

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 C&D Landfill	680 County Home Road	51-03	.0500	June 1 - 3, 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

*Joan A. Smyth*  
Signature

7/29/09  
Date

Affix NC Licensed Professional Geologist/Engineer Seal here:



# **Johnston County C&D Landfill Ground Water Monitoring Report**

## **June 2009 Semi-annual Monitoring Event**

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

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

**July 2009**



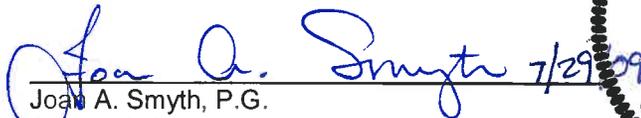
# Spring 2009 Ground Water Monitoring Report

**Johnston County C&D Landfill  
Smithfield, North Carolina  
NC Solid Waste Permit # 51-03**

Prepared for:

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

RSG Project No. **Johnston - 4**

  
Joan A. Smyth, P.G.  
Senior Hydrogeologist



**July 2009**



PRINTED ON 100% RECYCLED PAPER

**Johnston County – C&D Landfill  
Semi-annual Ground Water Monitoring Report  
June 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 SITE ASSESSMENT / REMEDIAL ACTION.....3

6.0 STATISTICAL ANALYSIS AND RESULTS .....3

    6.1 Statistical Analysis.....3

    6.2 2L/MCL Statistical Analysis.....4

7.0 GROUND WATER CHARACTERIZATION.....4

8.0 CONCLUSIONS.....5

**FIGURES**

Figure 1 – Ground Water Potentiometric Map

**TABLES**

- Table 1 – Ground Water Elevations & Velocities
- Table 2 – Field Parameter Results
- Table 3 – Detected Inorganic & Organic Constituents
- Table 4 – Statistical Summary

**APPENDICES**

- Appendix A – Laboratory Analytical Reports
- Appendix B – Time vs. Concentration Graphs

## 1.0 Introduction

The Johnston County Landfill, currently operating under Solid Waste Permit # 51-03 (C&D) is required to submit semi-annual ground water monitoring reports for C&D landfill. This lined C&D landfill received a permit to operate on 8/24/2007. This report presents the results of the first semi-annual monitoring event for 2009, conducted on June 1<sup>st</sup>- 3<sup>rd</sup>, 2009. The event was performed to comply with the semi-annual monitoring schedule required by NC Solid Waste Regulations.

The ground water monitoring network for the C&D landfill includes 12 ground water monitoring wells. During this event, monitoring well MW-8d contained insufficient water to sample. Since this is a lined C&D landfill, a leachate sample is also collected. This report includes summaries of the field procedures, laboratory analyses, statistical analyses, and ground water characterization for the C&D site. Also included are graphs of the data over time, and laboratory analytical reports.

## 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, on June 1<sup>st</sup>- 3<sup>rd</sup>, 2009 from 11 ground water wells (CDMW-1, CDMW-2, CDMW-3, CDMW-4, CDMW-5, CDMW-5D, CDMW-6, CDMW-7, CDMW-8, CDMW-9, and CDMW-9D), shown in **Figure 1**. This sampling was conducted in accordance with the approved site Water Quality Monitoring Plan<sup>1</sup>. Also included in the analysis was a trip blank for quality control.

---

<sup>1</sup> G.N. Richardson and Associates, Inc. Permit to Construct Application, Johnson Co. C&D Landfill – Area 2, (Appendix J). October 2005.

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 collected using new factory sealed teflon bailers. 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**

All samples were transported to the laboratory facility under proper chain of custody and analyzed at the specified DWM Solid Waste Section Limits (SWSL)<sup>2</sup> for Appendix constituents. The laboratory report is attached for your review as **Appendix A**.

### **4.2 Field and Laboratory Results**

Ground water and field measurements included in **Table 2**, remained similar to previous results. The laboratory analysis detected thirteen (13) inorganic constituents in all monitoring wells: arsenic, barium, beryllium, cadmium, cobalt, copper, iron, lead, manganese, nickel, total chromium, vanadium, and zinc. Of these, five (5) inorganic constituents were found above the 2L standard in all monitoring wells:

- cobalt;
- iron;
- lead;
- manganese; and
- vanadium.

Nine (9) organic constituents were detected in five (5) monitoring wells: 1,1-dichloroethane, 1,2-Dichloropropane, 1,4-dichlorobenzene, benzene, chlorobenzene, cis-1,2-dichloroethene, methylene chloride, trichloroethylene, and vinyl chloride. Of these, four (4) organic constituents were found above the 2L standard in three (3) monitoring wells:

- 1,2-dichloropropane;
- 1,4-dichlorobenzene;
- benzene; and
- vinyl chloride.

**Table 3** summarizes the list of constituents detected. Constituents detected below the SWSL are denoted as “J” values and are also included in **Table 3**.

---

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

## 5.0 Site Assessment/Remedial Action

The Johnston County lined C&D landfill has been constructed as a “piggy-back” landfill which partially covers a sideslope of the existing unlined Phase 3 MSW landfill. This “piggy-back” design of the lined C&D landfill is the latest phase of an ongoing remedial action for the unlined MSW landfills (Phases 3 and 4). This remedial action includes the construction of several lined “piggy-back” cells and a partial geomembrane cover to limit the infiltration of rainwater into the unlined waste mass. When all the phases of this remedial action are completed, approximately 70 to 75% of the Phase 3 and 4 landfills will be covered to reduce infiltration and the production of uncontrolled leachate.

Prior to construction of the C&D landfill, a ground water assessment was completed in the C&D area to evaluate the effect of the unlined landfills on ground water within and around the then proposed C&D landfill. The conclusions of this assessment indicated that some organic constituents were detected in CDMW-9 and CDMW-9d, and that several inorganic constituents were detected across the C&D area. Collection of filtered samples indicated the inorganic detections were due to suspended solids in the samples collected. This is in keeping with the data collected during the baseline sampling.

However, it should be noted that wells CDMW-1 and CDMW-2 located next to the unlined Phases 1 and 2 and CDMW-5 & CDMW-5D located adjacent to Phase 3 had not been installed at the time of the assessment. Given their location related to the unlined phases and the sampling of these wells before waste placement in the C&D landfill, the impact detected in these wells appears to be from the unlined MSW landfill units.

## 6.0 Statistical Analysis & Results

### 6.1 Statistical Analysis

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

Due to the presence of contaminants in the ground water prior to the construction of the C&D landfill (see **Section 4.0**). Statistical analysis is performed using intrawell techniques. This allows for an evaluation of the relative significance of changing contaminant levels in the ground water at a previously impacted well. Time versus concentration graphs were also reviewed for each detected constituent. These are included in **Appendix B**.

The following constituents were found to be statistically significant (See **Table 4**): arsenic (CDMW-9D), cobalt (CDMW-6 & CDMW-9D), lead (CDMW-6) and total chromium (CDMW-3). As stated above, prior assessment activities indicate inorganic constituents detected at the site and due to suspended solids in the samples collected.

## 6.2 2L/MCL Statistical Analysis

For wells that showed statistically significant differences from background concentrations, additional analysis was performed. This analysis has recently been required as part of ongoing Assessment monitoring for landfills in North Carolina. To perform the analysis, the respective 2L standard or MCL was determined for each parameter with statistically significant results. Each compliance well with statistical significance was re-analyzed against the lower of the 2L or MCL standard as a Ground Water Protection Standard (GWPS).

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

The statistical results for this additional analysis are presented in **Table 4**. An upper tolerance limit higher than the GWPS standard was considered to be a statistically significant result. This analysis indicated statistically significant results of arsenic (CDMW-9D), cobalt (CDMW-6 & CDMW-9D), lead (CDMW-6) and total chromium (CDMW-3).

## 7.0 Ground Water Characterization

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

K = hydraulic conductivity

I = ground water gradient

n = porosity

Slug tests were not performed on any of the C&D wells except CDMW-9 which was previously named as PZ-9 during site permitting activities. Piezometers PZ-1 to PZ-10, installed in 2003, were previously located within the C&D footprint. Using this data, the average hydraulic conductivity and porosity for PZ-1 to PZ-10 was used for the evaluation of ground water flow in CDMW-1 through CDMW-8.

Ground water velocities ranged from 0.013feet/day (CDMW-6) to 0.071 feet/day (CDMW-4). These calculations are included in **Table 5**. The data indicates that ground water is flowing generally to the north towards the tributaries of Middle Creek. This is consistent with ground water flow patterns previously seen at this site. The potentiometric surface map (**Figure 1**) is also attached for your review.

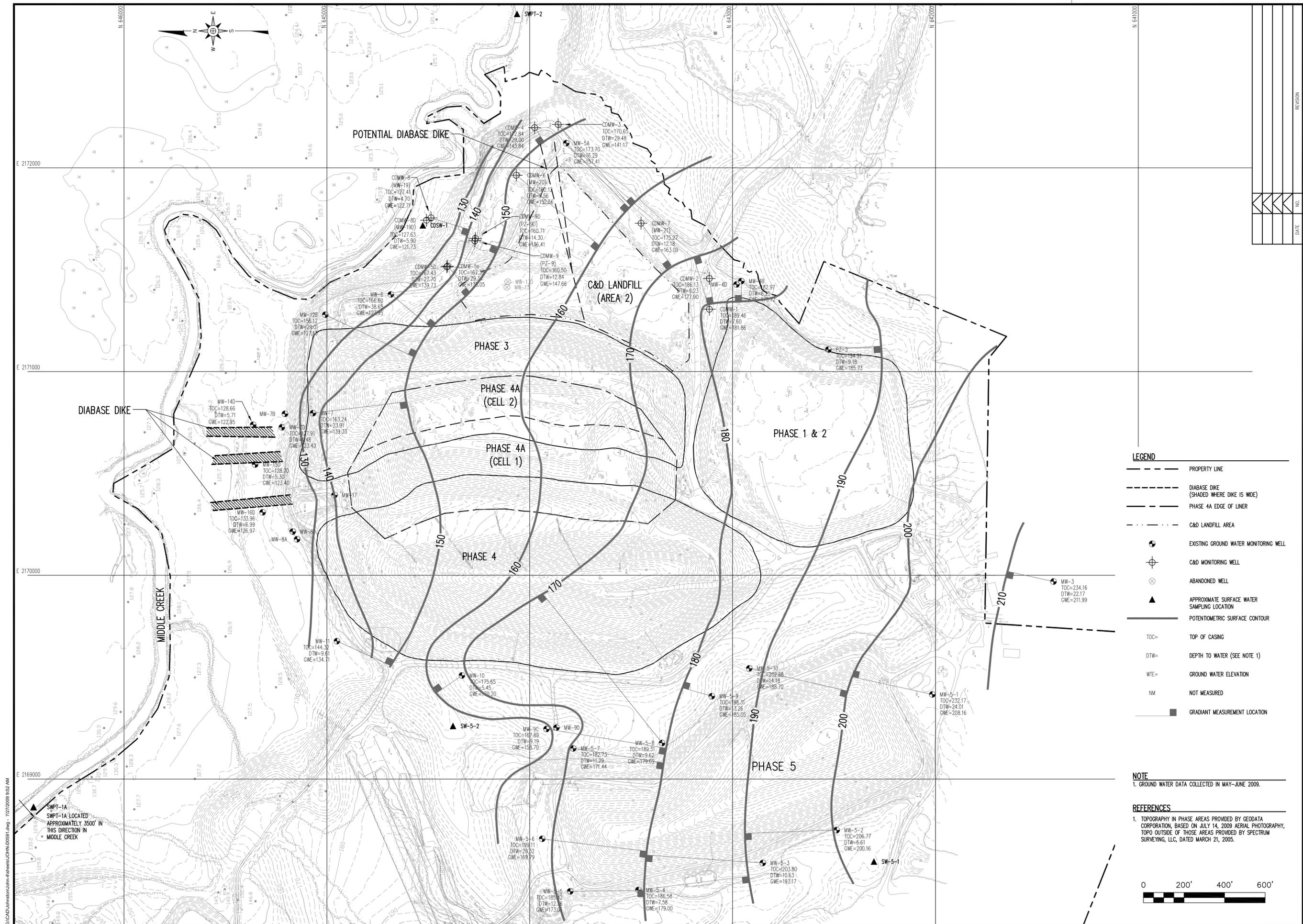
## 8.0 Conclusions

The results of this monitoring event indicate concentrations of five (5) inorganic constituents and four (4) organic constituents above their respective ground water standards. The inorganic constituents are likely due to suspended solids in the samples (as evidenced by elevated turbidity readings from wells CDMW-1, CDMW-2, CDMW-3, CDMW-5, CDMW-6, CDMW-7 & CDMW-9) and prior elevated inorganic constituent detections during the original assessment. The majority of the organic constituents were previously detected. Given the history of the site and the location of unlined landfills adjacent to the C&D landfill, these detections are likely due to prior impact from the unlined landfills.

As the C&D landfill is part of the overall site remediation, it is likely that over time the detected levels will decrease.

The next ground water monitoring event is scheduled for October 2009. A report will be submitted to NCDENR upon completion of laboratory and statistical analyses.

Figures

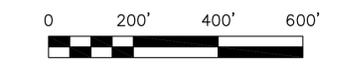


**LEGEND**

	PROPERTY LINE
	DIABASE DIKE (SHADED WHERE DIKE IS WIDE)
	PHASE 4A EDGE OF LINER
	C&D LANDFILL AREA
	EXISTING GROUND WATER MONITORING WELL
	C&D MONITORING WELL
	ABANDONED WELL
	APPROXIMATE SURFACE WATER SAMPLING LOCATION
	POTENTIOMETRIC SURFACE CONTOUR
TOC=	TOP OF CASING
DTW=	DEPTH TO WATER (SEE NOTE 1)
GWE=	GROUND WATER ELEVATION
NM	NOT MEASURED
	GRADIENT MEASUREMENT LOCATION

**NOTE**  
1. GROUND WATER DATA COLLECTED IN MAY-JUNE 2009.

**REFERENCES**  
1. TOPOGRAPHY IN PHASE AREAS PROVIDED BY GEODATA CORPORATION, BASED ON JULY 14, 2009 AERIAL PHOTOGRAPHY, TOPO OUTSIDE OF THOSE AREAS PROVIDED BY SPECTRUM SURVEYING, LLC, DATED MARCH 21, 2005.



DATE	NO.	REVISION

**RICHARDSON SMITH GARDNER & ASSOCIATES**  
14 N. Boylan Ave.  
Raleigh, N.C. 27603  
www.rsgengineers.com  
ph: 919-228-0577  
fax: 919-228-3899

PROJECT TITLE:  
**JOHNSTON COUNTY LANDFILL  
SMITHFIELD, NORTH CAROLINA**

DRAWING TITLE:  
**GROUND WATER  
POTENTIOMETRIC SURFACE MAP  
SPRING 2009**

DESIGNED BY: K.B.S.	DRAWN BY: J.A.L.
CHECKED BY: AS SHOWN	PROJECT NO.: JOHN-4
SCALE: FILE NAME	DATE: July 2009
SHEET NO.	DRAWING NO. JOHN-D0591

**FIG. 1**

G:\C&D\Johnston\John-4\asmetals\JOHN-D0591.dwg - 7/27/2009 8:52 AM

Tables



**Table 1**  
**Johnston County C&D Landfill**  
**Ground Water Elevations & Velocities**  
**6/1/2009 - 6/3/2009**

Well	Northing	Easting	TOC Elevation (feet)	Water Level (feet)	GW Elev (feet)	Hyd. Cond. (ft/day)	Porosity (%)	Gradient (ft/ft)	Velocity (ft/day)
CDMW-1	643114.61	2171305.99	189.46	7.6	181.86	0.232	0.25	0.044	0.041
CDMW-2	643114.86	2171456.69	186.13	8.23	177.9	0.232	0.25	0.016	0.015
CDMW-3	643860.05	2172212.35	170.65	29.48	141.17	0.232	0.25	0.035	0.032
CDMW-4	643975.97	2172197.24	172.84	29	143.84	0.232	0.25	0.077	0.071
CDMW-5	644405.08	2171517.29	167.39	29.34	138.05	0.232	0.25	0.07	0.065
CDMW-5D*	644409.22	2171513.79	167.43	27.7	139.73	NA	NA	0.06	NA
CDMW-6	644066.12	2171963.6	162.12	9.56	152.56	0.232	0.25	0.014	0.013
CDMW-7	643451.38	2171727.87	175.27	12.18	163.09	0.232	0.25	0.026	0.024
CDMW-8	644487.1	2171754.2	127.41	4.7	122.71	0.232	0.25	0.086	NA
CDMW-8D*	644509	2171743	127.63	5.9	121.73	NA	NA	0.091	NA
CDMW-9	644270.74	2171641.69	160.5	12.84	147.66	0.259	0.25	0.016	NA
CDMW-9D*	644268.2	2171653.67	160.71	14.3	146.41	NA	NA	0.016	NA

Notes: Velocity Calculated from  $V=K*I/n$   
V = velocity  
K = Hydraulic Conductivity  
I = Gradient  
n = Porosity  
Hydraulic Conductivity data from slug testing  
Porosity values assumed from Groundwater & Wells (Driscoll)  
na = not available  
\* Deep wells not included in gradient calculation



**Table 2**  
**Johnston County C&D Landfill**  
**Field Parameters**  
**6/1/2009 - 6/3/2009**

Well Identification #	Static Water Level (ft) * (DTW)	Temperature (°Celsius)	Turbidity (NTU)	Specific Conductivity (uS/cm)	pH
CDMW-1	7.6	17.93	113	193	5.84
CDMW-2	8.23	18.59	411	763	6.19
CDMW-3	29.48	16.28	104	21	4.67
CDMW-4	29	17.85	7.23	37	5.58
CDMW-5	29.34	17.5	193	66	4.97
CDMW-5D	27.7	18.04	3.35	75	4.95
CDMW-6	9.56	17.22	551	54	6.67
CDMW-7	12.18	16.82	243	165	4.64
CDMW-8	4.7	16.5	19.6	98	4.7
CDMW-8D	5.9	IWV	IWV	IWV	IWV
CDMW-9	12.84	16.82	Off-Scale	162	5.33
CDMW-9D	14.3	17.43	11.7	175	5.31
Leachate Point	N/A	N/A	N/A	N/A	N/A

**IWV = Insufficient Water Volume for Determination**

**N/A = Parameter not analyzed at this location.**

**Note: Data Collected by Kevin Shields of Johnston County**

**Table 3**  
**Johnston County C&D Landfill**  
**Detected Inorganic and Organic Constituents**  
**6/1/2009 - 6/3/2009**

Constituents	SWSL	2L	CDMW-1	CDMW-2	CDMW-3	CDMW-4	CDMW-5	CDMW-5D	CDMW-6	CDMW-7	CDMW-8	CDMW-9	CDMW-9D	SW-1
<b>Inorganic</b>														
Antimony	6	1.4	ND	0.2 J	0.1 J	0.8 J	0.8 J	0.2 J	0.1 J	0.4 J	0.1 J	0.2 J	ND	0.2 J
Arsenic	10	50	<b>31</b>	3.7 J	0.9 J	0.2 J	1.5 J	0.3 J	5.6 J	2.3 J	0.7 J	<b>20</b>	<b>19</b>	2.1 J
Barium	100	2000	81.8 J	<b>135</b>	64.2 J	2.2 J	40.4 J	10.4 J	46.2 J	77.7 J	19.8 J	<b>110</b>	9.6 J	77.5 J
Beryllium	1	4	ND	0.1 J	0.7 J	0.1 J	0.7 J	0.1 J	<b>2</b>	<b>1</b>	0.5 J	<b>1</b>	ND	0.1 J
Cadmium	1	1.75	ND	0.1 J	0.2 J	0.1 J	0.4 J	0.1 J	0.4 J	<b>1</b>	ND	<b>1</b>	0.1 J	0.1 J
Cobalt	10	70	2.1 J	6.7 J	6.8 J	0.8 J	8.6 J	5.3 J	<b>20</b>	<b>11</b>	2.8 J	<b>120</b>	<b>33</b>	7.7 J
Copper	10	1000	1 J	1.9 J	<b>13</b>	4 J	<b>23</b>	2 J	<b>24</b>	<b>48</b>	1.4 J	<b>72</b>	0.2 J	3 J
Iron	300	300	<b>29280</b>	<b>100000</b>	<b>5840</b>	<b>12940</b>	<b>36950</b>	<b>1207</b>	<b>77200</b>	<b>23450</b>	<b>2539</b>	<b>310000</b>	<b>9040</b>	ND
Lead	10	15	1.5 J	2.6 J	4.3 J	0.5 J	<b>11</b>	0.3 J	<b>33</b>	<b>14</b>	0.6 J	<b>68</b>	0.1 J	2.8 J
Manganese	50	50	<b>332</b>	<b>615</b>	<b>132</b>	34 J	<b>462</b>	65 J	<b>832</b>	<b>122</b>	31 J	<b>6066</b>	<b>1669</b>	ND
Mercury	0.2	1.05	ND	0.1 J	ND	0.09 J	0.08 J	0.48	0.04 J	0.05 J	ND	0.04 J	0.08 J	ND
Nickel	50	100	0.8 J	2.2 J	31.8 J	3.4 J	21 J	4.4 J	42.9 J	10.9 J	4.9 J	<b>78</b>	8.7 J	3 J
Selenium	10	50	0.3 J	4.9 J	0.3 J	ND	1.4 J	0.9 J	0.8 J	3.8 J	1.4 J	2.6 J	0.9 J	0.4 J
Silver	0.01	17.5	ND	0.1 J	ND	ND	0.1 J	ND	0.1 J	ND	ND	0.4 J	ND	ND
Total Chromium	10	50	0.3 J	1.5 J	<b>25</b>	0.1 J	<b>10</b>	0.4 J	<b>29</b>	<b>11</b>	0.9 J	<b>48</b>	ND	3.2 J
Vanadium	25	3.5	5.7 J	4.8 J	1.5 J	0.5 J	7.8 J	0.8 J	16.3 J	15.8 J	2.6 J	<b>28</b>	0.4 J	8.7 J
Thallium	5	0.28	ND	0.1 J	ND	ND	ND	ND	ND	ND	ND	0.1 J	ND	ND
Zinc	10	1050	3 J	2.9 J	<b>29</b>	8.9 J	<b>104</b>	8.1 J	<b>234</b>	<b>34</b>	<b>20</b>	<b>576</b>	5.9 J	<b>18</b>
<b>Organic</b>														
1,1-Dichloroethane	5	70	ND	ND	ND	0.5 J	1.7 J	5.1	ND	1.9 J	ND	<b>7.9</b>	<b>9.2</b>	ND
1,1-Dichloroethene	5	7	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2 J	0.3 J	ND
1,2-Dichlorobenzene	5	24	ND	0.5 J	ND	ND	ND	ND	ND	ND	ND	0.3 J	0.3 J	ND
1,2-Dichloroethane	1	0.38	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.7 J	0.7 J	ND
1,2-Dichloropropane	1	0.51	ND	ND	ND	ND	ND	0.8 J	ND	ND	ND	<b>1.7</b>	<b>1.8</b>	ND
1,4-Dichlorobenzene	1	1.4	0.6 J	<b>2.3</b>	ND	ND	ND	0.4 J	ND	ND	ND	<b>4.1</b>	<b>4.3</b>	ND
2-Butanone	100	4200	2.4 J	5 J	5.4 J	ND	1 J	ND	3.1 J	ND	6.8 J	ND	4.5 J	7.5 J
2-Hexanone	50	280	ND	1.3 J	1 J	ND	ND	ND	ND	ND	1.7 J	ND	1 J	1.8 J
Acetone	100	700	6.3 J	12.2 J	9.8 J	5.7 J	4.2 J	7.4 J	7.7 J	3 J	14.9 J	4 J	9.2 J	16.2 J
Benzene	1	1	<b>1.1</b>	<b>2.5</b>	ND	ND	ND	0.4 J	ND	0.3 J	ND	<b>1.8</b>	<b>1.3</b>	ND
Chlorobenzene	3	50	1 J	ND	ND	ND	ND	0.3 J	ND	0.2 J	ND	<b>4.9</b>	<b>5</b>	ND
Chloromethane	1	2.6	0.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis-1,2-Dichloroethene	5	70	ND	0.4 J	ND	ND	1 J	3.5 J	ND	1.2 J	ND	<b>19.4</b>	<b>19.6</b>	ND
Methylene Chloride	1	4.6	0.2 J	ND	ND	ND	0.4 J	ND	<b>2.5</b>	0.7 J	ND	<b>1.9</b>	0.9 J	ND
Tetrachloroethene	1	0.7	ND	ND	ND	ND	0.2 J	0.7 J	ND	0.3 J	ND	0.9 J	1.5	ND
Toluene	1	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.9 J
Trans-1,2-Dichloroethene	5	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.3 J	0.2 J	ND
Trichloroethene	1	2.8	ND	ND	ND	ND	0.2 J	0.8 J	ND	0.4 J	ND	<b>1.3</b>	<b>1.5</b>	ND
Trichlorofluoromethane	1	2.1	ND	ND	ND	ND	ND	0.3 J	ND	ND	ND	ND	ND	ND
Vinyl Chloride	1	0.015	ND	ND	ND	ND	ND	ND	ND	ND	ND	<b>1.7</b>	<b>1.2</b>	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 4**  
**Johnston County C&D Landfill**  
**Statistical Analysis Summary**  
**6/1/2009 - 6/3/2009**

