MW-7D	Cis-1,2-Dichloroethene	5	<5	ug/l	62.7	96.9	NPPL	N	---	---
MW-12B	Cobalt	0.624	<0.010	mg/l	20.66	---	WILCOXON	Y	Y	MCL-PTI
MW-17	Cobalt	0.368	<0.010	mg/l	20.66	---	WILCOXON	Y	Y	MCL-PTI
MW-4B	Cobalt	0.033	<0.010	mg/l	20.66	---	WILCOXON	Y	Y	MCL-PTI
MW-5A	Cobalt	0.021	<0.010	mg/l	20.66	---	WILCOXON	Y	Y	MCL-PTI

Table 5
Johnston County Phases 1 - 4 and Phase 4A
Statistical Analysis Summary
5/19/2009 - 5/21/2009

Location	Parameter	Result	Detection Limit	Test Units	%ND	CL%	Test	Statistically Significant?	2nd statistical Analysis	Test
MW-6	Cobalt	0.172	<0.010	mg/l	20.66	---	WILCOXON	Y	Y	MCL-PTI
MW-7	Cobalt	0.086	<0.010	mg/l	20.66	---	WILCOXON	Y	Y	MCL-PTI
MW-7D	Cobalt	0.012	<0.010	mg/l	20.66	---	WILCOXON	Y	Y	MCL-PTI
MW-8A	Cobalt	0.02	<0.010	mg/l	20.66	---	WILCOXON	Y	Y	MCL-PTI
MW-9C	Cobalt	0.031	<0.010	mg/l	20.66	---	WILCOXON	Y	Y	MCL-PTI
MW-17	Copper	0.045	<0.010	mg/l	67.86	91.2	NPPL	N	---	---
MW-5A	Copper	0.01	<0.010	mg/l	67.86	91.2	NPPL	N	---	---
MW-9C	Copper	0.022	<0.010	mg/l	67.86	91.2	NPPL	N	---	---
MW-17	Lead	0.027	<0.010	mg/l	50	---	WILCOXON	N	---	---
MW-9C	Lead	0.018	<0.010	mg/l	50	---	WILCOXON	Y	Y	MCL-PTI
MW-17	Total Chromium	0.011	<0.010	mg/l	52	91.2	NPPL	N	---	---
MW-5A	Total Chromium	0.017	<0.010	mg/l	52	91.2	NPPL	N	---	---
MW-9C	Total Chromium	0.02	<0.010	mg/l	52	91.2	NPPL	N	---	---
MW-17	Vinyl Chloride	1.3	<1	ug/l	86	93.9	NPPL	N	---	---
MW-4B	Vinyl Chloride	1.4	<1	ug/l	86	93.9	NPPL	N	---	---
MW-10	Zinc	0.03	<0.010	mg/l	45	---	WILCOXON	Y	Y	MCL-PTI
MW-17	Zinc	0.062	<0.010	mg/l	45	---	WILCOXON	Y	Y	MCL-PTI
MW-5A	Zinc	0.141	<0.010	mg/l	45	---	WILCOXON	N	---	---
MW-6	Zinc	0.014	<0.010	mg/l	45	---	WILCOXON	N	---	---
MW-8A	Zinc	0.018	<0.010	mg/l	45	---	WILCOXON	N	---	---
MW-9C	Zinc	0.226	<0.010	mg/l	45	---	WILCOXON	Y	Y	MCL-PTI
PZ-3	Zinc	0.011	<0.010	mg/l	45	---	WILCOXON	N	---	---

Legend:

%ND Method chosen due to percent non-detects
 NPPL Non-Parametric Tolerance Limit
 KW Kruskal-Wallis Non-Parametric Test
 WRS Wilcoxon Rank Sum Test
 Highlighting indicates statistical significance.

Notes:

MW-3 was used as the background well

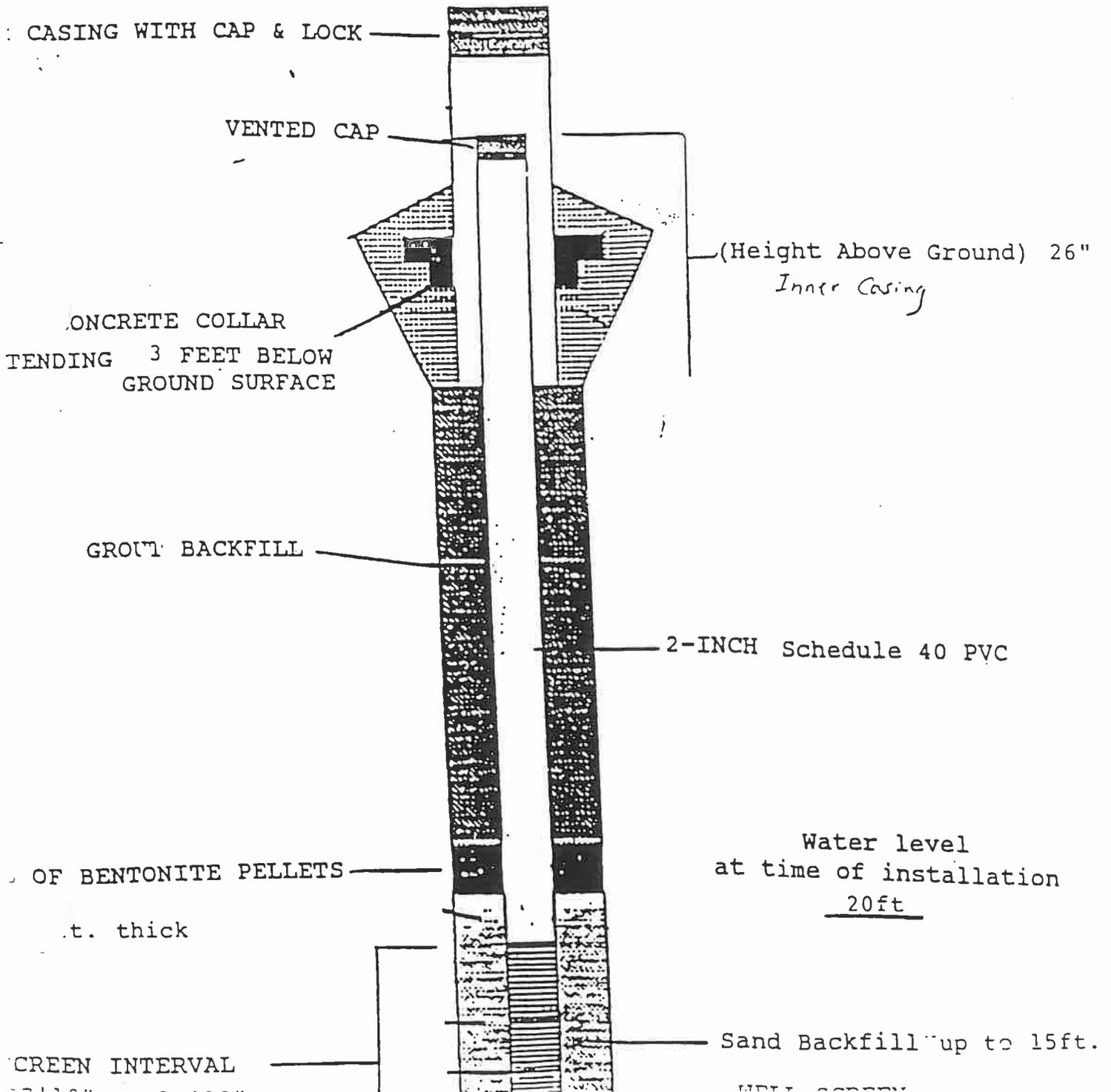
Appendix A

Monitoring Well Information

Well Construction Record
Soil & Environmental Consultants, Inc.
Soil & Environmental Consultants, Inc.
Well Construction Record
REGISTRATION NUMBER 1292

Bobby

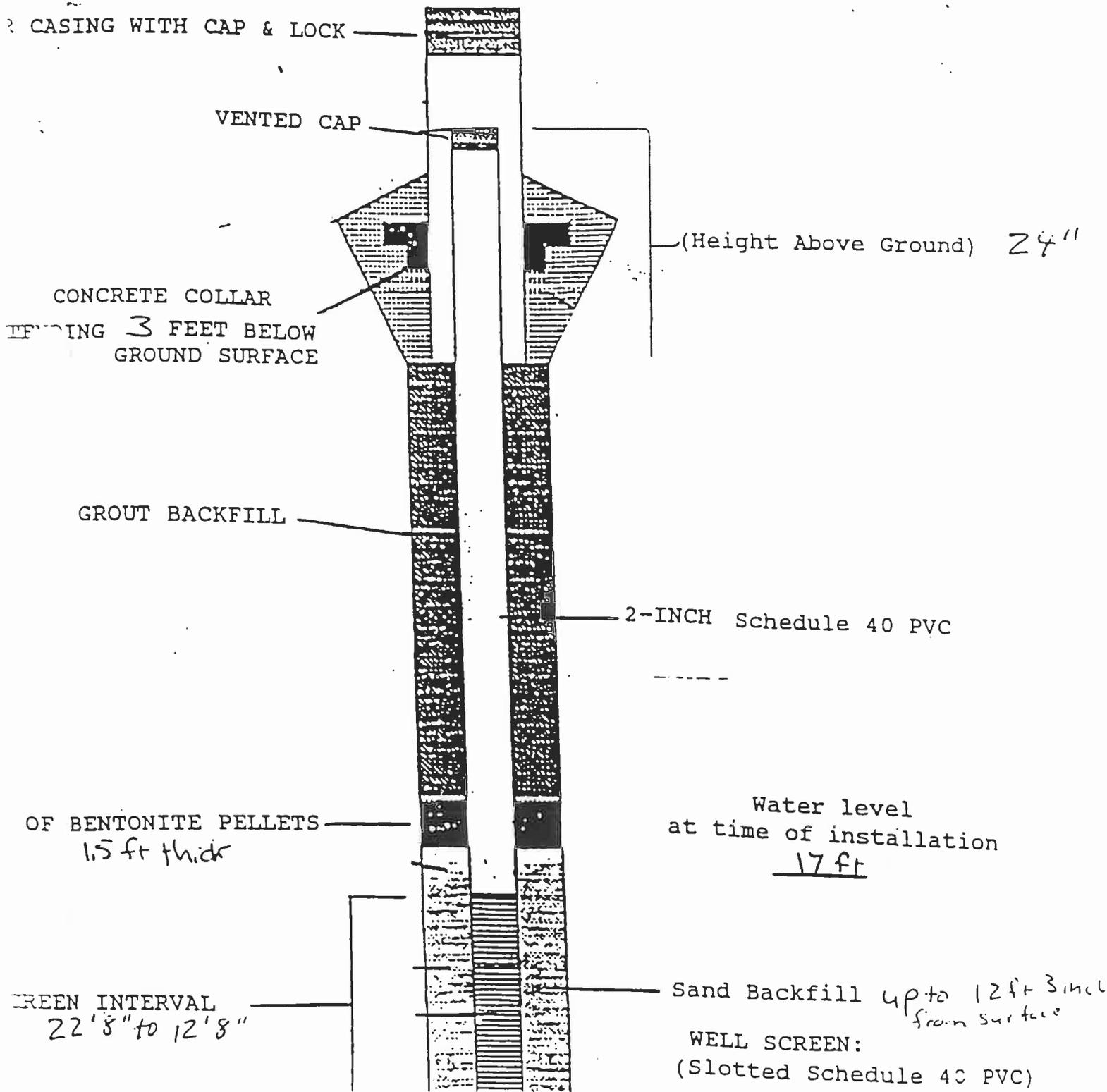
✓ Well Number: 3
Location: Johnston County Landfill
Date: April 16, 1991.



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'			

Commercial Consultants, Inc.
Well Construction Record
REGISTRATION NUMBER 1292
Well Number: 4
Location: Johnston Co. Land f. 11
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

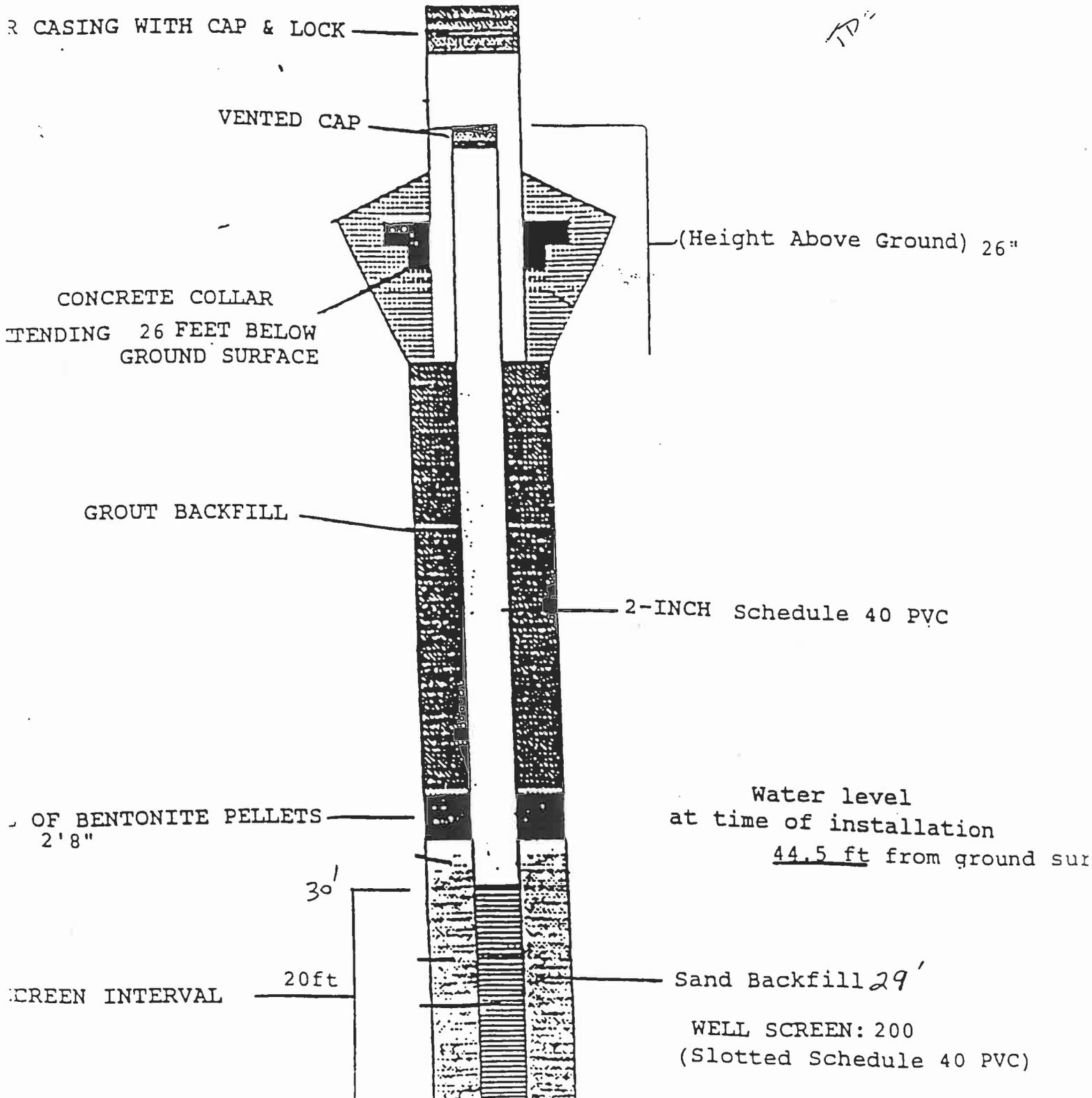
REGISTRATION NUMBER 1292

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 Number: 7

Location: Johnston County Landfill

Date: June 14, 1991

TD = 35

R CASING WITH CAP & LOCK

VENTED CAP

(Height Above Ground) 26"

CONCRETE COLLAR
ENDING 15.5 FEET BELOW
GROUND SURFACE

GROUT BACKFILL

2-INCH Schedule 40 PVC

OF BENTONITE PELLETS

Water level
at time of installation
22'9" from ground surfa

3.5ft

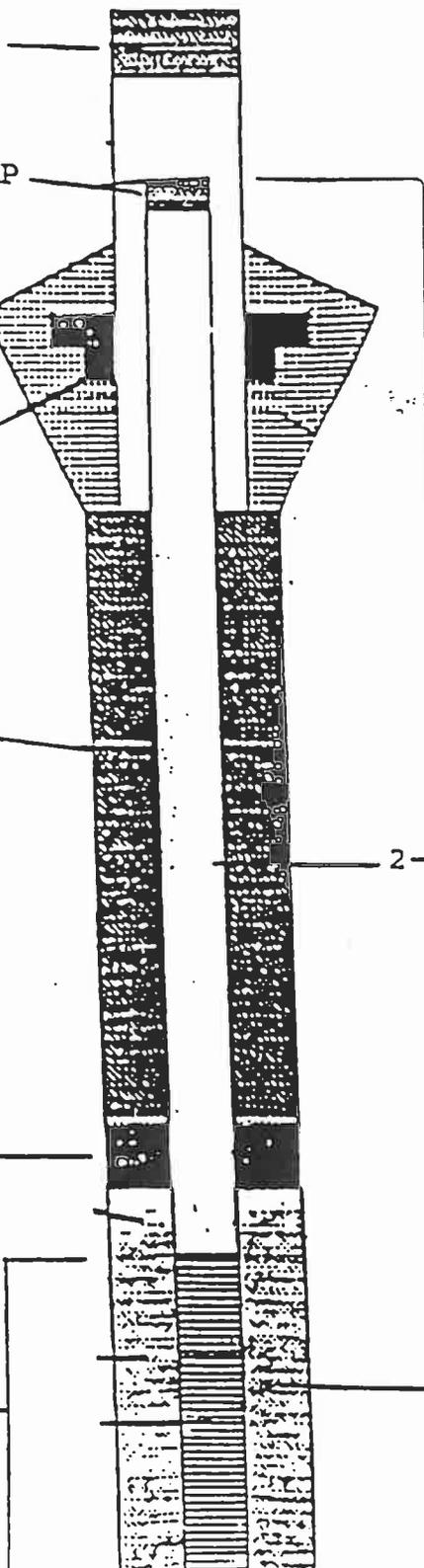
20

SCREEN INTERVAL

15ft

Sand Backfill 18.5'

WELL SCREEN: 200
(Slotted Schedule 40 PVC)



Well Construction Record

REGISTRATION NUMBER 1292

Well Number: 8

OID #5

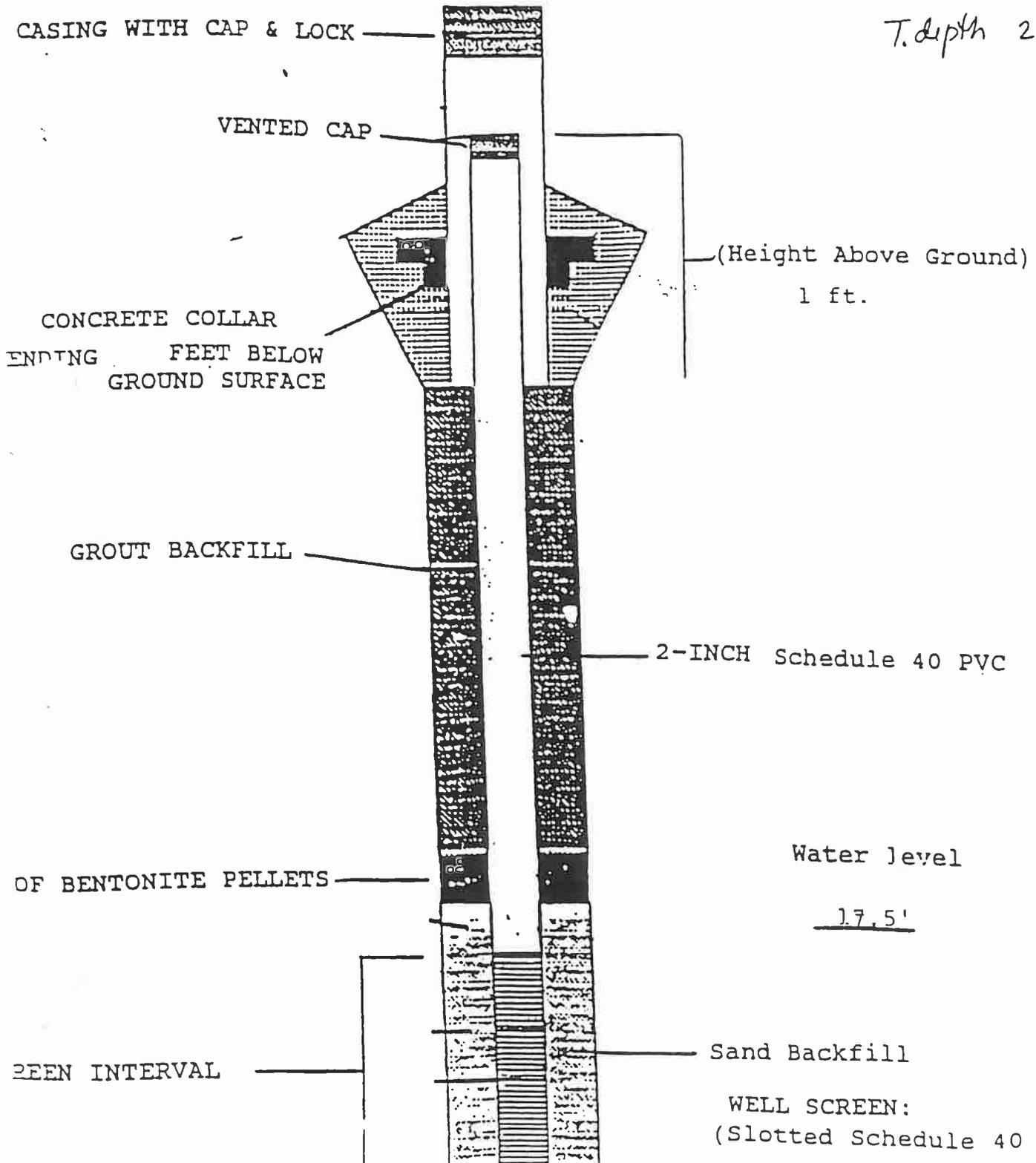
Location:

