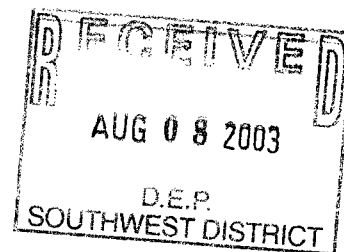




26255



August 6, 2003

Mr. John Morris, P.E.
Southwest District
Florida Department of Environmental Protection
3804 Coconut Palm Boulevard
Tampa, Florida 33619

Subject: **Groundwater and Leachate Bi-Annual Monitoring Report
West Pasco Solid Waste Disposal Facility
Pasco County, Florida
MACTEC Project No. 6515-03-0022.01**

Dear Mr. Morris:

Enclosed, please find two copies of the Groundwater and Leachate Bi-Annual Monitoring Report for the West Pasco Solid Waste Disposal Facility prepared by MACTEC Engineering and Consulting, Inc. This report documents analytical testing completed by Pasco County at the Resource Recovery facility during the period of 2001-2002.

If you have any questions please contact the undersigned at (813) 289-0750 at your convenience.

Sincerely,
MACTEC ENGINEERING AND CONSULTING, INC.

A handwritten signature in dark ink, appearing to read "R. Daniel Lewis".

R. Daniel Lewis, P.G.
Senior Geologist

A handwritten signature in dark ink, appearing to read "Scott G. Evanson".

Scott G. Evanson, P.G.
Principal Geologist

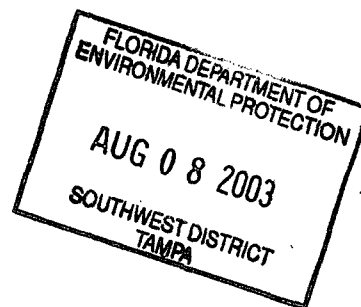
by with permission

A handwritten signature in dark ink, appearing to read "Kelly Bishop".
Kelly Bishop
Environmental Business Manager

Enclosures

cc: Candia E. Mulhern, Pasco County Environmental Laboratory
John Power, Pasco County Resource Recovery

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**GROUNDWATER AND LEACHATE
BI-ANNUAL MONITORING REPORT
2001-2002
WEST PASCO SOLID WASTE DISPOSAL FACILITY**

Prepared for

PASCO COUNTY BOARD OF COUNTY COMMISSIONERS

Prepared by

MACTEC ENGINEERING AND CONSULTING, INC.

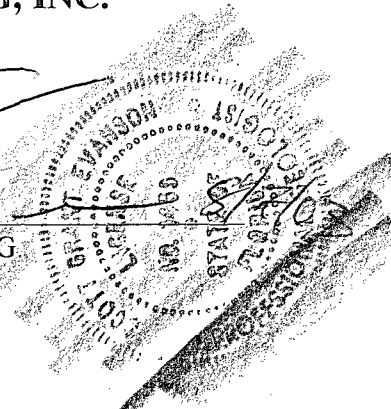
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Kelly L. Bishop
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August 6, 2003

MACTEC Project No. 6515-03-0022.01

TABLE OF CONTENTS

	<u>Page</u>
LIST OF TABLES	iv
LIST OF FIGURES	v
1.0 INTRODUCTION	1-1
1.1 BACKGROUND	1-1
1.2 FDEP-APPROVED COMPREHENSIVE QUALITY ASSURANCE PLAN	1-2
1.3 MONITORING PLAN	1-2
1.3.1 Water Quality Monitoring Plan	1-2
1.3.2 Leachate Monitoring Plan	1-4
2.0 WATER LEVEL DATA	2-1
2.1 DATA TABULATION	2-1
2.2 GROUNDWATER AND POTENTIOMETRIC LEVELS GRAPHS	2-1
2.3 GROUNDWATER CONTOUR MAPS	2-1
2.4 DATA INTERPRETATION	2-2
2.4.1 Groundwater Levels	2-2
2.4.2 Groundwater Flow Direction	2-2
2.4.3 Groundwater Gradient	2-2
2.4.4 Groundwater Flow Velocity	2-3
3.0 WATER QUALITY DATA	3-1
3.1 DATA TABULATION	3-1
3.2 GRAPHICAL PRESENTATIONS	3-1
3.3 DATA INTERPRETATION	3-1
3.3.1 Total Dissolved Solids	3-2
3.3.2 Specific Conductance	3-2
3.3.3 pH	3-2
3.3.4 Nitrate	3-3
3.3.5 Chlorides	3-3
3.3.6 Sodium	3-4
3.3.7 Copper	3-4
3.3.8 Iron	3-4
3.3.9 Mercury	3-5
3.3.10 Lead	3-5
3.3.11 Chromium	3-5
3.3.12 Cadmium	3-6
3.3.13 Antimony	3-6
3.3.14 Arsenic	3-6
3.3.15 Selenium	3-6
3.3.16 Organic Parameters	3-7

TABLE OF CONTENTS - Continued

	<u>Page</u>
4.0 LEACHATE DATA	4-1
4.1 DATA TABULATION.....	4-1
4.2 DATA INTERPRETATION	4-1
5.0 GROUNDWATER MONITORING PLAN REVIEW.....	5-1
5.1 SAMPLING LOCATIONS	5-1
5.2 MONITORING FREQUENCY.....	5-1
6.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS.....	6-1

TABLES

FIGURES

LIST OF TABLES

Table

- | | |
|----|---|
| 1 | Summary of Monitoring Well Construction Details |
| 2 | Summary of Groundwater Elevation Data, 2001 - 2002 |
| 3 | Summary of Total Dissolved Solids Analytical Results, 2001 - 2002 |
| 4 | Summary of Specific Conductance Levels, 2001 - 2002 |
| 5 | Summary of pH Analytical Results, 2001 - 2002 |
| 6 | Summary of Nitrate Analytical Results, 2001 - 2002 |
| 7 | Summary of Chloride Analytical Results, 2001 - 2002 |
| 8 | Summary of Sodium Analytical Results, 2001 - 2002 |
| 9 | Summary of Copper Analytical Results, 2001 - 2002 |
| 10 | Summary of Iron Analytical Results, 2001 - 2002 |
| 11 | Summary of Mercury Analytical Results, 2001 - 2002 |
| 12 | Summary of Lead Analytical Results, 2001 - 2002 |
| 13 | Summary of Chromium Analytical Results, 2001 - 2002 |
| 14 | Summary of Cadmium Analytical Results, 2001 - 2002 |
| 15 | Summary of Antimony Analytical Results, 2001 - 2002 |
| 16 | Summary of Arsenic Analytical Results, 2001 - 2002 |
| 17 | Summary of Selenium Analytical Results, 2001 - 2002 |
| 18 | Summary of Leachate Indicator Parameters, 2001 - 2002 |
| 19 | Summary of Leachate Metal Parameters, 2001 - 2002 |
| 20 | Summary of Select Leachate Organic Parameters, 2001 - 2002 |