Location	Parameter	Result	Detection Limit	Test Units	%ND	Normality	Test	Statistically Significant?	2nd statistical Analysis	Test
CDMW-5D	1,1-Dichloroethane	5.1	<5	ug/l	11.53	Y	PPL (99% EPA)	N	---	---
CDMW-9	1,1-Dichloroethane	7.9	<5	ug/l	11.53	Y	PPL (99% EPA)	N	---	---
CDMW-9D	1,1-Dichloroethane	9.2	<5	ug/l	11.53	Y	PPL (99% EPA)	N	---	---
CDMW-9	1,2-Dichloropropane	1.7	<1	ug/l	47	N	NPPL	N	---	---
CDMW-9D	1,2-Dichloropropane	1.8	<1	ug/l	47	N	NPPL	N	---	---
CDMW-2	1,4-Dichlorobenzene	2.3	<1	ug/l	34.6	Y	PPL (99% EPA)	N	---	---
CDMW-9	1,4-Dichlorobenzene	4.1	<1	ug/l	34.6	Y	PPL (99% EPA)	N	---	---
CDMW-9D	1,4-Dichlorobenzene	4.3	<1	ug/l	34.6	Y	PPL (99% EPA)	N	---	---
CDMW-9D	Arsenic	0.019	<0.010	mg/l	11.53	N	NPPL	Y	Y	MCL-PTI
CDMW-9	Arsenic	0.02	<0.010	mg/l	11.53	N	NPPL	N	---	---
CDMW-1	Arsenic	0.031	<0.010	mg/l	11.53	N	NPPL	N	---	---
CDMW-9	Barium	0.11	<0.100	mg/l	17.64	Y	PPL (99% EPA)	N	---	---
CDMW-2	Barium	0.135	<0.100	mg/l	17.64	Y	PPL (99% EPA)	N	---	---
CDMW-1	Benzene	1.1	<1	ug/l	34.28	N	NPPL	N	---	---
CDMW-9D	Benzene	1.3	<1	ug/l	34.28	N	NPPL	N	---	---
CDMW-9	Benzene	1.8	<1	ug/l	34.28	N	NPPL	N	---	---
CDMW-2	Benzene	2.5	<1	ug/l	34.28	N	NPPL	N	---	---
CDMW-7	Beryllium	0.001	<0.001	mg/l	26.92	N	NPPL	N	---	---
CDMW-9	Beryllium	0.001	<0.001	mg/l	26.92	N	NPPL	N	---	---
CDMW-6	Beryllium	0.002	<0.001	mg/l	26.92	N	NPPL	N	---	---
CDMW-7	Cadmium	0.001	<0.001	mg/l	23.52	N	NPPL	N	---	---
CDMW-9	Cadmium	0.001	<0.001	mg/l	23.52	N	NPPL	N	---	---
CDMW-9	Chlorobenzene	4.9	<3	ug/l	58.82	N	NPPL	N	---	---
CDMW-9D	Chlorobenzene	5	<3	ug/l	58.82	N	NPPL	N	---	---
CDMW-9	Cis-1,2-Dichloroethene	19.4	<5	ug/l	0	Y	PPL (99% EPA)	N	---	---
CDMW-9D	Cis-1,2-Dichloroethene	19.6	<5	ug/l	0	Y	PPL (99% EPA)	N	---	---
CDMW-7	Cobalt	0.011	<0.010	mg/l	11.42	N	NPPL	N	---	---
CDMW-6	Cobalt	0.02	<0.010	mg/l	11.42	N	NPPL	Y	Y	MCL-PTI
CDMW-9D	Cobalt	0.033	<0.010	mg/l	11.42	N	NPPL	Y	Y	MCL-PTI
CDMW-9	Cobalt	0.12	<0.010	mg/l	11.42	N	NPPL	N	---	---
CDMW-3	Copper	0.013	<0.010	mg/l	25	N	NPPL	N	---	---
CDMW-5	Copper	0.023	<0.010	mg/l	25	N	NPPL	N	---	---
CDMW-6	Copper	0.024	<0.010	mg/l	25	N	NPPL	N	---	---
CDMW-7	Copper	0.048	<0.010	mg/l	25	N	NPPL	N	---	---
CDMW-9	Copper	0.072	<0.010	mg/l	25	N	NPPL	N	---	---
CDMW-5	Lead	0.011	<0.010	mg/l	11.42	N	NPPL	N	---	---

**Table 4**  
**Johnston County C&D Landfill**  
**Statistical Analysis Summary**  
**6/1/2009 - 6/3/2009**

Location	Parameter	Result	Detection Limit	Test Units	%ND	Normality	Test	Statistically Significant?	2nd statistical Analysis	Test
CDMW-7	Lead	0.014	<0.010	mg/l	11.42	N	NPPL	N	---	---
CDMW-6	Lead	0.033	<0.010	mg/l	11.42	N	NPPL	Y	Y	MCL-PTI
CDMW-9	Lead	0.068	<0.010	mg/l	11.42	N	NPPL	N	---	---
CDMW-5D	Mercury	0.00048	<0.0002	mg/l	0	N	NPPL	N	---	---
CDMW-9	Methylene Chloride	1.9	<1	ug/l	58	N	NPPL	N	---	---
CDMW-5D	Methylene Chloride	2.5	<1	ug/l	58	N	NPPL	N	---	---
CDMW-9	Nickel	0.078	<0.050	mg/l	12.5	N	NPPL	N	---	---
CDMW-9D	Tetrachloroethene	1.5	<1	ug/l	44.4	N	NPPL	N	---	---
CDMW-5	Total Chromium	0.01	<0.010	mg/l	13.63	N	NPPL	N	---	---
CDMW-7	Total Chromium	0.011	<0.010	mg/l	13.63	N	NPPL	N	---	---
CDMW-3	Total Chromium	0.025	<0.010	mg/l	13.63	N	NPPL	Y	Y	MCL-PTI
CDMW-6	Total Chromium	0.029	<0.010	mg/l	13.63	N	NPPL	N	---	---
CDMW-9	Total Chromium	0.048	<0.010	mg/l	13.63	N	NPPL	N	---	---
CDMW-9	Trichloroethene	1.3	<1	ug/l	47	N	NPPL	N	---	---
CDMW-9D	Trichloroethene	1.5	<1	ug/l	47	N	NPPL	N	---	---
CDMW-9	Vanadium	0.028	<0.025	mg/l	25	N	NPPL	N	---	---
CDMW-9D	Vinyl Chloride	1.2	<1	ug/l	47	N	NPPL	N	---	---
CDMW-9	Vinyl Chloride	1.7	<1	ug/l	47	N	NPPL	N	---	---
CDMW-8	Zinc	0.02	<0.010	mg/l	7.5	N	NPPL	N	---	---
CDMW-3	Zinc	0.029	<0.010	mg/l	7.5	N	NPPL	N	---	---
CDMW-7	Zinc	0.034	<0.010	mg/l	7.5	N	NPPL	N	---	---
CDMW-5	Zinc	0.104	<0.010	mg/l	7.5	N	NPPL	N	---	---
CDMW-6	Zinc	0.234	<0.010	mg/l	7.5	N	NPPL	N	---	---
CDMW-9	Zinc	0.576	<0.010	mg/l	7.5	N	NPPL	N	---	---

**Legend:**

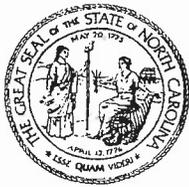
%ND            Method chosen due to percent non-detects  
PPL             Parametric Prediction Limit  
NPPL          Non-parametric Prediction Interval

Shading indicates statistical significance.

## Appendix A

### Monitoring Well Information





# NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 2091

### 1. WELL CONTRACTOR:

Ronald F. Barron  
Well Contractor (Individual) Name

Engineering Tectonics  
Well Contractor Company Name

STREET ADDRESS 1720 VARGRAVE ST.  
Winston-Salem NC 27107  
City or Town State Zip Code

(336) 724-6994  
Area code- Phone number

### 2. WELL INFORMATION:

SITE WELL ID #(if applicable) CIDMW-2

STATE WELL PERMIT #(if applicable) N/A

DWQ or OTHER PERMIT #(if applicable) N/A

WELL USE (Check Applicable Box) Monitoring  Municipal/Public

Industrial/Commercial  Agricultural  Recovery  Injection

Irrigation  Other  (list use) \_\_\_\_\_

DATE DRILLED 8-29

TIME COMPLETED 2:00 AM  PM

### 3. WELL LOCATION:

CITY: Smithfield COUNTY Johnston

680 Country Home Rd 27577  
(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

### TOPOGRAPHIC / LAND SETTING:

Slope  Valley  Flat  Ridge  Other \_\_\_\_\_  
(check appropriate box)

LATITUDE 3

LONGITUDE \_\_\_\_\_

May be in degrees, minutes, seconds or in a decimal format

Latitude/longitude source:  GPS  Topographic map

(location of well must be shown on a USGS topo map and attached to this form if not using GPS)

### 4. FACILITY- Is the name of the business where the well is located.

FACILITY ID #(if applicable) N/A

NAME OF FACILITY Johnston Co. Landfill

STREET ADDRESS 680 Country Home Rd.  
Smithfield NC 27577  
City or Town State Zip Code

CONTACT PERSON Rick Proctor

MAILING ADDRESS 680 Country Home Rd.  
Smithfield NC 27577  
City or Town State Zip Code

(919) 938-4750  
Area code - Phone number

### 5. WELL DETAILS:

a. TOTAL DEPTH: 20'

b. DOES WELL REPLACE EXISTING WELL? YES  NO

c. WATER LEVEL Below Top of Casing: \_\_\_\_\_ FT.  
(Use "\*" if Above Top of Casing)

d. TOP OF CASING IS +3 FT. Above Land Surface\*  
\*Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. YIELD (gpm): N/A METHOD OF TEST N/A

f. DISINFECTION: Type N/A Amount N/A

g. WATER ZONES (depth): Clincan Pined

From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

From \_\_\_\_\_ To \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_

### 6. CASING:

From	To	Depth	Diameter	Thickness/Weight	Material
From <u>+3</u>	To <u>5</u>	Ft. <u>2</u>	<u>2</u>	<u>Sch 10</u>	<u>PVC</u>
From _____	To _____	Ft. _____	_____	_____	_____
From _____	To _____	Ft. _____	_____	_____	_____

### 7. GROUT:

From	To	Depth	Material	Method
From <u>0</u>	To <u>2</u>	Ft. <u>Portland</u>	<u>Portland</u>	<u>Poured</u>
From _____	To _____	Ft. _____	_____	_____
From _____	To _____	Ft. _____	_____	_____

### 8. SCREEN:

From	To	Depth	Diameter	Slot Size	Material
From <u>5</u>	To <u>20</u>	Ft. <u>2</u> in.	<u>1010</u> in.	<u>PVC</u>	
From _____	To _____	Ft. _____	_____	_____	_____
From _____	To _____	Ft. _____	_____	_____	_____

### 9. SAND/GRAVEL PACK:

From	To	Depth	Size	Material
From <u>36"</u>	To <u>20</u>	Ft. <u>43</u>	<u>Sand</u>	
From <u>2</u>	To <u>36"</u>	Ft. <u>3/8</u>	<u>Beut-Chips</u>	
From _____	To _____	Ft. _____	_____	_____

### 10. DRILLING LOG

From \_\_\_\_\_ To \_\_\_\_\_ Formation Description

### 11. REMARKS:

Well set w/4" Above Ground  
Protective casing

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

Ronald F. Barron <sup>For Eng.</sup> 9-1-06  
SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

Ronald F. Barron  
PRINTED NAME OF PERSON CONSTRUCTING THE WELL

Submit the original to the Division of Water Quality within 30 days. Attn: Information Mgt.,  
1617 Mail Service Center - Raleigh, NC 27699-1617 Phone No. (919) 733-7015 ext 568.

Form GW-1b  
Rev. 7/05









# Well Construction Log

Well ID: PW-2 (mw-20)

Total Depth: 31.5'

CDMW-6

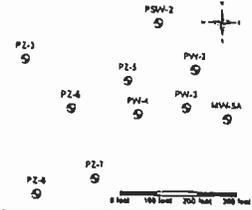


## PROJECT INFORMATION

**Site Name:** Johnston County Landfill  
**Site Location:** Smithfield, NC  
**Elevation:** 161.62' TOC  
**Logged By:** E. Itle  
**Date(s) Drilled:** 6/15/04-6/16/04  
**Drilling Co.:** Engineering Tectonics  
**Drilling Method:** HSA, air rotary  
**Rig Type:** Mobil B-57  
**Sample Method:** Split spoon  
**Notes:** WL 5.59' 6/17/04

## SITE LOCATION

**Northing:** 643,871  
**Easting:** 2,171,978  
 Local System



Water level during drilling (below ground) Page 1 of 1  
 Water level in completed well (below ground)

DEPTH	SOIL SYMBOLS	USCS	FORMATION	LITHOLOGY	WELL COMPLETION	WELL CONSTRUCTION
0	[Dotted pattern]	sc		SAND: yellowish orange, dry.	[Well diagram showing casing and cap]	4" Steel protective cover with lock 2" expandable cap 2' x 2' x 4.0" Concrete pad
-5	[Horizontal line pattern]	sm		SILTY SAND: yellowish orange fine SAND with clay, dry, dense to very dense, slightly micaceous	[Well diagram showing casing]	4" Sch. 40 PVC casing set to 18.5 ft -21.5 to 3; Riser: 2" Sch. 40 Type I PVC 0' to -17'; Grout
-18			-18'; Bedrock	SILTY SAND: yellowish orange and light gray fine SAND with clay, slightly moist, very dense, few fragments of rock at 17 ft.	[Well diagram showing casing]	-20' to -17'; Bentonite: Shur-pel pellets/chips
-20	[Horizontal line pattern]			MUDSTONE: light gray silty mudstone, fresh	[Well diagram showing casing]	-31.5' to -20'; Gravel: #3 DSI filter sand
-25	[Horizontal line pattern]			MUDSTONE: brown muddy weathered zone 20-21 ft.	[Well diagram showing casing]	
-25	[Horizontal line pattern]			MUDSTONE: brown muddy seam 24-28; producing minimal water	[Well diagram showing casing]	
-30	[Horizontal line pattern]			MUDSTONE: light gray silty mudstone, fresh	[Well diagram showing casing]	-31.5' to -21.5'; Screen: 2" Sch. 40 Type I PVC 0.010" slot

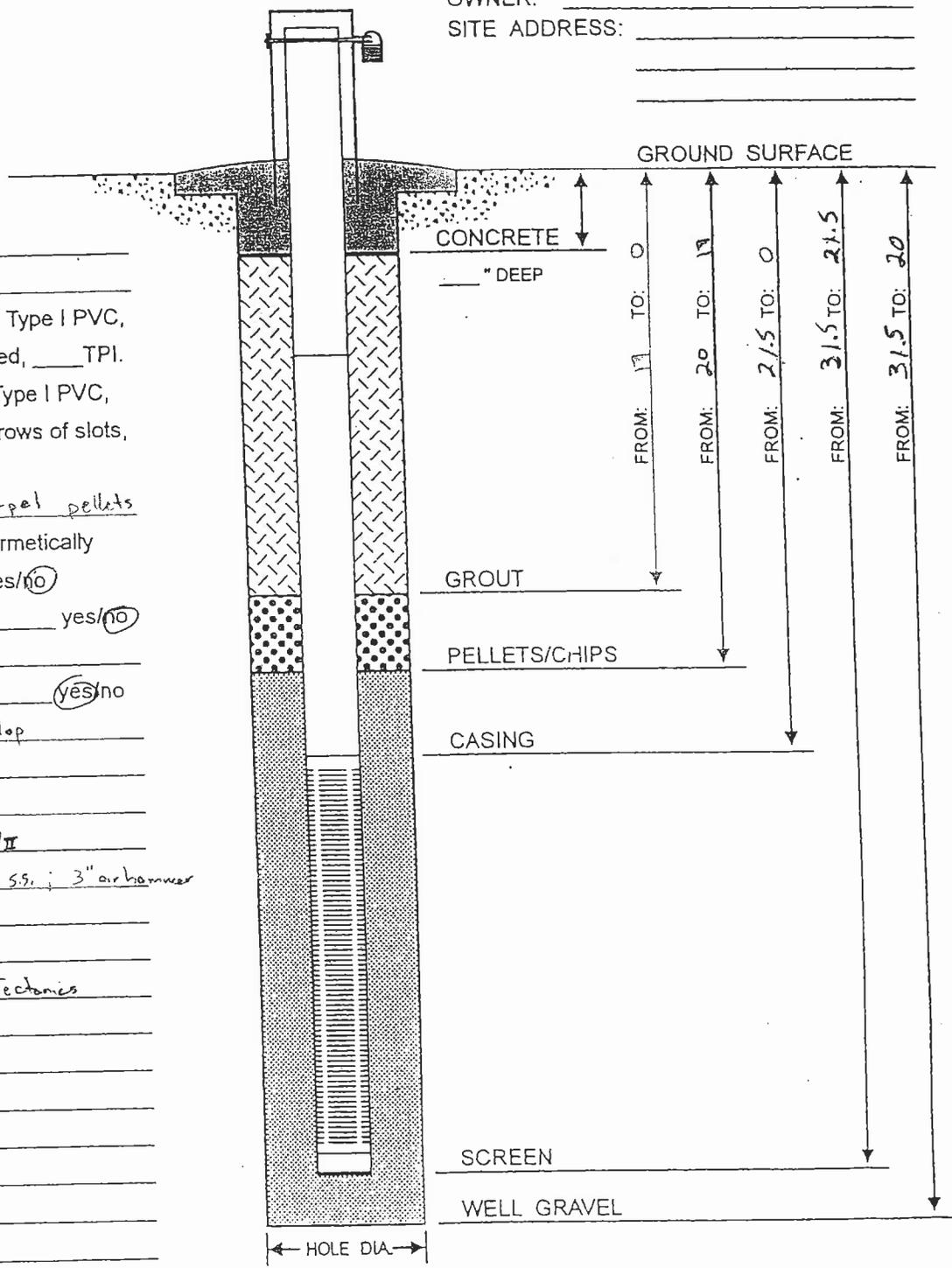
THE HUTCHINSON GROUP, LTD  
 4280 Old William Penn Highway  
 Murrysville, Pennsylvania 15668  
 Office 724-325-3996 -- Fax 724-733-7901  
 www.geo-image.com

CDMW-6

DATE DRILLED: 6/15/04  
 WELL TYPE: \_\_\_\_\_  
 WELL #: PW-2 DEPTH: 31.5 ELEV.: \_\_\_\_\_  
 PERMIT #: \_\_\_\_\_  
 JOB #: \_\_\_\_\_  
 PADLOCK KEY #: \_\_\_\_\_  
 OWNER: \_\_\_\_\_  
 SITE ADDRESS: \_\_\_\_\_

4" Sch 40 PVC casing 0-18.5'

Well Protector: \_\_\_\_\_  
 Well top: +2.65'  
 Casing: 2" Sch. 40 Type I PVC,  
 Flush Joint Threaded, \_\_\_\_\_ TPI.  
 Screen: 2" Sch. 40 Type I PVC,  
0.010 slot, \_\_\_\_\_ rows of slots,  
 \_\_\_\_\_" spacing.  
 Pellets/Chips: DSI Shur-pel pellets  
 Screens & casings were hermetically  
 sealed: \_\_\_\_\_ yes/no  
 Centralizers installed: \_\_\_\_\_ yes/no  
 Material: \_\_\_\_\_  
 Well developed: \_\_\_\_\_ yes/no  
 Method: air develop  
 Duration: 10 min  
 Well gravel: DSI #3  
 Grout mix: Portland Type I/II  
 Drilling method: 6" auger w/SS; 3" air hammer  
 Well driller: Ron Barron  
 License #: \_\_\_\_\_  
 Drilling co.: Engineering Technics  
 Phone: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Engineer: \_\_\_\_\_  
 Eng. firm: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# Well Construction Log