Old

Date:

* This well was installed some years ago and S&EC has no record of 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

Well Construction Record

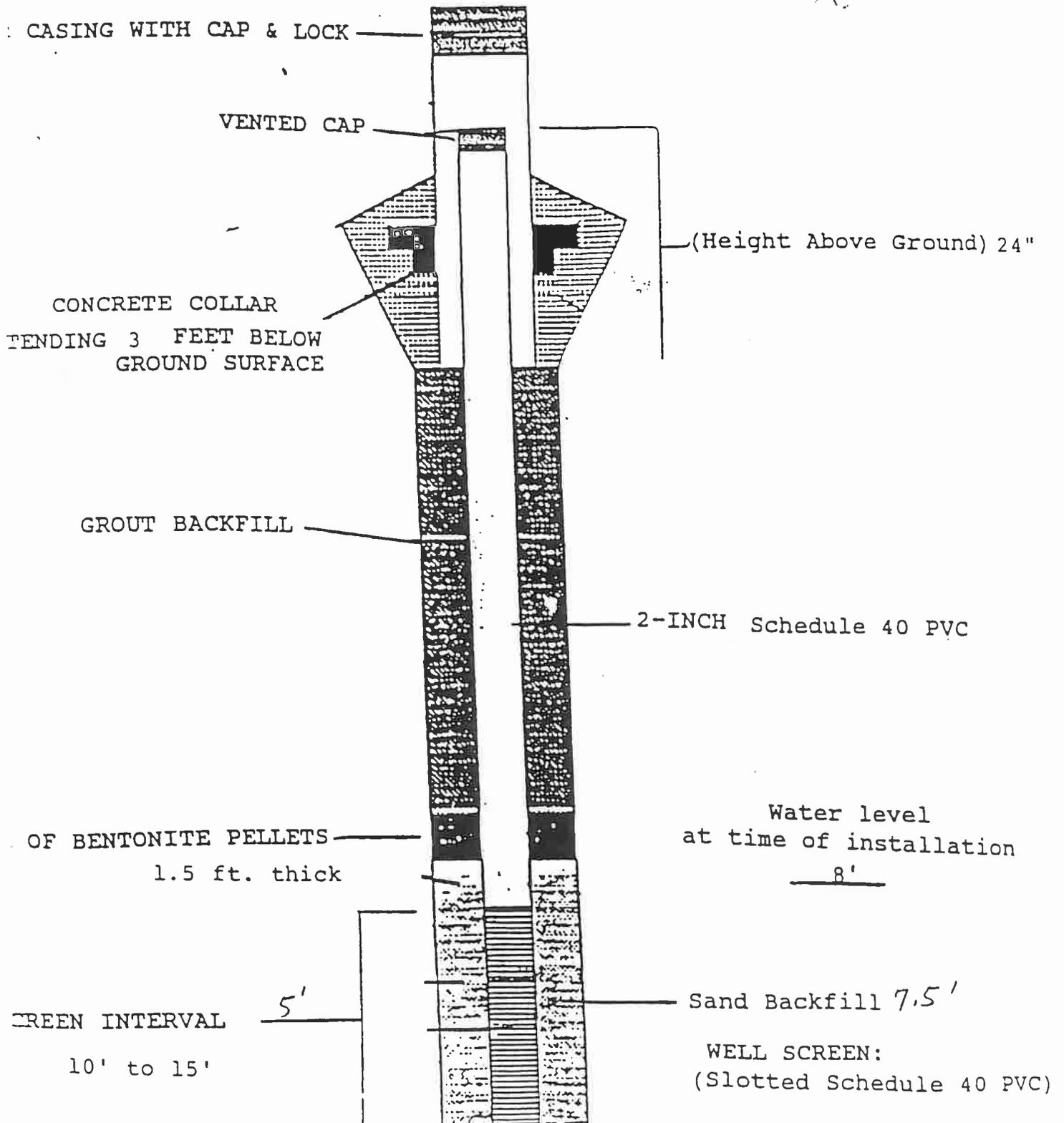
REGISTRATION NUMBER 1292

Well Number: 9

Location: Johnston County Landfill

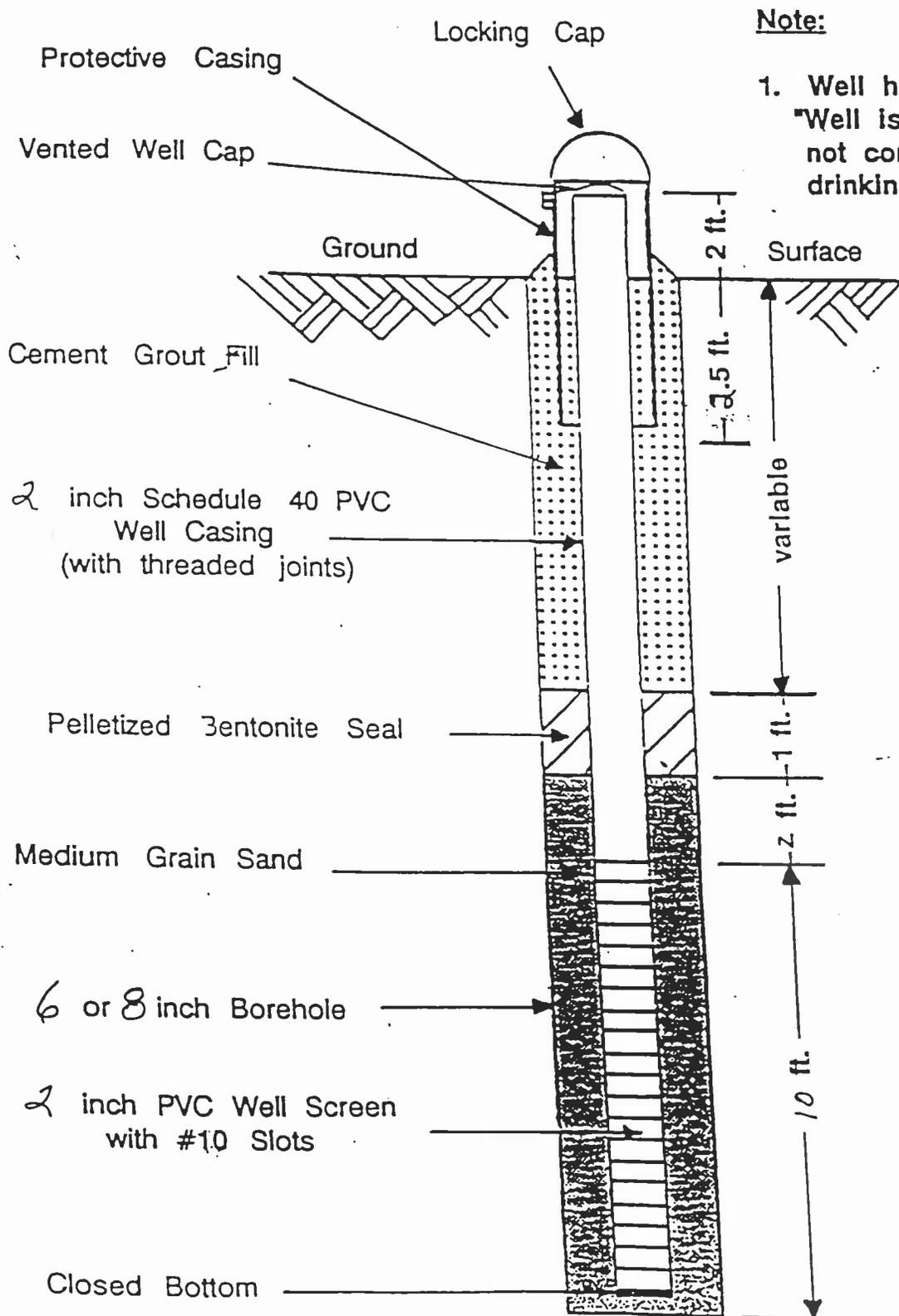
Date: April 16, 1991

TR = 15"



MONITORING WELL CONSTRUCTION

JOHNSTON COUNTY LANDFILL (TYP.)

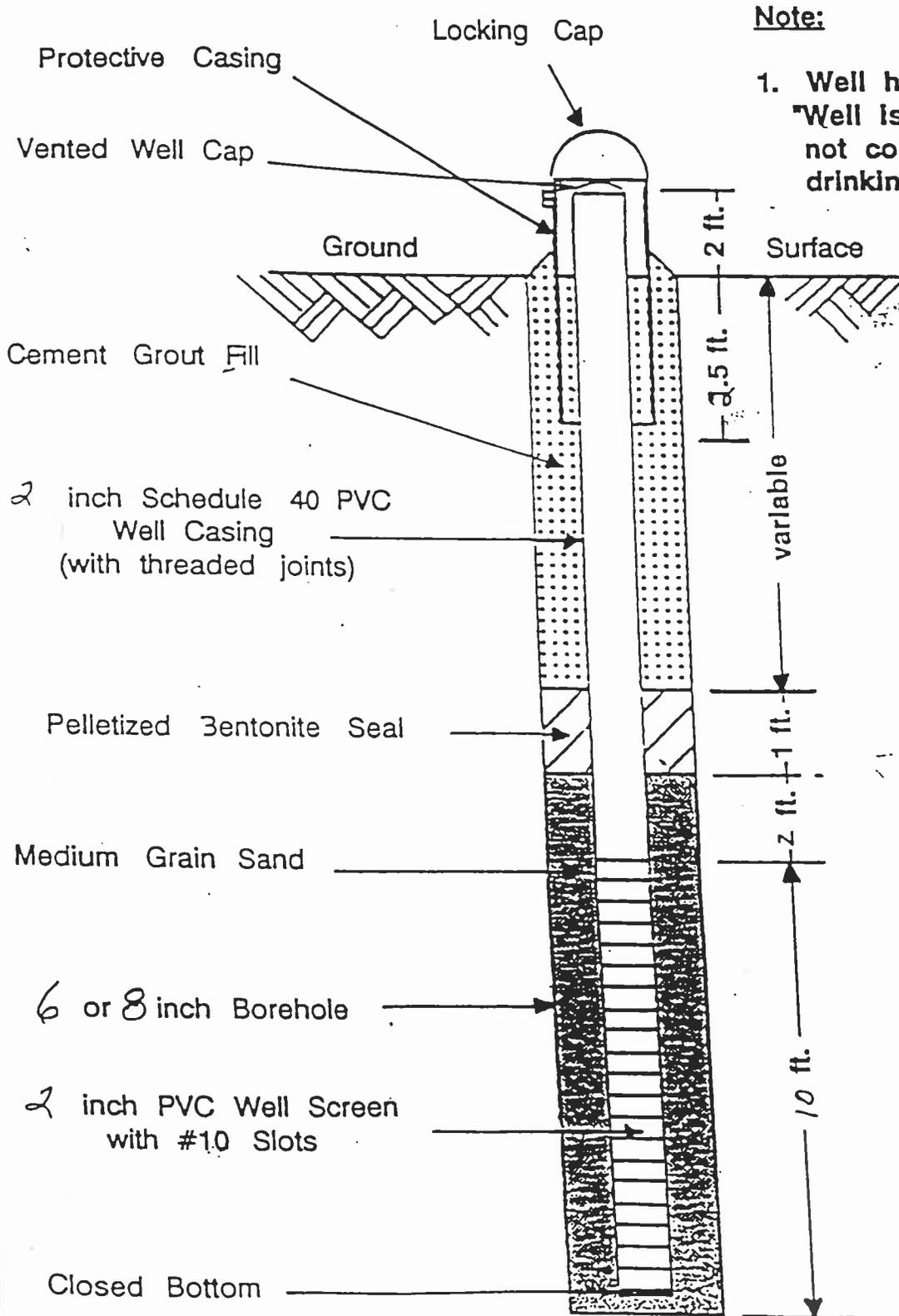


Note:

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

MONITORING WELL CONSTRUCTION

JOHNSTON COUNTY LANDFILL (TYP.)

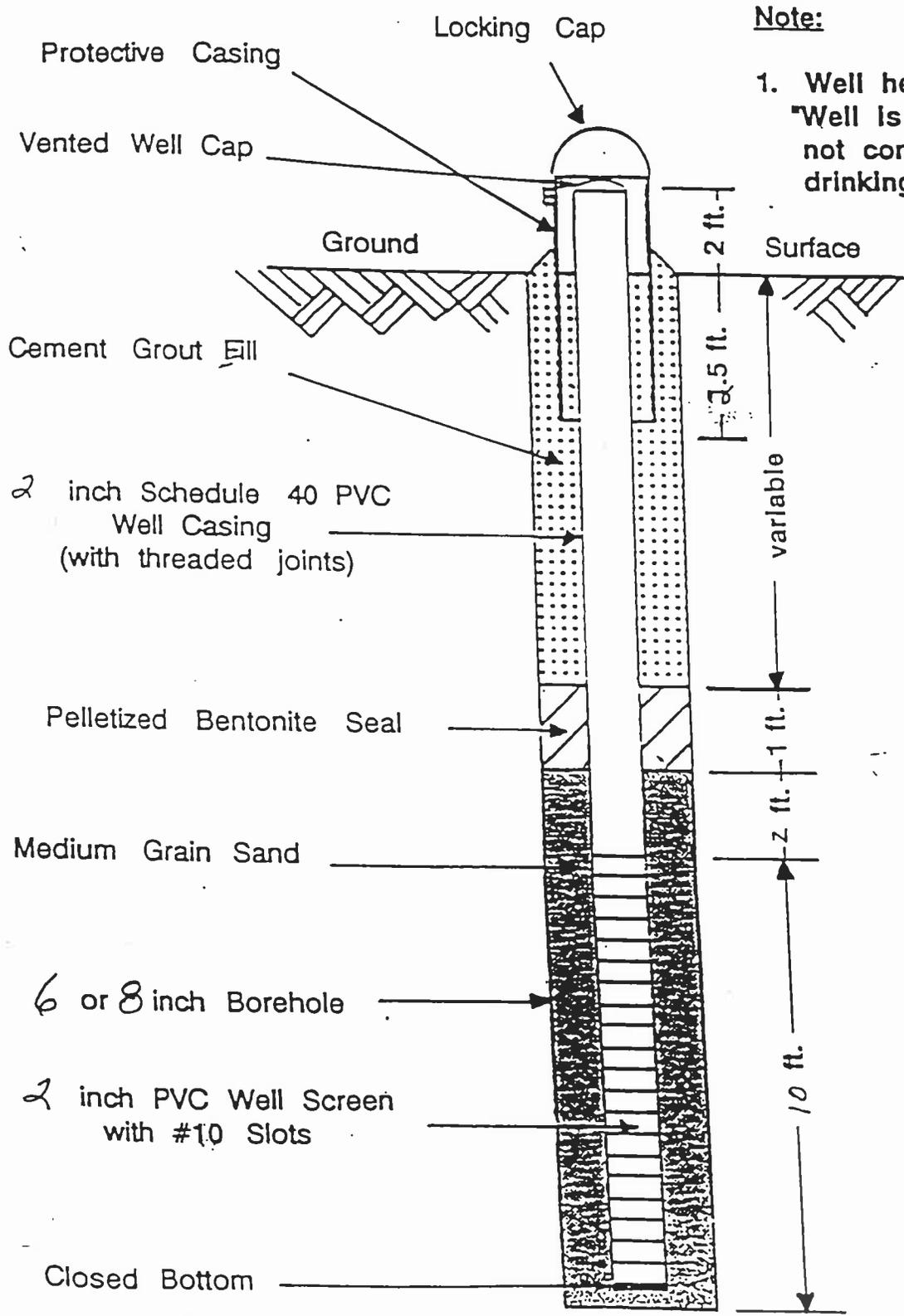


Note:

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

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-40

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

TOP OF CASING ELEVATION: 182.98
 TOTAL DEPTH: 58.0
 GROUND SURFACE ELEVATION: 180.20
 SHEET: 1 OF 2

STATIC WATER LEVEL (BLS)		
40-White 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	ELON	BOURIS	SAMPLING METHOD	SAMPLE NUMBER	FOISTURE	CONSISTANCY	SAMPLE RECOVERY	TRAIL METHOD	LITHOLOGY DESCRIPTION	DEPTH	LITHOLOGY	WELL INSTALLATION
1.0								HR	<p>SANDY CLAY: Moist tan & red-orange mottled F-M sandy clay; ribbon & cast, SC.</p> <p>CLAYEY SAND: Wet tan M-C clayey sand; some quartz, SC.</p> <p>SILTY SAND: Red-tan wet silty F-M sand; 1" layers of stiff red clayey F sand & grey F sandy clay, SM.</p> <p>18' Tan-red wet M-C slightly clayey silty sand; quartz grains up to 5mm, SM-SC.</p> <p>SILT: Slightly moist tan silt; alternating layers of light and dark tan, ML.</p> <p>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.</p>	1.0		
0.0										0.0		
1.0										1.0		
2.0										2.0		
3.0		1	Ss	81			14"			3.0		
4.0		1								4.0		
5.0										5.0		
6.0										6.0		
7.0										7.0		
8.0		1	Ss	82			10"			8.0		
9.0		1								9.0		
10.0		1								10.0		
11.0										11.0		
12.0										12.0		
13.0		1	Ss	83			12"		13.0			
14.0		1							14.0			
15.0									15.0			
16.0									16.0			
17.0									17.0			
18.0		2	Ss	84			6"		18.0			
19.0		1							19.0			
20.0		3							20.0			
21.0									21.0			
22.0									22.0			
23.0		1	Ss	85			8"		23.0			
24.0		13							24.0			
25.0									25.0			
26.0									26.0			
27.0									27.0			
28.0		5	Ss	86			10"		28.0			
29.0									29.0			
30.0		8							30.0			
31.0		10							31.0			
32.0									32.0			
33.0		8	Ss	87			10"		33.0			
34.0		1							34.0			
35.0		1							35.0			
36.0									36.0			
37.0									37.0			
38.0		16	Ss	88			6"		38.0			
39.0		30							39.0			
40.0		1							40.0			

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
 TEMPERATURE: Sunny 70 degrees
 PARTY: Ronnie Barron
 GIST: Phillip May
 BEGUN: 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)	58.0	17.5
Time	4:00 pm	1:00 pm
Date	12-14-98	12-15-98

DEPTH	BLOG	COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTENCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION	DEPTH	LITHOLOGY	BELL	INSTALLATION
0.0										0.0			
1.0										1.0			
2.0										2.0			
3.0	50/3	Ss	Ss	69			1"			3.0			
4.0										4.0			
5.0										5.0			
6.0										6.0			
7.0										7.0			
8.0	50/4	Ss	Ss	S10			1"			8.0			
9.0										9.0			
10.0										10.0			
11.0										11.0			
12.0										12.0			
13.0										13.0			
14.0										14.0			
15.0										15.0			
16.0										16.0			
17.0										17.0			
18.0										18.0			
19.0										19.0			
20.0										20.0			
21.0										21.0			
22.0										22.0			
23.0										23.0			
24.0										24.0			
25.0										25.0			
26.0										26.0			
27.0										27.0			
28.0										28.0			
29.0										29.0			
30.0										30.0			
31.0										31.0			
32.0										32.0			
33.0										33.0			
34.0										34.0			
35.0										35.0			
36.0										36.0			
37.0										37.0			
38.0										38.0			
39.0										39.0			
40.0										40.0			
41.0										41.0			
42.0										42.0			
43.0										43.0			
44.0										44.0			
45.0										45.0			
46.0										46.0			
47.0										47.0			
48.0										48.0			
49.0										49.0			
50.0										50.0			
51.0										51.0			
52.0										52.0			
53.0										53.0			
54.0										54.0			
55.0										55.0			
56.0										56.0			
57.0										57.0			
58.0										58.0			
59.0										59.0			
60.0										60.0			
61.0										61.0			
62.0										62.0			
63.0										63.0			
64.0										64.0			
65.0										65.0			
66.0										66.0			
67.0										67.0			
68.0										68.0			
69.0										69.0			
70.0										70.0			
71.0										71.0			
72.0										72.0			
73.0										73.0			
74.0										74.0			
75.0										75.0			
76.0										76.0			
77.0										77.0			
78.0										78.0			
79.0										79.0			
80.0										80.0			

Set outer casing at 53'.