LIST OF FIGURES

Figure

- 1 Site Map
- 2 Monitoring Well Location Map
- 3 Groundwater Elevation of Select Monitoring Wells vs. Time
- 4 Surficial Aquifer Water Table Map, February, 2001
- 5 Floridan Aquifer Potentiometric Surface Map, February, 2001
- 6 Surficial Aquifer Water Table Map, October, 2001
- 7 Floridan Aquifer Potentiometric Surface Map, October, 2001
- 8 Surficial Aquifer Water Table Map, May, 2002
- 9 Floridan Aquifer Potentiometric Surface Map, May, 2002
- 10 Surficial Aquifer Water Table Map, November, 2002
- 11 Floridan Aquifer Potentiometric Surface Map, November, 2002
- 12 Total Dissolved Solid Concentrations vs. Time
- 13 Specific Conductance Levels vs. Time
- 14 pH Levels vs. Time
- 15 Nitrate Concentrations vs. Time
- 16 Chloride Concentrations vs. Time
- 17 Sodium Concentrations vs. Time
- 18 Copper Concentrations vs. Time
- 19 Iron Concentrations vs. Time
- 20 Mercury Concentrations vs. Time
- 21 Lead Concentrations vs. Time
- 22 Chromium Concentrations vs. Time
- 23 Cadmium Concentrations vs. Time
- 24 Antimony Concentrations vs. Time
- 25 Arsenic Concentrations vs. Time
- 26 Selenium Concentrations vs. Time

1.0 INTRODUCTION

1.1 BACKGROUND

The West Pasco Class I Landfill is located in northwestern Pasco County on Hays Road, approximately 2 ½ miles north of State Road 52 (**Figure 1**). The landfill is located adjacent to the Pasco County Resource Recovery Facility and the West Pasco Class III Landfill. The Shady Hills Waste Water Treatment facility is located to the southwest of the landfill.

The Groundwater Monitoring Plan provides coverage for the approximately 160-acre Class I Landfill, the design of which consists of 16 ten-acre cells. Individual cells are to be separated by interior berms. To date, four cells have been constructed, and none have received final closure. The operational cells are designated as A-1, A-2, A-3, and SW-1. Cells A-1 through A-3 are used for the disposal of ash produced from the combustion process at the Resource Recovery Facility. Cells A-1 and A-2 are currently inactive, and temporarily covered. Cell SW-1 is open and is used for the disposal of municipal solid waste (MSW), whenever MSW cannot be combusted in the Resource Recovery Facility. Conversely, MSW may be removed from cell SW-1 and combusted when excess capacity is available at the Resource Recovery Facility.

The cells are constructed with a double liner system, which includes an upper and a lower 60-mil geomembrane layer, a primary leachate collection and removal system placed above the upper liner, and leachate detection and a secondary leachate collection system between the upper and lower geomembranes.

Collected leachate was initially pumped off site for disposal. Since May 1997, collected leachate has been treated on site for the removal of dissolved solids. The dissolved solids, primarily sodium chloride, are removed by evaporation during this treatment process, and are transported off site for disposal at an approved landfill (Chambers Landfill). The residual water is pumped to the cooling towers at the adjacent Resource Recovery Facility for disposal.

1.2 FDEP-APPROVED COMPREHENSIVE QUALITY ASSURANCE PLAN

Pasco County Environmental Laboratory (County Lab) has been collecting and analyzing samples from the groundwater monitoring system since 1990. Groundwater sampling procedures used by the County Lab, including sampling equipment decontamination, field measurements, and sample shipment, adhere to the Florida Department of Environmental Protection (FDEP)-approved sampling protocol. The County Lab also completes the some of the analytical testing. The laboratory procedures and analytical methods used at the County Lab are also described in their FDEP-approved Comp-QAP.

Pasco County contracts for laboratory services and currently has several State-approved analytical laboratories under contract. The use of contracted laboratories is reflected in the County Lab's FDEP-approved Comp-QAP.

1.3 MONITORING PLAN

1.3.1 Water Quality Monitoring Plan

The existing *Water Quality Groundwater Monitoring Plan for the West Pasco Class I Landfill* (Monitoring Plan) was prepared by Camp, Dresser & McKee, dated March 29, 2001. As outlined in the Monitoring Plan, the existing and proposed leak-detection wells (since completed) are located surrounding and downgradient of the ash disposal cells (A-1 through A-3), and solid waste cells SW-1.

According to the Monitoring Plan, the monitoring wells are located surrounding and downgradient of the disposal cells. In general, the detection wells are within 50 feet of the disposal units and are spaced no more than 1,000 feet apart.

The Monitoring Plan consists of an array of monitoring wells completed to differing depths. Shallow monitoring wells, completed to depths of approximately 34 feet, are completed in the base of the permeable sand unit (within the surficial aquifer) above the upper Floridan Aquifer. A less permeable, clayey unit underlying the sand unit is reportedly intermittently present within the bounds

of the landfill site. The majority of the monitoring wells completed within this sand unit are typically dry. Deeper monitoring wells, typically screened at depths of approximately 50 to 100 feet, are completed within the upper reaches of the Floridan Aquifer.

An alphanumeric well numbering system was originally established at the landfill; with the first number (2 or 4) indicating the diameter of the well in inches. Two-inch diameter wells were screened within the upper sand unit (surficial aquifer), and 4-inch diameter wells were completed as open holes within the Upper Floridan Aquifer. Over time, the integrity of the open-hole section of several of the deeper wells was lost, and 2-inch diameter PVC well screens were installed within the casing of 4MW-11D, 4MW12D, 4MW14D, 4MW15D, and 4MW16D. Subsequently, well designations have attempted to include an "S" or a "D", indicating a "shallow" (surficial) or a "deep" (Floridan) completion depth, respectively (with a notable exception with 2MW13D being a "shallow" monitoring well).

The Monitoring Plan, modified over time to account for the replacement of several non-functional wells, includes measuring depths to water, total well depths, and the sampling of 6 surficial aquifer monitoring wells (2MW1, 2MW2, 2MW4, 2MW5, 2MW6, and 2MW13), and 11 Floridan Aquifer monitoring wells (4MW1, 4MW2, 4MW4, 4MW5, 4MW6, 4MW11, 4MW12, 4MW14, 4MW15, and 4MW16).

Surficial aquifer monitoring wells 2MW1, 2MW2, 2MW4, 2MW5, and 2MW6; and Florida Aquifer monitoring wells 4MW1, 4MW2, 4MW4, 4MW5, and 4MW6 are located immediately outside the perimeter of the approximately 160-acre footprint of the Class I Landfill. The remainder of the monitoring wells are located approximately 50 feet more or less from their respective edges of the perimeter of the liner system for the cells. The approximate locations of these monitoring wells are shown on the attached **Figure 2**.

Monitoring well construction details for the wells completed in the surficial aquifer and Floridan Aquifer are included in **Table 1**. The installation dates for many of the wells is not known. As such, some of the information concerning top and bottom elevations for the screened intervals for several wells is not available. However, the elevation of the top of the well and its total depth is provided for the wells.

The monitoring were sampled and analyzed on a semi-annual basis in 2001 and 2002. Measured water levels are shown on **Table 2**. As well as the organic parameters outlined in Chapter 62-550, FAC, analyses of samples collected from each well included total dissolved solids (TDS), specific conductance, pH, nitrate, chloride, sodium, copper, iron, mercury, lead, chromium, cadmium, antimony, and selenium. The data for these specific field and laboratory parameters are summarized on **Tables 3** through **18**.

1.3.2 Leachate Monitoring Plan

As part of the requirements of the Leachate Monitoring Plan, four leachate tanks are sampled for leachate indicator parameters, leachate metal parameters, and leachate organic parameters. The 4 tanks, (Cell A-1 Primary and Secondary, and Cell SW Primary and Secondary) serve as the leachate collection systems for these cells of the landfill.