Well ID: PW-3 (mw-21)  
 Total Depth: 45.0' CDmw-7

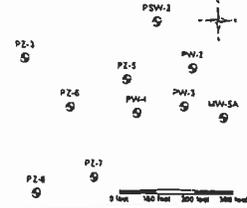


## PROJECT INFORMATION

**Site Name:** Johnston County Landfill  
**Site Location:** Smithfield, NC  
**Elevation:** 165.89' TOC  
**Logged By:** E. Itle  
**Date(s) Drilled:** 6/14/04-6/16/04  
**Drilling Co.:** Engineering Tectonics  
**Drilling Method:** HSA, air rotary  
**Rig Type:** Mobil B-57  
**Sample Method:** Split spoon  
**Notes:** WL 9.65' 6/17/04

## SITE LOCATION

**Northing:** 643,774  
**Easting:** 2,171,955  
 Local System



▽ Water level during drilling (below ground) Page 1 of 1  
 ▼ Water level in completed well (below ground)

DEPTH	SOIL SYMBOLS	USCS	FORMATION	LITHOLOGY	WELL COMPLETION	WELL CONSTRUCTION
0		sm		SILTY SAND: yellowish orange fine SAND with clay, dry, dense		6" Steel protective cover with lock 4" expandable cap 2' x 2' x 4.0" Concrete pad 6" Sch. 40 PVC casing set to 25 ft
-5				SILTY SAND: yellowish orange and light gray fine SAND with clay, dry, very dense, few rock fragments at 19 ft.		0' to -28"; Grout
-10				SILTY SAND: highly weathered silty mudstone, very hard drilling		-35 to 3; Riser: 4" Sch. 40 Type I PVC
-15				MUDSTONE: silty mudstone, light gray, fresh, fracture at 26.5 producing minimal water		-33' to -28"; Bentonite: Shur-pet pellets/chips
-20			-25', bedrock	MUDSTONE: brown muddy seam 37 ft; producing minimal water		-45' to -33'; Gravel: #3 DSI filter sand
-25						-45' to -35'; Screen: 4" Sch. 40 Type I PVC 0.010" slot
-30						
-35						
-40						
-45						

LOG OF BORING NO. PW-3 (mw-21)

ELEV. (FEET M.S.L.)	DEPTH (FEET)	SAMPLE NO. AND TYPE	BLOWS PER 6-INCH INCREMENTS	SAMPLE RECOVERY (IN.)	PROFILE	COORDINATES		USCS SYMBOL	REMARKS
						N _____ E _____	SURFACE EL: _____		
						DESCRIPTION			
	40					Soft zone at 37', producing ~ 10 gpm			
	45					B o B @ 45'			
	50								
	55								
	60								
	65								
	70								

PROJECT NO.: 2948  
 DATE BEGAN: 6/14/04  
 DATE COMPLETED: 6/16/04  
 FIELD GEOLOGIST: EAI  
 CHECKED BY: \_\_\_\_\_

GWL: DEPTH \_\_\_\_\_ DATE/TIME \_\_\_\_\_  
 GWL: DEPTH \_\_\_\_\_ DATE/TIME \_\_\_\_\_  
 DRILLING METHOD: \_\_\_\_\_

NOTES:

# Well Construction Log

Well ID: PSW-1 (MW-19)  
 Total Depth: 10' CDMW-8

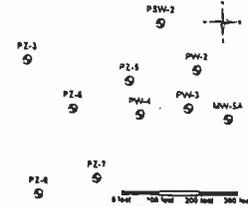


## PROJECT INFORMATION

Site Name: Johnston County Landfill  
 Site Location: Smithfield, NC  
 Elevation: 133.88' TOC  
 Logged By: E. Itle  
 Date(s) Drilled: 6/17/04  
 Drilling Co.: Engineering Tectonics  
 Drilling Method: HSA, Split Spoon  
 Rig Type: Mobil B-57  
 Sample Method: Split spoon  
 Notes: WL 4.26' 6/18/04

## SITE LOCATION

Northing: 644,509  
 Easting: 2,171,743  
 Local System



▽ Water level during drilling (below ground)  
 ▽ Water level in completed well (below ground)  
 Page 1 of 1

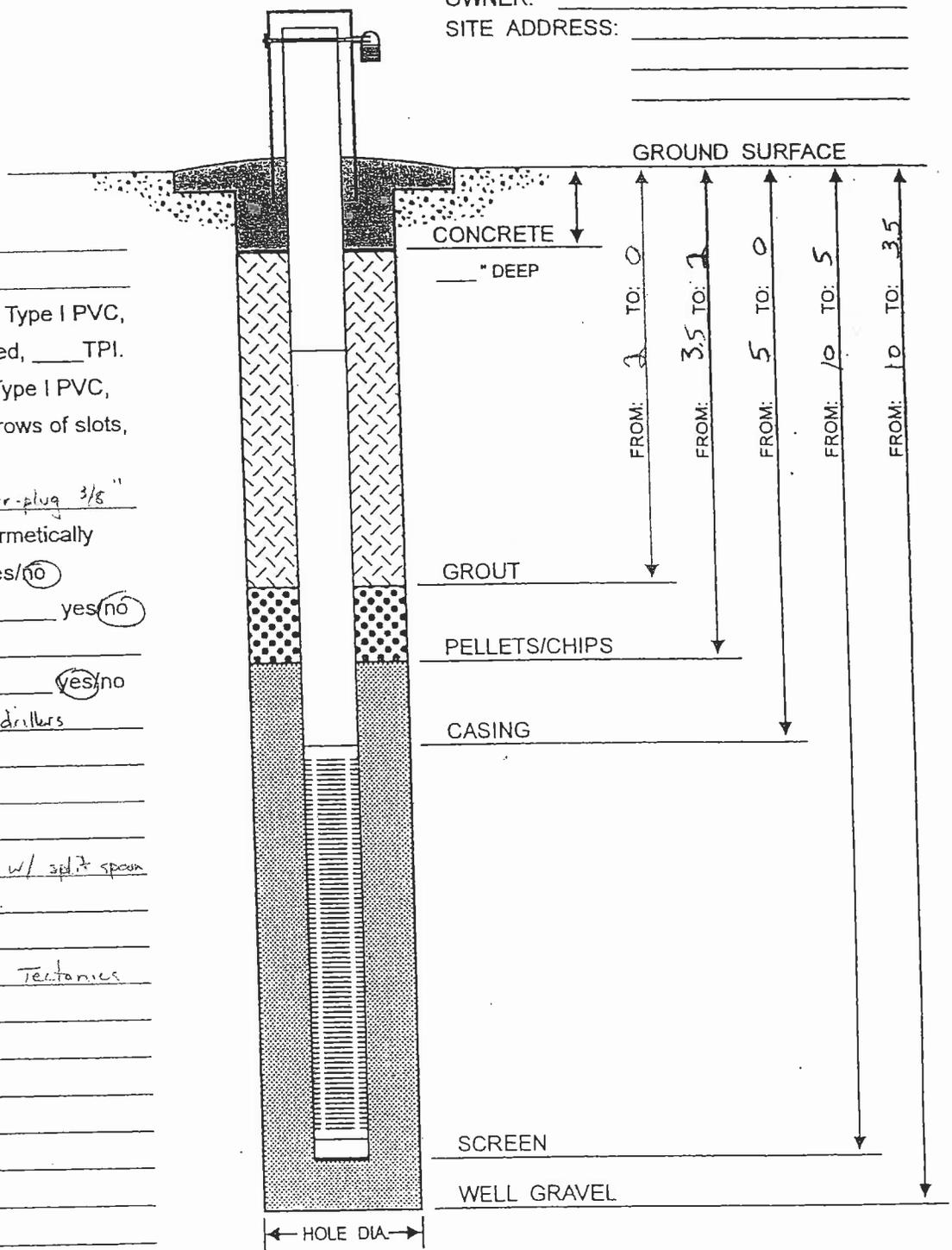
DEPTH	SOIL SYMBOLS	USCS	FORMATION	LITHOLOGY	WELL COMPLETION	WELL CONSTRUCTION
0		SC		<p>SILTY SAND: grayish brown silty very fine SAND, wet, abundant organic material</p> <p>SILTY SAND: yellowish orange silty v.f. SAND with clay, moist</p> <p>SILTY SAND: light gray fine to medium silty SAND with clay, moist, loose, micaceous, some iron staining</p>		<p>4" Steel protective cover with lock</p> <p>2" expandable cap</p> <p>2' x 2' x 4.0" Concrete pad</p> <p>0' to -2'; Grout</p> <p>-2' to -3.5'; Bentonite: 3/8" Shur-plug pellets/chips</p> <p>-5 to 3; Riser: 2" Sch. 40 Type I PVC</p> <p>-3.5' to -10'; Gravel: #3 DSI filter sand</p> <p>-10' to -5'; Screen: 2" Sch. 40 Type I PVC 0.010" slot</p> <p>End Cap: 2" Sch. 40 PVC</p>

THE HUTCHINSON GROUP, LTD  
 4280 Old William Penn Highway  
 Murrysville, Pennsylvania 15668  
 Phone 724-325-3996 -- Fax 724-733-7901  
 www.geo-image.com

CDmw-8

DATE DRILLED: 6/17/04  
 WELL TYPE: \_\_\_\_\_  
 WELL #: Psw-1 DEPTH: 10' ELEV.: \_\_\_\_\_  
 PERMIT #: (mw-19) (CDmw-8)  
 JOB #: \_\_\_\_\_  
 PADLOCK KEY #: \_\_\_\_\_  
 OWNER: \_\_\_\_\_  
 SITE ADDRESS: \_\_\_\_\_

Well Protector: +3.3'  
 Well top: +3.0'  
 Casing: 2" Sch. 40 Type I PVC,  
 Flush Joint Threaded, \_\_\_\_\_ TPI.  
 Screen: 2" Sch. 40 Type I PVC,  
0.010 slot, \_\_\_\_\_ rows of slots,  
 \_\_\_\_\_" spacing.  
 Pellets/Chips: DSI Stur-plug 3/8"  
 Screens & casings were hermetically  
 sealed: \_\_\_\_\_ yes/no   
 Centralizers installed: \_\_\_\_\_ yes/no   
 Material: \_\_\_\_\_  
 Well developed: \_\_\_\_\_ yes/no   
 Method: surge by drillers  
 Duration: \_\_\_\_\_  
 Well gravel: DSI #3  
 Grout mix: \_\_\_\_\_  
 Drilling method: 6" auger w/ split spoon  
 Well driller: Ron Barrer  
 License #: \_\_\_\_\_  
 Drilling co.: Engineering Tectonics  
 Phone: ( )  
 Address: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Engineer: \_\_\_\_\_  
 Eng. firm: \_\_\_\_\_  
 Phone: ( )  
 Address: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# Well Construction Log

Well ID: PW-1 (mw-19d)  
 Total Depth: -30.0' CDMw-8d

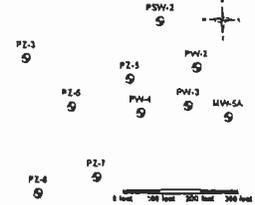


## PROJECT INFORMATION

Site Name: Johnston County Landfill  
 Site Location: Smithfield, NC  
 Elevation:  
 Logged By: E. Itle  
 Date(s) Drilled: 6/17/04-6/21/04  
 Drilling Co.: Engineering Tectonics  
 Drilling Method: HSA, air rotary  
 Rig Type: Mobil B-57  
 Sample Method: Split spoon  
 Notes:

## SITE LOCATION

Northing: 643,756  
 Easting: 2,171,831  
 Local System



▽ Water level during drilling (below ground) Page 1 of 1  
 ▼ Water level in completed well (below ground)

DEPTH	SOIL SYMBOLS	USCS	FORMATION	LITHOLOGY	WELL COMPLETION	WELL CONSTRUCTION
0		sm		SILTY SAND: See PSW-1 for boring description and blow counts		4" Steel protective cover with lock 2" expandable cap 2' x 2' x 4.0" Concrete pad
-5						4" Sch. 40 PVC casing set to -11.0 ft
-10			-11.0', bedrock	MUDSTONE: light gray silty mudstone, fresh, with a soft seam at -26 ft (water productive).		-25 to 3'; Riser: 2" Sch. 40 Type I PVC
-15						0' to -19'; Grout
-20						-23' to -19'; Bentonite: Shur-pel pellets/chips
-25						-30' to -23'; Gravel: #3 DSI filter sand
-30						-30' to -25'; Screen: 2" Sch. 40 Type I PVC 0.010" slot

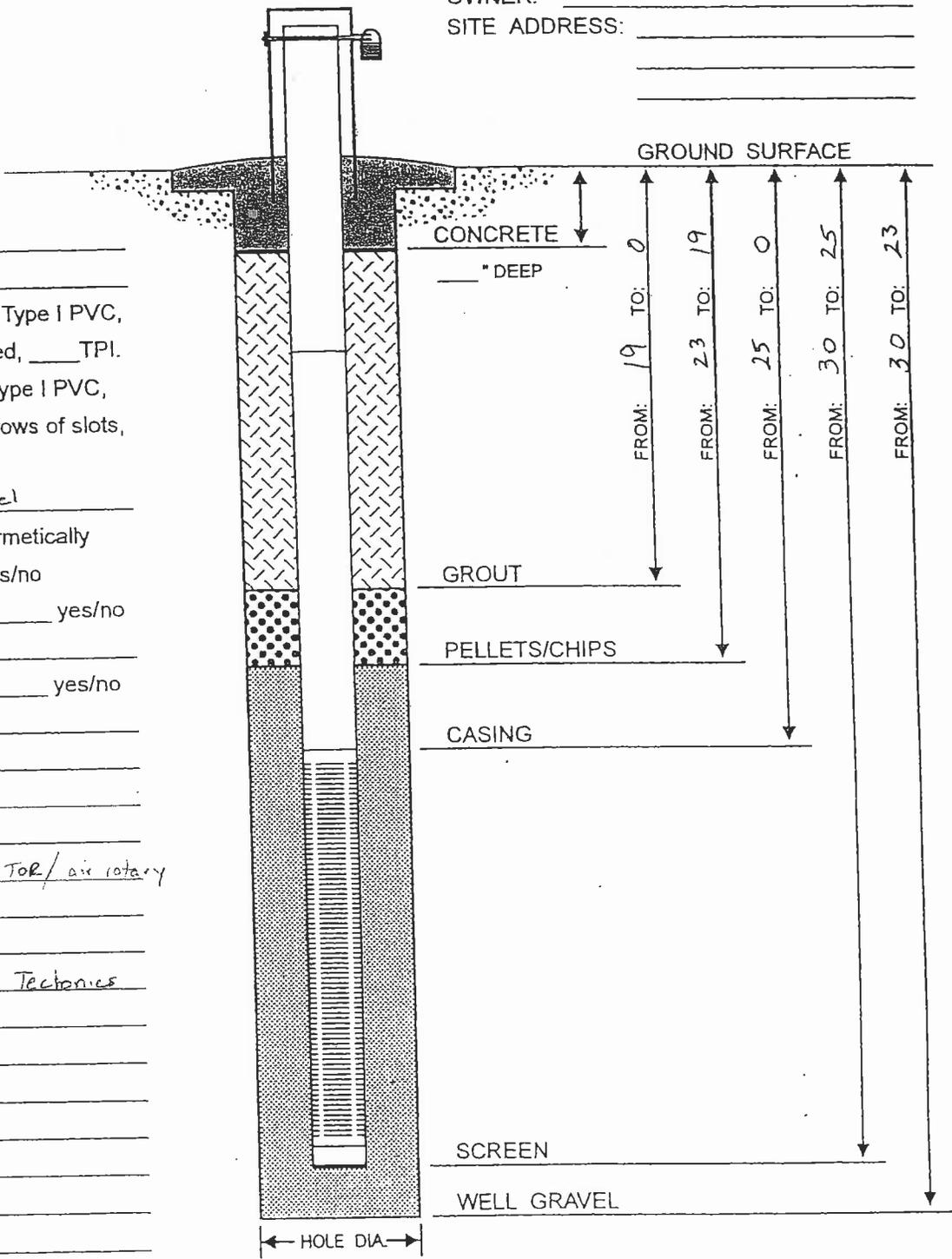
THE HUTCHINSON GROUP, LTD  
 4280 Old William Penn Highway  
 Murrysville, Pennsylvania 15668  
 Office 724-325-3996 -- Fax 724-733-7901  
 www.geo-image.com

CDmw-8d

DATE DRILLED: 6/17/04-6/21/04  
 WELL TYPE: \_\_\_\_\_  
 WELL #: PW-18 DEPTH: 30' ELEV.: \_\_\_\_\_  
 PERMIT #: \_\_\_\_\_  
 JOB #: \_\_\_\_\_  
 PADLOCK KEY #: \_\_\_\_\_  
 OWNER: \_\_\_\_\_  
 SITE ADDRESS: \_\_\_\_\_

4" pvc casing set to 11'

Well Protector: \_\_\_\_\_  
 Well top: 3'  
 Casing: 2" Sch. 40 Type I PVC,  
 Flush Joint Threaded, \_\_\_\_\_ TPI.  
 Screen: 2" Sch. 40 Type I PVC,  
 \_\_\_\_\_ slot, \_\_\_\_\_ rows of slots,  
 \_\_\_\_\_" spacing.  
 Pellets/Chips: DSI Shur-pc1  
 Screens & casings were hermetically  
 sealed: \_\_\_\_\_ yes/no  
 Centralizers installed: \_\_\_\_\_ yes/no  
 Material: \_\_\_\_\_  
 Well developed: \_\_\_\_\_ yes/no  
 Method: \_\_\_\_\_  
 Duration: \_\_\_\_\_  
 Well gravel: DSI #3  
 Grout mix: \_\_\_\_\_  
 Drilling method: 6" auger to TOR / air rotary  
 Well driller: Ren Barron  
 License #: \_\_\_\_\_  
 Drilling co.: Engineering Tectonics  
 Phone: ( ) ( ) ( )  
 Address: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Engineer: \_\_\_\_\_  
 Eng. firm: \_\_\_\_\_  
 Phone: ( ) ( ) ( )  
 Address: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



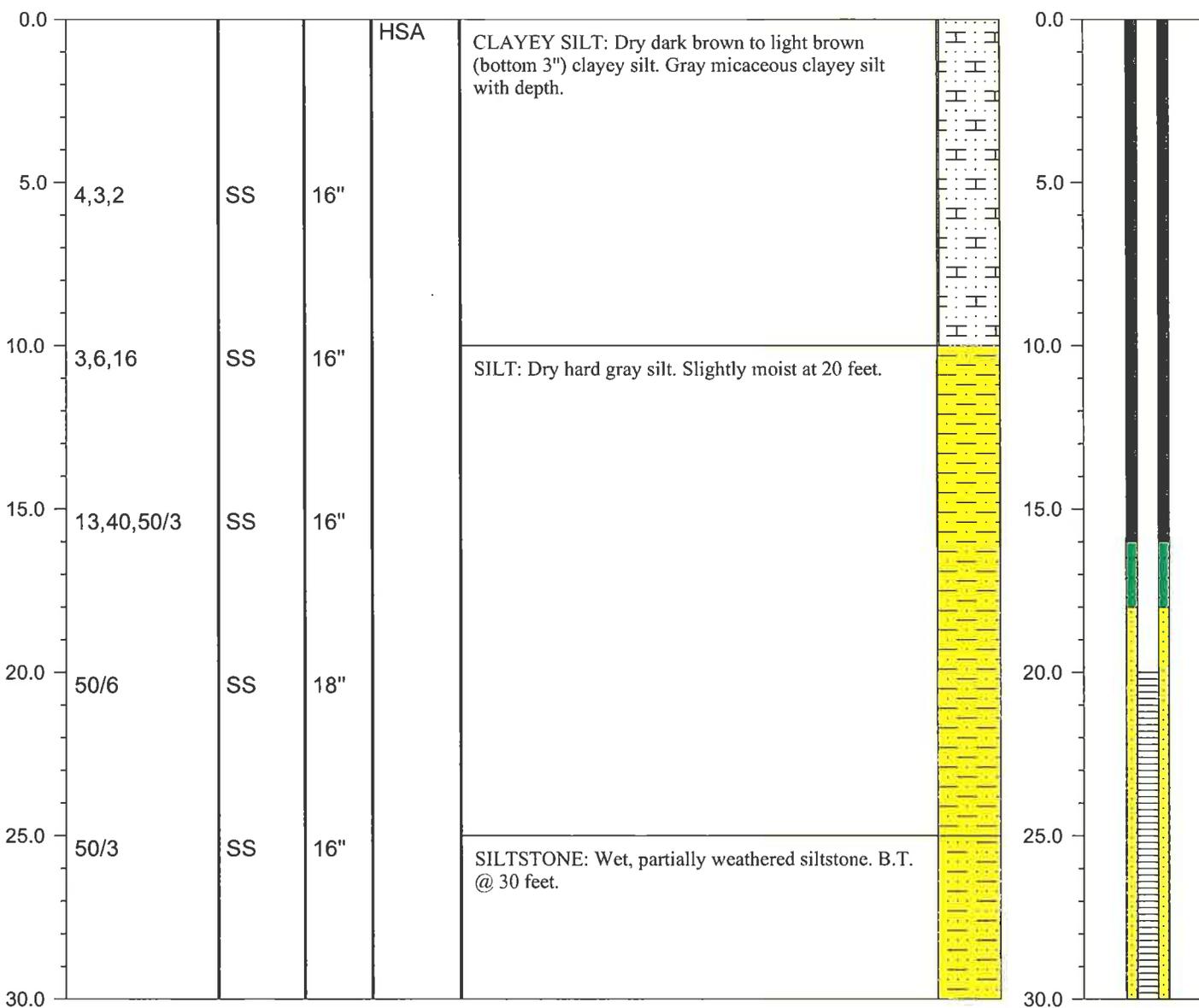


PROJECT NAME: **Johnston County Landfill**  
 LOCATION: **Johnston County**  
 DRILLING CO: **Engineering Techtonics, P.A.**  
 DRILLING METHOD: **HSA**  
 FIELD PARTY: **David Barron**  
 GEOLOGIST: **Joan A. Smyth, P.G.**  
 DATE BEGUN: **3/10/08** COMPLETED: **3/10/08**

TOTAL DEPTH: **30 ft.**  
 TOP OF CASING ELEV.: **GROUND ELEV.:**  
 NORTHING: **0** EASTING: **0**

STATIC WATER LEVEL (BLS)		
Depth (ft)		
Time		
Date		

DEPTH	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH	WELL INSTALLATION
-------	------------	-----------------	----------	--------------	-------------	-----------	-------	-------------------





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

**FIELD BOREHOLE LOG**

CDMw-9d

BOREHOLE NUMBER (PZ-9d) Page 1 of 2

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: **7/7/03** DATE COMPLETED: **7/8/03**