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';

Boring terminated at 68.0'.

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

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 Borings		
Depth (ft)	15	2.33
Time	9:00 am	8:00 am
Date	12-10-98	12-14-98

DATE COMPLETED: 12-14-98

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTENCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION	DEPTH	LITHOLOGY	WELL INSTALLATION
1.0									1.0		
0.0							MR	CLAYEY SILTY SAND: Grey wet clayey silty sand, SC-SM.	0.0		
1.0									1.0		
2.0									2.0		
3.0	3	Ss	S1			8"			3.0		
4.0	7								4.0		
5.0									5.0		
6.0									6.0		
7.0									7.0		
8.0	50/1	Ss	S2			6"		SILT: Grey moist silt and PWR, ML;	8.0		
9.0									9.0		
10.0									10.0		
11.0									11.0		
12.0								13' no recovery;	12.0		
13.0								15' Auger refusal; set outer casing at 15'.	13.0		
14.0									14.0		
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;	15.0		
16.0									16.0		
17.0									17.0		
18.0									18.0		
19.0									19.0		
20.0									20.0		
21.0									21.0		
22.0									22.0		
23.0									23.0		
24.0									24.0		
25.0									25.0		
26.0									26.0		
27.0									27.0		
28.0									28.0		
29.0									29.0		
30.0								Boring terminated at 30.0'.	30.0		

FIELD BOREHOLE LOG

BOREHOLE NUMBER

MW-80

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

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

STATIC WATER LEVEL (BLS)		
WD=While Drilling AB=After Boring		
Depth (Ft)	18	18.46
Time	1:00 pm	1:00 pm
Date	12-10-98	12-14-98

DATE COMPLETED: 12-10-98

DEPTH	BLOW COUNTS	SAMPLING METHOD	SAMPLE NUMBER	MOISTURE	CONSISTENCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION	DEPTH	LITHOLOGY	WELL INSTALLATION
1.0							HR	CLAYEY SAND: Wet, dark brown slightly silty clayey F sand; redox mottles (iron and manganese); some quartz <2mm, SC.	1.0	[Patterned]	[Diagram]
0.0									0.0		
1.0	1	Ss	61						1.0		
2.0	1								2.0		
3.0	1								3.0		
4.0	1								4.0		
5.0									5.0		
6.0									6.0		
7.0									7.0		
8.0	6	Ss	62					CLAYEY SILT: Moist grey clayey silt; ML-CL	8.0	[Patterned]	[Diagram]
9.0	10								9.0		
10.0									10.0		
11.0									11.0		
12.0									12.0		
13.0	50	SSs	63						13.0		
14.0									14.0		
15.0									15.0		
16.0									16.0		
17.0								Set outer casing at 18 feet.	17.0		
18.0									18.0		
19.0								METAMUDSTONE: Competent grey metamudstone; Drilled by water rotary rock coring in one 10 foot run;	19.0		
20.0								REC 89%	20.0		
21.0								RDD 78%	21.0		
22.0								Predominant frx angle 60 degrees	22.0		
23.0								Water bearing fracture at 25'	23.0		
24.0									24.0		
25.0									25.0		
26.0									26.0		
27.0									27.0		
28.0								Boring terminated at 33.0'	28.0		
29.0									29.0		
30.0									30.0		
31.0									31.0		
32.0									32.0		
33.0									33.0		
34.0									34.0		
35.0									35.0		

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

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	6:00 am
Date:	12-14-98	12-15-98

DATE COMPLETED: 12-14-98

DEPTH	BLDN	COLNIS	SAMPLING METHOD	SAMPLE NUMBER	TEST/USE	CONSISTENCY	SAMPLE RECOVERY	DRILL METHOD	LITHOLOGY DESCRIPTION	DEPTH	LITHOLOGY	BELL INSULATION
1.0								MR	CLAYEY SAND: Moist light grey slightly clayey sand, some cast, dark to medium orange-red mottles throughout (30%), SC.	1.0		
0.0										0.0		
1.0								12"		1.0		
2.0										2.0		
3.0			Ss	61						3.0		
4.0		60/1								4.0		
5.0										5.0		
6.0										6.0		
7.0										7.0		
8.0			Ss	62				12"	SANDY SILT: Dry fine red/tan-orange fine sandy silt, some Mn streaks starting at 9.0', SM;	8.0		
9.0		9								9.0		
10.0		1-1								10.0		
11.0										11.0		
12.0										12.0		
13.0			Ss	63				10"	13' Slightly moist grey slightly sandy silt;	13.0		
14.0		13								14.0		
15.0		26								15.0		
16.0		10								16.0		
17.0										17.0		
18.0			Ss	64				3"	18' Moist, slightly sandy	18.0		
19.0		50/4								19.0		
20.0										20.0		
21.0										21.0		
22.0										22.0		
23.0			Ss	65				0"	23' No recovery from sample Set outer casing at 25'.	23.0		
24.0		50/0								24.0		
25.0										25.0		
26.0									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										27.0		
28.0										28.0		
29.0										29.0		
30.0										30.0		
31.0										31.0		
32.0										32.0		
33.0										33.0		
34.0										34.0		
35.0										35.0		
36.0									36.0			
37.0									37.0			
38.0									38.0			
39.0									39.0			
40.0									Boring terminated at 40.0'.	40.0		



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

FIELD BOREHOLE LOG

BOREHOLE NUMBER **MW-14d** Page 1 of 1

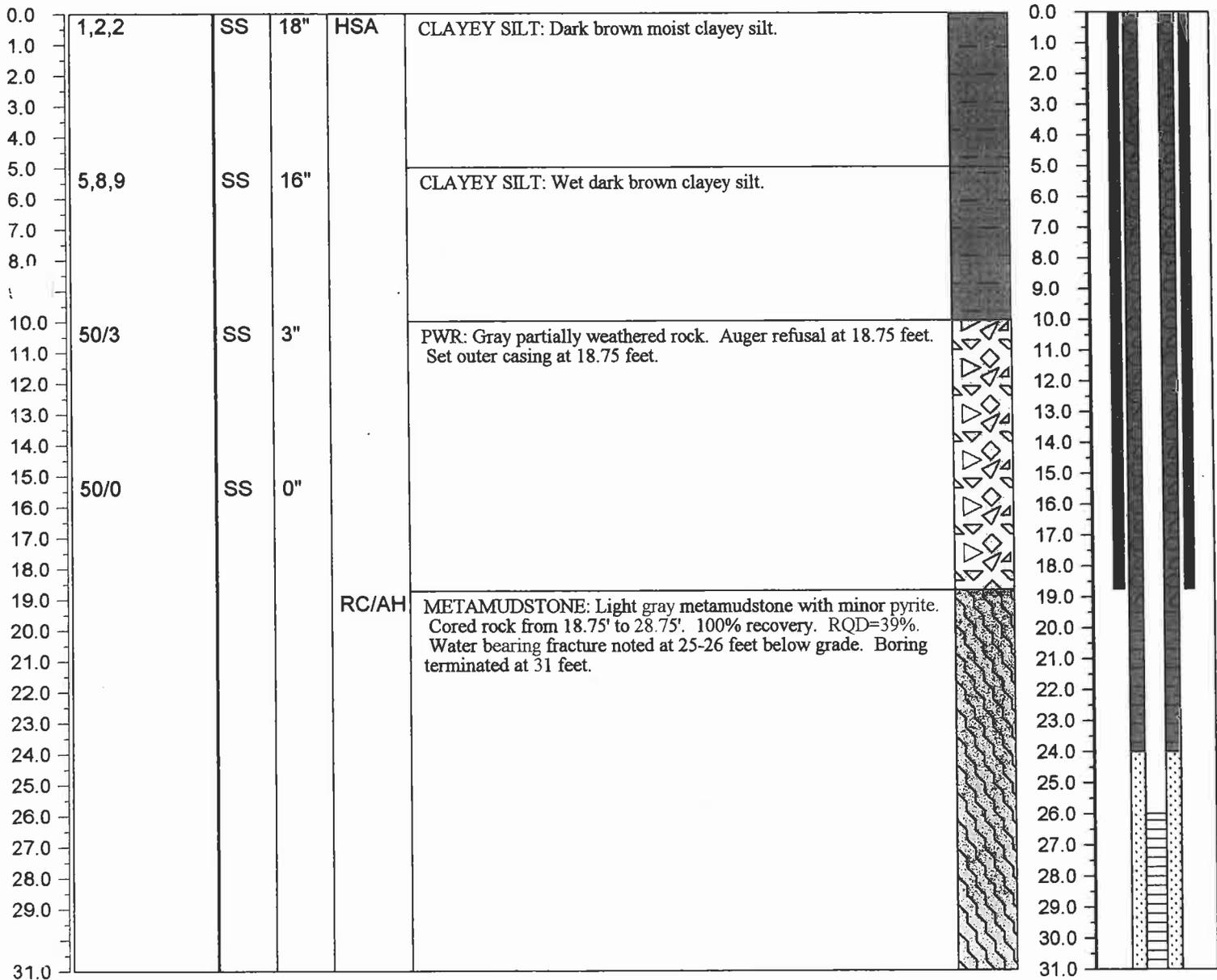
PROJECT NAME: **Johnston County C&D Area**
 LOCATION: **Smithfield, NC**
 DRILLING CO: **Engineering Tectonics, P.A.**
 DRILLING METHOD: **HSA/RC/AH**
 FIELD PARTY: **R. Barron**
 GEOLOGIST: **J. Smyth**
 DATE BEGUN: **6/26/03** DATE COMPLETED: **6/30/03**

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	LITHOLOGY	DEPTH	WELL INSTALLATION
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FIELD BOREHOLE LOG

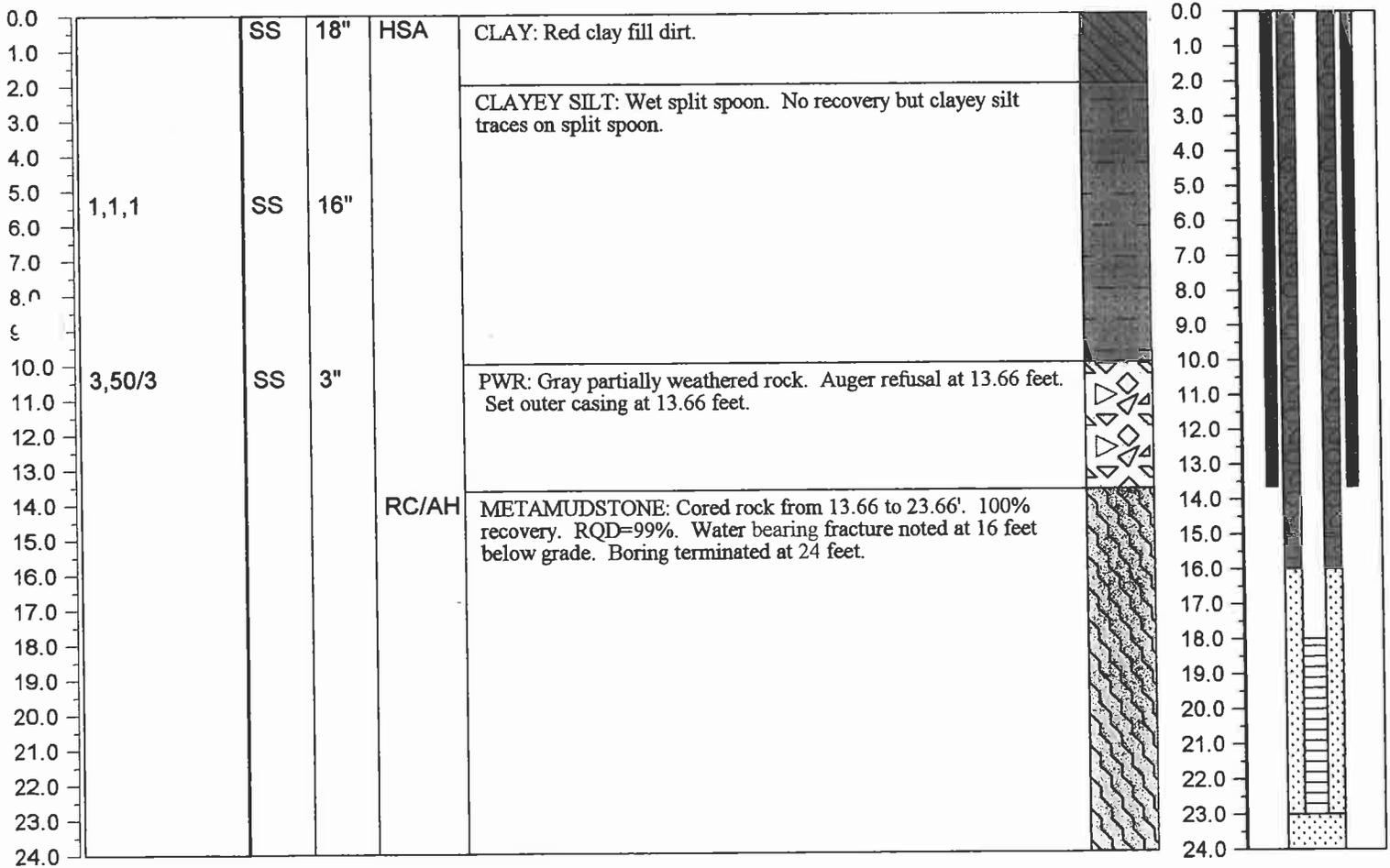
BOREHOLE NUMBER **MW-16d** Page 1 of 1

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	DEPTH	WELL INSTALLATION
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DRILL LOGS

Well #

D₂ - B

0'-2' : SAND

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

7.6' TOC 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 H₂O

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'

12.8' TOC TO STATIC H₂O

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 #

7-B

0'-4': CLAYEY SAND

4'-~~18'~~^{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

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. Grout Depth: from 0 to 4 ft.
 Casing Depth: from +2 to 8.0 ft. Bentonite Seal: from 3 to 6 ft.
 Screen Type: 0.010 dia. 2 in. Sand/Gravel PK: from 6 to 20 ft.
 Screen Depth: from 8.0 to 18.0 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

LOCATION SKETCH

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

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

See Attached Map MW-4B

RKS: _____

DATE: 9-10-93
 geo\wellrec\060993

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

Appendix B

Laboratory Analytical Report

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

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

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

ID#: 6031

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

DATE COLLECTED: 05/19/09
DATE REPORTED : 06/30/09

REVIEWED BY: 

PARAMETERS	MDL	MW-4B	MW-8A	MW-17	Trip Blank	Equipment Blank	Analysis		Method Code
		SWSL					Date	Analyst	
Antimony, ug/l	0.06	6.0	0.2 J	0.2 J	0.5 J		05/26/09	CMF	EPA200.8
Arsenic, ug/l	0.61	10.0	10		7.1 J		06/02/09	CMF	SM3113B
Arsenic, ug/l	0.61	10.0		2.5 J			05/26/09	CMF	EPA200.8
Barium, ug/l	0.04	100.0	1211	92.6 J	157		05/26/09	CMF	EPA200.8
Beryllium, ug/l	0.06	1.0	--- U	0.2 J	0.2 J		05/26/09	CMF	EPA200.8
Cadmium, ug/l	0.04	1.0	--- U	--- U	0.5 J		05/26/09	CMF	EPA200.8
Cobalt, ug/l	0.02	10.0	33	20	368		05/26/09	CMF	EPA200.8
Copper, ug/l	0.04	10.0	1.0 J	6.3 J	45		05/26/09	CMF	EPA200.8
Total Chromium, ug/l	0.10	10.0	0.3 J	5.2 J	11		05/26/09	CMF	EPA200.8
Lead, ug/l	0.04	10.0	--- U	5.8 J	27		05/26/09	CMF	EPA200.8
Mercury, ug/l	0.03	0.20	0.04 J				05/26/09	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	3.9 J	5.9 J	18.2 J		05/26/09	CMF	EPA200.8
Selenium, ug/l	0.49	10.0	--- U		--- U		06/03/09	CMF	SM3113B
Selenium, ug/l	0.49	10.0		5.4 J			05/26/09	CMF	EPA200.8
Silver, ug/l	0.04	10.0	0.1 J	0.1 J	0.2 J		05/26/09	CMF	EPA200.8
Thallium, ug/l	0.03	5.0	0.2 J	--- U	--- U		05/26/09	CMF	EPA200.8
Vanadium, ug/l	0.28	25.0	1.1 J	6.1 J	9.4 J		05/26/09	CMF	EPA200.8
Zinc, ug/l	0.14	10.0	4.1 J	18	62		05/26/09	CMF	EPA200.8
Sulfide, ug/l	100	1000	--- U				05/26/09	LFJ	SM4500-S2D

J = Between MDL and SWSL, U = Below ALL Quantitation 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: 05/19/09
DATE EXTRACTED: 05/22/09
DATE ANALYZED: 06/15/09
DATE REPORTED: 06/30/09

REVIEWED BY: 

PESTICIDES AND PCB'S EPA METHOD 8081A

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	0.038 J
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	0.07	--- 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	0.07	--- U
18. Methoxychlor	0.530	1.00	--- U
19. Pcb's (Aroclors)	0.500	2.00	--- U
20. Toxaphene	0.690	1.00	--- U

NOTE: Surrogate recovery for MW-4B was outside control limits

J = Between MDL and SWSL, U = Below ALL Quantitation 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: 05/19/09
DATE EXTRACTED: 05/26/09
DATE ANALYZED: 05/29/09
DATE REPORTED: 06/30/09

REVIEWED BY:  _____

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	--- U
4. 2,4,5-T	0.47	2.0	1.51 J

J = Between MDL and SWSL, U = Below ALL Quantitation 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: 05/19/09
DATE ANALYZED: 05/29/09
DATE REPORTED: 06/30/09

Page: 1

REVIEWED BY: 