2.0 WATER LEVEL DATA

Groundwater elevation data was collected semi-annually during this reporting period. The semi-annual monitoring events were completed on February 13-15, 2001, October 10-11, 2001, May 23-29, 2002, and November 7, 2002. These monitoring events coincided with the groundwater sampling events discussed in **Section 3.0**.

2.1 DATA TABULATION

Water level measurements were tabulated for the semi-annual events completed in 2001 and 2002. Water level elevations are summarized in **Table 2**, and are shown in feet, relative to the National Geodetic Vertical Datum (NGVD 1929).

Water level measurements are available for the 11 monitoring wells completed within the upper Floridan Aquifer, as well as from the 2 monitoring wells completed within the surficial aquifer. No water level measurements are available for the remaining surficial aquifer monitoring wells, as these wells were typically dry.

2.2 GROUNDWATER AND POTENTIOMETRIC LEVELS GRAPHS

Hydrographs of potentiometric levels for the Floridan Aquifer monitoring wells during this reporting period are presented on **Figure 3**. As previously noted, measurable groundwater levels were consistently observed in only two (2MW2 and 2MW17S) of the surficial aquifer monitoring wells over the reporting period. Hydrographs for surficial aquifer monitoring wells 2MW2 and 2MW17S are also included on **Figure 3**.

2.3 GROUNDWATER CONTOUR MAPS

Water table contour maps for the surficial aquifer are provided for 2001 and 2002 (**Figures 4, 6, 8, and 10**). Floridan Aquifer Potentiometric Surface Maps for the same period are included as **Figures 5, 7, 9, and 11**.

2.4 DATA INTERPRETATION

2.4.1 Groundwater Levels

Water levels in the Floridan Aquifer monitoring wells varied over time; however, levels change fairly consistently across the site. Water levels generally differ by eight feet or less during individual sampling events. During the reporting period of 2001-2002, water levels in the Floridan Aquifer have varied approximately 5 feet between high and low values (**Table 2** and **Figure 3**).

A number of the surficial aquifer monitoring wells (2MW1, 2MW5, 2MW6, 2MW13D) have been consistently dry, with the exception of monitoring wells 2MW-2 and 2MW17S.

2.4.2 Groundwater Flow Direction

The landfill is located on a ridge southeast of Weeki-Wachi Springs. The northwesterly flows typically noted in the Floridan Aquifer at the site (**Figures 5, 7, 9 and 11**) are consistent with the estimated regional flow towards the spring.

Although far fewer data points are available, the groundwater flow direction in the surficial aquifer also indicates a northwesterly trend (**Figures 4, 6, 8, and 10**).

2.4.3 Groundwater Gradient

The hydraulic gradient in the Floridan Aquifer was estimated based on water level data collected in November 2002 (**Table 2**). An average hydraulic gradient of 0.0012 within the upper Floridan Aquifer is estimated across the site. This estimate was based on calculations between 4MW2 and 4MW11D, 4MW6 and 4MW4, 4MW14D and 4MW5, and 4MW1 and 4MW5. Floridan Aquifer gradient estimations are as follows:

Monitoring Wells	Groundwater Elevation (ft-NGVD 1929)	Approximate Lateral Distance (ft)	Estimated Hydraulic Gradient
4MW2 and 4MW11D	33.83 - 30.57 = 2.73	2,200	0.0012
4MW6 and 4MW4	31.33 - 26.92 = 4.41	2,600	0.0016
4MW14D and 4MW5	30.05 - 27.71 = 2.34	2,700	0.0009
4MW1 and 4MW5	33.29 - 27.71 = 5.58	4,200	0.0013
Average			0.0012

ft-NGVD = in feet relative to the National Geodetic Vertical Datum (1929)

As previously noted, fewer monitoring points were available to estimate the gradient within the surficial aquifer. The hydraulic gradient in the surficial aquifer, based on the wet season (November 2002), is estimated at approximately 0.0019. The hydraulic gradient during the dry season (May 2002) is also estimated at approximately 0.0019. Surficial gradient estimations are as follows:

Monitoring Wells	Groundwater Elevation (ft-NGVD 1929)	Approximate Lateral Distance (ft)	Estimated Hydraulic Gradient
2MW2 and 2MW17S	34.37 - 26.68 = 7.69*	4,100	0.0019
2MW2 and 2MW17S	28.23 - 20.43 = 7.80**	4,100	0.0019

*November 2002 data

**May 2002 data

2.4.4 Groundwater Flow Velocity

A hydraulic conductivity of nine feet per day was estimated across the site, according to the Monitoring Plan by Camp Dresser & McKee. A groundwater flow velocity for the site was estimated using the following equation from Darcy's Law:

$$V = KI/\phi_e$$

where:

- V = Velocity of groundwater flow (feet/day)
- K = Estimated hydraulic conductivity (9 feet/day)
- I = Observed hydraulic gradient (0.0012 to 0.0019 unitless)
- ϕ_e = Assumed effective porosity (0.20 unitless)

An average groundwater flow velocity (V) of 0.05 ft/day in the surficial aquifer and 0.1 ft/day in the Floridan Aquifer, respectively, were estimated based upon the November 2002 field data. These velocities equate to approximately 18 feet (within the surficial aquifer) or less (within the Floridan Aquifer) between semi-annual (6 months) sampling events.

3.0 GROUNDWATER QUALITY DATA

3.1 DATA TABULATION

Groundwater analytical results have been tabulated for the Floridan Aquifer monitoring wells sampled during the four sampling events completed in 2001 to 2002, as well as those surficial aquifer monitoring wells that were not dry (i.e., 2MW2, 2MW17S).

Individual tables have been prepared for certain water quality parameters that were reported at the site. These parameters include the following:

- Total Dissolved Solids (TDS)
- Specific Conductance
- pH
- Nitrate
- Chlorides
- Sodium
- Copper
- Iron
- Mercury
- Lead
- Chromium
- Cadmium
- Vanadium
- Arsenic
- Selenium

3.2 GRAPHICAL PRESENTATIONS

Graphs were prepared for each of the above parameters. Concentrations were plotted on a line graph verses time for each well (Figures 12 through 26).

3.3 DATA EVALUATION

The data collected during the reporting period is discussed with reference to drinking water standards as established in Chapter 62-550, of the Florida Administrative Code (FAC) and by monitoring well, where appropriate. Chapter 62-550, FAC provides Maximum Contaminate Levels (MCL) for each of the Primary and Secondary Drinking Water Standards set forth in the rule. For parameters not covered in Chapter 62-550, FAC, references are made to the Groundwater Cleanup Target Levels (GCTL) established in Chapter 62-777, FAC. The results of the data are discussed briefly in the following sections, and discussed in respect to the current guidelines.

3.3.1 Total Dissolved Solids

The current MCL for TDS, a secondary drinking water standard, is 500 milligrams per liter (mg/L). Concentrations of TDS exceeded the established MCL in 2 wells (4MW1 and 4MW5), both Floridan Aquifer monitoring wells. The concentrations in 4MW1 (ranging from 800 to 1,010 mg/L) were notably higher compared to the levels detected in 4MW5 (maximum concentration 536 mg/L), and several times higher than many other Floridan Aquifer monitoring wells throughout the reporting period (**Table 3** and **Figure 12**).