TOTAL DEPTH: **45**  
 GROUND SURFACE ELEVATION: **na**  
 TOP OF CASING ELEVATION: **160.71**

STATIC WATER LEVEL (BLS)		
Depth (ft)	na	na
Time	na	na
Date	na	na

DEPTH	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH	WELL	INSTALLATION
-------	------------	-----------------	----------	--------------	-------------	-----------	-------	------	--------------

0.0				HSA	SOIL: Dry black soil.		0.0		
1.0							1.0		
2.0							2.0		
3.0							3.0		
4.0							4.0		
5.0							5.0		
6.0					SILTY CLAY: Dry reddish tan silty clay.		6.0		
7.0							7.0		
8.0							8.0		
9.0							9.0		
10.0					SILTY CLAY: Moist reddish tan and brown silty clay with trace fine sand.		10.0		
11.0							11.0		
12.0							12.0		
13.0							13.0		
14.0							14.0		
15.0					CLAYEY SILTY SAND: Moist dark brown clayey silty coarse sand and gravel.		15.0		
16.0							16.0		
17.0							17.0		
18.0							18.0		
19.0							19.0		
20.0					SANDY SILT: Slightly greenish gray fine to coarse sandy silty with trace clay.		20.0		
21.0							21.0		
22.0							22.0		
23.0							23.0		
24.0							24.0		
25.0	50/0.5"	SS	0"		PWR: Partially weathered rock. No recovery from samples at 25 and 30 feet. Auger Refusal at 32.5 feet. Set outer casing at 32.5 feet.		25.0		
26.0							26.0		
27.0							27.0		
28.0							28.0		
29.0							29.0		
30.0	50/0	SS	0"				30.0		
31.0							31.0		



**G. N. Richardson & Associates, Inc.**  
 14 North Boylan Avenue, Raleigh NC 27803  
 (919) 828-0677

**FIELD BOREHOLE LOG** CDMW-9d

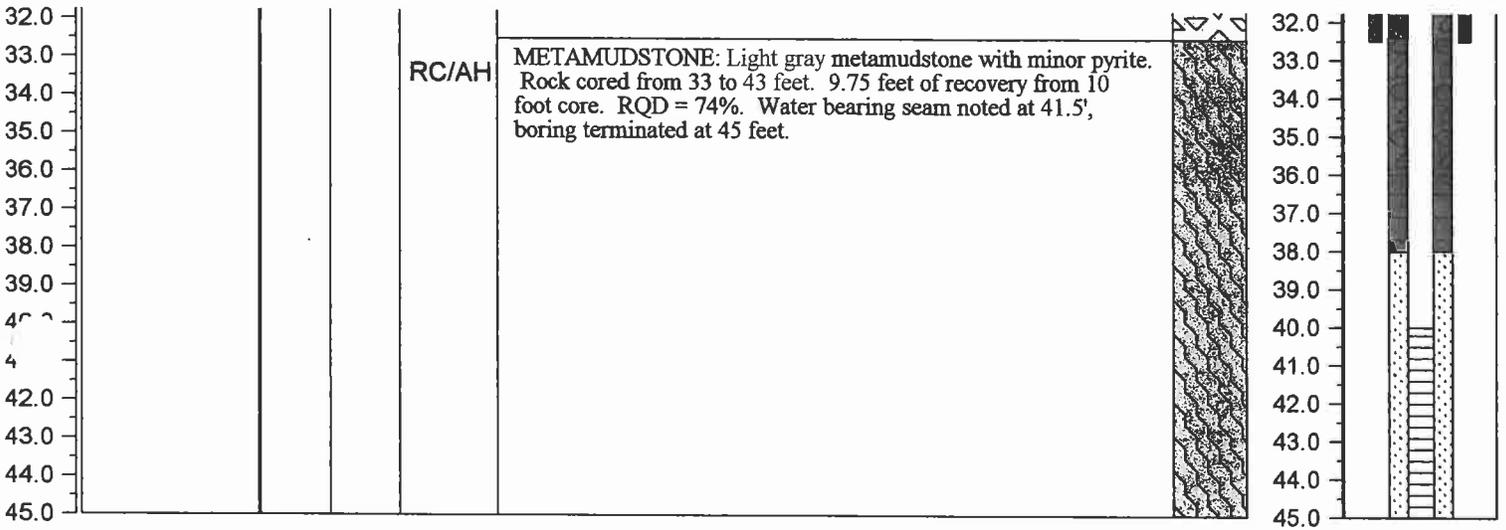
BOREHOLE NUMBER (PZ-9d) Page 2 of 2

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: **7/7/03** DATE COMPLETED: **7/8/03**

TOTAL DEPTH: **45**  
 GROUND SURFACE ELEVATION: **na**  
 TOP OF CASING ELEVATION: **160.71**

STATIC WATER LEVEL (BLS)		
Depth (ft)	na	na
Time	na	na
Date	na	na

DEPTH	BLOW COUNT	SAMPLING METHOD	RECOVERY	DRILL METHOD	DESCRIPTION	LITHOLOGY	DEPTH	WELL	INSTALLATION
-------	------------	-----------------	----------	--------------	-------------	-----------	-------	------	--------------



## 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#: 6058

JOHNSTON CO. (NEW) C&D LANDFILL  
MR. KEVIN SHIELDS  
P.O. BOX 2263  
SMITHFIELD ,NC 27577

DATE COLLECTED: 06/01/09  
DATE REPORTED : 06/30/09

REVIEWED BY: 

PARAMETERS	MDL	SWSL	CDMW-1	CDMW-2	Analysis		Method Code
					Date	Analyst	
Total Alkalinity, mg/l	1.0	1.0	83	265	06/03/09	TRB	SM2320B
Chloride, mg/l	5.0	5.0	6	72	06/04/09	MJN	SM4500-CLB
Total Dissolved Residue, mg/l	1.0	1.0	96	273	06/04/09	TRB	SM2540C
Sulfate, mg/l	5.0	250.0	<5.0 U	5.3 J	06/03/09	TRB	SM4500-SO4E
Antimony, ug/l	0.06	6.0	---	---	06/09/09	LFJ	EPA200.8
Antimony, ug/l	0.06	6.0		0.2 J	06/16/09	CMF	EPA200.8
Arsenic, ug/l	0.17	10.0	31		06/09/09	LFJ	EPA200.8
Arsenic, ug/l	0.17	10.0		3.7 J	06/16/09	CMF	EPA200.8
Barium, ug/l	0.04	100.0	81.8 J		06/09/09	LFJ	EPA200.8
Barium, ug/l	0.04	100.0		135	06/16/09	CMF	EPA200.8
Beryllium, ug/l	0.06	1.0	---	---	06/09/09	LFJ	EPA200.8
Beryllium, ug/l	0.06	1.0		0.1 J	06/16/09	CMF	EPA200.8
Cadmium, ug/l	0.04	1.0	---	---	06/09/09	LFJ	EPA200.8
Cadmium, ug/l	0.04	1.0		0.1 J	06/16/09	CMF	EPA200.8
Cobalt, ug/l	0.02	10.0	2.1 J		06/09/09	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0		6.7 J	06/16/09	CMF	EPA200.8
Copper, ug/l	0.04	10.0	1 J		06/09/09	LFJ	EPA200.8
Copper, ug/l	0.04	10.0		1.9 J	06/16/09	CMF	EPA200.8
Total Chromium, ug/l	0.10	10.0	0.3 J		06/09/09	LFJ	EPA200.8
Total Chromium, ug/l	0.10	10.0		1.5 J	06/16/09	CMF	EPA200.8
Iron, ug/l	14.0	300.0	29280	100000	06/25/09	ADD	SM3111B
Manganese, ug/l	0.50	50.0	332	615	06/24/09	LFJ	EPA200.7
Lead, ug/l	0.04	10.0	1.5 J		06/09/09	LFJ	EPA200.8
Lead, ug/l	0.04	10.0		2.6 J	06/16/09	CMF	EPA200.8
Mercury, ug/l	0.03	0.20	---	---	06/09/09	LFJ	EPA200.8
Mercury, ug/l	0.03	0.20		0.1 J	06/16/09	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	0.8 J		06/09/09	LFJ	EPA200.8
Nickel, ug/l	0.04	50.0		2.2 J	06/16/09	CMF	EPA200.8
Selenium, ug/l	0.12	10.0	0.3 J		06/09/09	LFJ	EPA200.8
Selenium, ug/l	0.12	10.0		4.9 J	06/16/09	CMF	EPA200.8
Silver, ug/l	0.04	10.0	---	---	06/09/09	LFJ	EPA200.8
Silver, ug/l	0.04	10.0		0.1 J	06/16/09	CMF	EPA200.8
Thallium, ug/l	0.03	5.0	---	---	06/09/09	LFJ	EPA200.8
Thallium, ug/l	0.03	5.0		0.1 J	06/16/09	CMF	EPA200.8
Vanadium, ug/l	0.28	25.0	5.7 J		06/09/09	LFJ	EPA200.8
Vanadium, ug/l	0.28	25.0		4.8 J	06/16/09	CMF	EPA200.8
Zinc, ug/l	0.14	10.0	3.0 J		06/15/09	CMF	EPA200.8
Zinc, ug/l	0.14	10.0		2.9 J	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. (NEW) C&D LANDFILL  
 MR. KEVIN SHIELDS  
 P.O. BOX 2263  
 SMITHFIELD, NC 27577

 CLIENT ID: 6058  
 ANALYST: MAO  
 DATE COLLECTED: 06/01/09 Page: 1  
 DATE ANALYZED: 06/11/09  
 DATE REPORTED: 06/30/09

REVIEWED BY: \_\_\_\_\_

**VOLATILE ORGANICS  
 EPA METHOD 8260B**

PARAMETERS, ug/l	MDL	SWSL	CDMW-1	CDMW-2
1. Chloromethane	0.18	1.0	0.40 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	6.30 J	12.20 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	0.20 J	--- 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	0.40 J
15. 2-Butanone	0.85	100.0	2.40 J	5.00 J
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	1.10	2.50
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	1.30 J
32. Dibromochloromethane	0.14	3.0	--- U	--- U
33. 1,2-Dibromoethane	0.13	1.0	--- U	--- U
34. Chlorobenzene	0.13	3.0	1.00 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	0.60 J	2.30
44. 1,2-Dichlorobenzene	0.13	5.0	--- U	0.50 J
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 7095, 114 Oakmont Dr.  
 Greenville, NC 27858

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

CLIENT: 6058, 6058A  
 JOHNSON Co. (NEW) C&D LANDFILL  
 KENNEDY SHIELDS  
 P.O. Box 2263  
 SMITHFIELD, NC 27577  
 (919) 938-4747

**CHAIN OF CUSTODY RECORD**

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/l	TEMPERATURE, °C	AT COLLECTION	# OF CONTAINERS	BOID	COD	TSR	Ammonia Nitro.	NITRATE	T. Phosphorus	ALUMINUM	CHLORIDE	TDS	SULFATE	MERKLS	EPA 8260B	8260 Dp. 1	8260 Dp. 2	PARAMETERS	CHEMICAL PRESERVATION	CONTAINER TYPE, P/G	pH CHECK (LAB)	CHLORINE NEUTRALIZED AT COLLECTION
	DATE	TIME																							
CDMW-1	6/1/09	09:23	N/A	18		8																			
CDMW-2	6/1/09	10:26	N/A	19		7																			
CDMW-6	6/1/09	12:25	N/A	17		7																			
TRIP BLANK	6/1/09	NEW	N/A	N/A		1																			
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.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
<i>[Signature]</i>	6/2/09 09:00	<i>[Signature]</i>	6/2/09 09:00	<i>[Signature]</i>	6/2/09 09:00	<i>[Signature]</i>	6/2/09 09:00	<i>[Signature]</i>	6/2/09 09:00	<i>[Signature]</i>	6/2/09 09:00	<i>[Signature]</i>	6/2/09 09:00	<i>[Signature]</i>	6/2/09 09:00	<i>[Signature]</i>	6/2/09 09:00	<i>[Signature]</i>	6/2/09 09:00	<i>[Signature]</i>	6/2/09 09:00	<i>[Signature]</i>	6/2/09 09:00	<i>[Signature]</i>	6/2/09 09:00
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.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
<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>		<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.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
<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>		<i>[Signature]</i>	

Instructions for completing this form are on the reverse side.

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

FORM #5

No 143529

# 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#: 6058

JOHNSTON CO. (NEW) C&D LANDFILL  
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	CDMW-3	CDMW-5	Analysis		Method
					Date	Analyst	Code
Total Alkalinity, mg/l	1.0	1.0	5	28	06/05/09	TRB	SM2320B
Chloride, mg/l	5.0	5.0	11	---	06/11/09	MJN	SM4500-CLB
Total Dissolved Residue, mg/l	1.0	1.0	43	62	06/09/09	TRB	SM2540C
Sulfate, mg/l	5.0	250.0	<5.0 U	11.2 J	06/15/09	TRB	SM4500-SO4E
Antimony, ug/l	0.06	6.0	0.1 J	0.8 J	06/16/09	CMF	EPA200.8
Arsenic, ug/l	0.17	10.0	0.9 J	1.5 J	06/16/09	CMF	EPA200.8
Barium, ug/l	0.04	100.0	64.2 J	40.4 J	06/16/09	CMF	EPA200.8
Beryllium, ug/l	0.06	1.0	0.7 J	0.7 J	06/16/09	CMF	EPA200.8
Cadmium, ug/l	0.04	1.0	0.2 J	0.4 J	06/16/09	CMF	EPA200.8
Cobalt, ug/l	0.02	10.0	6.8 J	8.6 J	06/16/09	CMF	EPA200.8
Copper, ug/l	0.04	10.0	13	23	06/16/09	CMF	EPA200.8
Total Chromium, ug/l	0.10	10.0	25	10	06/16/09	CMF	EPA200.8
Iron, ug/l	14.0	300.0	5840	36950	06/25/09	ADD	SM3111B
Manganese, ug/l	0.50	50.0	132	462	06/24/09	LFJ	EPA200.7
Lead, ug/l	0.04	10.0	4.3 J	11	06/16/09	CMF	EPA200.8
Mercury, ug/l	0.03	0.20	---	0.08 J	06/16/09	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	31.8 J	21.0 J	06/16/09	CMF	EPA200.8
Selenium, ug/l	0.12	10.0	0.3 J	1.4 J	06/16/09	CMF	EPA200.8
Silver, ug/l	0.04	10.0	---	0.1 J	06/16/09	CMF	EPA200.8
Thallium, ug/l	0.03	5.0	---	---	06/16/09	CMF	EPA200.8
Vanadium, ug/l	0.28	25.0	1.5 J	7.8 J	06/16/09	CMF	EPA200.8
Zinc, ug/l	0.14	10.0	29	104	06/16/09	CMF	EPA200.8

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 CO. (NEW) C&D LANDFILL  
MR. KEVIN SHIELDS  
P.O. BOX 2263  
SMITHFIELD, NC 27577

CLIENT ID: 6058  
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	CDMW-3	CDMW-5	Trip 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	9.80 J	4.20 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	0.40 J	--- U
11. trans-1,2-Dichloroethene	0.13	5.0	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.16	5.0	--- U	1.70 J	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.14	5.0	--- U	1.00 J	--- U
15. 2-Butanone	0.85	100.0	5.40 J	1.00 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	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.12	1.0	--- U	--- U	--- U
22. Trichloroethene	0.13	1.0	--- U	0.20 J	--- 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	0.20 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	0.20 J	--- U
31. 2-Hexanone	1.00	50.0	1.00 J	--- 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

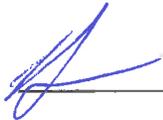
P.O. BOX 7085, 114 OAKMONT DRIVE  
GREENVILLE, N.C. 27835-7085

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

ID#: 6058

JOHNSTON CO. (NEW) C&D LANDFILL  
MR. KEVIN SHIELDS  
P.O. BOX 2263  
SMITHFIELD ,NC 27577

DATE COLLECTED: 06/02/09  
DATE REPORTED : 07/01/09

REVIEWED BY: 

PARAMETERS	MDL	SW-1	CDMW-4	CDMW-5D	Analysis		Method	
		SWSL			Date	Analyst	Code	
Total Alkalinity, mg/l	1.0	1.0		14	28	06/04/09	TRB SM2320B	
Chloride, mg/l	5.0	5.0		---	U	06/11/09	MJN SM4500-CLB	
Total Dissolved Residue, mg/l	1.0	1.0		51	64	06/04/09	TRB SM2540C	
Sulfate, mg/l	5.0	250.0		6.5 J	---	U	06/15/09 TRB SM4500-SO4E	
Antimony, ug/l	0.06	6.0	0.2 J	0.8 J	0.2 J	06/16/09	CMF EPA200.8	
Arsenic, ug/l	0.17	10.0	2.1 J	0.2 J	0.3 J	06/16/09	CMF EPA200.8	
Barium, ug/l	0.04	100.0	77.5 J	2.2 J	10.4 J	06/16/09	CMF EPA200.8	
Beryllium, ug/l	0.06	1.0	0.1 J	0.1 J	0.1 J	06/16/09	CMF EPA200.8	
Cadmium, ug/l	0.04	1.0	0.1 J	0.1 J	0.1 J	06/16/09	CMF EPA200.8	
Cobalt, ug/l	0.02	10.0	7.7 J	0.8 J	5.3 J	06/16/09	CMF EPA200.8	
Copper, ug/l	0.04	10.0	3.0 J	4.0 J	2.0 J	06/16/09	CMF EPA200.8	
Total Chromium, ug/l	0.10	10.0	3.2 J	0.1 J	0.4 J	06/16/09	CMF EPA200.8	
Iron, ug/l	14.0	300.0		12940	1207	06/25/09	ADD SM3111B	
Manganese, ug/l	0.50	50.0		34 J	65	06/24/09	LFJ EPA200.7	
Lead, ug/l	0.04	10.0	2.8 J	0.5 J	0.3 J	06/16/09	CMF EPA200.8	
Mercury, ug/l	0.13	0.20		0.09 J		06/16/09	CMF EPA200.8	
Mercury, ug/l	0.13	0.20			0.48	06/19/09	ADD EPA245.1	
Nickel, ug/l	0.04	50.0	3.0 J	3.4 J	4.4 J	06/16/09	CMF EPA200.8	
Selenium, ug/l	0.12	10.0	0.4 J	---	U	06/16/09	CMF EPA200.8	
Silver, ug/l	0.04	10.0	---	U	---	U	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	8.7 J	0.5 J	0.8 J	06/16/09	CMF EPA200.8	
Zinc, ug/l	0.14	10.0	18	8.9 J	8.1 J	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

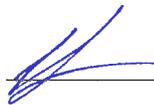
PHONE (252) 756-6208  
FAX (252) 756-0633

CLIENT: JOHNSTON CO. (NEW) C&D LANDFILL  
MR. KEVIN SHIELDS  
P.O. BOX 2263  
SMITHFIELD, NC 27577

CLIENT ID: 6058

ANALYST: MAO  
DATE COLLECTED: 06/02/09  
DATE ANALYZED: 06/12/09  
DATE REPORTED: 07/01/09

Page: 1

REVIEWED BY: 

VOLATILE ORGANICS  
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	SW-1	CDMW-4	CDMW-5D
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	0.30 J
6. 1,1-Dichloroethene	0.14	5.0	--- U	--- U	--- U
7. Acetone	1.21	100.0	16.20 J	5.70 J	7.40 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	2.50
11. trans-1,2-Dichloroethene	0.13	5.0	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.16	5.0	--- U	0.50 J	5.10
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.14	5.0	--- U	--- U	3.50 J
15. 2-Butanone	0.85	100.0	7.50 J	--- U	--- 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	--- U	--- U	0.40 J
21. 1,2-Dichloroethane	0.12	1.0	--- U	--- U	--- U
22. Trichloroethene	0.13	1.0	--- U	--- U	0.80 J
23. 1,2-Dichloropropane	0.17	1.0	--- U	--- U	0.80 J
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	0.90 J	--- 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	0.70 J
31. 2-Hexanone	1.00	50.0	1.80 J	--- 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	0.30 J
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	0.40 J
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.