VOLATILE ORGANICS EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-4B	MW-8A	MW-17	Trip Blank	Equipment Blank	
1. Chloromethane	0.18	1.0	---	U	---	U	---	U
2. Vinyl Chloride	0.34	1.0	1.40	---	U	1.30	---	U
3. Bromomethane	0.26	10.0	---	U	---	U	---	U
4. Chloroethane	0.29	10.0	---	U	---	U	---	U
5. Trichlorofluoromethane	0.13	1.0	---	U	0.50 J	0.40 J	---	U
6. 1,1-Dichloroethene	0.14	5.0	---	U	---	U	---	U
7. Acetone	1.21	100.0	5.40 J	5.00 J	4.60 J	---	---	4.10 J
8. Iodomethane	0.12	10.0	---	U	---	U	---	U
9. Carbon Disulfide	0.14	100.0	---	U	---	U	---	U
10. Methylene Chloride	0.14	1.0	---	U	---	U	---	U
11. trans-1,2-Dichloroethene	0.13	5.0	---	U	---	U	---	U
12. 1,1-Dichloroethane	0.16	5.0	---	U	1.10 J	1.50 J	---	U
13. Vinyl Acetate	0.20	50.0	---	U	---	U	---	U
14. Cis-1,2-Dichloroethene	0.14	5.0	0.30 J	0.50 J	0.30 J	---	---	U
15. 2-Butanone	0.85	100.0	---	U	---	U	---	U
16. Bromochloromethane	0.11	3.0	---	U	---	U	---	U
17. Chloroform	0.13	5.0	---	U	---	U	---	0.30 J
18. 1,1,1-Trichloroethane	0.11	1.0	---	U	---	U	---	U
19. Carbon Tetrachloride	0.13	1.0	---	U	---	U	---	U
20. Benzene	0.16	1.0	3.80	0.40 J	2.10	---	---	U
21. 1,2-Dichloroethane	0.12	1.0	---	U	---	U	---	U
22. Trichloroethene	0.13	1.0	---	U	---	U	---	U
23. 1,2-Dichloropropane	0.17	1.0	---	U	---	0.20 J	---	U
24. Bromodichloromethane	0.13	1.0	---	U	---	U	---	U
25. Cis-1,3-Dichloropropene	0.17	1.0	---	U	---	U	---	U
26. 4-Methyl-2-Pentanone	0.68	100.0	---	U	---	U	---	U
27. Toluene	0.13	1.0	0.20 J	0.20 J	0.30 J	0.30 J	---	U
28. trans-1,3-Dichloropropene	0.14	1.0	---	U	---	U	---	U
29. 1,1,2-Trichloroethane	0.20	1.0	---	U	---	U	---	U
30. Tetrachloroethene	0.16	1.0	---	U	---	U	---	U
31. 2-Hexanone	1.00	50.0	---	U	---	U	---	U
32. Dibromochloromethane	0.14	3.0	---	U	---	U	---	U
33. 1,2-Dibromoethane	0.13	1.0	---	U	---	U	---	U
34. Chlorobenzene	0.13	3.0	11.90	0.70 J	6.90	---	---	U
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	---	U	---	U	---	U
36. Ethylbenzene	0.16	1.0	---	U	---	U	---	U
37. Xylenes	0.48	5.0	---	U	---	U	---	U
38. Dibromomethane	0.17	10.0	---	U	---	U	---	U
39. Styrene	0.16	1.0	---	U	---	U	---	U
40. Bromoform	0.11	3.0	---	U	---	U	---	U
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	---	U	---	U	---	U
42. 1,2,3-Trichloropropane	0.06	1.0	---	U	---	U	---	U
43. 1,4-Dichlorobenzene	0.21	1.0	5.00	0.50 J	5.00	---	---	U
44. 1,2-Dichlorobenzene	0.13	5.0	0.80 J	---	0.90 J	---	---	U
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	---	U	---	U	---	U
46. Acrylonitrile	1.49	200.0	---	U	---	U	---	U
47. trans-1,4-Dichloro-2-Butene	0.14	100.0	---	U	---	U	---	U

J = Between MDL and SWSL, U = Below ALL Quantitation 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: 05/20/09
DATE REPORTED : 06/30/09

REVIEWED BY: 

PARAMETERS	MDL	MW-5A	MW-7	MW-7D	Analysis		Method Code
		SWSL			Date	Analyst	
Antimony, ug/l	0.06	6.0	0.1 J	1.0 J	0.1 J	05/26/09 CMF	EPA200.8
Arsenic, ug/l	0.17	10.0	1.6 J		5.7 J	05/26/09 CMF	EPA200.8
Arsenic, ug/l	0.17	10.0		5.4 J		06/02/09 CMF	SM3113B
Barium, ug/l	0.04	100.0	60.7 J	483	17.0 J	05/26/09 CMF	EPA200.8
Beryllium, ug/l	0.06	1.0	2	0.1 J	---	05/26/09 CMF	EPA200.8
Cadmium, ug/l	0.04	1.0	1	---	---	05/26/09 CMF	EPA200.8
Cobalt, ug/l	0.02	10.0	21	86	12	05/26/09 CMF	EPA200.8
Copper, ug/l	0.04	10.0	10	7.7 J	1.3 J	05/26/09 CMF	EPA200.8
Total Chromium, ug/l	0.10	10.0	17	5.4 J	---	05/26/09 CMF	EPA200.8
Lead, ug/l	0.04	10.0	9.6 J	0.3 J	---	05/26/09 CMF	EPA200.8
Mercury, ug/l	0.03	0.20	---	0.05 J	0.04 J	05/26/09 CMF	EPA200.8
Nickel, ug/l	0.04	50.0	35.0 J	46.8 J	12.2 J	05/26/09 CMF	EPA200.8
Selenium, ug/l	0.49	10.0	2.7 J			05/26/09 CMF	EPA200.8
Selenium, ug/l	0.49	10.0		---	---	06/03/09 CMF	SM3113B
Silver, ug/l	0.04	10.0	0.1 J	0.1 J	---	05/26/09 CMF	EPA200.8
Thallium, ug/l	0.03	5.0	---	---	---	05/26/09 CMF	EPA200.8
Vanadium, ug/l	0.28	25.0	10.5 J	5.7 J	0.8 J	05/26/09 CMF	EPA200.8
Zinc, ug/l	0.14	10.0	141	9.4 J	7.1 J	05/26/09 CMF	EPA200.8
Sulfide, ug/l	100	1000	---	---	---	05/26/09 LFPJ	SM4500-S2D

J = Between MDL and SWSL, U = Below ALL Quantitation 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: 05/20/09
DATE EXTRACTED: 05/22/09
DATE ANALYZED: 06/15/09
DATE REPORTED: 06/30/09

REVIEWED BY:  _____

PESTICIDES AND PCB'S EPA METHOD 8081A

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	0.039 J	--- U
3. Beta-BHC	0.031	0.05	--- U	--- U	0.037 J
4. Delta-BHC	0.030	0.05	--- U	--- U	--- U
5. Gamma-BHC (Lindane)	0.032	0.05	--- U	0.036 J	--- 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	0.07	--- U	--- U	--- U
11. Endosulfan I	0.056	0.10	--- U	--- U	--- U
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	0.07	--- 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	1.00	--- U	--- U	--- U

NOTE: Surrogate recovery for MW-7 was outside control limits

J = Between MDL and SWSL, U = Below ALL Quantitation 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: 05/20/09
DATE EXTRACTED: 05/26/09
DATE ANALYZED: 05/29/09
DATE REPORTED: 06/30/09

REVIEWED BY:  _____

LANDFILL APPENDIX II EPA METHOD 8151A

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

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: 05/20/09
DATE REPORTED: 06/30/09

Page: 1

REVIEWED BY: 

VOLATILE ORGANICS EPA METHOD 8260B

PARAMETERS, ug/l	Date Analyzed:		05/30/09	06/01/09	06/01/09	06/01/09			
	MDL	SWSL	MW-5A	MW-7	MW-7D	Trip Blank			
1. Chloromethane	0.18	1.0	---	U	---	U			
2. Vinyl Chloride	0.34	1.0	---	U	---	U			
3. Bromomethane	0.26	10.0	---	U	---	U			
4. Chloroethane	0.29	10.0	---	U	1.60 J	---	U		
5. Trichlorofluoromethane	0.13	1.0	---	U	---	U			
6. 1,1-Dichloroethene	0.14	5.0	---	U	---	U			
7. Acetone	1.21	100.0	4.90 J	---	8.70 J	---	18.00 J	---	U
8. Iodomethane	0.12	10.0	---	U	---	U			
9. Carbon Disulfide	0.14	100.0	---	U	---	U			
10. Methylene Chloride	0.14	1.0	---	U	---	U			
11. trans-1,2-Dichloroethene	0.13	5.0	---	U	---	U			
12. 1,1-Dichloroethane	0.16	5.0	0.60 J	---	1.40 J	---	2.90 J	---	U
13. Vinyl Acetate	0.20	50.0	---	U	---	U			
14. Cis-1,2-Dichloroethene	0.14	5.0	---	U	0.20 J	---	5.00	---	U
15. 2-Butanone	0.85	100.0	---	U	---	U			
16. Bromochloromethane	0.11	3.0	---	U	---	U			
17. Chloroform	0.13	5.0	---	U	---	U			
18. 1,1,1-Trichloroethane	0.11	1.0	---	U	---	U			
19. Carbon Tetrachloride	0.13	1.0	---	U	---	U			
20. Benzene	0.16	1.0	---	U	2.50	---	0.60 J	---	U
21. 1,2-Dichloroethane	0.12	1.0	---	U	---	U			
22. Trichloroethene	0.13	1.0	---	U	---	U			
23. 1,2-Dichloropropane	0.17	1.0	---	U	0.20 J	---	0.40 J	---	U
24. Bromodichloromethane	0.13	1.0	---	U	---	U			
25. Cis-1,3-Dichloropropene	0.17	1.0	---	U	---	U			
26. 4-Methyl-2-Pentanone	0.68	100.0	---	U	---	U			
27. Toluene	0.13	1.0	---	U	0.20 J	---	---	---	0.50 J
28. trans-1,3-Dichloropropene	0.14	1.0	---	U	---	U			
29. 1,1,2-Trichloroethane	0.20	1.0	---	U	---	U			
30. Tetrachloroethene	0.16	1.0	---	U	---	U			
31. 2-Hexanone	1.00	50.0	---	U	---	U			
32. Dibromochloromethane	0.14	3.0	---	U	---	U			
33. 1,2-Dibromoethane	0.13	1.0	---	U	---	U			
34. Chlorobenzene	0.13	3.0	---	U	22.50	---	9.20	---	U
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	---	U	---	U			
36. Ethylbenzene	0.16	1.0	---	U	---	U			
37. Xylenes	0.48	5.0	---	U	2.00 J	---	---	---	U
38. Dibromomethane	0.17	10.0	---	U	---	U			
39. Styrene	0.16	1.0	---	U	---	U			
40. Bromoform	0.11	3.0	---	U	---	U			
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	---	U	---	U			
42. 1,2,3-Trichloropropane	0.06	1.0	---	U	---	U			
43. 1,4-Dichlorobenzene	0.21	1.0	---	U	9.90	---	5.80	---	U
44. 1,2-Dichlorobenzene	0.13	5.0	---	U	1.20 J	---	0.50 J	---	U
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	---	U	---	U			
46. Acrylonitrile	1.49	200.0	---	U	---	U			
47. trans-1,4-Dichloro-2-Butene	0.14	100.0	---	U	---	U			

J = Between MDL and SWSL, U = Below ALL Quantitation 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: 05/21/09
DATE REPORTED : 06/30/09

REVIEWED BY: 

PARAMETERS	MDL	MW-3		MW-6		Analysis		Method
		SWSL				Date	Analyst	Code
Antimony, ug/l	0.06	6.0	---	U	0.9 J	06/03/09	CMF	EPA200.8
Arsenic, ug/l	0.17	10.0	---	U	0.7 J	06/03/09	CMF	EPA200.8
Barium, ug/l	0.04	100.0	15.9 J		40.1 J	06/03/09	CMF	EPA200.8
Beryllium, ug/l	0.06	1.0	---	U	---	06/03/09	CMF	EPA200.8
Cadmium, ug/l	0.04	1.0	---	U	---	06/03/09	CMF	EPA200.8
Cobalt, ug/l	0.02	10.0	0.3 J		172	06/03/09	CMF	EPA200.8
Copper, ug/l	0.04	10.0	0.2 J		0.6 J	06/03/09	CMF	EPA200.8
Total Chromium, ug/l	0.10	10.0	---	U	0.7 J	06/03/09	CMF	EPA200.8
Lead, ug/l	0.04	10.0	0.1 J		---	06/03/09	CMF	EPA200.8
Mercury, ug/l	0.03	0.20	---	U	0.08 J	06/03/09	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	0.6 J		11.3 J	06/03/09	CMF	EPA200.8
Selenium, ug/l	0.12	10.0	---	U	---	06/03/09	CMF	EPA200.8
Silver, ug/l	0.04	10.0	---	U	0.1 J	06/03/09	CMF	EPA200.8
Thallium, ug/l	0.03	5.0	---	U	---	06/03/09	CMF	EPA200.8
Vanadium, ug/l	0.28	25.0	0.3 J		---	06/03/09	CMF	EPA200.8
Zinc, ug/l	0.14	10.0	0.9 J		14	06/03/09	CMF	EPA200.8
Sulfide, ug/l	100	1000	---	U	---	05/26/09	LFJ	SM4500-S2D

J = Between MDL and SWSL, U = Below ALL Quantitation 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: 05/21/09
DATE EXTRACTED: 05/27/09
DATE ANALYZED: 06/15/09
DATE REPORTED: 06/30/09

REVIEWED BY: 

PESTICIDES AND PCB'S EPA METHOD 8081A

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	0.07	--- 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	0.07	--- U	--- U
18. Methoxychlor	0.530	1.00	--- U	--- U
19. Pcb's (Aroclors)	0.500	2.00	--- U	--- U
20. Toxaphene	0.690	1.00	--- U	--- U

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

Environment 1, Incorporated

Drinking Water ID: 37715

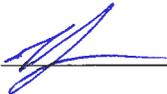
Wastewater ID: 10

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: 05/21/09
DATE EXTRACTED: 05/26/09
DATE ANALYZED: 05/29/09
DATE REPORTED: 06/30/09

REVIEWED BY: 

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

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

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

CLIENT ID: 6031
ANALYST: MAO
DATE COLLECTED: 05/21/09
DATE ANALYZED: 06/01/09
DATE REPORTED: 06/30/09

Page: 1

REVIEWED BY: 

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-3	MW-6	Equipment Blank
1. Chloromethane	0.18	1.0	--- U	--- U	--- U
2. Vinyl Chloride	0.34	1.0	--- U	--- U	--- U
3. Bromomethane	0.26	10.0	--- U	--- U	--- U
4. Chloroethane	0.29	10.0	--- U	--- U	--- U
5. Trichlorofluoromethane	0.13	1.0	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.14	5.0	--- U	--- U	--- U
7. Acetone	1.21	100.0	6.40 J	4.60 J	5.10 J
8. Iodomethane	0.12	10.0	--- U	--- U	--- U
9. Carbon Disulfide	0.14	100.0	--- U	--- U	--- U
10. Methylene Chloride	0.14	1.0	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.13	5.0	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.16	5.0	--- U	0.30 J	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.14	5.0	--- U	0.70 J	--- U
15. 2-Butanone	0.85	100.0	3.20 J	--- U	0.90 J
16. Bromochloromethane	0.11	3.0	--- U	--- U	--- U
17. Chloroform	0.13	5.0	0.60 J	--- U	3.50 J
18. 1,1,1-Trichloroethane	0.11	1.0	--- U	--- U	--- U
19. Carbon Tetrachloride	0.13	1.0	--- U	--- U	--- U
20. Benzene	0.16	1.0	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.12	1.0	--- U	--- U	--- U
22. Trichloroethene	0.13	1.0	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.17	1.0	--- U	--- U	--- U
24. Bromodichloromethane	0.13	1.0	--- U	--- U	0.60 J
25. Cis-1,3-Dichloropropene	0.17	1.0	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	0.68	100.0	--- U	--- U	--- U
27. Toluene	0.13	1.0	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.14	1.0	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.20	1.0	--- U	--- U	--- U
30. Tetrachloroethene	0.16	1.0	--- U	--- U	--- U
31. 2-Hexanone	1.00	50.0	--- U	--- U	--- U
32. Dibromochloromethane	0.14	3.0	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.13	1.0	--- U	--- U	--- U
34. Chlorobenzene	0.13	3.0	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	--- U	--- U	--- U
36. Ethylbenzene	0.16	1.0	--- U	--- U	--- U
37. Xylenes	0.48	5.0	--- U	--- U	--- U
38. Dibromomethane	0.17	10.0	--- U	--- U	--- U
39. Styrene	0.16	1.0	--- U	--- U	--- U
40. Bromoform	0.11	3.0	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.06	1.0	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.21	1.0	--- U	--- U	--- U
44. 1,2-Dichlorobenzene	0.13	5.0	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	--- U	--- U	--- U
46. Acrylonitrile	1.49	200.0	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.14	100.0	--- U	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quantitation 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: 05/20/09
DATE REPORTED : 06/30/09

REVIEWED BY: 

PARAMETERS	MDL	MW-9C		MW-10		Analysis		Method
		SWSL				Date	Analyst	Code
Antimony, ug/l	0.06	6.0	0.1 J	0.1 J	06/03/09	CMF	EPA200.8	
Arsenic, ug/l	0.17	10.0	2.0 J	0.3 J	06/03/09	CMF	EPA200.8	
Barium, ug/l	0.04	100.0	38.8 J	37.5 J	06/03/09	CMF	EPA200.8	
Beryllium, ug/l	0.06	1.0	2	0.2 J	06/03/09	CMF	EPA200.8	
Cadmium, ug/l	0.04	1.0	0.9 J	---	06/03/09	CMF	EPA200.8	
Cobalt, ug/l	0.02	10.0	31	8.5 J	06/03/09	CMF	EPA200.8	
Copper, ug/l	0.04	10.0	22	2.8 J	06/03/09	CMF	EPA200.8	
Total Chromium, ug/l	0.10	10.0	20	1.1 J	06/03/09	CMF	EPA200.8	
Lead, ug/l	0.04	10.0	18	1.5 J	06/03/09	CMF	EPA200.8	
Mercury, ug/l	0.03	0.20	---	---	06/03/09	CMF	EPA200.8	
Nickel, ug/l	0.04	50.0	38.8 J	9.4 J	06/03/09	CMF	EPA200.8	
Selenium, ug/l	0.12	10.0	4.0 J	---	06/03/09	CMF	EPA200.8	
Silver, ug/l	0.04	10.0	0.2 J	---	06/03/09	CMF	EPA200.8	
Thallium, ug/l	0.03	5.0	---	---	06/03/09	CMF	EPA200.8	
Vanadium, ug/l	0.28	25.0	19.2 J	1.0 J	06/03/09	CMF	EPA200.8	
Zinc, ug/l	0.14	10.0	226	30	06/03/09	CMF	EPA200.8	
Sulfide, ug/l	100	1000	---	---	05/26/09	LFJ	SM4500-S2D	

J = Between MDL and SWSL, U = Below ALL Quantitation 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: CHS
DATE COLLECTED: 05/20/09
DATE EXTRACTED: 05/22/09
DATE ANALYZED: 06/15/09
DATE REPORTED: 06/30/09

REVIEWED BY: 

PESTICIDES AND PCB'S EPA METHOD 8081A

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	0.07	--- 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	0.07	--- U	--- U
18. Methoxychlor	0.530	1.00	--- U	--- U
19. Pcb's (Aroclors)	0.500	2.00	--- U	--- U
20. Toxaphene	0.690	1.00	--- U	--- U

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: CHS
DATE COLLECTED: 05/20/09
DATE EXTRACTED: 05/26/09
DATE ANALYZED: 05/29/09
DATE REPORTED: 06/30/09

REVIEWED BY: 

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

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: 05/20/09
DATE ANALYZED: 06/01/09
DATE REPORTED: 06/30/09

Page: 1

REVIEWED BY: 

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-9C	MW-10
1. Chloromethane	0.18	1.0	0.30 J	--- U
2. Vinyl Chloride	0.34	1.0	--- U	--- U
3. Bromomethane	0.26	10.0	--- U	--- U
4. Chloroethane	0.29	10.0	--- U	--- U
5. Trichlorofluoromethane	0.13	1.0	--- U	--- U
6. 1,1-Dichloroethene	0.14	5.0	--- U	--- U
7. Acetone	1.21	100.0	8.60 J	4.70 J
8. Iodomethane	0.12	10.0	--- U	--- U
9. Carbon Disulfide	0.14	100.0	--- U	--- U
10. Methylene Chloride	0.14	1.0	--- U	--- U
11. trans-1,2-Dichloroethene	0.13	5.0	--- U	--- U
12. 1,1-Dichloroethane	0.16	5.0	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U
14. Cis-1,2-Dichloroethene	0.14	5.0	--- U	--- U
15. 2-Butanone	0.85	100.0	0.90 J	--- U
16. Bromochloromethane	0.11	3.0	--- U	--- U
17. Chloroform	0.13	5.0	--- U	--- U
18. 1,1,1-Trichloroethane	0.11	1.0	--- U	--- U
19. Carbon Tetrachloride	0.13	1.0	--- U	--- U
20. Benzene	0.16	1.0	--- U	--- U
21. 1,2-Dichloroethane	0.12	1.0	--- U	--- U
22. Trichloroethene	0.13	1.0	--- U	--- U
23. 1,2-Dichloropropane	0.17	1.0	--- U	--- U
24. Bromodichloromethane	0.13	1.0	--- U	--- U
25. Cis-1,3-Dichloropropene	0.17	1.0	--- U	--- U
26. 4-Methyl-2-Pentanone	0.68	100.0	--- U	--- U
27. Toluene	0.13	1.0	--- U	--- U
28. trans-1,3-Dichloropropene	0.14	1.0	--- U	--- U
29. 1,1,2-Trichloroethane	0.20	1.0	--- U	--- U
30. Tetrachloroethene	0.16	1.0	--- U	--- U
31. 2-Hexanone	1.00	50.0	--- U	--- U
32. Dibromochloromethane	0.14	3.0	--- U	--- U
33. 1,2-Dibromoethane	0.13	1.0	--- U	--- U
34. Chlorobenzene	0.13	3.0	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	--- U	--- U
36. Ethylbenzene	0.16	1.0	--- U	--- U
37. Xylenes	0.48	5.0	--- U	--- U
38. Dibromomethane	0.17	10.0	--- U	--- U
39. Styrene	0.16	1.0	--- U	--- U
40. Bromoform	0.11	3.0	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	--- U	--- U
42. 1,2,3-Trichloropropane	0.06	1.0	--- U	--- U
43. 1,4-Dichlorobenzene	0.21	1.0	0.30 J	--- U
44. 1,2-Dichlorobenzene	0.13	5.0	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	--- U	--- U
46. Acrylonitrile	1.49	200.0	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.14	100.0	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quantitation 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: 05/21/09