The TDS concentrations in the remaining Floridan Aquifer monitoring wells ranged from 78 to 456 mg/L throughout the reporting period; concentrations which are below the MCL of 500 mg/L. The TDS concentrations in the surficial aquifer monitoring wells ranged from 7.62 to 252 mg/L throughout the reporting period; concentrations which are below the MCL of 500 mg/L.

3.3.2 Specific Conductance

Specific Conductance is an indicator field parameter; however, no MCL or GCTL are established. There are often direct correlations of specific conductance to other parameters. Field concentrations ranged from 96.5 to 1,530 micro ohms per centimeter ($\mu\text{mhos/cm}$) in 4MW1.

Specific Conductance levels in the remaining monitoring wells ranged from 2 to 738 ($\mu\text{mhos/cm}$) throughout the reporting period (**Table 4** and **Figure 13**).

3.3.3 pH

The established acceptable range for pH values in drinking water is between values of 6.5 and 8.5 standard units (su). Outside this range, the drinking water quality is considered to be too acidic or caustic, respectively. The values for pH, as recorded in the field at the time of sampling, are presented in **Table 5** and **Figure 14**.

During the reporting period, values for pH recorded in the surficial aquifer monitoring wells ranged from 4.86 to 6.10 su, which is below the acceptable range for drinking water.

The pH readings taken at the time of sampling of the Floridan Aquifer monitoring wells ranged from 6.79 to 7.90 su, which fall within the acceptable range for the entire monitoring period.

3.3.4 Nitrate

The primary drinking water standard MCL for nitrate is 10 mg/L. For the surficial aquifer wells, concentrations for nitrate exceeded the MCL at 2MW2 during February 2001, and at 2MW17S during October 2001 and May 2002.

Nitrate concentrations ranged from less than 0.11 to 7.77 mg/L in the Floridan Aquifer monitoring wells. As such, none of the samples collected from these Floridan Aquifer wells exceeded the MCL for nitrate.

Nitrate results for both the surficial and the Floridan Aquifer monitoring wells are presented in **Table 6** and **Figure 15**.

3.3.5 Chlorides

The current MCL for chloride is 250 mg/L. Relatively low chloride concentrations were detected in the surficial aquifer and the Floridan Aquifer samples analyzed throughout the entire monitoring period; however, 2 samples (4MW1 at 259 and 272 mg/L) contained concentrations in excess of the MCL.

Chloride concentrations ranged from less than 1 to 272 mg/L in samples collected from the Floridan Aquifer. The maximum concentration recorded from samples collected from the surficial aquifer was 6.4 mg/L in monitoring well 2MW17S. Chloride analytical data are presented in **Table 7** and **Figure 16**.

3.3.6 Sodium

No exceedences of the established MCL for sodium (160 mg/L) were detected for surficial or the Floridan Aquifer samples analyzed throughout the entire monitoring period (**Table 8** and **Figure 17**). The maximum recorded value was 84.1 mg/L, recorded in the sample from monitoring well 4MW1 in November 2002.

3.3.7 Copper

No exceedences of the established MCL for copper (1 mg/L) were detected in any of the surficial or Floridan Aquifer samples analyzed throughout the entire monitoring period (**Table 9** and **Figure 18**). The majority of the results were reported at or below detection levels, with a maximum recorded value of 0.0259 mg/L, in the sample collected from monitoring well 4MW1 in May 2002.

3.3.8 Iron

No exceedences of the established MCL for iron (0.3 mg/L) were detected in any of the surficial or Floridan Aquifer samples analyzed throughout the entire monitoring period (**Table 10**). Concentrations of iron at the MCL (0.30 mg/L) were reported in the 2 samples collected in 2001 from the Floridan Aquifer monitoring well 4MW14D; however, the levels at 4MW14D decreased to 0.05 by May 2002.

The majority of the results reported at other well locations were below detection levels, with a maximum recorded value from the surficial aquifer of 0.22 mg/L, in the sample collected from monitoring well 2MW15 in May 2002.

Groundwater iron concentrations are presented in **Table 10** and on **Figure 19**.

3.3.9 Mercury

Two exceedences of the established MCL for mercury (0.002 mg/L) were reported in the samples collected from the Floridan Aquifer monitoring wells 4MW4 (0.0029mg/L) and 2MW18D (0.0027 mg/L). The maximum recorded value from samples collected from the surficial aquifer was 0.0009 mg/L, collected from monitoring well 2MW17S in November 2002.

Groundwater mercury concentrations are presented in **Table 11** and on **Figure 20**.

3.3.10 Lead

Throughout the entire monitoring period, there was one exceedence of the established MCL for lead (0.015 mg/L) in the sample collected in October 2001, from the Floridan Aquifer monitoring well 4MW16D (0.0209 mg/L). Monitoring well 4MW16D was subsequently capped. Lead concentrations were reported at below detection limits in all the samples collected from surficial aquifer monitoring wells. However, lead concentrations ranged from less than 0.0001 to 0.0109 mg/L in the Floridan Aquifer monitoring wells.

Groundwater lead concentrations are presented in **Table 12** and on **Figure 21**.

3.3.11 Chromium

No exceedences of the established MCL for chromium (0.1 mg/L) were detected in any of the surficial or Floridan Aquifer samples analyzed through out the entire monitoring period. The majority of the results were reported at below detection levels, with a maximum recorded value of 0.0256 mg/L, in the sample collected from monitoring well 4MW13D in February 2001.

Groundwater chromium concentrations are presented in **Table 13** and on **Figure 22**.

3.3.12 Cadmium

No exceedences of the established MCL for cadmium (0.005 mg/L) were detected in any of the surficial or Floridan Aquifer samples analyzed throughout the entire monitoring period (**Table 12**). The majority of the results were reported at below detection levels, with a maximum recorded value of 0.00148 mg/L, in the sample collected from monitoring well 4MW1 in May 2002.

Groundwater cadmium concentrations are presented in **Table 14** and on **Figure 23**.

3.13 Antimony

One exceedence of the established MCL for antimony (0.006 mg/L) was detected in the sample collected from 4MW1 (0.00956 mg/L in October 2001). The majority of the results were reported below detection levels.

Groundwater antimony concentrations are presented in **Table 15** and on **Figure 24**.

3.3.14 Arsenic

No exceedences of the established MCL for arsenic (0.05 mg/L) were detected in any of the surficial or Floridan Aquifer samples analyzed throughout the entire monitoring period. A maximum value of 0.001950 mg/L was reported in the samples collected from Floridan Aquifer monitoring well 4MW1 in May 2002. The maximum result from samples from the surficial aquifer was 0.000414 mg/L, collected from monitoring well 2MW2.

Groundwater arsenic concentrations are presented in **Table 15** and on **Figure 25**.

3.3.15 Selenium

No exceedences of the established MCL for selenium (0.05 mg/L) were detected in any of the surficial or Floridan Aquifer samples analyzed throughout the entire monitoring period. A maximum

value of 0.02360 mg/L was reported in the samples collected from Floridan Aquifer monitoring well 4MW1, in October 2001. The maximum result from samples from the surficial aquifer was 0.00590 mg/L, collected from monitoring well 2MW17S, in October 2001.

Groundwater arsenic concentrations are presented in **Table 16** and on **Figure 26**.