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

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

ID#: 6058 A

JOHNSTON CO. (NEW) C&D LANDFILL  
MR. KEVIN SHIELDS  
P.O. BOX 2263  
SMITHFIELD ,NC 27577

DATE COLLECTED: 06/01/09  
DATE REPORTED : 06/30/09

REVIEWED BY: 

PARAMETERS	MDL	SWSL	CDMW-6	Analysis		Method
				Date	Analyst	Code
Total Alkalinity, mg/l	1.0	1.0	25	06/03/09	TRB	SM2320B
Chloride, mg/l	5.0	5.0	8	06/04/09	MJN	SM4500-CLB
Total Dissolved Residue, mg/l	1.0	1.0	50	06/04/09	TRB	SM2540C
Sulfate, mg/l	5.0	250.0	6.3 J	06/03/09	TRB	SM4500-SO4E
Antimony, ug/l	0.06	6.0	0.1 J	06/16/09	CMF	EPA200.8
Arsenic, ug/l	0.17	10.0	5.6 J	06/16/09	CMF	EPA200.8
Barium, ug/l	0.04	100.0	46.2 J	06/16/09	CMF	EPA200.8
Beryllium, ug/l	0.06	1.0	2	06/16/09	CMF	EPA200.8
Cadmium, ug/l	0.04	1.0	0.4 J	06/16/09	CMF	EPA200.8
Cobalt, ug/l	0.02	10.0	20	06/16/09	CMF	EPA200.8
Copper, ug/l	0.04	10.0	24	06/16/09	CMF	EPA200.8
Total Chromium, ug/l	0.10	10.0	29	06/16/09	CMF	EPA200.8
Iron, ug/l	14.0	300.0	77200	06/25/09	ADD	SM3111B
Manganese, ug/l	0.50	50.0	832	06/24/09	LFJ	EPA200.7
Lead, ug/l	0.04	10.0	33	06/16/09	CMF	EPA200.8
Mercury, ug/l	0.03	0.20	0.04 J	06/16/09	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	42.9 J	06/16/09	CMF	EPA200.8
Selenium, ug/l	0.12	10.0	0.8 J	06/16/09	CMF	EPA200.8
Silver, ug/l	0.04	10.0	0.1 J	06/16/09	CMF	EPA200.8
Thallium, ug/l	0.03	5.0	--- U	06/16/09	CMF	EPA200.8
Vanadium, ug/l	0.28	25.0	16.3 J	06/16/09	CMF	EPA200.8
Zinc, ug/l	0.14	10.0	234	06/16/09	CMF	EPA200.8

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

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

CLIENT: JOHNSTON CO. (NEW) C&D LANDFILL  
MR. KEVIN SHIELDS  
P.O. BOX 2263  
SMITHFIELD, NC 27577

CLIENT ID: 6058 A  
ANALYST: MAO  
DATE COLLECTED: 06/01/09  
DATE REPORTED: 06/30/09

Page: 1

REVIEWED BY: 

VOLATILE ORGANICS  
EPA METHOD 8260B

PARAMETERS, ug/l	Date Analyzed:		06/11/09	06/12/09
	MDL	SWSL	CDMW-6	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	--- 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	7.70 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	--- 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	3.10 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	0.30 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	--- 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	--- U	--- 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#: 6058 A

JOHNSTON CO. (NEW) C&D LANDFILL  
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	CDMW-7 Analysis		Method Code
			Date	Analyst	
Total Alkalinity, mg/l	1.0	1.0	10	06/05/09 TRB	SM2320B
Chloride, mg/l	5.0	5.0	20	06/11/09 MJN	SM4500-CLB
Total Dissolved Residue, mg/l	1.0	1.0	120	06/09/09 TRB	SM2540C
Sulfate, mg/l	5.0	250.0	<5.0 U	06/15/09 TRB	SM4500-SO4E
Antimony, ug/l	0.06	6.0	0.4 J	06/16/09 CMF	EPA200.8
Arsenic, ug/l	0.17	10.0	2.3 J	06/16/09 CMF	EPA200.8
Barium, ug/l	0.04	100.0	77.7 J	06/16/09 CMF	EPA200.8
Beryllium, ug/l	0.06	1.0	1	06/16/09 CMF	EPA200.8
Cadmium, ug/l	0.04	1.0	1	06/16/09 CMF	EPA200.8
Cobalt, ug/l	0.02	10.0	11	06/16/09 CMF	EPA200.8
Copper, ug/l	0.04	10.0	48	06/16/09 CMF	EPA200.8
Total Chromium, ug/l	0.10	10.0	11	06/16/09 CMF	EPA200.8
Iron, ug/l	14.0	300.0	23450	06/25/09 ADD	SM3111B
Manganese, ug/l	0.50	50.0	122	06/24/09 LFJ	EPA200.7
Lead, ug/l	0.04	10.0	14	06/16/09 CMF	EPA200.8
Mercury, ug/l	0.03	0.20	0.05 J	06/16/09 CMF	EPA200.8
Nickel, ug/l	0.04	50.0	10.9 J	06/16/09 CMF	EPA200.8
Selenium, ug/l	0.12	10.0	3.8 J	06/16/09 CMF	EPA200.8
Silver, ug/l	0.04	10.0	--- U	06/16/09 CMF	EPA200.8
Thallium, ug/l	0.03	5.0	--- U	06/16/09 CMF	EPA200.8
Vanadium, ug/l	0.28	25.0	15.8 J	06/16/09 CMF	EPA200.8
Zinc, ug/l	0.14	10.0	34	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. (NEW) C&D LANDFILL  
MR. KEVIN SHIELDS  
P.O. BOX 2263  
SMITHFIELD, NC 27577

CLIENT ID: 6058 A

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	CDMW-7
1. Chloromethane	0.18	1.0	--- U
2. Vinyl Chloride	0.34	1.0	--- U
3. Bromomethane	0.26	10.0	--- U
4. Chloroethane	0.29	10.0	--- U
5. Trichlorofluoromethane	0.13	1.0	--- U
6. 1,1-Dichloroethene	0.14	5.0	--- U
7. Acetone	1.21	100.0	3.00 J
8. Iodomethane	0.12	10.0	--- U
9. Carbon Disulfide	0.14	100.0	--- U
10. Methylene Chloride	0.14	1.0	0.70 J
11. trans-1,2-Dichloroethene	0.13	5.0	--- U
12. 1,1-Dichloroethane	0.16	5.0	1.90 J
13. Vinyl Acetate	0.20	50.0	--- U
14. Cis-1,2-Dichloroethene	0.14	5.0	1.20 J
15. 2-Butanone	0.85	100.0	--- U
16. Bromochloromethane	0.11	3.0	--- U
17. Chloroform	0.13	5.0	--- U
18. 1,1,1-Trichloroethane	0.11	1.0	--- U
19. Carbon Tetrachloride	0.13	1.0	--- U
20. Benzene	0.16	1.0	0.30 J
21. 1,2-Dichloroethane	0.12	1.0	--- U
22. Trichloroethene	0.13	1.0	0.40 J
23. 1,2-Dichloropropane	0.17	1.0	--- U
24. Bromodichloromethane	0.13	1.0	--- U
25. Cis-1,3-Dichloropropene	0.17	1.0	--- U
26. 4-Methyl-2-Pentanone	0.68	100.0	--- U
27. Toluene	0.13	1.0	--- U
28. trans-1,3-Dichloropropene	0.14	1.0	--- U
29. 1,1,2-Trichloroethane	0.20	1.0	--- U
30. Tetrachloroethene	0.16	1.0	0.30 J
31. 2-Hexanone	1.00	50.0	--- U
32. Dibromochloromethane	0.14	3.0	--- U
33. 1,2-Dibromoethane	0.13	1.0	--- U
34. Chlorobenzene	0.13	3.0	0.20 J
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	--- U
36. Ethylbenzene	0.16	1.0	--- U
37. Xylenes	0.48	5.0	--- U
38. Dibromomethane	0.17	10.0	--- U
39. Styrene	0.16	1.0	--- U
40. Bromoform	0.11	3.0	--- U
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	--- U
42. 1,2,3-Trichloropropane	0.06	1.0	--- U
43. 1,4-Dichlorobenzene	0.21	1.0	--- U
44. 1,2-Dichlorobenzene	0.13	5.0	--- U
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	--- U
46. Acrylonitrile	1.49	200.0	--- U
47. trans-1,4-Dichloro-2-Butene	0.14	100.0	--- 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

ID#: 6058 A

JOHNSTON CO. (NEW) C&D LANDFILL  
MR. KEVIN SHIELDS  
P.O. BOX 2263  
SMITHFIELD ,NC 27577

DATE COLLECTED: 06/02/09

DATE REPORTED : 06/30/09

REVIEWED BY: 

PARAMETERS	MDL	SWSL	CDMW-8	CDMW-8D	CDMW-9	CDMW-9D	Trip	Analysis	Method	
							Blank	Date	Analyst	Code
Total Alkalinity, mg/l	1.0	1.0	4	Missing	74	82		06/04/09	TRB	SM2320B
Chloride, mg/l	5.0	5.0	17	Missing	13	12		06/11/09	MJN	SM4500-CLB
Total Dissolved Residue, mg/l	1.0	1.0	65	Missing	104	120		06/04/09	TRB	SM2540C
Sulfate, mg/l	5.0	250.0	16.6 J	Missing	14.0 J	9.5 J		06/15/09	TRB	SM4500-SO4
Antimony, ug/l	0.06	6.0	0.1 J	Missing	0.2 J	--- U		06/16/09	CMF	EPA200.8
Arsenic, ug/l	0.17	10.0	0.7 J	Missing	20	19		06/16/09	CMF	EPA200.8
Barium, ug/l	0.04	100.0	19.8 J	Missing	110	9.6 J		06/16/09	CMF	EPA200.8
Beryllium, ug/l	0.06	1.0	0.5 J	Missing	1	--- U		06/16/09	CMF	EPA200.8
Cadmium, ug/l	0.04	1.0	--- U	Missing	1	0.1 J		06/16/09	CMF	EPA200.8
Cobalt, ug/l	0.02	10.0	2.8 J	Missing	120	33		06/16/09	CMF	EPA200.8
Copper, ug/l	0.04	10.0	1.4 J	Missing	72	0.2 J		06/16/09	CMF	EPA200.8
Total Chromium, ug/l	0.10	10.0	0.9 J	Missing	48	--- U		06/16/09	CMF	EPA200.8
Iron, ug/l	14.0	300.0	2539	Missing	310000	9040		06/25/09	ADD	SM3111B
Manganese, ug/l	0.50	50.0	31 J	Missing	6066	1669		06/24/09	LFJ	EPA200.7
Lead, ug/l	0.04	10.0	0.6 J	Missing	68	0.1 J		06/16/09	CMF	EPA200.8
Mercury, ug/l	0.03	0.20	--- U	Missing	0.04 J	0.08 J		06/16/09	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	4.9 J	Missing	78	8.7 J		06/16/09	CMF	EPA200.8
Selenium, ug/l	0.12	10.0	1.4 J	Missing	2.6 J	0.9 J		06/16/09	CMF	EPA200.8
Silver, ug/l	0.04	10.0	--- U	Missing	0.4 J	--- U		06/16/09	CMF	EPA200.8
Thallium, ug/l	0.03	5.0	--- U	Missing	0.1 J	--- U		06/16/09	CMF	EPA200.8
Vanadium, ug/l	0.28	25.0	2.6 J	Missing	28	0.4 J		06/16/09	CMF	EPA200.8
Zinc, ug/l	0.14	10.0	20	Missing	576	5.9 J		06/16/09	CMF	EPA200.8

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

# Environment 1, Incorporated

Drinking Water ID: 37715  
Wastewater ID: 10

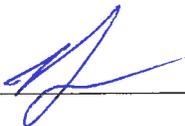
P.O. BOX 7085, 114 OAKMONT DRIVE  
GREENVILLE, N.C. 27835-7085

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

CLIENT: JOHNSTON CO. (NEW) C&D LANDFILL  
MR. KEVIN SHIELDS  
P.O. BOX 2263  
SMITHFIELD, NC 27577

CLIENT ID: 6058 A

ANALYST: MAO  
DATE COLLECTED: 06/02/09 Page: 1  
DATE ANALYZED: 06/12/09  
DATE REPORTED: 06/30/09

REVIEWED BY: 

## VOLATILE ORGANICS EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	CDMW-8	CDMW-9	CDMW-9D	Trip Blank	Equipment Blank		
1. Chloromethane	0.18	1.0	---	U	---	U	---	U	
2. Vinyl Chloride	0.34	1.0	---	U	1.70	---	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	0.20 J	0.30 J	---	U	
7. Acetone	1.21	100.0	14.90 J	4.00 J	9.20 J	---	U	3.80 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	1.90	0.90 J	---	U	
11. trans-1,2-Dichloroethene	0.13	5.0	---	U	0.30 J	0.20 J	---	U	
12. 1,1-Dichloroethane	0.16	5.0	---	U	7.90	9.20	---	U	
13. Vinyl Acetate	0.20	50.0	---	U	---	U	---	U	
14. Cis-1,2-Dichloroethene	0.14	5.0	---	U	19.40	---	U	---	U
15. 2-Butanone	0.85	100.0	6.80 J	---	U	4.50 J	---	U	
16. Bromochloromethane	0.11	3.0	---	U	---	U	---	U	
17. Chloroform	0.13	5.0	---	U	---	U	---	U	3.70 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	1.80	1.30	---	U	
21. 1,2-Dichloroethane	0.12	1.0	---	U	0.70 J	0.70 J	---	U	
22. Trichloroethene	0.13	1.0	---	U	1.30	1.50	---	U	
23. 1,2-Dichloropropane	0.17	1.0	---	U	1.70	1.80	---	U	
24. Bromodichloromethane	0.13	1.0	---	U	---	U	---	U	0.70 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	0.20 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	0.90 J	1.50	---	U	
31. 2-Hexanone	1.00	50.0	1.70 J	---	U	1.00 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	4.90	5.00	---	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. 1,1,1,2,2-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	4.10	4.30	---	U	
44. 1,2-Dichlorobenzene	0.13	5.0	---	U	0.30 J	0.30 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, Inc.  
 P.O. Box 7085-114 Oakmont Dr.  
 Greenville, NC 27858  
 Phone (252) 756-6208 • Fax (252) 756-0633

CLIENT: 6058 & 6058A  
 JOHNSTON Co. (NEW) C&D LANDFILL  
 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			BOD	COD	TSI	Ammonia Nitro.	NITRATE	T. Phosphates	Alkalinity	Chloride	TDS	Sulfate	METALS	EPA 8160B	Bios. Dpt. 1	PARAMETERS	CHEMICAL PRESERVATION	CONTAINER TYPE, P/G	pH CHECK (LAB)	CHLORINE NEUTRALIZED AT COLLECTION							
	DATE	TIME				CHLORINE	UV	NONE																									
CDMW - 8	6/2/09	09:58	N/A	17	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																									
CDMW - 8(D)		09:40							INSUFFICIENT WATER TO RELEAVE SAMPLES																								
CDMW - 5(D)		11:44	N/A	18	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																									
CDMW - 9		14:51	N/A	17	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																									
CDMW - 9(D)		13:43	N/A	17	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																									
CDMW - 4		16:21	N/A	18	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																									
SURFACE WATER 1		09:00	N/A	18	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																									
TRIP BLANK		N/A	N/A	N/A	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																									
EQUIPMENT BLANK		16:49	N/A	N/A	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																									
RELINQUISHED BY (SIG. & SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	COMMENTS:																													
<i>[Signature]</i>	6/3/09 09:00	<i>[Signature]</i>	6/3/09 4:10 PM																														
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	COMMENTS:																													
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	COMMENTS:																													

Instructions for completing this form are on the reverse side.

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

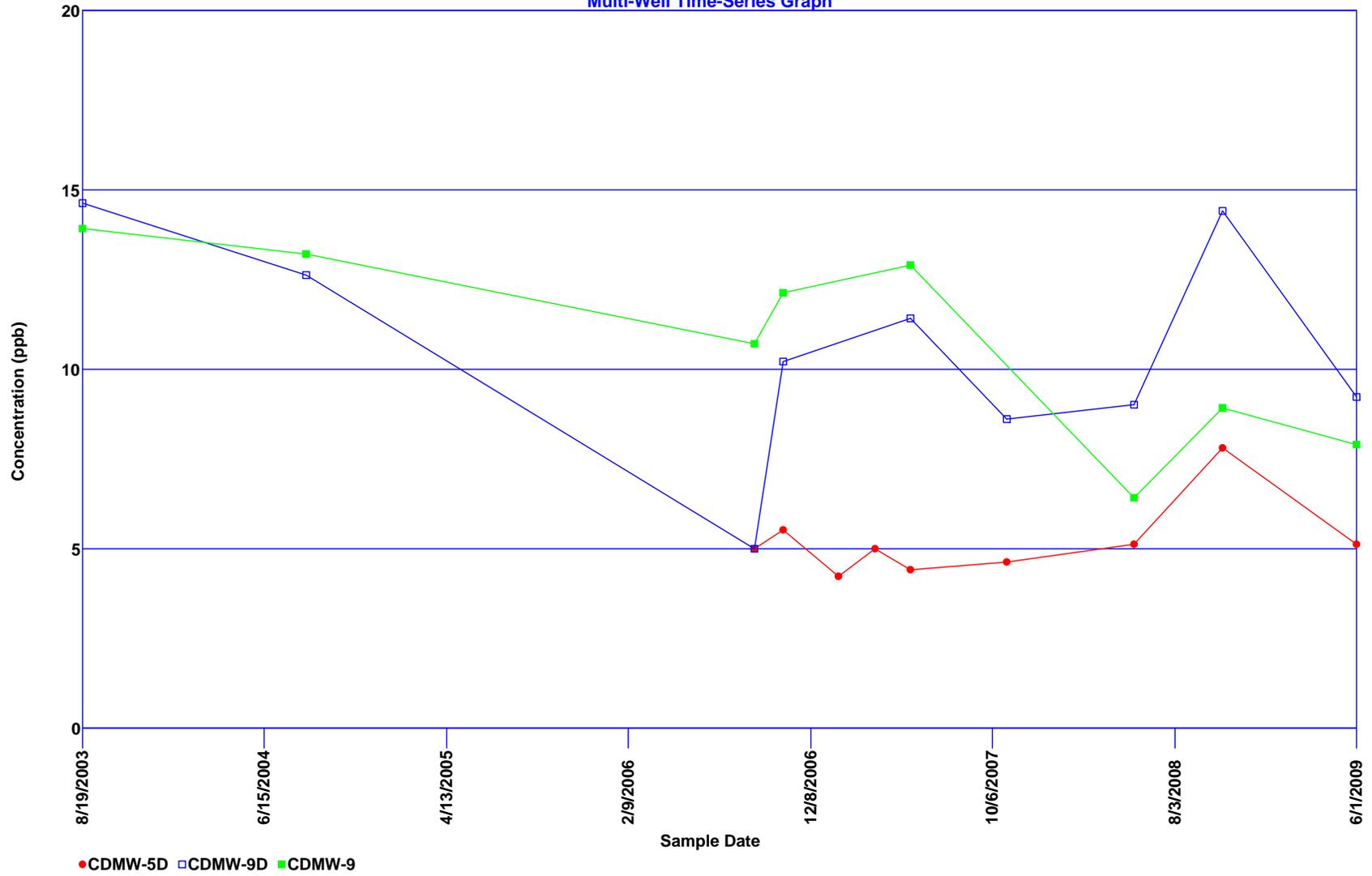
FORM #5

No 143532

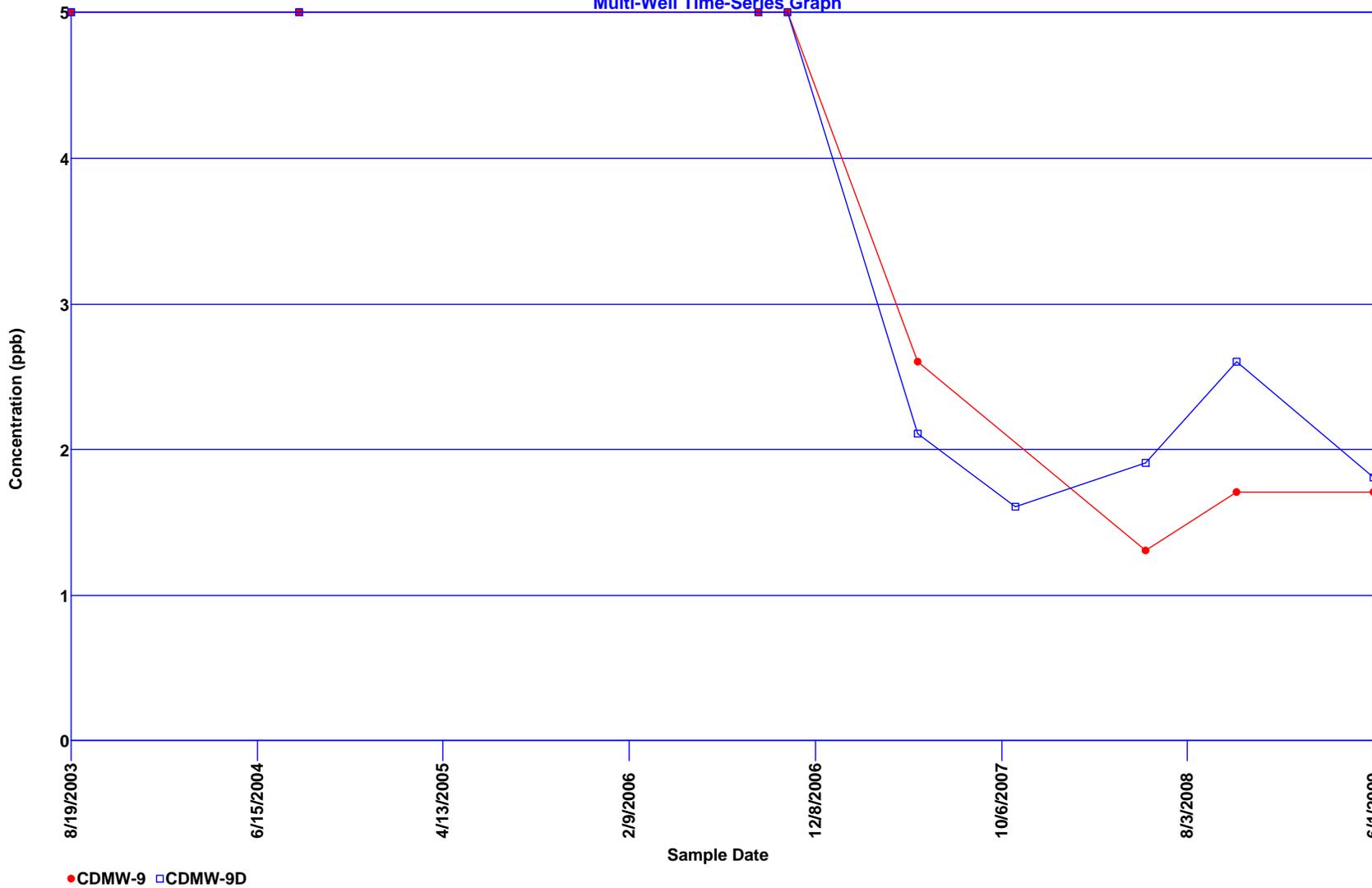
## Appendix C

Time Vs. concentration Graphs

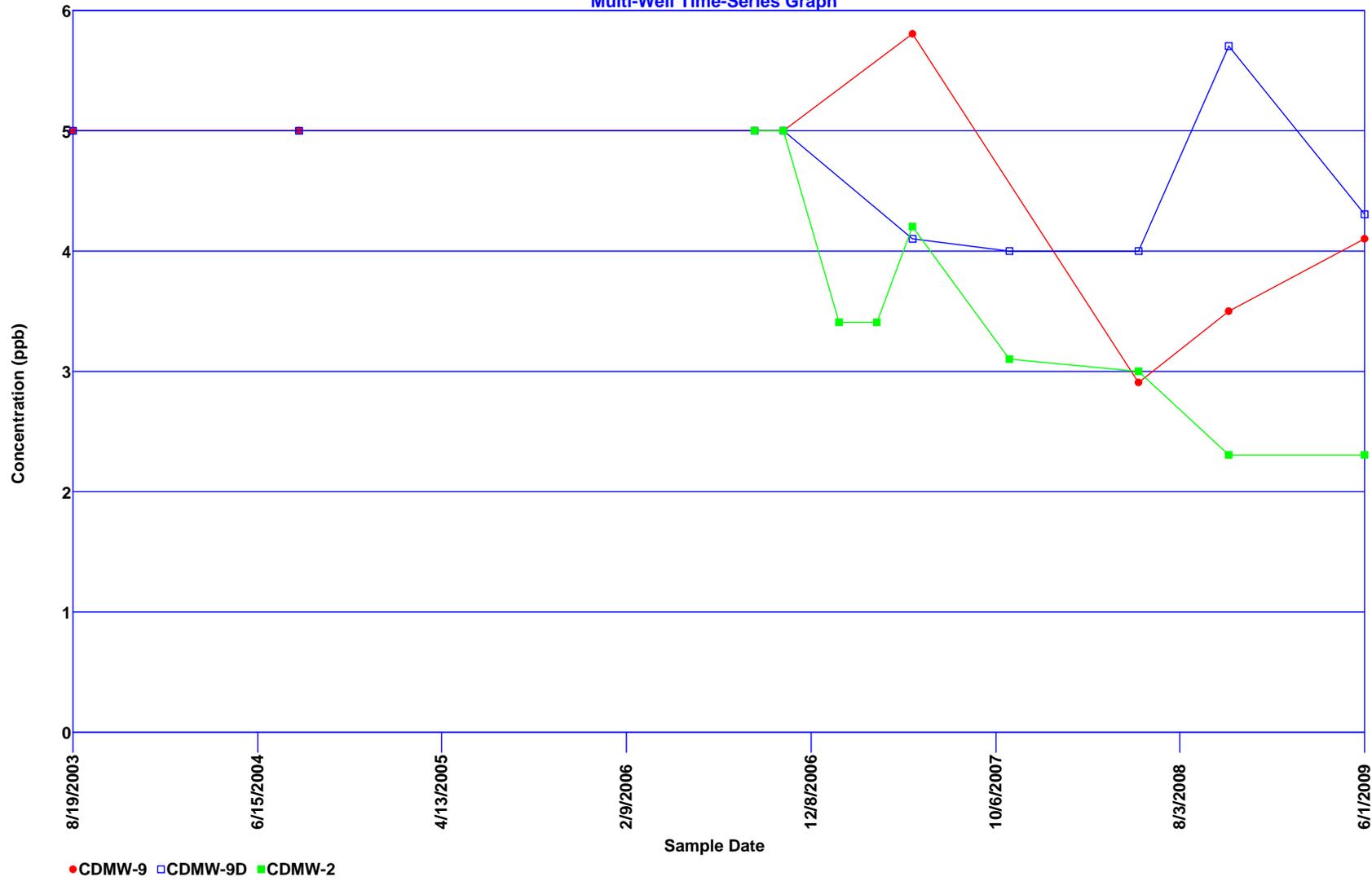
1,1-Dichloroethane  
Multi-Well Time-Series Graph