DATE REPORTED : 06/30/09

REVIEWED BY: 

PARAMETERS	MDL	MW-11	MW-12B	Analysis		Method
		SWSL		Date	Analyst	Code
Antimony, ug/l	0.06	6.0	0.1 J	0.1 J	06/03/09 CMF	EPA200.8
Arsenic, ug/l	0.17	10.0	1.5 J	4.1 J	06/03/09 CMF	EPA200.8
Barium, ug/l	0.04	100.0	16.3 J	202	06/03/09 CMF	EPA200.8
Beryllium, ug/l	0.06	1.0	--- U	--- U	06/03/09 CMF	EPA200.8
Cadmium, ug/l	0.04	1.0	0.1 J	--- U	06/03/09 CMF	EPA200.8
Cobalt, ug/l	0.02	10.0	9.5 J	624	06/03/09 CMF	EPA200.8
Copper, ug/l	0.04	10.0	0.4 J	2.1 J	06/03/09 CMF	EPA200.8
Total Chromium, ug/l	0.10	10.0	--- U	1.2 J	06/03/09 CMF	EPA200.8
Lead, ug/l	0.04	10.0	--- U	0.2 J	06/03/09 CMF	EPA200.8
Mercury, ug/l	0.03	0.20	--- U	0.03 J	06/03/09 CMF	EPA200.8
Nickel, ug/l	0.04	50.0	1.2 J	23.9 J	06/03/09 CMF	EPA200.8
Selenium, ug/l	0.12	10.0	--- U	1.8 J	06/03/09 CMF	EPA200.8
Silver, ug/l	0.04	10.0	0.1 J	0.1 J	06/03/09 CMF	EPA200.8
Thallium, ug/l	0.03	5.0	--- U	--- U	06/03/09 CMF	EPA200.8
Vanadium, ug/l	0.28	25.0	0.4 J	0.5 J	06/03/09 CMF	EPA200.8
Zinc, ug/l	0.14	10.0	7.5 J	8.2 J	06/03/09 CMF	EPA200.8
Sulfide, ug/l	100	1000	--- U	--- U	05/26/09 LFLJ	SM4500-S2D

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

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

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

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

 CLIENT ID: 6031 B
 ANALYST: CHS
 DATE COLLECTED: 05/21/09
 DATE EXTRACTED: 05/27/09
 DATE ANALYZED: 06/15/09
 DATE REPORTED: 06/30/09

 REVIEWED BY: 

 PESTICIDES AND PCB'S
 EPA METHOD 8081A

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	0.07	--- 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	0.07	--- U	--- U
18. Methoxychlor	0.530	1.00	--- U	--- U
19. Pcb's (Aroclors)	0.500	2.00	--- U	--- U
20. Toxaphene	0.690	1.00	--- U	--- U

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: CHS
DATE COLLECTED: 05/21/09
DATE EXTRACTED: 05/26/09
DATE ANALYZED: 05/29/09
DATE REPORTED: 06/30/09

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

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: 05/21/09
DATE ANALYZED: 06/01/09
DATE REPORTED: 06/30/09

Page: 1

REVIEWED BY: 

VOLATILE ORGANICS EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	MW-11	MW-12B	Trip Blank
1. Chloromethane	0.18	1.0	---	0.20 J	---
2. Vinyl Chloride	0.34	1.0	---	0.70 J	---
3. Bromomethane	0.26	10.0	---	---	---
4. Chloroethane	0.29	10.0	---	0.50 J	---
5. Trichlorofluoromethane	0.13	1.0	---	---	---
6. 1,1-Dichloroethene	0.14	5.0	---	---	---
7. Acetone	1.21	100.0	4.50 J	6.70 J	---
8. Iodomethane	0.12	10.0	---	---	---
9. Carbon Disulfide	0.14	100.0	---	---	---
10. Methylene Chloride	0.14	1.0	---	---	---
11. trans-1,2-Dichloroethene	0.13	5.0	---	---	---
12. 1,1-Dichloroethane	0.16	5.0	1.00 J	0.50 J	---
13. Vinyl Acetate	0.20	50.0	---	---	---
14. Cis-1,2-Dichloroethene	0.14	5.0	---	0.20 J	---
15. 2-Butanone	0.85	100.0	---	0.90 J	---
16. Bromochloromethane	0.11	3.0	---	---	---
17. Chloroform	0.13	5.0	---	---	---
18. 1,1,1-Trichloroethane	0.11	1.0	---	---	---
19. Carbon Tetrachloride	0.13	1.0	---	---	---
20. Benzene	0.16	1.0	---	1.60	---
21. 1,2-Dichloroethane	0.12	1.0	---	---	---
22. Trichloroethene	0.13	1.0	---	---	---
23. 1,2-Dichloropropane	0.17	1.0	---	---	---
24. Bromodichloromethane	0.13	1.0	---	---	---
25. Cis-1,3-Dichloropropene	0.17	1.0	---	---	---
26. 4-Methyl-2-Pentanone	0.68	100.0	---	---	---
27. Toluene	0.13	1.0	---	---	---
28. trans-1,3-Dichloropropene	0.14	1.0	---	---	---
29. 1,1,2-Trichloroethane	0.20	1.0	---	---	---
30. Tetrachloroethene	0.16	1.0	---	---	---
31. 2-Hexanone	1.00	50.0	---	---	---
32. Dibromochloromethane	0.14	3.0	---	---	---
33. 1,2-Dibromoethane	0.13	1.0	---	---	---
34. Chlorobenzene	0.13	3.0	---	14.90	---
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	---	---	---
36. Ethylbenzene	0.16	1.0	---	---	---
37. Xylenes	0.48	5.0	---	---	---
38. Dibromomethane	0.17	10.0	---	---	---
39. Styrene	0.16	1.0	---	---	---
40. Bromoform	0.11	3.0	---	---	---
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	---	---	---
42. 1,2,3-Trichloropropane	0.06	1.0	---	---	---
43. 1,4-Dichlorobenzene	0.21	1.0	---	8.60	---
44. 1,2-Dichlorobenzene	0.13	5.0	---	1.20 J	---
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	---	---	---
46. Acrylonitrile	1.49	200.0	---	---	---
47. trans-1,4-Dichloro-2-Butene	0.14	100.0	---	---	---

J = Between MDL and SWSL, U = Below ALL Quantitation 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: 05/19/09
DATE REPORTED : 06/23/09

REVIEWED BY: 

PARAMETERS	MDL	SWSL	MW-14D	MW-15D	MW-16D	Analysis		Method
						Date	Analyst	Code
Antimony, ug/l	0.06	6.0	0.1 J	0.2 J	0.1 J	05/26/09	CMF	EPA200.8
Arsenic, ug/l	0.17	10.0	1.5 J	2.3 J	1.2 J	05/26/09	CMF	EPA200.8
Barium, ug/l	0.04	100.0	1.8 J	28.3 J	94.4 J	05/26/09	CMF	EPA200.8
Beryllium, ug/l	0.06	1.0	--- U	--- U	0.1 J	05/26/09	CMF	EPA200.8
Cadmium, ug/l	0.04	1.0	0.1 J	--- U	0.1 J	05/26/09	CMF	EPA200.8
Cobalt, ug/l	0.02	10.0	0.6 J	1.4 J	0.7 J	05/26/09	CMF	EPA200.8
Copper, ug/l	0.04	10.0	2.5 J	2.3 J	0.6 J	05/26/09	CMF	EPA200.8
Total Chromium, ug/l	0.10	10.0	--- U	1.3 J	1.4 J	05/26/09	CMF	EPA200.8
Lead, ug/l	0.04	10.0	2.1 J	4.4 J	0.4 J	05/26/09	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	2.1 J	3.2 J	1.6 J	05/26/09	CMF	EPA200.8
Selenium, ug/l	0.12	10.0	4.0 J	0.6 J	2.8 J	05/26/09	CMF	EPA200.8
Silver, ug/l	0.04	10.0	0.1 J	0.1 J	--- U	05/26/09	CMF	EPA200.8
Thallium, ug/l	0.03	5.0	--- U	--- U	--- U	05/26/09	CMF	EPA200.8
Vanadium, ug/l	0.28	25.0	1.3 J	2.3 J	4.2 J	05/26/09	CMF	EPA200.8
Zinc, ug/l	0.14	10.0	6.3 J	7.0 J	2.0 J	05/26/09	CMF	EPA200.8

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

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

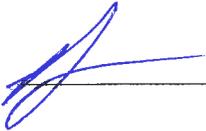
PHONE (252) 756-6208
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CLIENT: JOHNSTON COUNTY LANDFILL (OLD)
MR. KEVIN SHIELDS
P.O. BOX 2263
SMITHFIELD, NC 27577

CLIENT ID: 6031 B

ANALYST: MAO
DATE COLLECTED: 05/19/09
DATE REPORTED: 06/23/09

Page: 1

REVIEWED BY: 

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	Date Analyzed:		05/29/09	05/30/09	05/30/09		
	MDL	SWSL	MW-14D	MW-15D	MW-16D		
1. Chloromethane	0.18	1.0	---	U	---	U	
2. Vinyl Chloride	0.34	1.0	0.50	J	---	U	
3. Bromomethane	0.26	10.0	---	U	---	U	
4. Chloroethane	0.29	10.0	---	U	---	U	
5. Trichlorofluoromethane	0.13	1.0	0.70	J	0.60	J	
6. 1,1-Dichloroethene	0.14	5.0	---	U	---	U	
7. Acetone	1.21	100.0	5.00	J	4.40	J	
8. Iodomethane	0.12	10.0	---	U	---	U	
9. Carbon Disulfide	0.14	100.0	---	U	---	U	
10. Methylene Chloride	0.14	1.0	---	U	---	U	
11. trans-1,2-Dichloroethene	0.13	5.0	---	U	---	U	
12. 1,1-Dichloroethane	0.16	5.0	3.40	J	---	U	
13. Vinyl Acetate	0.20	50.0	---	U	---	U	
14. Cis-1,2-Dichloroethene	0.14	5.0	4.70	J	---	U	
15. 2-Butanone	0.85	100.0	---	U	---	U	
16. Bromochloromethane	0.11	3.0	---	U	---	U	
17. Chloroform	0.13	5.0	---	U	---	U	
18. 1,1,1-Trichloroethane	0.11	1.0	---	U	---	U	
19. Carbon Tetrachloride	0.13	1.0	---	U	---	U	
20. Benzene	0.16	1.0	---	U	---	U	
21. 1,2-Dichloroethane	0.12	1.0	---	U	---	U	
22. Trichloroethene	0.13	1.0	0.30	J	---	U	
23. 1,2-Dichloropropane	0.17	1.0	0.60	J	---	U	
24. Bromodichloromethane	0.13	1.0	---	U	---	U	
25. Cis-1,3-Dichloropropene	0.17	1.0	---	U	---	U	
26. 4-Methyl-2-Pentanone	0.68	100.0	---	U	---	U	
27. Toluene	0.13	1.0	0.20	J	---	0.20	J
28. trans-1,3-Dichloropropene	0.14	1.0	---	U	---	U	
29. 1,1,2-Trichloroethane	0.20	1.0	---	U	---	U	
30. Tetrachloroethene	0.16	1.0	---	U	---	U	
31. 2-Hexanone	1.00	50.0	---	U	---	U	
32. Dibromochloromethane	0.14	3.0	---	U	---	U	
33. 1,2-Dibromoethane	0.13	1.0	---	U	---	U	
34. Chlorobenzene	0.13	3.0	2.80	J	---	U	
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	---	U	---	U	
36. Ethylbenzene	0.16	1.0	---	U	---	U	
37. Xylenes	0.48	5.0	---	U	---	U	
38. Dibromomethane	0.17	10.0	---	U	---	U	
39. Styrene	0.16	1.0	---	U	---	U	
40. Bromoform	0.11	3.0	---	U	---	U	
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	---	U	---	U	
42. 1,2,3-Trichloropropane	0.06	1.0	---	U	---	U	
43. 1,4-Dichlorobenzene	0.21	1.0	2.10	J	---	U	
44. 1,2-Dichlorobenzene	0.13	5.0	---	U	---	U	
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	---	U	---	U	
46. Acrylonitrile	1.49	200.0	---	U	---	U	
47. trans-1,4-Dichloro-2-Butene	0.14	100.0	---	U	---	U	

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

Environment 1, Inc.
 P.O. Box 7085, 114 Oakmont Dr.
 Greenville, NC 27858
 Phone (252) 756-6208 • Fax (252) 756-0633
 CLIENT: 6031 C, 6031B, Week: 16
 JOHNSTON COUNTY LANDFILL (OLD)
 MR. KEVIN SHIELDS
 P.O. BOX 2263
 SMITHFIELD NC 27577

(919) 938-4747

CHAIN OF CUSTODY RECORD

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/l	TEMPERATURE, °C	# OF CONTAINERS	DISINFECTION				Metals	Sulfide	EPA 8260B	8260 Dup. 1	EPA 8081A	8081A Duplicate	8151A Landfill	8260 Dup. 2	PARAMETERS	CHEMICAL PRESERVATION	CONTAINER TYPE, P/G	pH CHECK (LAB)	CHLORINE NEUTRALIZED AT COLLECTION
	DATE	TIME				CHLORINE	UV	NONE	AT COLLECTION													
SW-1A	5/19/09	09:32	N/A	17	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														
SW-2		08:48	N/A	18	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														
Piezometer #3		16:01	N/A	16	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														
MW-4B		17:20	N/A	16	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	X	X	X	X	X							
MW-14D		11:02	N/A	15	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	X	X	X	X	X							
MW-15D		11:54	N/A	15	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	X	X	X	X	X							
MW-16D		12:51	N/A	15	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	X	X	X	X	X							
MW-8A		13:55	N/A	18	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	X	X	X	X	X							
MW-17		14:39	N/A	17	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	X	X	X	X	X							
EQUIPMENT BIOWIL		18:14	N/A	N/A	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	X	X	X	X	X							
TRIP BIOWIL		N/A	N/A	N/A		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	X	X	X	X	X	X							
RELINQUISHED BY (SIG.) (SAMPLER)	5/20/09	09:00	RECEIVED BY (SIG.)		5/20/09	08:30 PM	DATE/TIME		COMMENTS: ADDITIONAL SAMPLES RETRIEVED FOR LABORATORY QA/QC PURPOSES.													
RELINQUISHED BY (SIG.)			RECEIVED BY (SIG.)				DATE/TIME															
RELINQUISHED BY (SIG.)			RECEIVED BY (SIG.)				DATE/TIME															

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.

No 178056

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: 05/19/09
DATE REPORTED : 06/30/09

REVIEWED BY: 

PARAMETERS	MDL	SW-1A		SW-2	Piezometer	Analysis		Method
		SWSL			#3	Date	Analyst	Code
Antimony, ug/l	0.06	6.0	0.1 J	0.1 J	0.3 J	05/26/09	CMF	EPA200.8
Arsenic, ug/l	0.61	10.0	0.8 J	0.8 J		05/26/09	CMF	EPA200.8
Arsenic, ug/l	0.61	10.0			24	06/02/09	CMF	SM3113B
Barium, ug/l	0.04	100.0	37.9 J	35.7 J	63.9 J	05/26/09	CMF	EPA200.8
Beryllium, ug/l	0.06	1.0	0.1 J	0.1 J	0.1 J	05/26/09	CMF	EPA200.8
Cadmium, ug/l	0.04	1.0	--- U	--- U	0.1 J	05/26/09	CMF	EPA200.8
Cobalt, ug/l	0.02	10.0	1.8 J	1.8 J	0.7 J	05/26/09	CMF	EPA200.8
Copper, ug/l	0.04	10.0	5.4 J	2.8 J	6.6 J	05/26/09	CMF	EPA200.8
Total Chromium, ug/l	0.10	10.0	2.2 J	1.8 J	3.8 J	05/26/09	CMF	EPA200.8
Lead, ug/l	0.04	10.0	2.2 J	1.8 J	2.3 J	05/26/09	CMF	EPA200.8
Mercury, ug/l	0.03	0.20			--- U	05/26/09	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	1.8 J	1.7 J	2.1 J	05/26/09	CMF	EPA200.8
Selenium, ug/l	0.12	10.0	--- U	--- U	4.8 J	05/26/09	CMF	EPA200.8
Silver, ug/l	0.04	10.0	0.2 J	--- U	0.3 J	05/26/09	CMF	EPA200.8
Thallium, ug/l	0.03	5.0	--- U	--- U	--- U	05/26/09	CMF	EPA200.8
Vanadium, ug/l	0.28	25.0	8.6 J	7.1 J	6.8 J	05/26/09	CMF	EPA200.8
Zinc, ug/l	0.14	10.0	14	16	11	05/26/09	CMF	EPA200.8
Sulfide, ug/l	100	1000			--- U	05/26/09	LFJ	SM4500-S2D

J = Between MDL and SWSL, U = Below ALL Quantitation 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: 05/19/09
DATE EXTRACTED: 05/22/09
DATE ANALYZED: 06/15/09
DATE REPORTED: 06/30/09

REVIEWED BY:  _____

PESTICIDES AND PCB'S EPA METHOD 8081A

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	0.07	--- 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	0.07	--- U
18. Methoxychlor	0.530	1.00	--- U
19. Pcb's (Aroclors)	0.500	2.00	--- U
20. Toxaphene	0.690	1.00	--- U

NOTE: Surrogate recovery for Piezometer was outside control limits

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

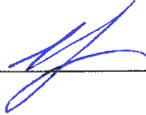
P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

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

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

CLIENT ID: 6031 C

ANALYST: CHS
DATE COLLECTED: 05/19/09
DATE EXTRACTED: 05/26/09
DATE ANALYZED: 05/29/09
DATE REPORTED: 06/30/09

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

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

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

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

CLIENT ID: 6031 C

ANALYST: MAO
DATE COLLECTED: 05/19/09
DATE ANALYZED: 05/30/09
DATE REPORTED: 06/30/09

Page: 1

REVIEWED BY: 

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	SW-1A	SW-2	Piezometer #3
1. Chloromethane	0.18	1.0	0.20 J	--- U	--- U
2. Vinyl Chloride	0.34	1.0	--- U	--- U	0.70 J
3. Bromomethane	0.26	10.0	--- U	--- U	--- U
4. Chloroethane	0.29	10.0	--- U	--- U	--- U
5. Trichlorofluoromethane	0.13	1.0	--- U	0.60 J	--- U
6. 1,1-Dichloroethene	0.14	5.0	--- U	--- U	--- U
7. Acetone	1.21	100.0	6.10 J	5.90 J	6.90 J
8. Iodomethane	0.12	10.0	--- U	--- U	--- U
9. Carbon Disulfide	0.14	100.0	--- U	--- U	--- U
10. Methylene Chloride	0.14	1.0	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.13	5.0	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.16	5.0	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.14	5.0	--- U	--- U	0.60 J
15. 2-Butanone	0.85	100.0	--- U	--- U	1.40 J
16. Bromochloromethane	0.11	3.0	--- U	--- U	--- U
17. Chloroform	0.13	5.0	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.11	1.0	--- U	--- U	--- U
19. Carbon Tetrachloride	0.13	1.0	--- U	--- U	--- U
20. Benzene	0.16	1.0	--- U	--- U	2.50
21. 1,2-Dichloroethane	0.12	1.0	--- U	--- U	--- U
22. Trichloroethene	0.13	1.0	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.17	1.0	--- U	--- U	--- U
24. Bromodichloromethane	0.13	1.0	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.17	1.0	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	0.68	100.0	--- U	--- U	--- U
27. Toluene	0.13	1.0	--- U	--- U	0.30 J
28. trans-1,3-Dichloropropene	0.14	1.0	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.20	1.0	--- U	--- U	--- U
30. Tetrachloroethene	0.16	1.0	--- U	--- U	--- U
31. 2-Hexanone	1.00	50.0	--- U	--- U	--- U
32. Dibromochloromethane	0.14	3.0	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.13	1.0	--- U	--- U	--- U
34. Chlorobenzene	0.13	3.0	--- U	--- U	10.60
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	--- U	--- U	--- U
36. Ethylbenzene	0.16	1.0	--- U	--- U	--- U
37. Xylenes	0.48	5.0	--- U	--- U	--- U
38. Dibromomethane	0.17	10.0	--- U	--- U	--- U
39. Styrene	0.16	1.0	--- U	--- U	--- U
40. Bromoform	0.11	3.0	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.06	1.0	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.21	1.0	--- U	--- U	7.40
44. 1,2-Dichlorobenzene	0.13	5.0	--- U	--- U	1.60 J
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	--- U	--- U	--- U
46. Acrylonitrile	1.49	200.0	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.14	100.0	--- U	--- U	--- U