3.3.16 Organic Parameters

Chloroform was detected at concentrations above its GCTL of 6 micrograms per liter ($\mu\text{g/L}$) in Floridan Aquifer monitoring well 4MW1. A concentration of 7.65 $\mu\text{g/L}$ was reported during the February 2001 sampling event. Measurable levels (2.96 $\mu\text{g/L}$) of chloroform were detected during the October 2001; these levels do not exceed the GCTL.

Detectable levels of several other organic parameters, namely methylene chloride and methyl tert-butyl ether (MTBE) were reported during the February 2001 sampling event; neither of the reported concentrations exceeded its respective standard.

No other organic parameters tested for were detected above the method detection limit during the monitoring period.

During the review of the data, it was noted that the detection limits utilized by the contract analytical laboratories were greater than the MCL or the GCTL for a few of the organic parameters (i.e., EDB).

4.0 LEACHATE DATA

4.1 DATA TABULATION

Pasco County collected and analyzed samples from each of the four holding tanks on a semi-annual basis during the reporting period. The indicator parameters pH, chloride, ammonia nitrogen, nitrate, and TDS are tabulated in **Table 18**. Seventeen metal parameters are tabulated in **Table 19**, and 8 organic parameters are tabulated in **Table 20**.

4.2 DATA INTERPRETATION

Four tanks are utilized for the collection systems draining the cells of the landfill. Two tanks (A-1 Primary and A-1 Secondary) are in use at the ash disposal cells, and 2 tanks (SW Primary and SW Secondary) are used at the solid waste disposal cell. The primary and secondary designations indicate recovery from the primary or the secondary liner, respectively.

For those parameters listed in **Table 18**, leachate samples had pH readings within the acceptable range of 6.5 - 8.5, with the exception of one sample collected from the SW Primary tank in May 2002 (8.80 su).

Chloride concentrations for all the samples collected from the A-1 Primary and the A-1 Secondary tanks exceeded the GCTL, with concentrations ranging from 1,474 to 12,237 mg/L. It is noteworthy that concentrations have been decreasing over time, possibly related to temporary capping of cells A-1 and A-2. Chloride concentrations from the SW Primary and SW Secondary tanks have ranged from 50.0 to 398 mg/L.

Each of the four tanks had reported nitrate concentrations above detection limits on one or more occasions. However, no sample reportedly contained nitrate in concentrations above GCTLs. Nitrate concentrations ranges from below detection limits to 4.41 mg/L in the sample collected from the A-1 Primary tank in July 2002.

Ammonia nitrogen was reportedly present at levels above the GCTL in samples collected from the A-1 Primary, SW Primary, and SW Secondary tanks, on one or more occasions. Concentrations of below detection limits to 26.9 mg/L were reported in samples collected during the 2001-2002 period.

Concentrations of TDS for all the samples collected from each of the tanks exceeded the GCTL, with concentrations ranging from 642 to 40,000 mg/L. Of note, TDS concentrations from the A-1 Primary tank have consistently decreased over time, ranging from 40,000 mg/L in February 2001 to 7,100 mg/L in July 2002.

Table 19 reports the results for the metal parameters analyzed from the tanks. In general, most samples from each of the tanks reported levels of iron (up to 14.7 mg/L) and sodium (up to 3,330 mg/L) above the current MCLs.

Measurable levels of mercury, barium, cadmium, chromium, cobalt, copper, lead, nickel, selenium and silver were reported in samples collected from one or more of the leachate collection tanks. However, none of the samples for any of these parameters reported concentrations in excess of their respective MCL or GCTL. None of the samples collected for the tanks reported concentrations of beryllium above detection limits.

The leachate was also analyzed for the parameters in 40 CFR Part 258, Appendix II, which includes parameters not included in 40 CFR Part 258, Appendix I groundwater analytic suite. A few of these organic parameters whose results exceed their method detection limit. These parameters are tabulated are shown tabulated on **Table 20**.

Several organic parameters, including acetone, benzene, toluene, total xylenes, and vinyl chloride, were reported to exceed their respective GCTL or MCL.

Acetone was reported in concentrations up to 1,720 µg/L in the SW Primary leachate sample. Benzene, toluene, and total xylenes were reported in samples collected from both the SW Primary and SW Secondary leachate tanks. Maximum concentrations of these parameters were reported at 6.24 µg/L, 101 µg/L, and 39.3 µg/L, respectively.

Vinyl Chloride was also reported in several of the samples collected from both the SW Primary and SW Secondary leachate tank. Maximum vinyl chloride concentration of 11.5 µg/L were reported in the SW Primary leachate sample collected in July 2001.

5.0 GROUNDWATER MONITORING PLAN REVIEW

5.1 SAMPLING LOCATIONS

Based on review of the surficial aquifer monitoring well data for the network surrounding the landfill, a number of the existing monitoring wells (i.e., 2MW1, 2MW4, 2MW5, 2MW6, and 2MW13D) have been dry for the entire monitoring period. As such, the use of these wells for background or compliance monitoring, or for potential leak detection (as appropriate), is negligible. The similarly completed wells (2MW2 and 2MW17S) remain as functional monitoring points and should remain within the sampling plan. However, as the surficial aquifer is considered to be locally absent beneath the site, the completion of an entire array of useful monitoring wells within the surficial aquifer does not appear practicable.

The array of Floridan Aquifer monitoring wells surrounding and downgradient of the cells appears reasonable coverage for monitoring Floridan Aquifer water quality at the site.

5.2 MONITORING FREQUENCY

The groundwater monitoring wells are currently sampled and analyzed "semi-annually". This sampling frequency appears adequate, based on the estimated groundwater flow velocity presented herein (approximately 18 feet/6 months).

6.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Included below are a summary of the data collected, and generalized conclusions from these data collected during this reporting period:

- Using the data available, it was estimated that the regional groundwater flow was northwesterly towards Weeki-Wachi Springs. Hydraulic gradients typically noted in the surficial aquifer and the Floridan Aquifer at the site are consistent with the estimated regional flow.
- A hydraulic gradient in the surficial aquifer was based on water level data collected in May 2002. An average hydraulic gradient of 0.0019 was estimated across the site.
- The hydraulic gradient in the Floridan Aquifer, based on the wet season (November 2002) potentiometric maps, was estimated at 0.0012.
- A groundwater flow velocity of 0.1 feet per day was estimated using the previously-established hydraulic conductivity of 9 feet per day, as summarized in the Monitoring Plan.
- Concentrations of TDS exceeded the established MCL in 6 of the 8 samples collected from monitoring wells 4MW1 and 4MW5. No other exceedences of TDS MCLs occurred for the surficial and Floridan Aquifers throughout the monitoring period. Elevated specific conductance levels were also noted at these locations. Neither of these Floridan Aquifer monitoring wells are located near the landfill cells, with 4MW1 (located upgradient of the ash cells) and 4MW5 (located approximately 2,200 feet from the solid waste cell). The presence of these constituents, especially in the upgradient monitoring well 4MW1, appear to be more likely attributable to another source than from either of the landfill cell areas.
- During the 2001-2002 period, values for pH recorded in the surficial aquifer monitoring wells ranged from 4.86 to 6.10 su, which is below the acceptable range for drinking water. Although though these values represent exceedences of a secondary drinking water standard, the values are not uncommon for near surface groundwater. The pH readings taken at the time of sampling of the Floridan Aquifer monitoring wells ranged from 6.79 to 7.90 su, which fall within the drinking water range for the entire monitoring period.
- For monitoring period, concentrations of nitrate exceeded the MCL in surficial aquifer monitoring wells 2MW2 during February 2001 (12.0 mg/L), and at 2MW17S during October 2001 (10.3 mg/L) and May 2002 (11.6 mg/L). Nitrate concentrations in the Floridan Aquifer monitoring wells did not exceed the MCL, ranging from less than 0.11 to 7.77 mg/L.