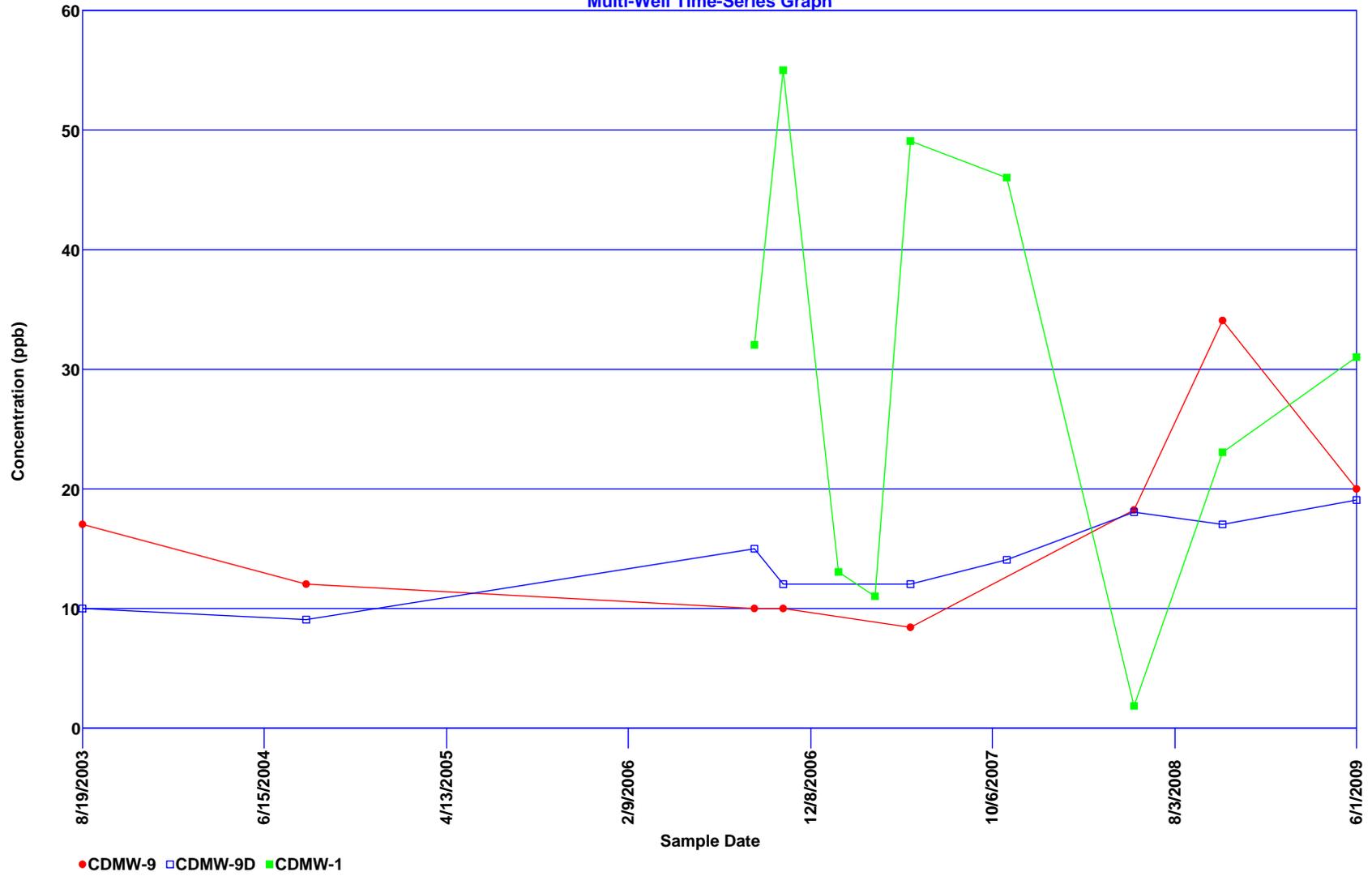
1,2-Dichloropropane  
Multi-Well Time-Series Graph



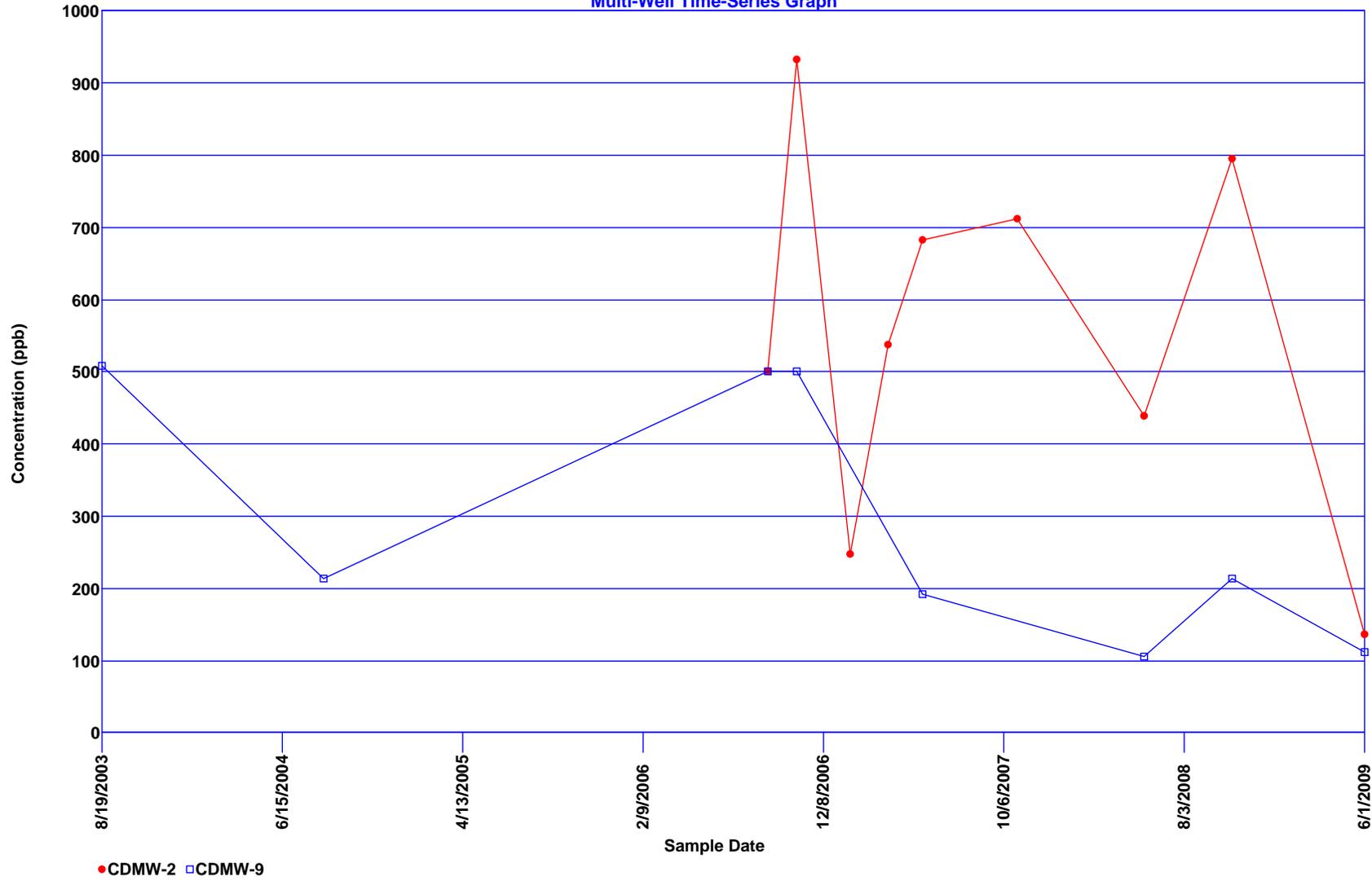
1,4-Dichlorobenzene  
Multi-Well Time-Series Graph



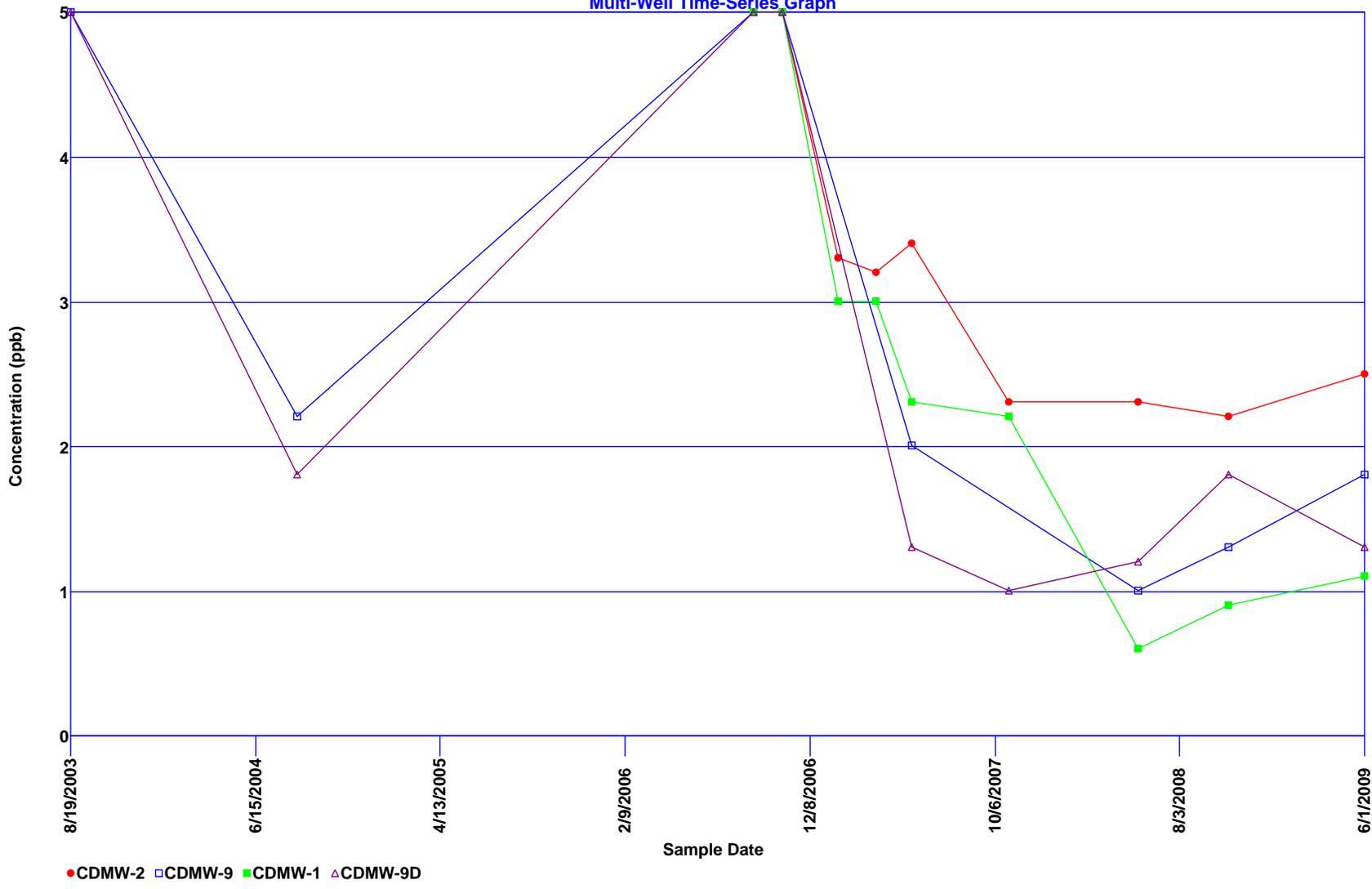
**Arsenic**  
**Multi-Well Time-Series Graph**



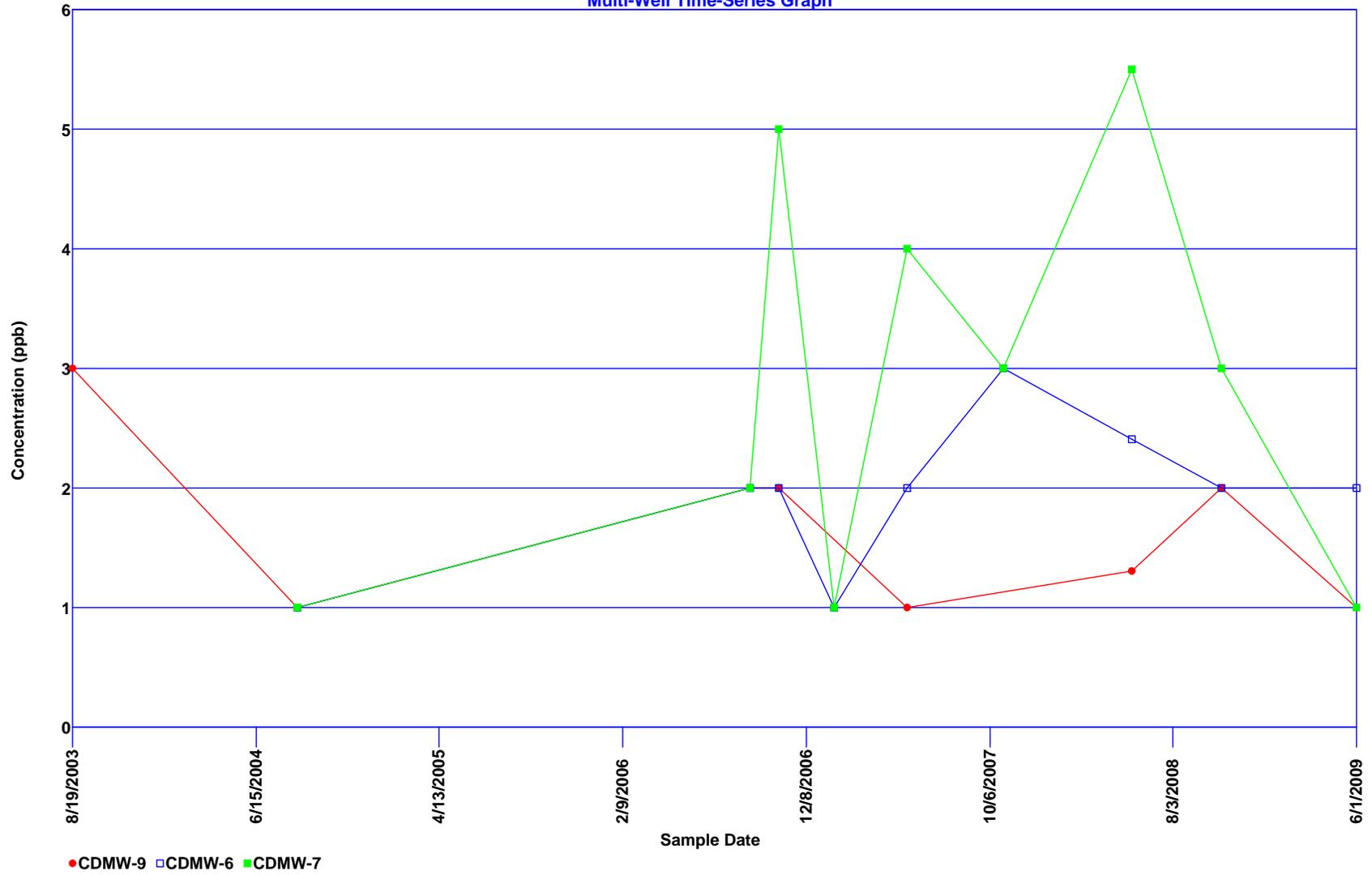
**Barium**  
**Multi-Well Time-Series Graph**



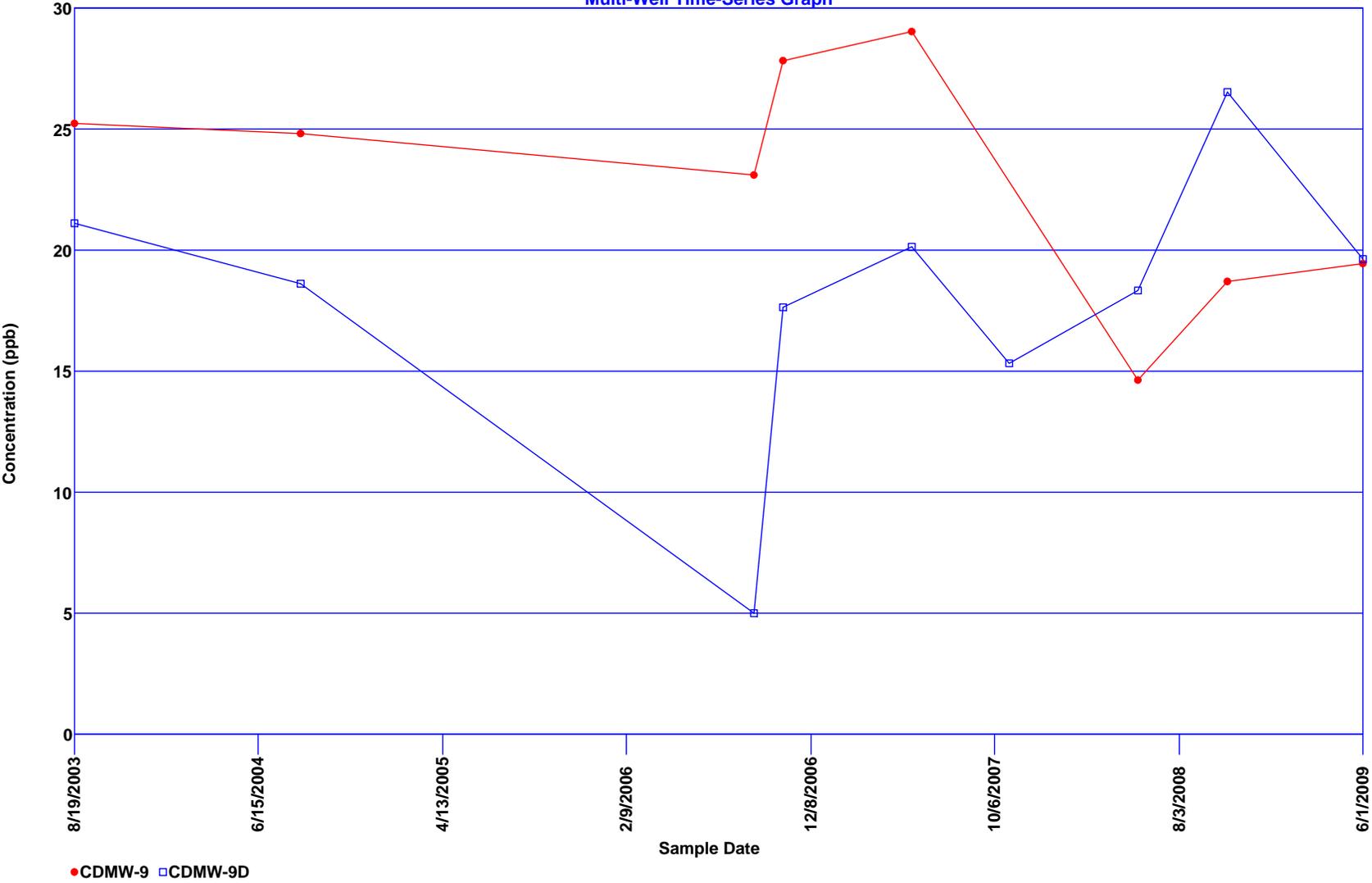
### Benzene Multi-Well Time-Series Graph