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

Environment 1, Incorporated

REC'D JUL 08 2009

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: 06/03/09
DATE REPORTED : 06/30/09

REVIEWED BY: 

PARAMETERS	MDL	SWSL	Leak	Leachate	Analysis		Method
			Detect	Jun Box	Date	Analyst	Code
BOD, mg/l	2.0	2.0	13	47	06/05/09	TRB	SM5210B
COD, mg/l	10.0	10.0	102		06/17/09	TRB	HACH8000
COD, mg/l	10.0	10.0		714	06/12/09	TRB	HACH8000
Total Suspended Residue, mg/l	1.0	1.0	550	126	06/05/09	MRJ	SM2540D
Ammonia Nitrogen as N, mg/l	0.04	0.04	35.00		06/09/09	ANO	EPA350.1
Ammonia Nitrogen as N, mg/l	0.04	0.04		360	06/11/09	TWA	EPA350.1
Nitrate Nitrogen as N, mg/l	0.03	10.0	--- U	--- U	06/10/09	ANO	EPA353.2
Total Phosphorus as P, mg/l	0.04	0.04	0.04	1.24	06/11/09	TWA	EPA365.4
Sulfate, mg/l	5.0	250.0	76.4 J	28.8 J	06/15/09	TRB	SM4500-SO4E
Antimony, ug/l	0.06	6.0	1.2 J	2.1 J	06/16/09	CMF	EPA200.8
Arsenic, ug/l	0.17	10.0	48	12	06/16/09	CMF	EPA200.8
Barium, ug/l	0.04	100.0	1245	246	06/16/09	CMF	EPA200.8
Beryllium, ug/l	0.06	1.0	2	0.1 J	06/16/09	CMF	EPA200.8
Cadmium, ug/l	0.04	1.0	0.6 J	0.1 J	06/16/09	CMF	EPA200.8
Cobalt, ug/l	0.02	10.0	6.7 J	11	06/16/09	CMF	EPA200.8
Copper, ug/l	0.04	10.0	102	5.8 J	06/16/09	CMF	EPA200.8
Total Chromium, ug/l	0.10	10.0	14	13	06/16/09	CMF	EPA200.8
Lead, ug/l	0.04	10.0	14	1.6 J	06/16/09	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	11.1 J	62	06/16/09	CMF	EPA200.8
Selenium, ug/l	0.12	10.0	3.1 J	15	06/16/09	CMF	EPA200.8
Silver, ug/l	0.04	10.0	0.2 J	0.1 J	06/16/09	CMF	EPA200.8
Thallium, ug/l	0.03	5.0	--- U	--- U	06/16/09	CMF	EPA200.8
Vanadium, ug/l	0.28	25.0	27	9.0 J	06/16/09	CMF	EPA200.8
Zinc, ug/l	0.14	10.0	1477	656	06/16/09	CMF	EPA200.8

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

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

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

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

CLIENT ID: 6054

 ANALYST: MAO
 DATE COLLECTED: 06/03/09
 DATE ANALYZED: 06/12/09
 DATE REPORTED: 06/30/09

Page: 1

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

PARAMETERS, ug/l	MDL	SWSL	Leak Detect	Leachate Jun Box	Trip Blank
1. Chloromethane	0.18	1.0	0.30 J	0.30 J	--- U
2. Vinyl Chloride	0.34	1.0	--- U	--- U	--- U
3. Bromomethane	0.26	10.0	--- U	--- U	--- U
4. Chloroethane	0.29	10.0	0.50 J	0.70 J	--- U
5. Trichlorofluoromethane	0.13	1.0	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.14	5.0	--- U	--- U	--- U
7. Acetone	1.21	100.0	18.90 J	25.10 J	--- U
8. Iodomethane	0.12	10.0	--- U	--- U	--- U
9. Carbon Disulfide	0.14	100.0	--- U	--- U	--- U
10. Methylene Chloride	0.14	1.0	--- U	0.20 J	--- U
11. trans-1,2-Dichloroethene	0.13	5.0	--- U	0.30 J	--- U
12. 1,1-Dichloroethane	0.16	5.0	0.20 J	0.90 J	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.14	5.0	--- U	0.30 J	--- U
15. 2-Butanone	0.85	100.0	6.40 J	6.40 J	--- U
16. Bromochloromethane	0.11	3.0	--- U	--- U	--- U
17. Chloroform	0.13	5.0	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.11	1.0	--- U	--- U	--- U
19. Carbon Tetrachloride	0.13	1.0	--- U	--- U	--- U
20. Benzene	0.16	1.0	0.40 J	18.10	--- U
21. 1,2-Dichloroethane	0.12	1.0	0.50 J	2.00	--- U
22. Trichloroethene	0.13	1.0	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.17	1.0	--- U	0.80 J	--- U
24. Bromodichloromethane	0.13	1.0	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.17	1.0	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	0.68	100.0	--- U	2.50 J	--- U
27. Toluene	0.13	1.0	--- U	8.50	0.80 J
28. trans-1,3-Dichloropropene	0.14	1.0	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.20	1.0	--- U	--- U	--- U
30. Tetrachloroethene	0.16	1.0	--- U	--- U	--- U
31. 2-Hexanone	1.00	50.0	1.50 J	1.10 J	--- U
32. Dibromochloromethane	0.14	3.0	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.13	1.0	--- U	--- U	--- U
34. Chlorobenzene	0.13	3.0	--- U	1.80 J	--- U
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	--- U	--- U	--- U
36. Ethylbenzene	0.16	1.0	--- U	16.40	--- U
37. Xylenes	0.48	5.0	--- U	78.40	--- U
38. Dibromomethane	0.17	10.0	--- U	--- U	--- U
39. Styrene	0.16	1.0	--- U	1.80	--- U
40. Bromoform	0.11	3.0	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.06	1.0	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.21	1.0	1.40	8.00	--- U
44. 1,2-Dichlorobenzene	0.13	5.0	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	--- U	--- U	--- U
46. Acrylonitrile	1.49	200.0	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.14	100.0	--- U	--- U	--- U

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

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

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

CLIENT: 6054 Week: 16

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

(919) 938-4747

CHAIN OF CUSTODY RECORD

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/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	PARAMETERS	CHEMICAL PRESERVATION	CONTAINER TYPE, PIG	pH CHECK (LAB)	CHLORINE NEUTRALIZED AT COLLECTION	
	DATE	TIME																				
Leak Detect	6/3/09	13:49	N/A	19	11	<input checked="" type="checkbox"/>		A - NONE B - HNO ₃ C - H ₂ SO ₄ G - NA THIOSULFATE														
Leachate Jun Box	6/3/09	15:26	N/A	23	10	<input checked="" type="checkbox"/>																
TRAP BLANK	6/3/09	N/A	N/A	N/A	2	<input checked="" type="checkbox"/>																
RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)
<i>[Signature]</i>	6/4/09 09:00	<i>[Signature]</i>	6/4/09 09:00	<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)
<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)
<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>

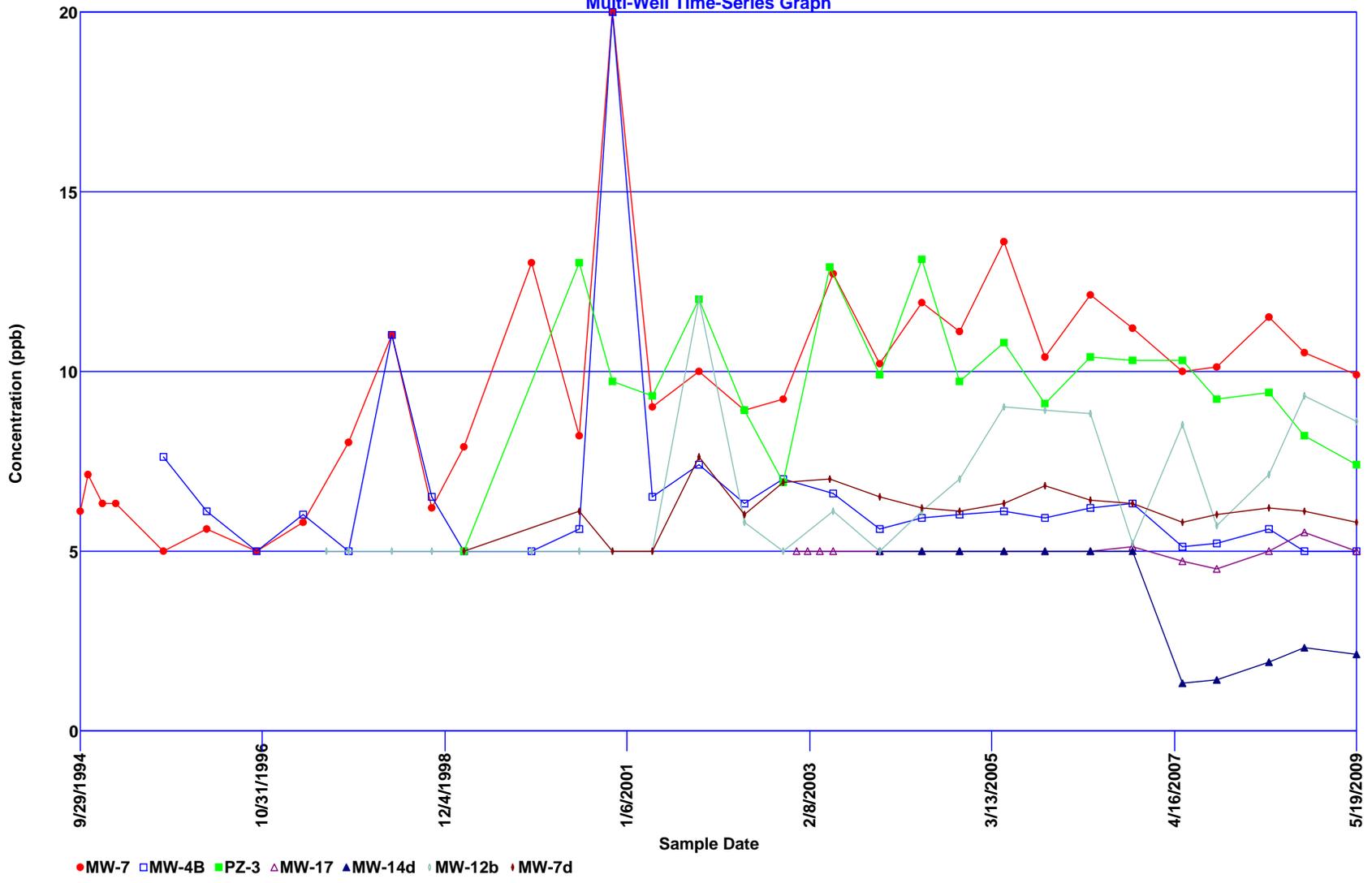
PLEASE READ Instructions for completing this form on the reverse side.

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

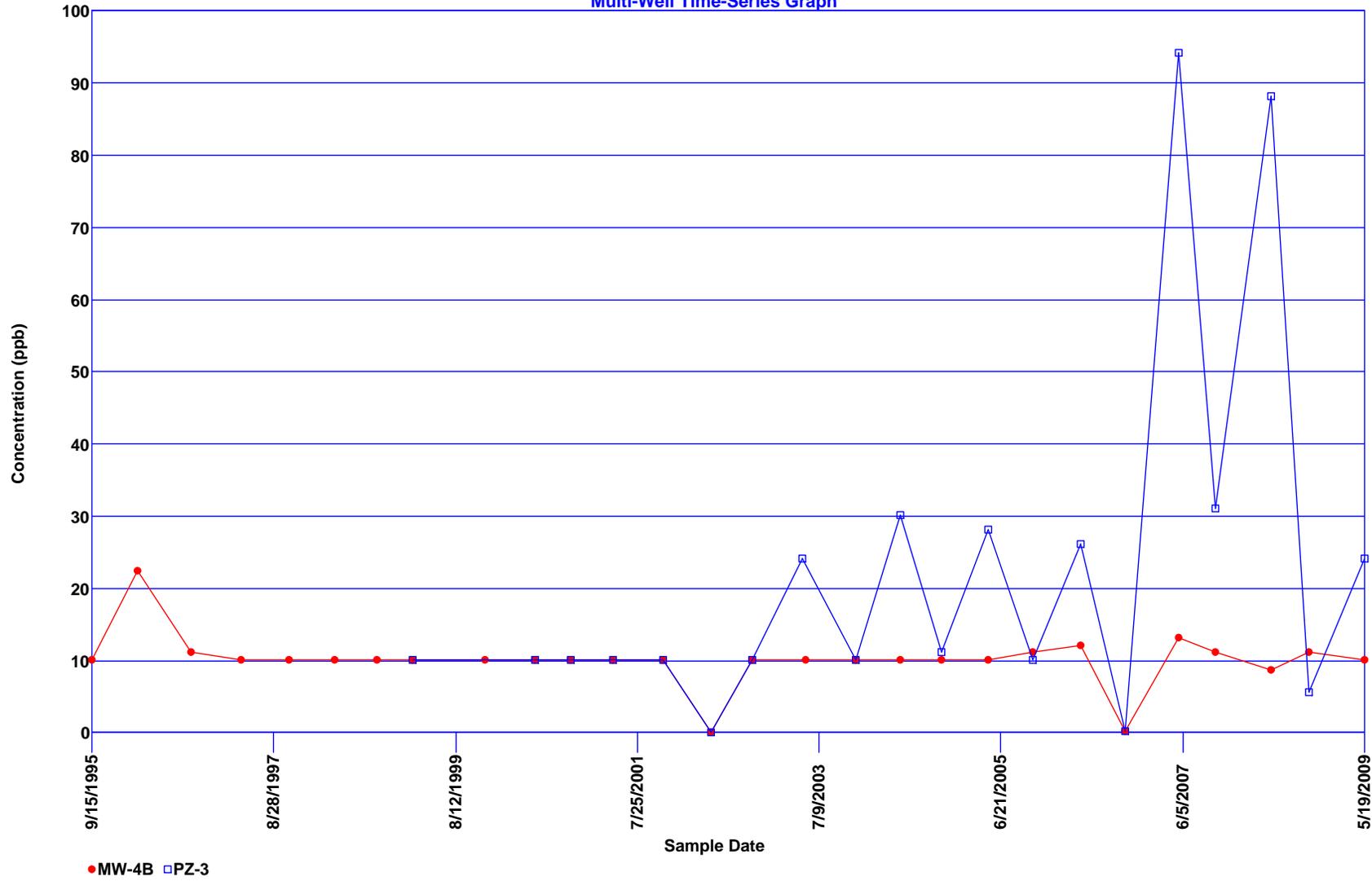
Appendix C

Time Vs. concentration Graphs

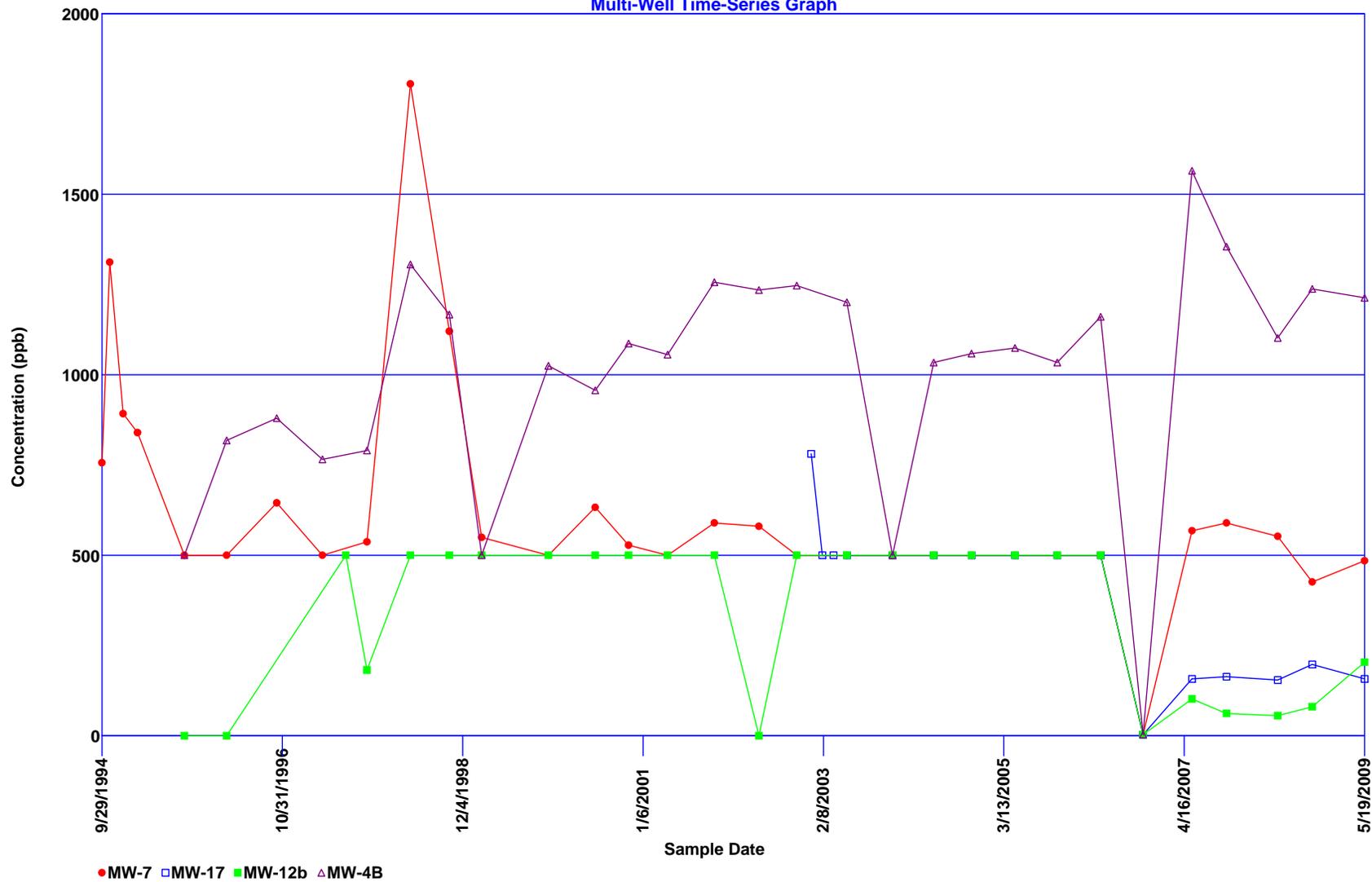
1,4-Dichlorobenzene Multi-Well Time-Series Graph