- Relatively low chloride concentrations were detected in the surficial aquifer and the Floridan Aquifer samples; and only 2 samples (4MW1 at 259 and 272 mg/L) contained concentrations in excess of the MCL.
- Occasional excursions above the MCL or the GCTL were noted for several metals during this reporting period. These exceedences were noted for iron (0.030 mg/L at 4MW14D), mercury (0.0029 mg/L at 4MW4), lead (0.0209 mg/L at 4MW16D), and antimony (0.00956 mg/L at 4MW1). Throughout the monitoring period, there was not an exceedence of established MCLs for the following parameters: sodium (160 mg/L), copper (1 mg/L), chromium (0.1 mg/L), cadmium (0.005 mg/L), and arsenic (0.05 mg/L).
- No organic parameters were detected above acceptable regulatory guidelines for the surficial or Floridan wells during the monitoring period.
- For the leachate holding tanks, the pH levels were found to be within the acceptable range of 6.5 to 8.5 su, with one exception. A pH level of 8.80 was reported in the SW Primary tank sample collected in May 2002.
- In leachate samples collected during the reporting period, chloride, ammonia nitrogen, and TDS were reported at levels above their respective standards. Of note, a plausible explanation for the general decreasing trend in concentrations of these parameters in samples collected at the A-1 cell may be due to the temporary capping of cells A-1 and A-2.
- Leachate samples collected from each of the tanks indicate levels of iron and sodium well above the acceptable MCL for the primary and secondary drinking water standards outlined in Chapter 62-550 FAC. Reported levels of mercury, tin, vanadium, zinc, thallium, barium, cadmium, chromium, cobalt, copper, lead, nickel, selenium, or silver did not exceed their respective standards.
- Several organic parameters, including acetone, benzene, toluene, total xylenes, and vinyl chloride, were reported to exceed their respective GCTL or MCL.
- Based on review of the surficial aquifer monitoring well data, it appears that monitoring within this zone is intermittent at best. Pre-existing data suggest that sufficient water within this zone is only intermittently present within the bounds of the landfill site. Surficial aquifer monitoring wells 2MW1, 2MW5, 2MW6, and 2MW13D have been consistently dry. Consequently, no water level or analytical data is available for these wells during those events.

Based upon the above information, MACTEC recommends the following future actions:

- When achievable, contracted analytical laboratories should be advised to at least use a method detection limit equivalent to the MCL or GCTL for all parameters tested (i.e., EDB).
- In the event that elevated levels of tested parameters (namely TDS and conductivity) are continually reported in the upgradient well 4MW1, located approximately 1,500 feet from the ash cells, an investigation into the potential off-site source of these constituents should be undertaken.
- Due to site conditions, it is recommended that the Monitoring Plan be revised to eliminate surficial aquifer monitoring wells 2MW1, 2MW5, 2MW6, and 2MW13D, and have these wells abandoned. These wells have been consistently dry; therefore, they are of no practical use in monitoring groundwater quality. The replacement of these wells (at slightly deeper depths, while attempting to remain within the surficial aquifer) does not appear to be practical, as this aquifer appears to be only intermittently present. It is also recommended that monitoring within the functional surficial aquifer wells 2MW2 and 2MW17S continue. However, the principal monitoring requirements of the landfill are met by the sampling of wells set within the upper reaches of the Floridan Aquifer, and these sampling efforts should continue.
- It is our understanding that the configuration of the leachate collection system is interconnected between the three ash cells (after the metering of the leachate from each cell). Therefore, leachate in any of the ash cell tanks can contain accumulations from each of the cells. Therefore, the continued sampling of only one of the cells' leachate tanks should be sufficient to collect representative samples from the cells, with the understanding that any detected parameters may be emanating from each (or all) of the cells.

Table 1
Summary of Monitoring Well Construction Details
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Well #	Elevation (feet NGVD)					Monitored Aquifer	Screen/ Open Hole Length (ft)	Total Depth (ft bls)	Location		Notes
	Top of Casing	Approx. Ground Elevation	Top of Screen	Bottom of Screen	Maximum Water Level	Minimum Water Level			North Latitude	West Longitude	
2MW1	49.95	46.7	38.2	28.2	Dry	Dry	10	18.5	28 22' 05.8"	82 33' 48.1"	2" -diameter screen
4MW1	50.34	46.5	78.7	63.4	33.29	27.78	28	60.0	28 22' 05.5"	82 33' 48.1"	4" -diameter screen
2MW2	56.41	52.8	78.7	64.07	34.37	28.23	15	34.5	28 22' 12.3"	82 33' 11.9"	2" -diameter screen
4MW2	56.11	53.0	75.7	64.45	33.83	27.68	28	70.0	28 22' 12.2"	82 33' 11.9"	4" -diameter screen
2MW4	54.77	51.3	73.07	60.07	Dry	Dry	5	15.5	28 22' 57.7"	82 33' 31.4"	2" -diameter screen
4MW4	50.81	48.1	68.27	53.27	26.92	21.41	28	50.0	28 22' 52.5"	82 33' 30.3"	4" -diameter screen
2MW5	49.17	45.3	NA	NA	Dry	Dry	4	8.0	28 22' 46.7"	82 33' 52.2"	2" -diameter screen
4MW5	49.06	45.4			27.71	21.41	32	100.0	28 22' 47.2"	82 33' 53.4"	4" -diameter screen
2MW6	56.11	53.0	64.46	54.46	Dry	Dry	10	30.0	28 22' 32.7"	82 33' 11.1"	2" -diameter screen
4MW6	55.93	52.4	76.46	61.46	31.33	24.77	27	100.0	28 22' 32.7"	82 33' 11.3"	4" -diameter screen
2MW13D	52.39	49.1	NA	NA	Dry	Dry	9.5	18.0	28 22' 27.2"	82 33' 38.7"	2" -diameter screen
4MW11D	65.00	61.9	NA	NA	30.57	24.14	NA	20*	28 22' 27.5"	82 33' 28.5"	4" -diameter screen
4MW12D	55.03	51.8	NA	NA	29.69	23.72	NA	29.3*	28 22' 27.4"	82 33' 33.9"	4" -diameter screen
4MW13D	54.04	51.2	77.24	67.24	29.22	23.42	10	15.0	28 22' 27.3"	82 33' 38.1"	4" -diameter screen
4MW14D	52.00	49.0			28.12	24.18	25	50.0	28 22' 22.8"	82 33' 39.0"	4" -diameter screen
2MW15D	54.71				32.2	32.2					2" -diameter screen
2MW15AD	54.71										
4MW15D	54.53	51.7	73.68	58.68	29.11	26.07	25	61.0	28 22' 18.5"	82 33' 38.5"	4" -diameter screen
4MW16D	52.47	48.6	81.97	71.97	29.7	26.41	25	41.0	28 22' 18.3"	82 33' 26.1"	4" -diameter screen
2MW17S	53.42		82.86	72.86	26.93	20.52	15	38.0	28 22' 47.8"	82 33' 30.5"	2" -diameter screen
2MW18D	52.75				26.68	20.43		40.0	28 22' 47.2"	82 33' 36.1"	2" -diameter screen
2MW19D	52.25				27.36	27.36					2" -diameter screen
4MW19D	52.25								28 22' 39.0"	82 33' 37.3"	4" -diameter screen
2MW20D	53.44		75.41	65.41	31.17	20.43			28 22' 12.6"	82 32' 05.5"	2" -diameter screen
4MW20D	53.44										4" -diameter screen