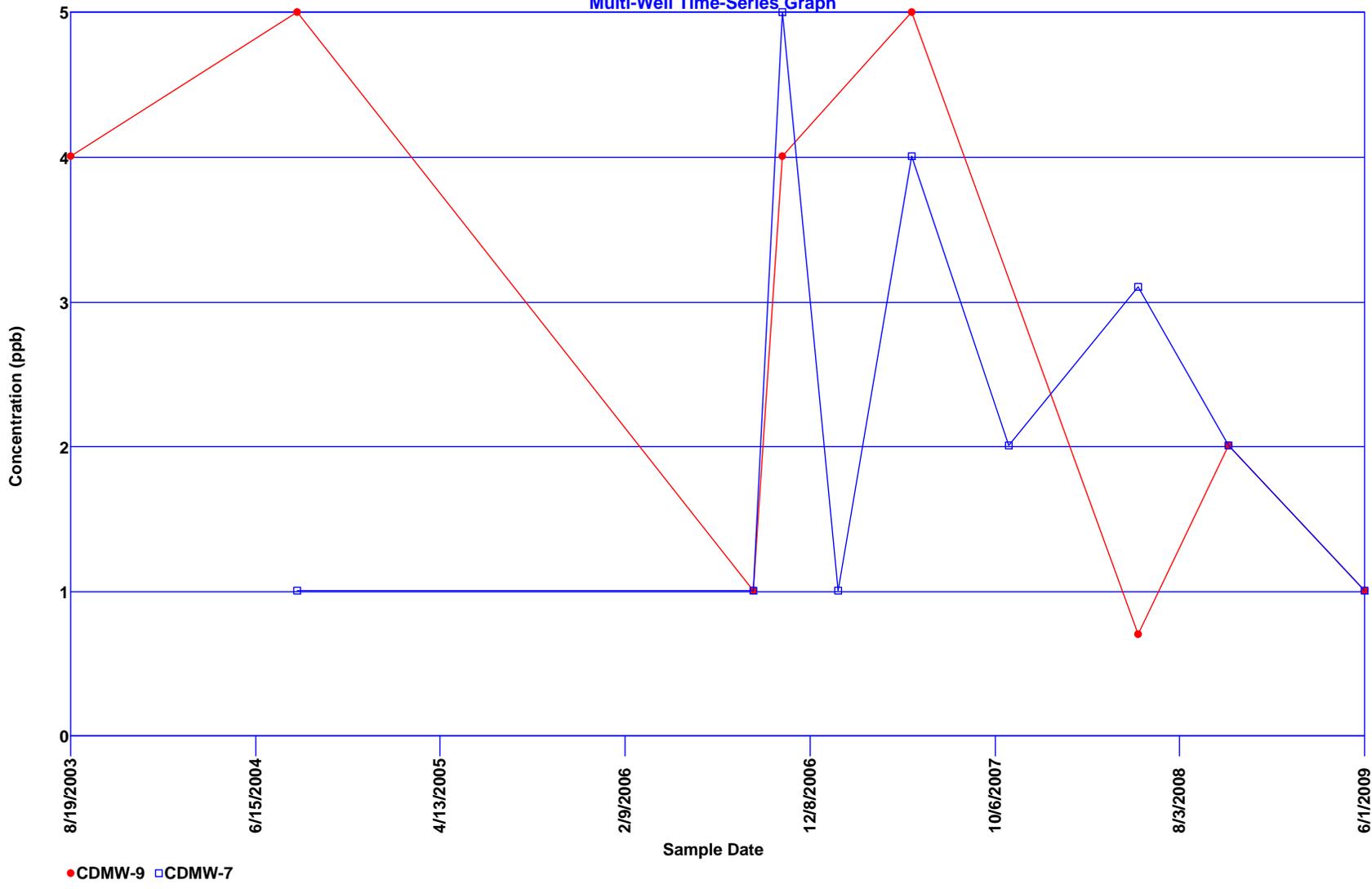
**Beryllium**  
**Multi-Well Time-Series Graph**



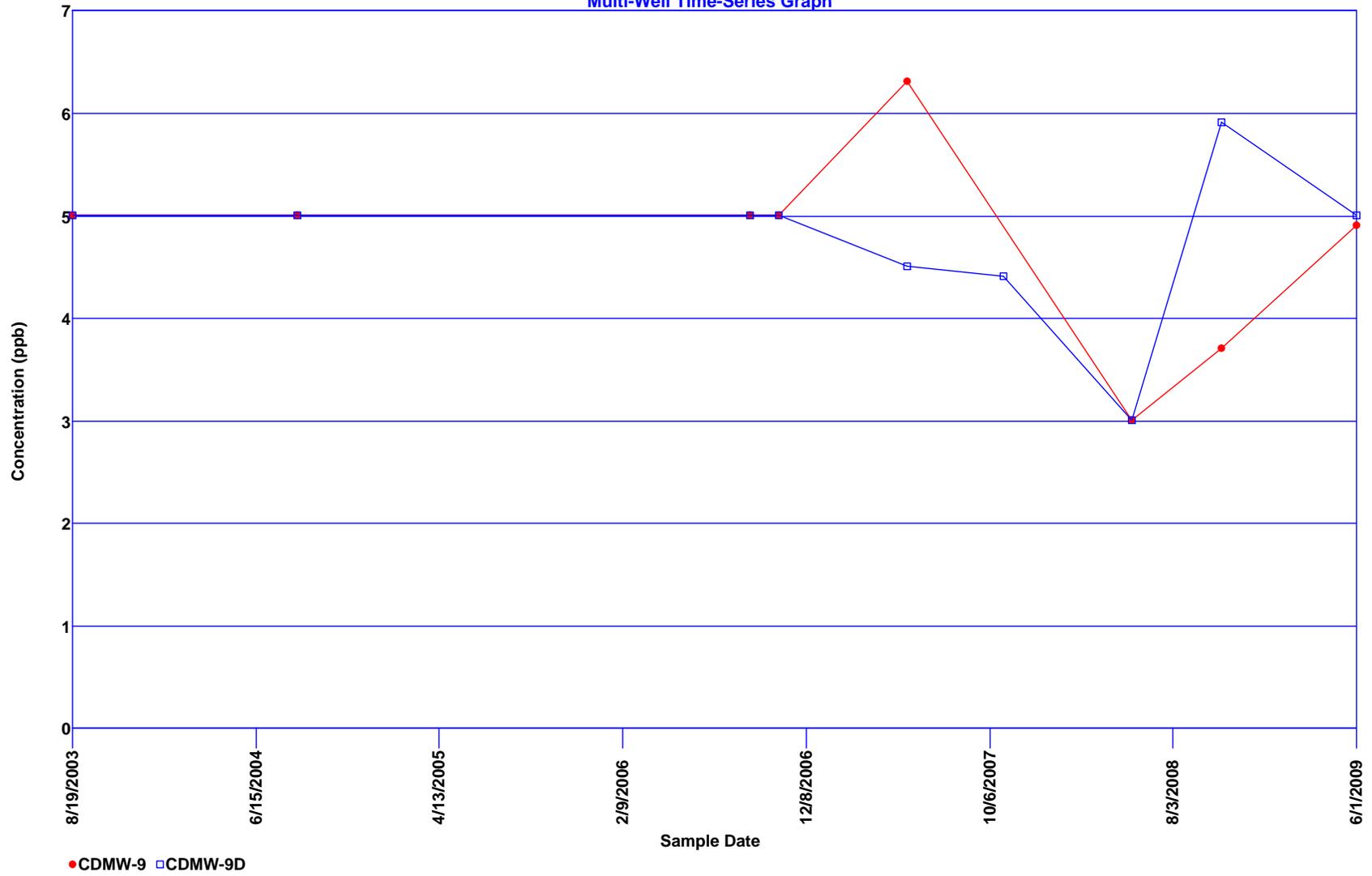
**Cis-1,2-Dichloroethene**  
**Multi-Well Time-Series Graph**



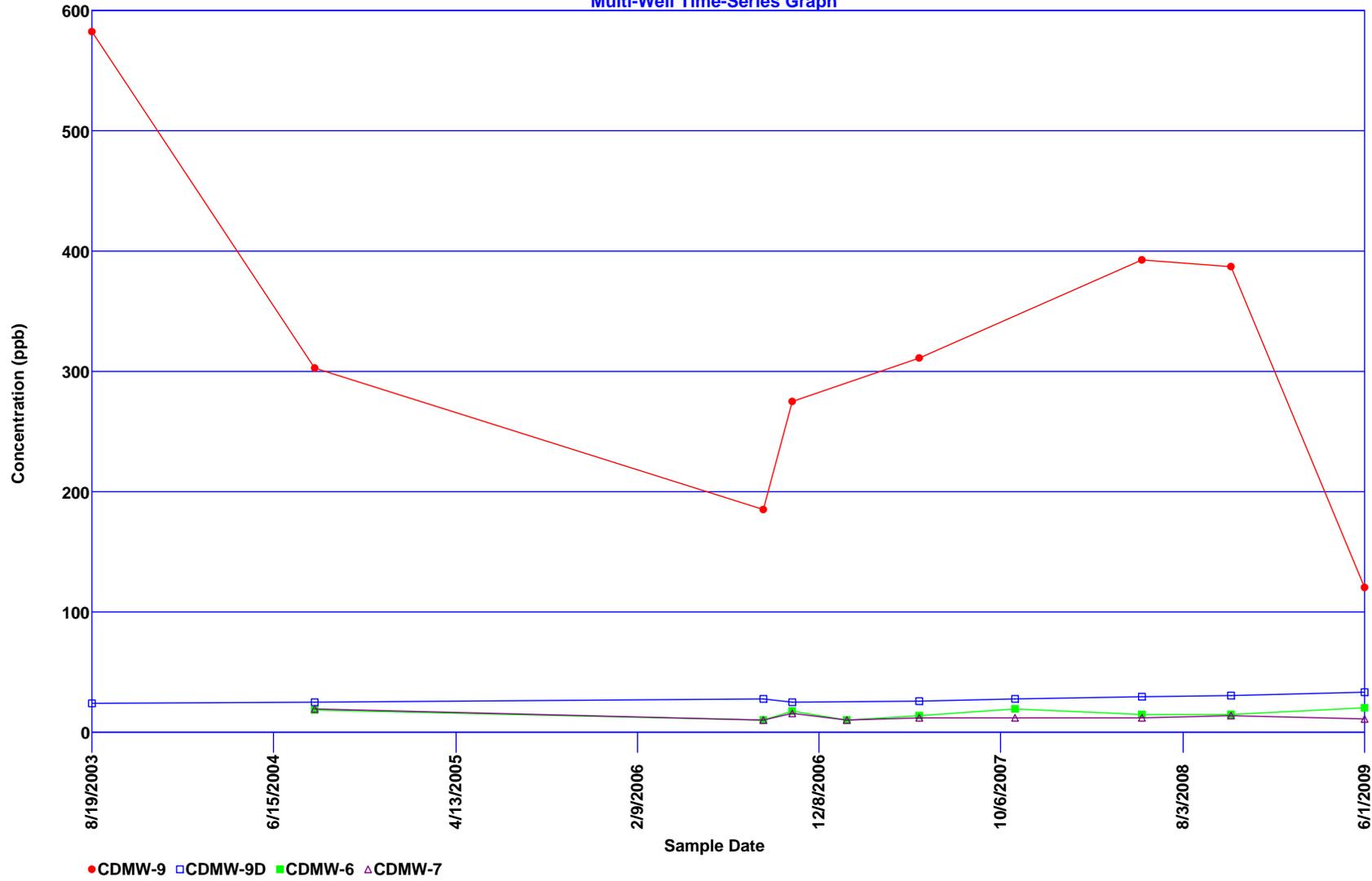
**Cadmium**  
**Multi-Well Time-Series Graph**



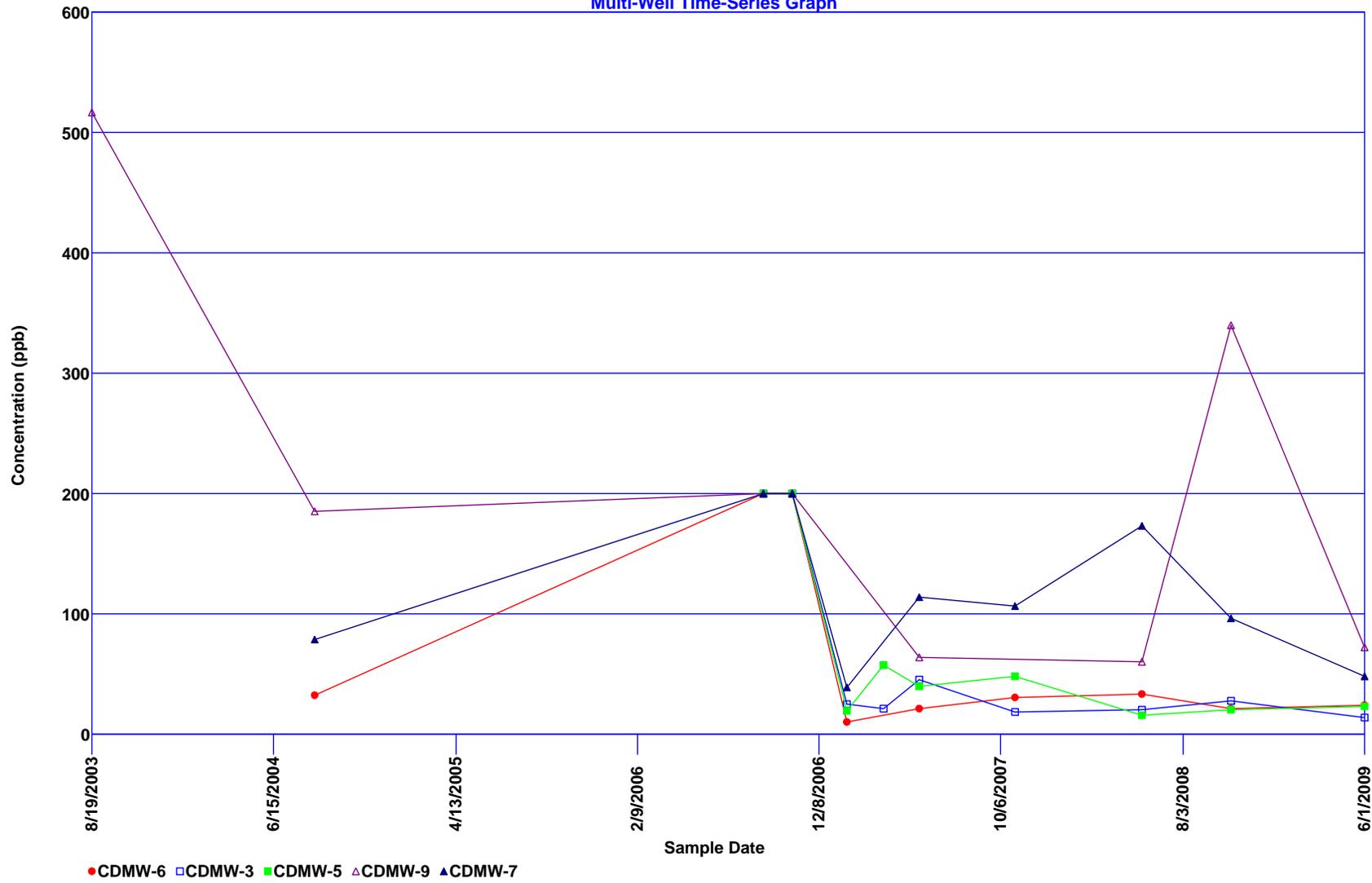
**Chlorobenzene**  
**Multi-Well Time-Series Graph**



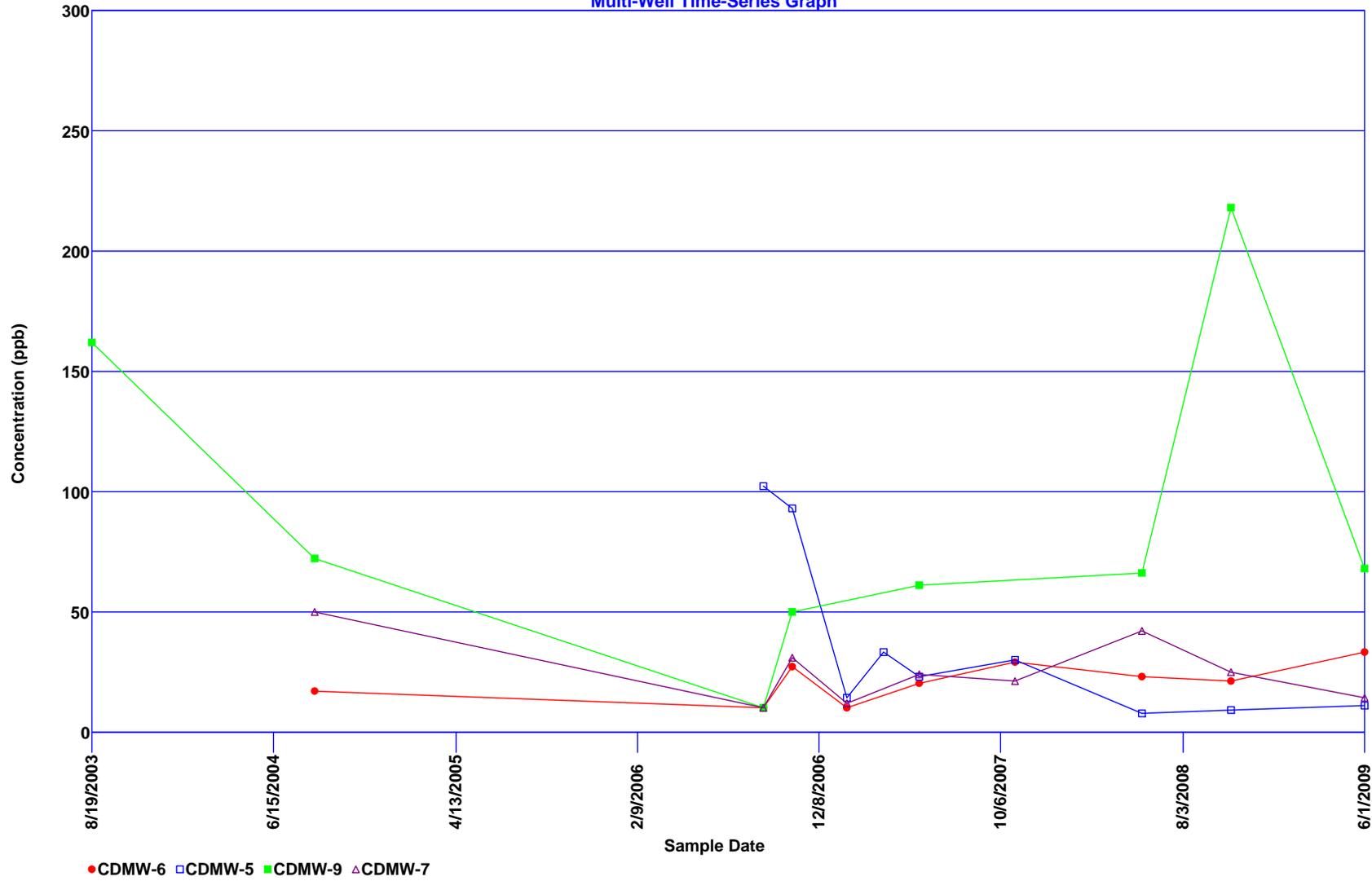
**Cobalt**  
**Multi-Well Time-Series Graph**



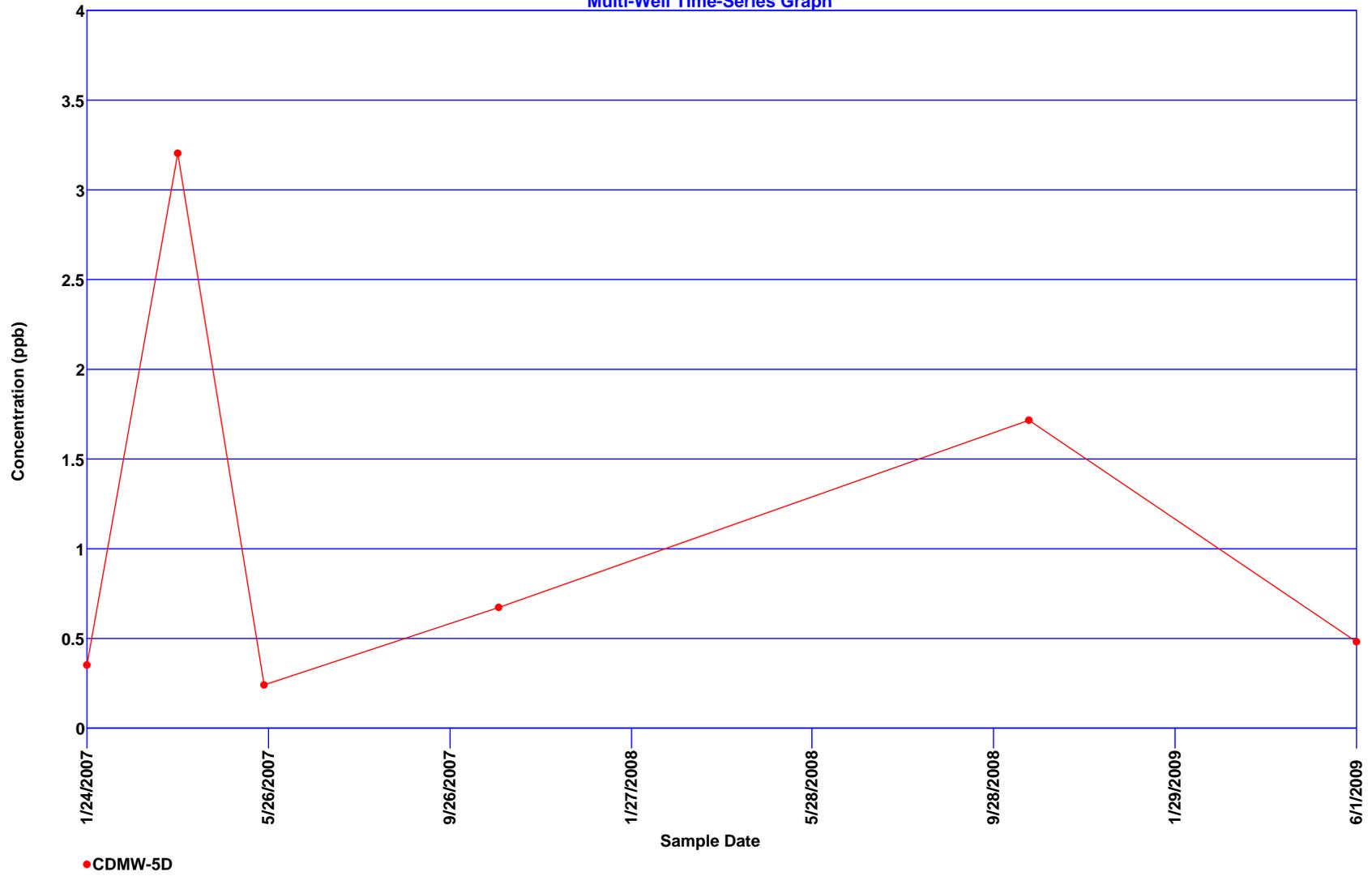
### Copper Multi-Well Time-Series Graph



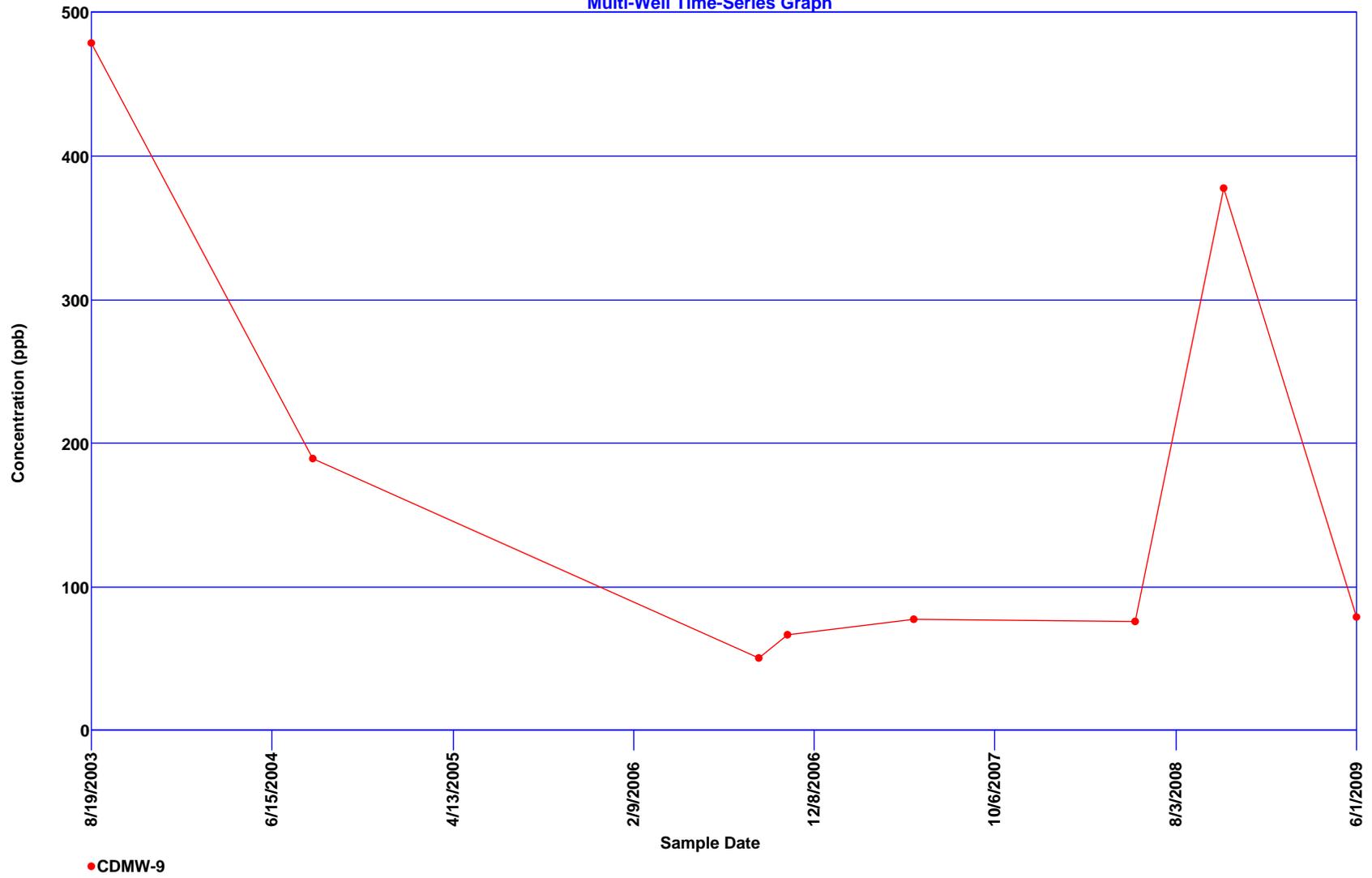
**Lead**  
**Multi-Well Time-Series Graph**