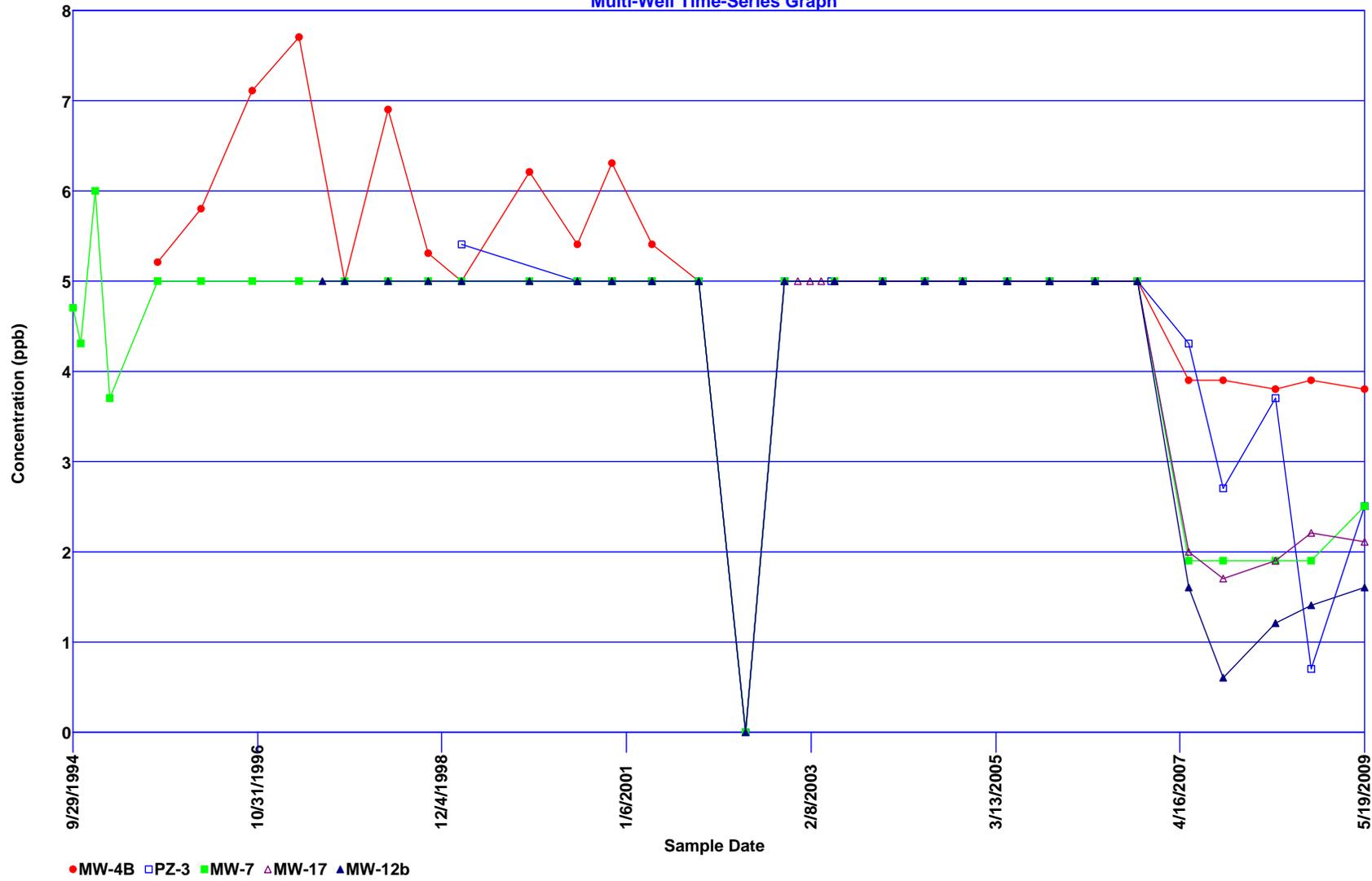
Arsenic
Multi-Well Time-Series Graph



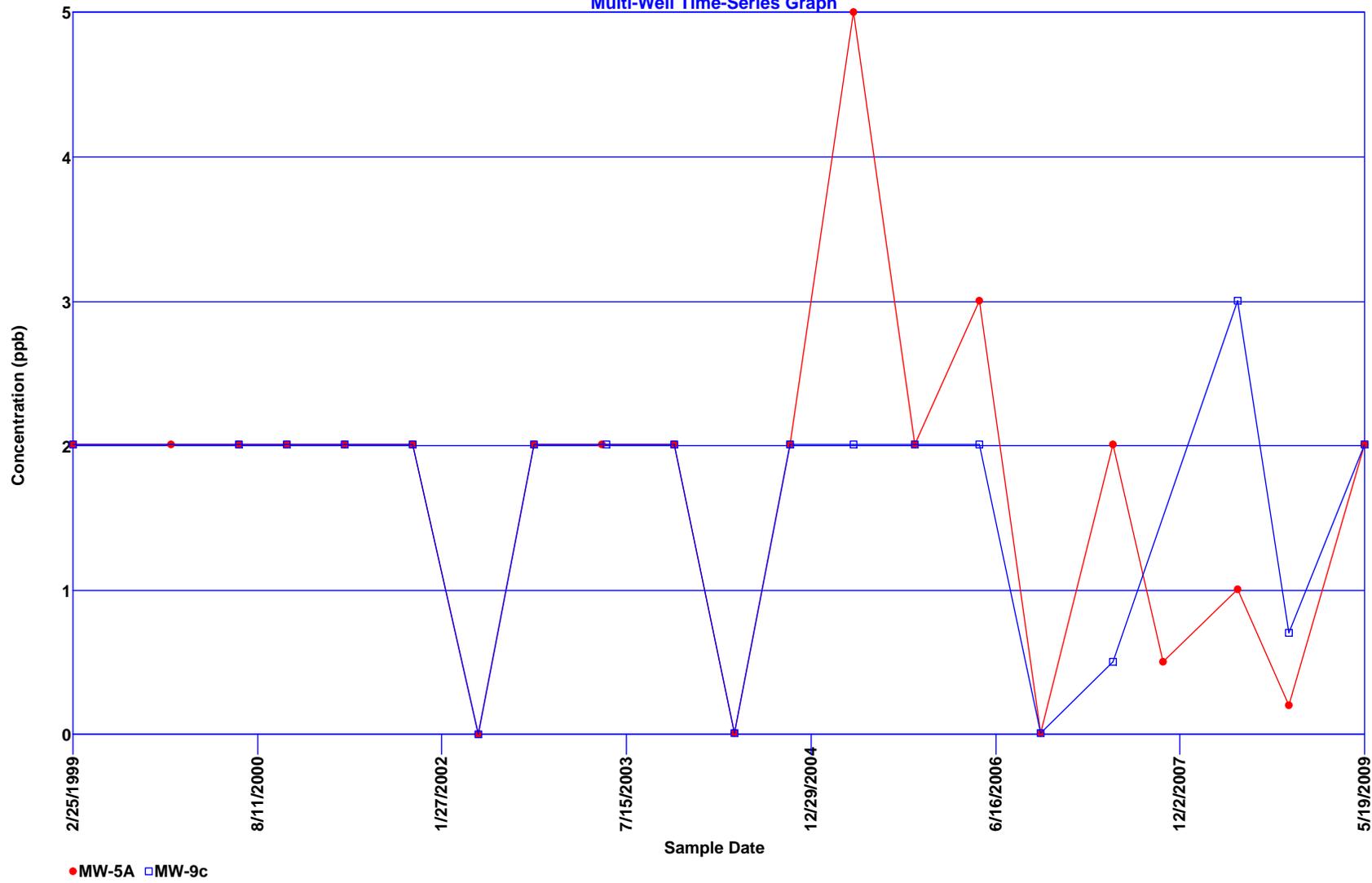
Barium
Multi-Well Time-Series Graph



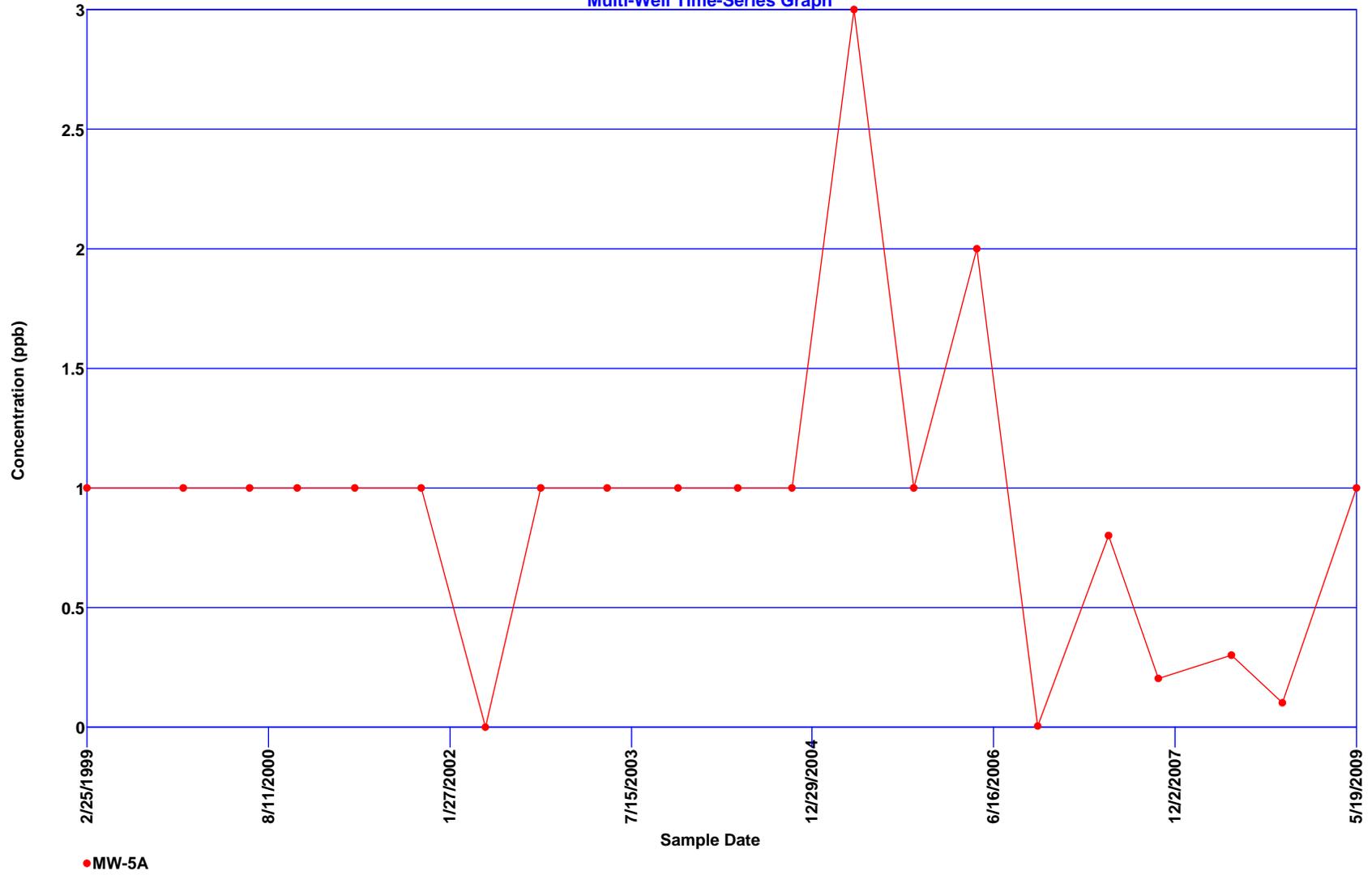
Benzene
Multi-Well Time-Series Graph



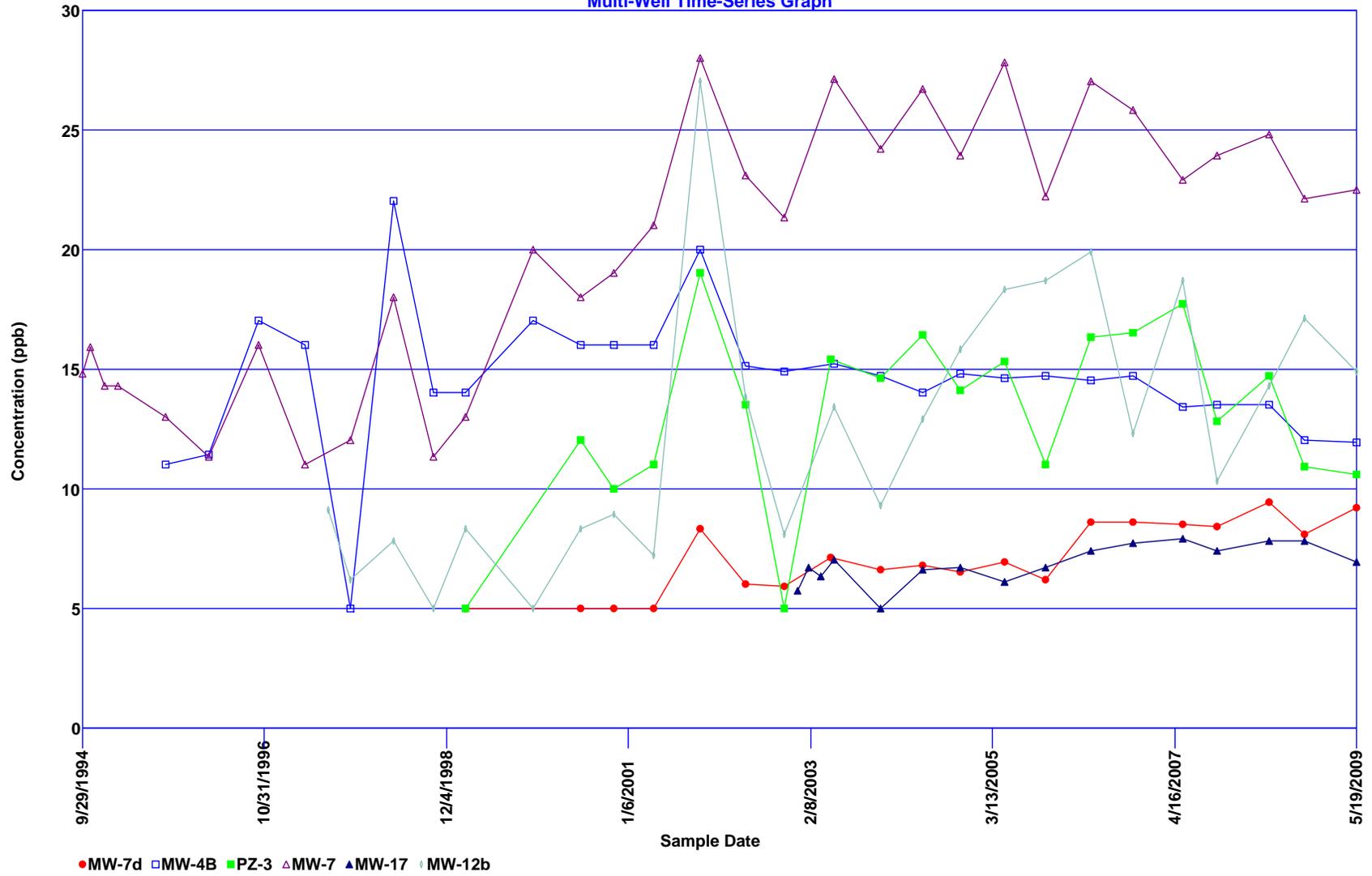
Beryllium Multi-Well Time-Series Graph



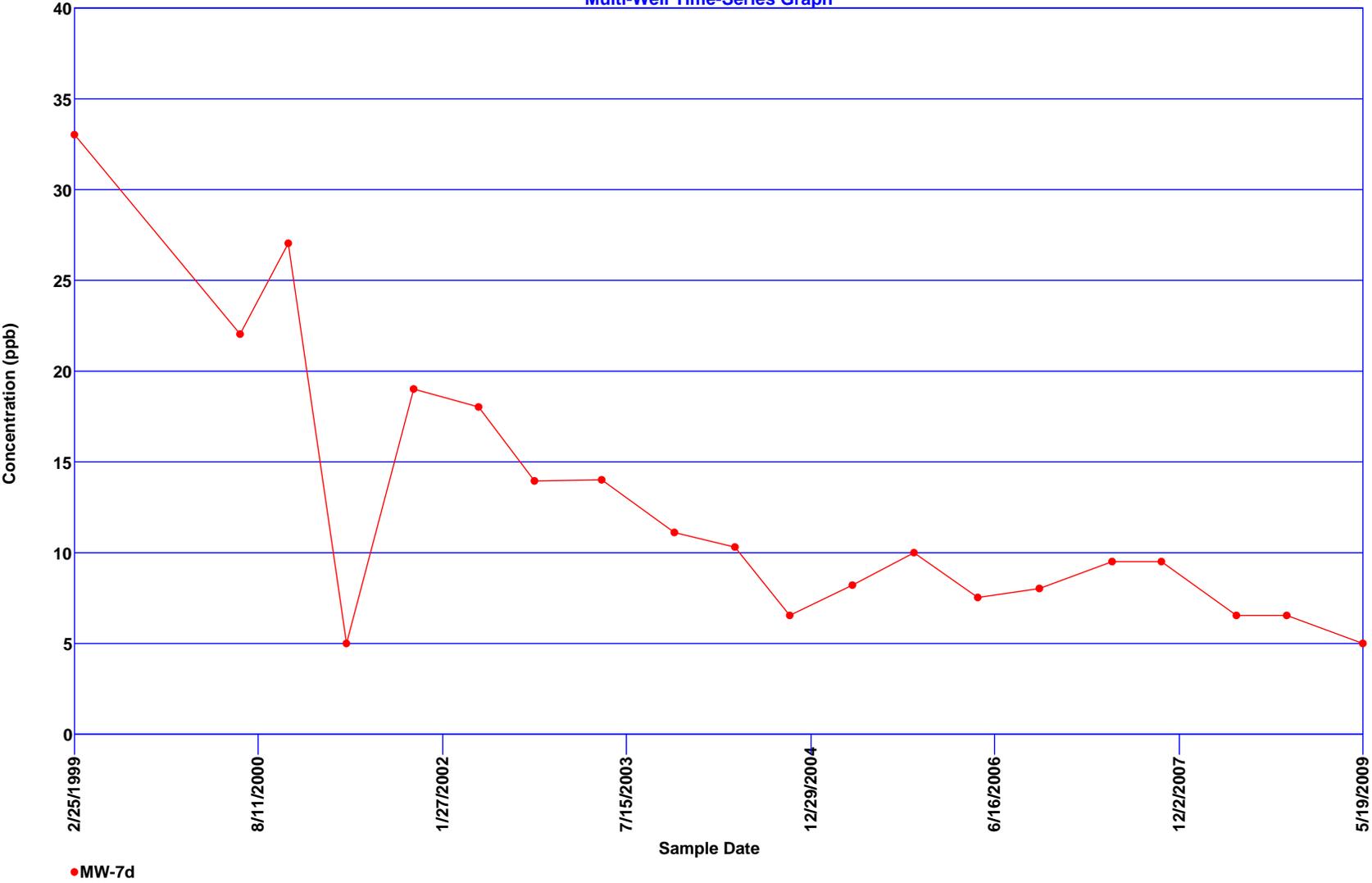
Cadmium
Multi-Well Time-Series Graph



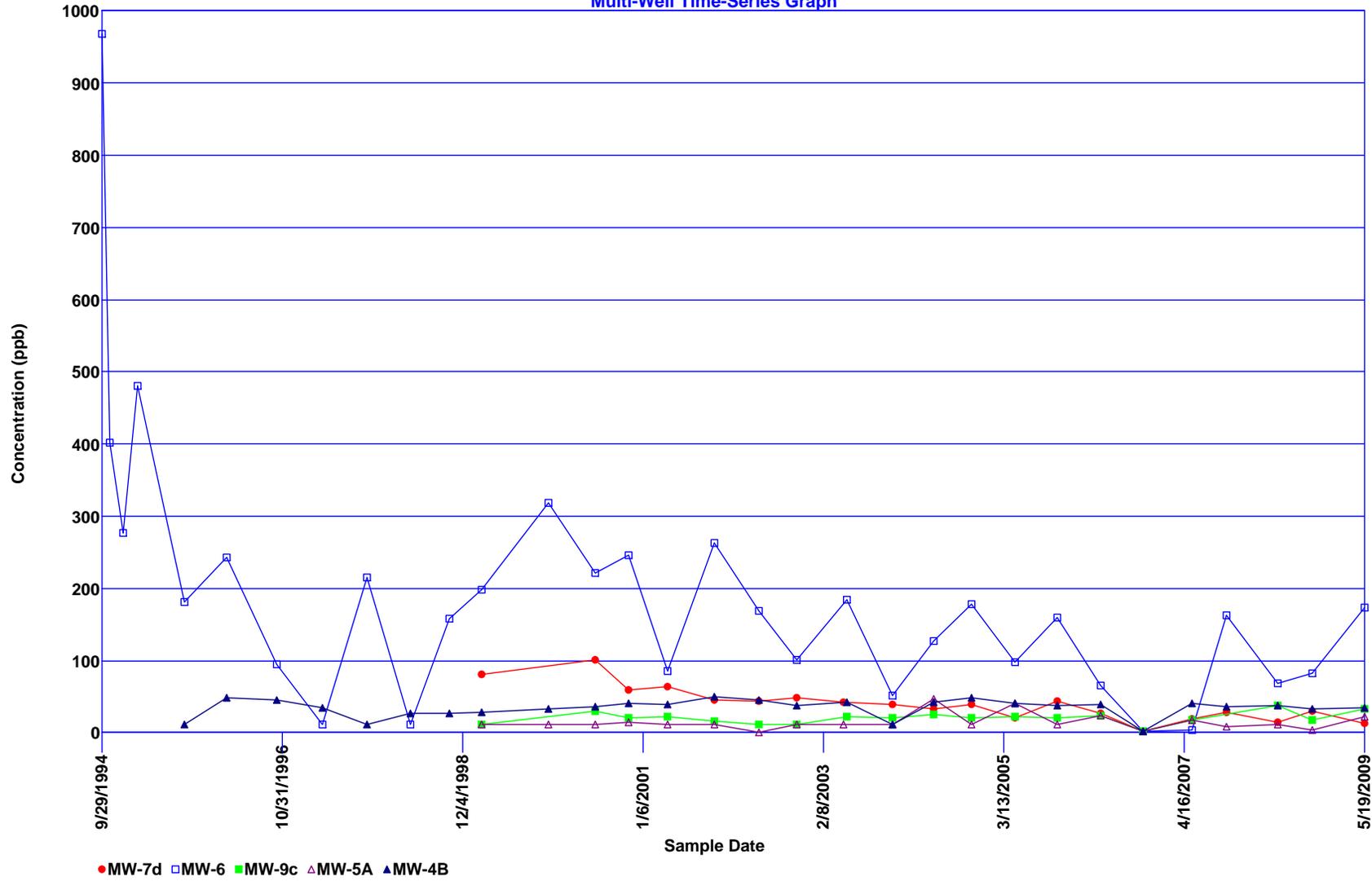
Chlorobenzene
Multi-Well Time-Series Graph