Prepared By: _____
Reviewed By: _____

Notes: -
NA = Data not available
NGVD = National Geodetic Vertical Datum

Table 2
Summary of Groundwater Elevation Data
2001 - 2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/23-29/2002	11/7-12/2002
2MW1	Dry	Dry	Dry	Dry
4MW1	28.96	31.18	27.78	33.29
2MW2	29.41	32.31	28.23	34.37
4MW2	28.76	31.76	27.68	33.83
2MW4	Dry	Dry	Dry	Dry
4MW4	21.63	25.09	21.41	26.92
2MW5	Dry	Dry	Dry	Dry
4MW5	22.46	25.87	21.41	27.71
2MW6	Dry	Dry	Dry	Dry
4MW6	25.89	29.11	24.77	31.33
2MW13D	Dry	Dry	Dry	Dry
4MW11D	25.04	28.40	24.14	30.57
4MW12D	24.67	27.76	23.73	29.69
4MW13D	24.32	27.36	23.42	29.22
4MW14D	25.10	28.12	24.18	30.05
2MW15D				32.20
4MW15D	26.07	29.11	Capped	Capped
4MW16D	26.41	29.70	Capped	Capped
2MW17S		25.08	20.52	26.93
2MW18D		24.93	20.43	26.68
2MW19D				27.36
4MW19D				
2MW20D			20.43	31.17
4MW20D				

Notes:

Blank = Well Data Not Recorded/Available

All measurements in feet, relative to NGVD

Table 3
Summary of Total Dissolved Solids Analytical Results
2001 - 2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/22 - 6/19/2002	11/07/02
2MW1	Dry	Dry	Dry	Dry
4MW1	800	1010	928	900
2MW2	90	25	18	79
4MW2	111	128	122	130
2MW4	Dry	Dry	Dry	Dry
4MW4	190	320	214	162
2MW5	Dry	Dry	Dry	Dry
4MW5	386	500	530	536
2MW6	Dry	Dry	Dry	Dry
4MW6	78	132	94	126
2MW13D	Dry	Dry	Dry	Dry
4MW11D	210	280	186	226
4MW12D	286	410	264	284
4MW13D	380	392	380	368
4MW14D	456	398	402	358
2MW15D			215	240
4MW15D	446	444	Capped	Capped
4MW16D	160	278	Capped	Capped
2MW17S		232	248	7.62
2MW18D		412	318	322
2MW19D				252
4MW19D			332	
2MW20D				252
4MW20D			230	

Note: All results in milligram per liter (mg/L), unless noted

Blank = Well Data Not Recorded/Available

Maximum Contaminant Level (MCL) = 500 mg/L (Chapter 62-550, FAC)

BOLD = exceedance of MCL

Table 4
Summary of Specific Conductance Levels
2001 - 2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/22 - 6/19/2002	11/07/02
2MW1	Dry	T.L.T.S.	Dry	Dry
4MW1	96.5	1365	1220	1530
2MW2	117	38	2	6
4MW2	176	177	177	171
2MW4	Dry	T.L.T.S.	Dry	Dry
4MW4	306	344	351	387
2MW5	Dry	T.L.T.S.	Dry	Dry
4MW5	549	622	652	738
2MW6	Dry	T.L.T.S.	Dry	Dry
4MW6	138	140	135	100
2MW13D	Dry	T.L.T.S.	Dry	Dry
4MW11D	288	330	310	4.15
4MW12D	415	499	434	489
4MW13D	467	523	617	605
4MW14D	518	536	550	582
2MW15D			400	448
4MW15D	527	575	Capped	Capped
4MW16D	265	320	Capped	Capped
2MW17S		283	276	224
2MW18D		508	451	5.26
2MW19D				472
4MW19D			558	
2MW20D				4.72
4MW20D			452	

Note: All results in micro ohms per centimeter (umhos/cm), unless noted
Blank = Well Data Not Recorded/Available
T.L.T.S. = too low to sample

Table 5
2001 - 2002
Summary of pH Analytical Results
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/23-29/2002	11/07/02
2MW1	Dry	Dry	Dry	Dry
4MW1	6.79	6.95	7.23	7.05
2MW2	5.50	4.86	6.10	5.44
4MW2	7.21	7.40	7.86	7.65
2MW4	Dry	Dry	Dry	Dry
4MW4	7.23	7.25	7.53	7.35
2MW5	Dry	Dry	Dry	Dry
4MW5	7.19	7.24	6.86	7.25
2MW6	Dry	Dry	Dry	Dry
4MW6	7.36	7.87	8.35	7.90
2MW13D	Dry	Dry	Dry	dry
4MW11D	7.32	7.25	7.19	7.36
4MW12D	7.02	6.97	6.93	7.12
4MW13D	6.97	7.16	Dry	7.21
4MW14D	7.14	7.26	6.94	7.35
2MW15D				7.38
4MW15D	7.28	Capped	Capped	Capped
4MW16D	7.36	7.38	Capped	Capped
2MW17S		5.56	5.32	6.00
2MW18D		7.04	6.89	7.14
2MW19D				7.36
4MW19D				
2MW20D				7.36
4MW20D				

Note: All results in Standard Units

Blank = Well Data Not Recorded/Available

Maximum Contaminant Level (MCL) = 6.5 to 8.5 standard units (Chapter 62-5

BOLD = levels outside of acceptable range

Table 6
Summary of Nitrate Analytical Results
2001 - 2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/22 - 6/19/2002	11/07/02
2MW1	Dry	Dry	Dry	Dry
4MW1	0.24	2.21	0.65	2.72
2MW2	12.0	2.12	<0.11	6.22
4MW2	2.17	2.59	1.97	2.90
2MW4	Dry	Dry	Dry	Dry
4MW4	0.39	2.04	0.92	0.72
2MW5	Dry	Dry	Dry	Dry
4MW5	0.85	0.65	0.93	1.40
2MW6	Dry	Dry	Dry	Dry
4MW6	1.16	1.24	1.50	1.21
2MW13D	Dry	Dry	Dry	dry
4MW11D	0.22	0.54	0.38	0.90
4MW12D	<0.11	<0.11	0.11	0.13
4MW13D	<0.11	0.19	0.20	0.23
4MW14D	0.50	0.64	0.57	0.93
2MW15D			0.67	0.98
4MW15D	0.37	0.34	Capped	Capped
4MW16D	0.37	0.65	Capped	Capped
2MW17S		10.3	11.6	7.62
2MW18D		7.77	0.61	3.78
2MW19D				0.62
2MW20D				0.62

Note: All results in milligrams per liter (mg/L), unless noted

Blank = Well Data Not Recorded/Available

Maximum Contaminant Level (MCL) = 10 mg/L (Chapter 62-550, FAC)