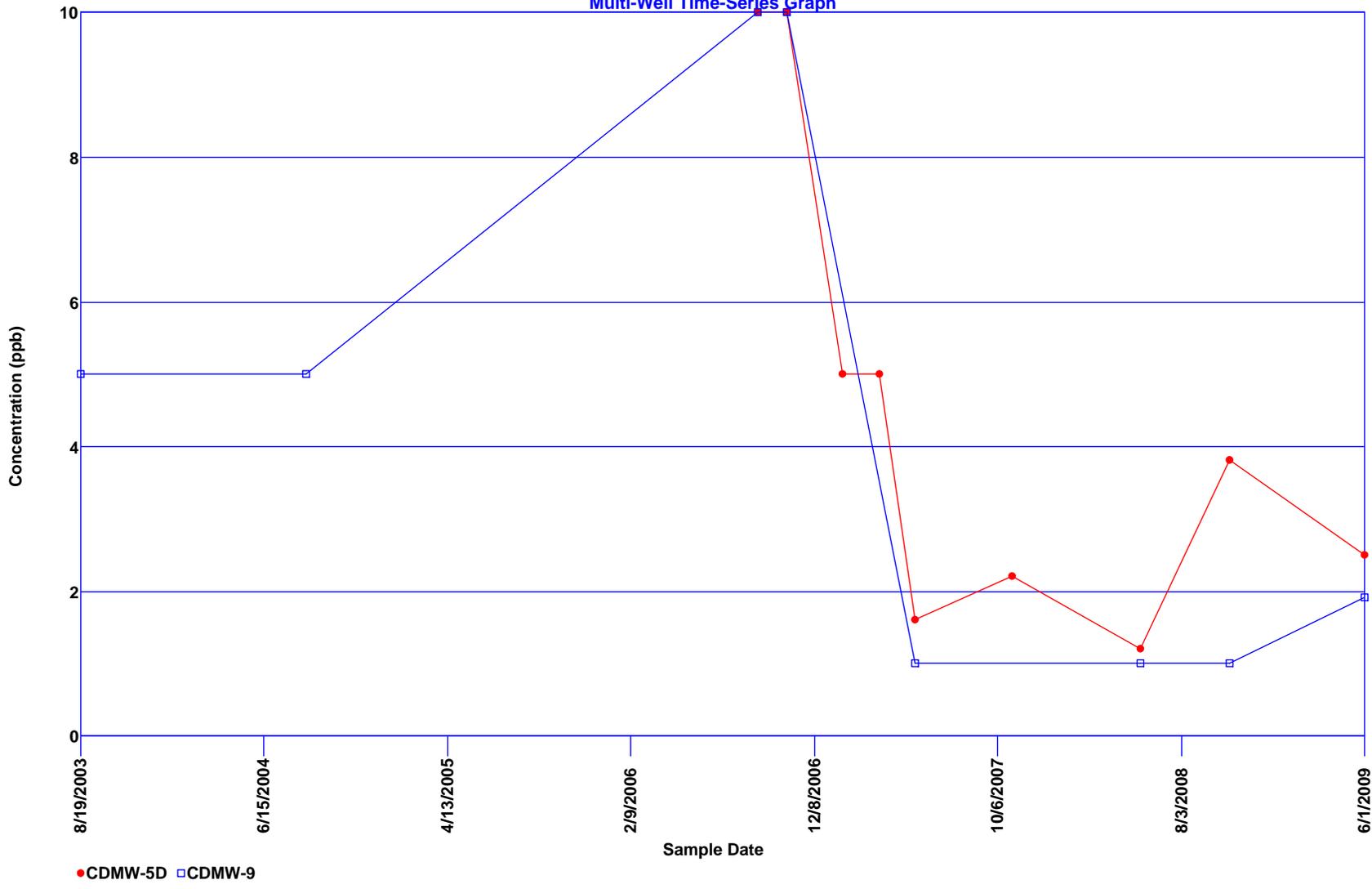
Mercury  
Multi-Well Time-Series Graph



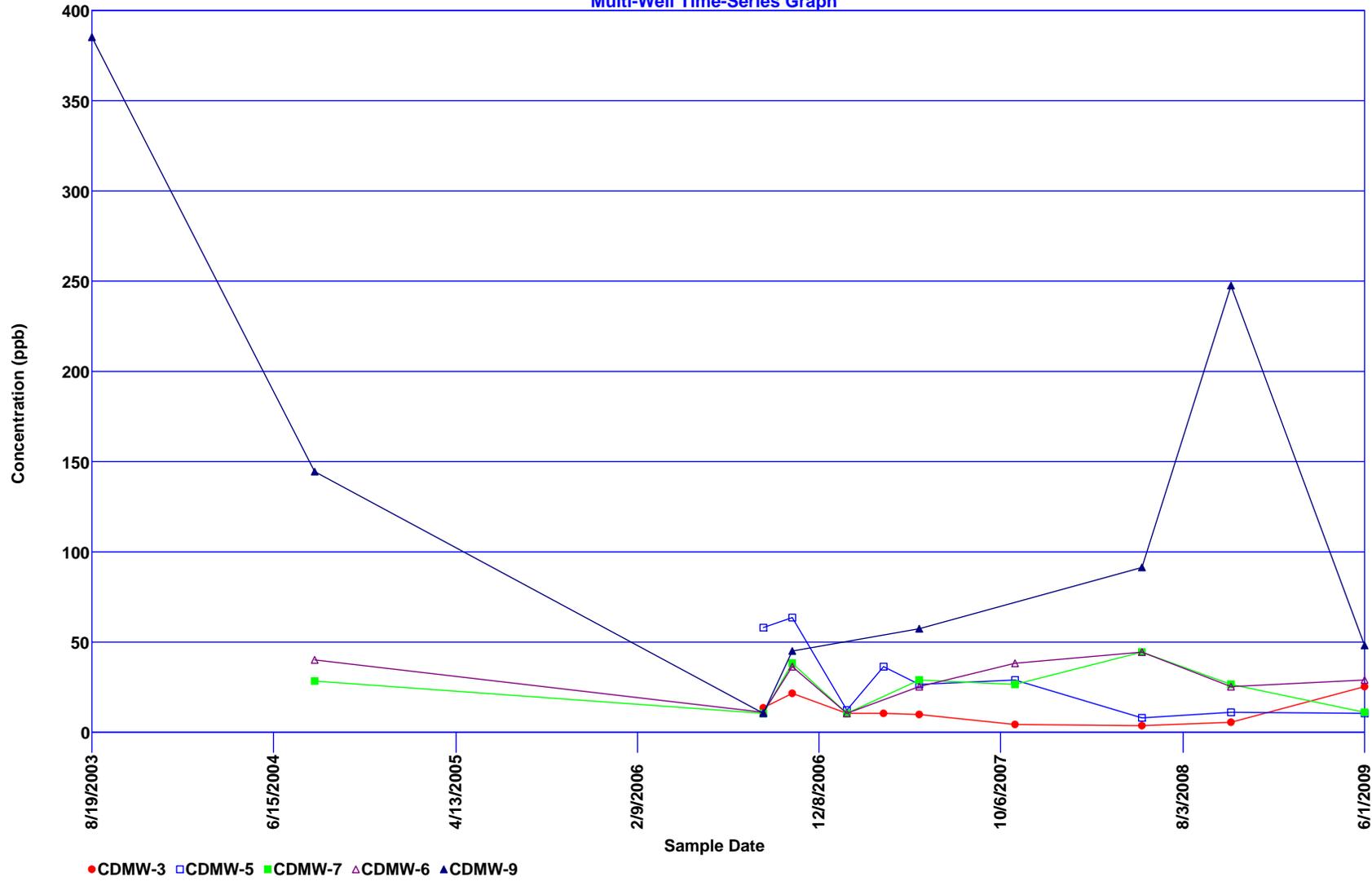
Nickel  
Multi-Well Time-Series Graph



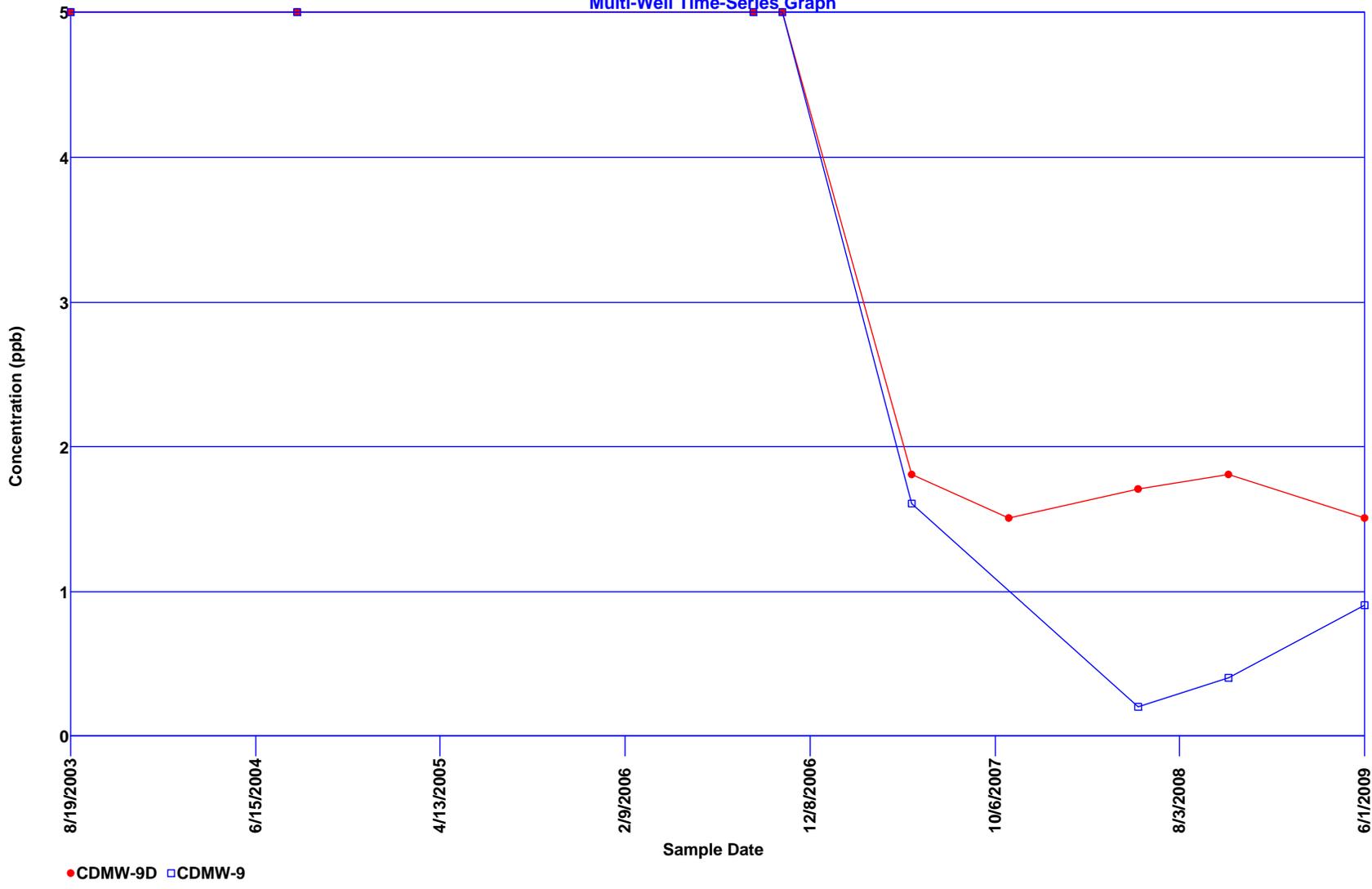
Methylene Chloride  
Multi-Well Time-Series Graph



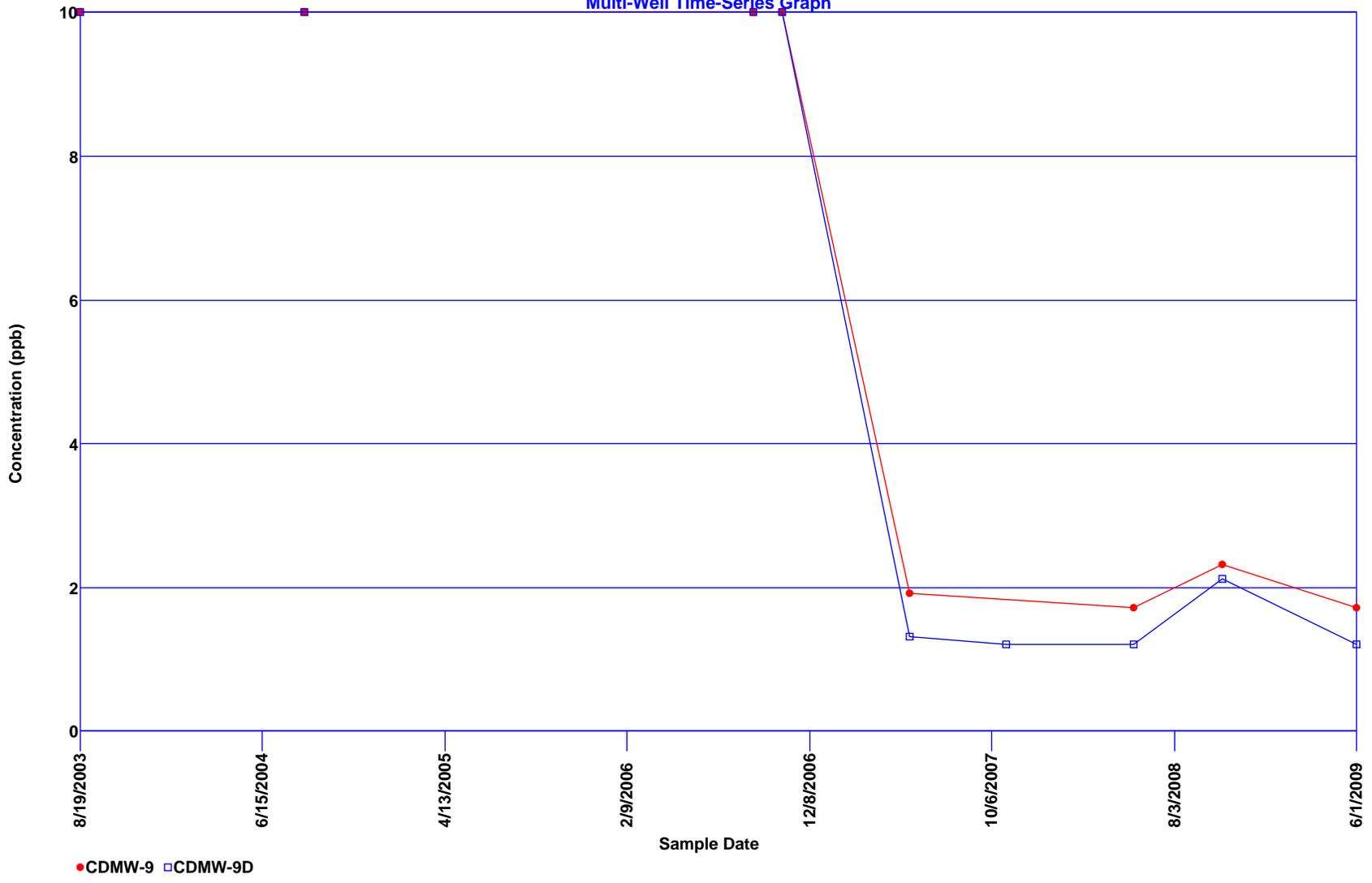
Total Chromium  
Multi-Well Time-Series Graph



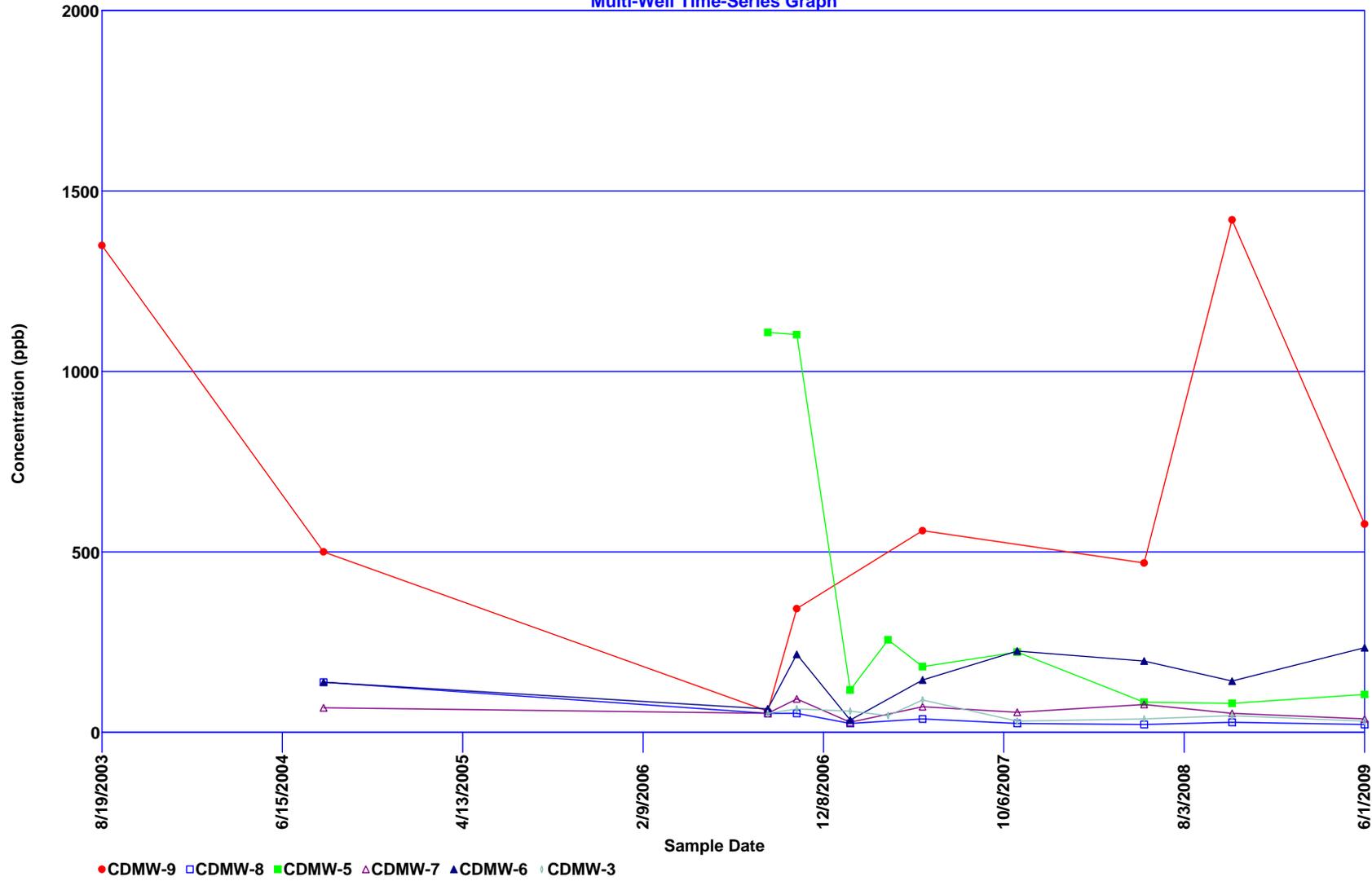
Tetrachloroethene  
Multi-Well Time-Series Graph



Vinyl Chloride  
Multi-Well Time-Series Graph



### Zinc Multi-Well Time-Series Graph



**Vanadium**  
**Multi-Well Time-Series Graph**