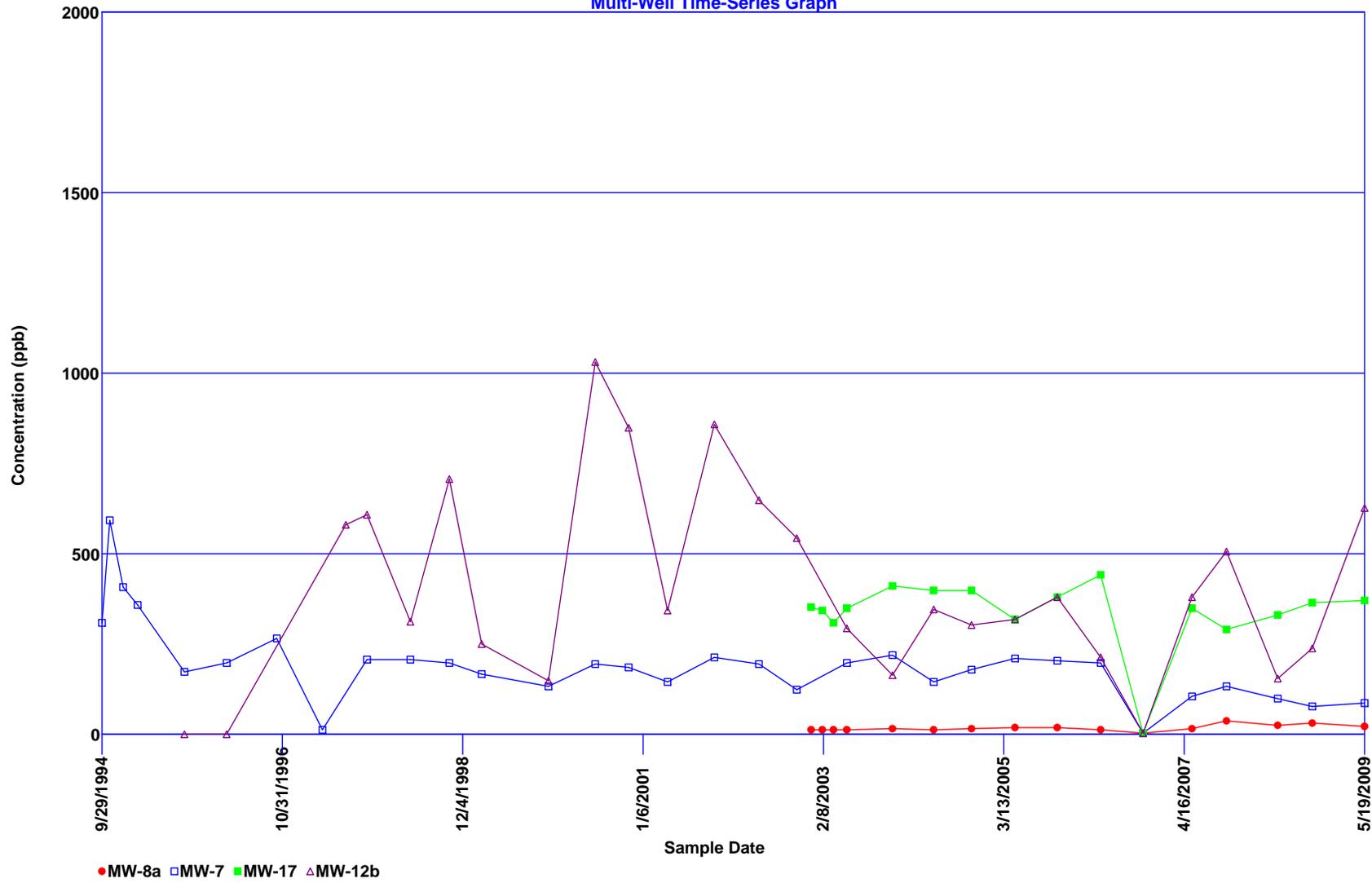
Cis-1,2-Dichloroethene
Multi-Well Time-Series Graph



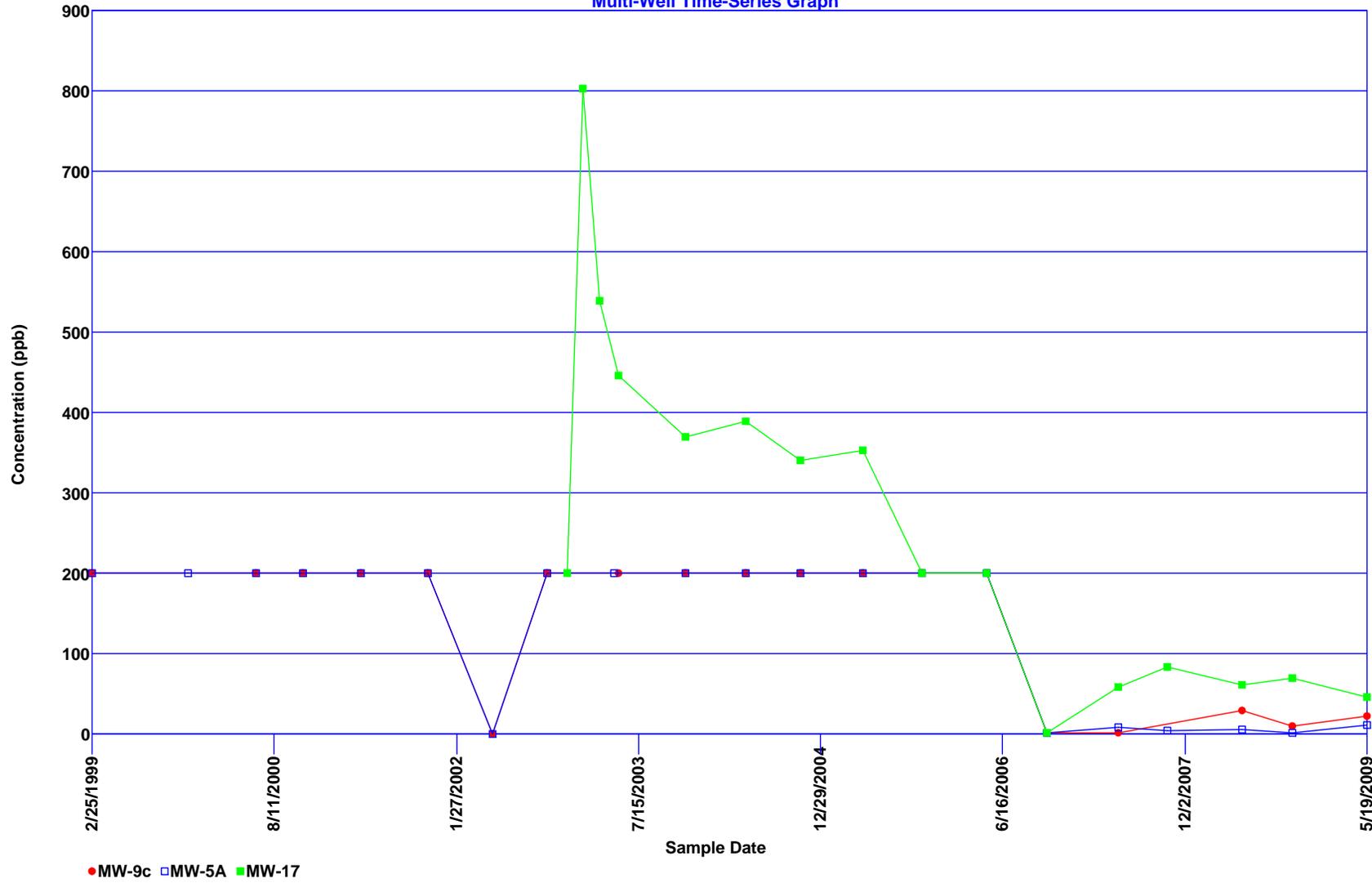
Cobalt
Multi-Well Time-Series Graph



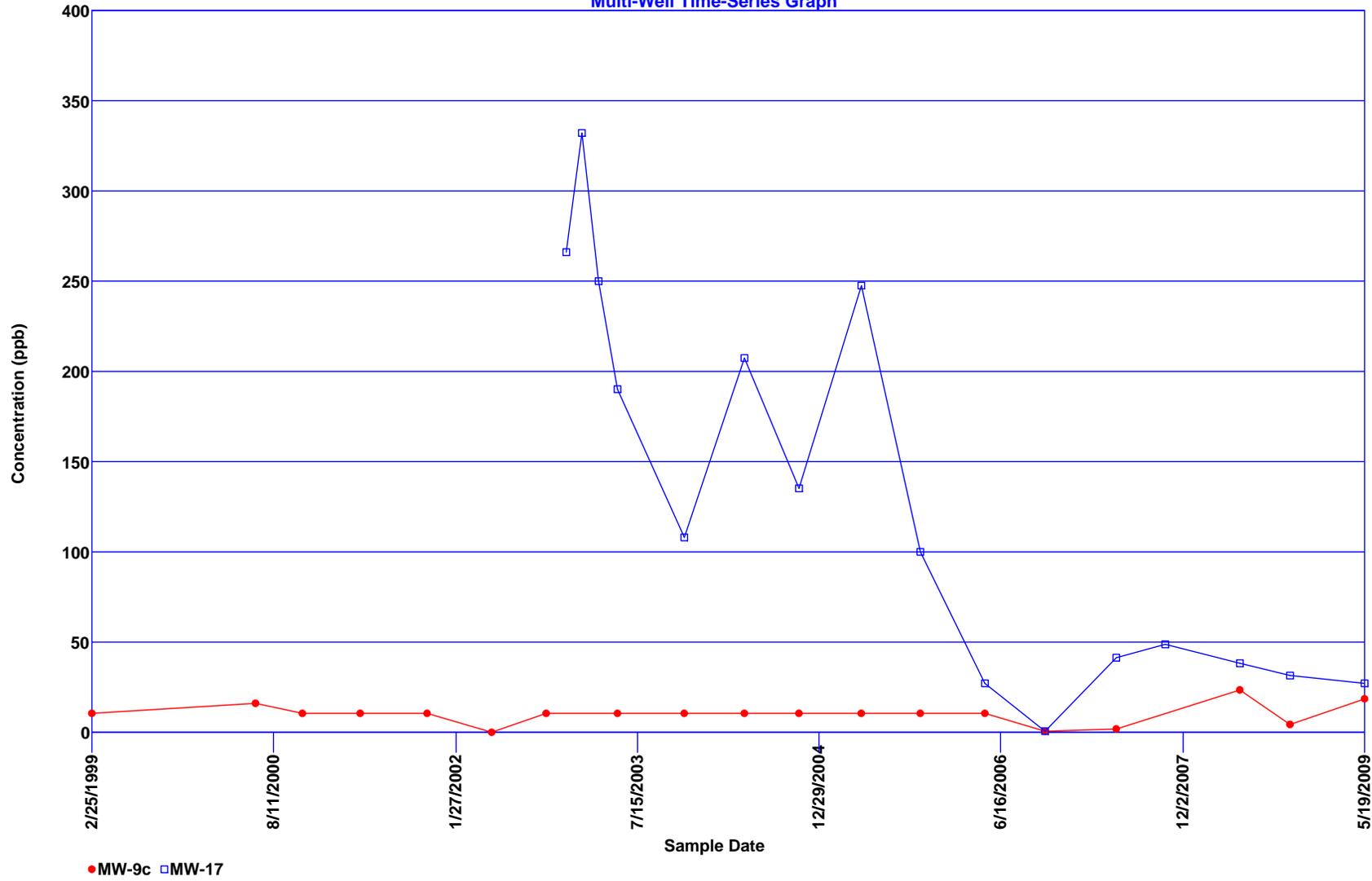
Cobalt
Multi-Well Time-Series Graph



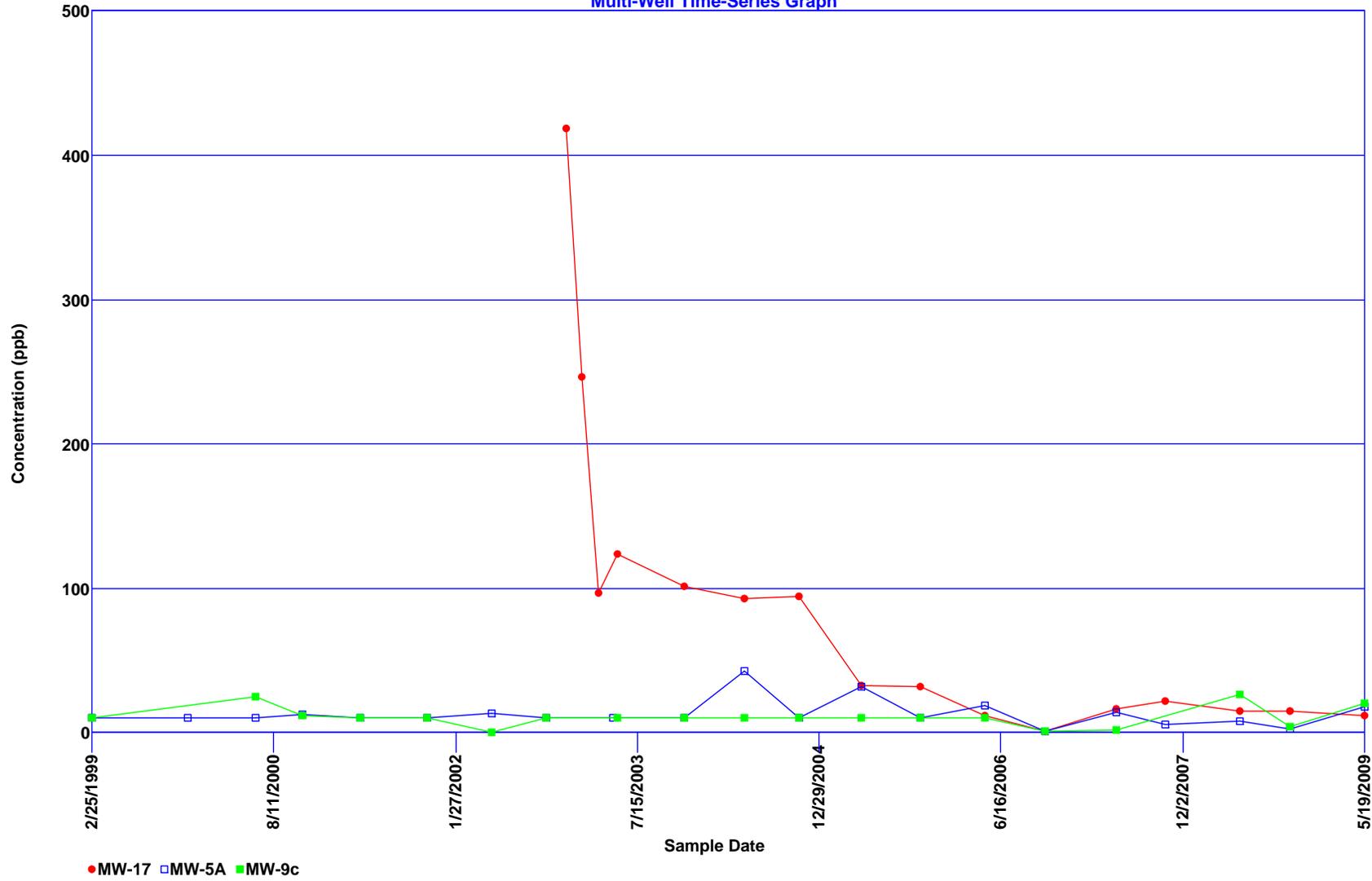
Copper Multi-Well Time-Series Graph



Lead
Multi-Well Time-Series Graph

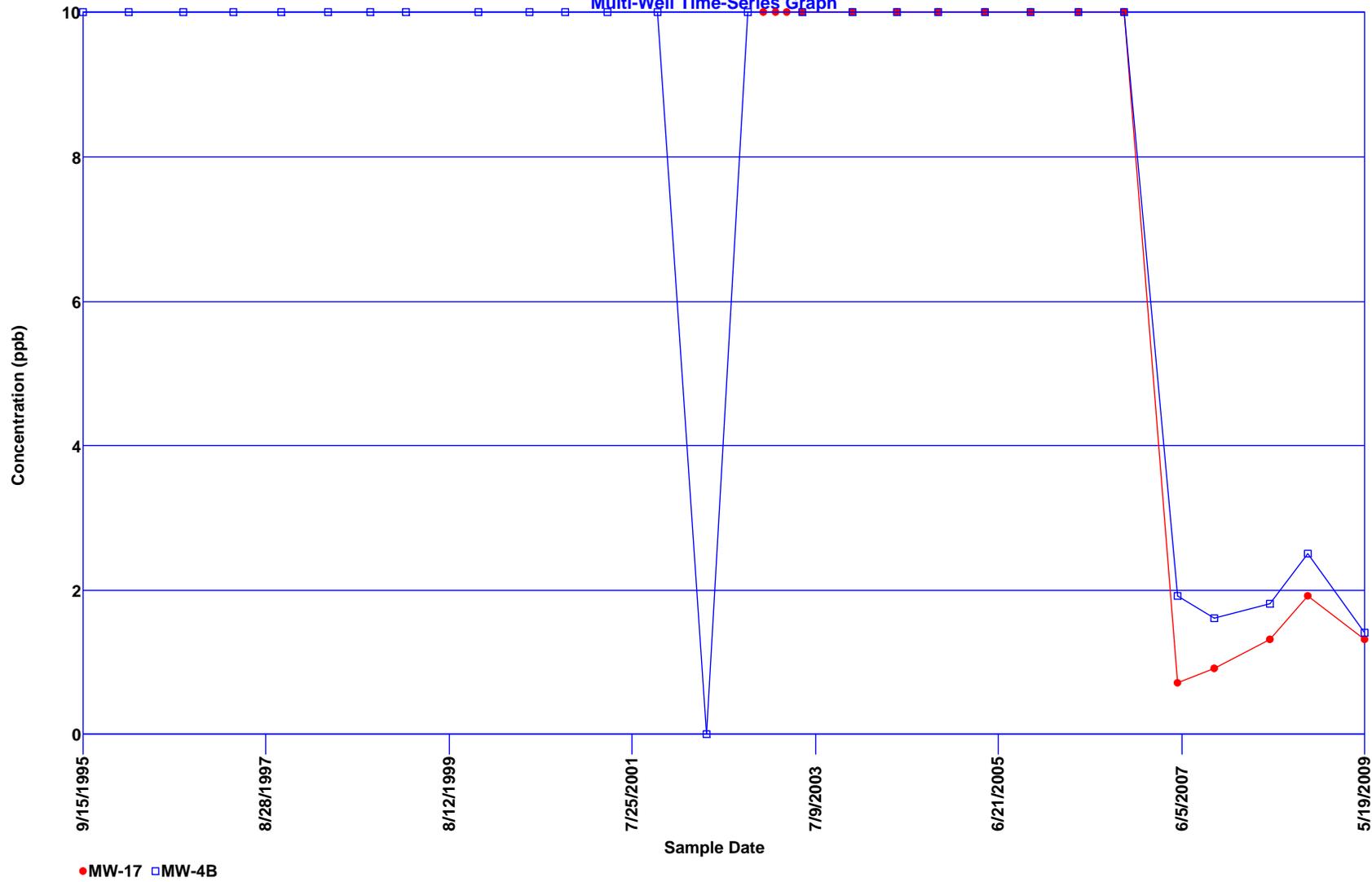


Total Chromium
Multi-Well Time-Series Graph



Vinyl chloride

Multi-Well Time-Series Graph



Zinc Multi-Well Time-Series Graph