BOLD = exceedance of MCL

Table 7
Summary of Chloride Analytical Results
2001-2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/22 - 6/19/2002	11/07/02
2MW1	Dry	Dry	Dry	Dry
4MW1	202	272	212	259
2MW2	<1	5.45	<1	4.55
4MW2	2.37	5.55	3.42	4.25
2MW4	Dry	Dry	Dry	Dry
4MW4	3.24	14	10.3	13.30
2MW5	Dry	Dry	Dry	Dry
4MW5	121	109	105	107
2MW6	Dry	Dry	Dry	Dry
4MW6	2.69	7.3	1.88	6.80
2MW13D	Dry	Dry	Dry	Dry
4MW11D	<1	5.2	15.40	25.60
4MW12D	15	22.1	24.30	13.00
4MW13D	45	56.3	46.80	50.30
4MW14D	79.50	67.6	47.30	65.90
2MW15D			4.73	28.30
4MW15D	113		Capped	Capped
4MW16D	3.32	11.9	Capped	Capped
2MW17S		6.4	6.22	3.60
2MW18D		26.8	27.8	42.30
2MW19D				3.60
2MW20D				3.60

Note: All results in milligrams per liter (mg/L), unless noted

Blank = Well Data Not Recorded/Available

Maximum Contaminant Level (MCL) = 250 mg/L (Chapter 62-550, FAC)

BOLD = exceedance of MCL

Table 8
Summary of Sodium Analytical Results
2001 - 2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/22 - 6/19/2002	11/07/02
2MW1	Dry	Dry	Dry	Dry
4MW1	74.8	74.8	72.5	84.1
2MW2	2.84	2.84	2.03	2.62
4MW2	2.88	2.88	2.79	2.82
2MW4	Dry		Dry	Dry
4MW4	3.40	3.4	3.63	4.01
2MW5	Dry	Dry	Dry	Dry
4MW5	18.3	18.3	18.3	20.00
2MW6	Dry	Dry	Dry	Dry
4MW6	3.18	3.18	3.06	3.03
2MW13D	Dry		Dry	Dry
4MW11D	3.19	3.17	3.12	5.75
4MW12D	6.31	5.74	5.64	4.28
4MW13D	9.47	9.89	10.0	7.0
4MW14D	18.0	14.9	15.1	13.80
2MW15D			3.88	7.81
4MW15D	27.9	22	Capped	Capped
4MW16D	3.49	3.6	Capped	Capped
2MW17S		2.6	3.07	3.89
2MW18D		6.12	7.70	7.63
2MW19D				7.09
2MW20D				0.62

Note: All results in milligrams per liter (mg/L), unless noted

Blank = Well Data Not Recorded/Available

Maximum Contaminant Level (MCL) = 160 mg/L (Chapter 62-550, FAC)

BOLD = exceedance of MCL

Table 9
Summary of Copper Analytical Results
2001 - 2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/22 - 6/19/2002	11/07/02
2MW1	Dry	Dry	Dry	Dry
4MW1	0.00110	0.01310	0.02590	<0.001
2MW2	0.00546	<0.01	<0.01	0.0071
4MW2	<0.0001	<0.01	<0.01	0.0068
2MW4	Dry	Dry	Dry	Dry
4MW4	0.00158	<0.01	<0.01	
2MW5	Dry	Dry	Dry	Dry
4MW5	0.00375	<0.01	<0.01	0.00587
2MW6	Dry	Dry	Dry	Dry
4MW6	<0.0001	<0.01	<0.01	<0.001
2MW13D	Dry	Dry	Dry	Dry
4MW11D	<0.0001	<0.01	<0.01	0.00727
4MW12D	0.00589	<0.01	<0.01	0.00760
4MW13D	<0.0001	<0.01	<0.01	0.02110
4MW14D	0.00149	<0.01	<0.01	0.00750
2MW15D				<0.001
4MW15D	<0.0001	<0.01	Capped	Capped
4MW16D	<0.0001	<0.01	Capped	Capped
2MW17S		<0.01	<0.01	0.01210
2MW18D		<0.01	<0.01	<0.001
2MW19D				
4MW-19D				0.01740
2MW20D				0.01090

Note: All results in milligrams per liter (mg/L), unless noted
Blank = Well Data Not Recorded/Available
Maximum Contaminant Level (MCL) = 1 mg/L (Chapter 62-550, FAC)
BOLD = exceedance of MCL

Table 10
Summary of Iron Analytical Results
2001-2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/22 - 6/19/2002	11/07/02
2MW1	Dry	Dry	Dry	Dry
4MW1	<0.03	<0.02	0.05	0.03
2MW2	<0.03	<0.02	0.07	0.06
4MW2	0.09	<0.02	<0.03	<0.03
2MW4	Dry	Dry	Dry	Dry
4MW4	<0.03	0.02	<0.06	0.04
2MW5	Dry	Dry	Dry	Dry
4MW5	<0.03	<0.02	<0.03	<0.03
2MW6	Dry	Dry	Dry	Dry
4MW6	0.08	0.04	0.05	<0.03
2MW13D	Dry	Dry	Dry	Dry
4MW11D	0.14	0.14	<0.03	0.05
4MW12D	<0.03	<0.03	<0.03	0.04
4MW13D	<0.03	<0.03	0.07	0.06
4MW14D	0.30	0.30	0.05	0.06
2MW15D			0.22	0.03
4MW15D	<0.03	<0.03	Capped	Capped
4MW16D	0.03	0.03	Capped	Capped
2MW17S			0.05	0.05
2MW18D			0.09	0.05
2MW19D				0.06
2MW20D				0.06

Note: All results in milligrams per liter (mg/L), unless noted

Table 11
Summary of Mercury Analytical Results
2001 - 2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/22 - 6/19/2002	11/07/02
2MW1	Dry	Dry	Dry	Dry
4MW1	<0.0005	<0.0005	<0.0005	0.0012
2MW2	<0.0005	<0.0005	<0.0005	0.0012
4MW2	<0.0005	<0.0005	<0.0005	0.0013
2MW4	Dry	Dry	Dry	Dry
4MW4	<0.0005	<0.0005	<0.0005	0.0029
2MW5	Dry	Dry	Dry	Dry
4MW5	<0.0005	<0.0005	<0.0005	0.0013
2MW6	Dry	Dry	Dry	Dry
4MW6	<0.0005	<0.0005	<0.0005	0.0011
2MW13D	Dry	Dry	Dry	Dry
4MW11D	<0.0005	<0.0005	<0.0005	0.0010
4MW12D	<0.0005	<0.0005	<0.0005	0.0011
4MW13D	<0.0005	<0.0005	<0.0005	0.0014
4MW14D	<0.0005	<0.0005	<0.0005	0.0009
2MW15D			0.0008	0.0013
4MW15D	<0.0005	<0.0005	Capped	Capped
4MW16D	<0.0005	<0.0005	Capped	Capped
2MW17S			<0.0005	0.0009
2MW18D			<0.0005	0.0027
2MW19D				0.0012
2MW20D				0.0012

Note: All results in milligrams per liter (mg/L), unless noted

Blank = Well Data Not Recorded/Available

Maximum Contaminant Level (MCL) = 0.002 mg/L (Chapter 62-550, FAC)

BOLD = exceedance of MCL

Table 12
Summary of Lead Analytical Results
2001 - 2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/22 - 6/19/2002	11/07/02
2MW1	Dry	Dry	Dry	Dry
4MW1	0.001550	0.00426	0.0109	<0.001
2MW2	<0.0001	<0.0001	<0.001	<0.001
4MW2	<0.0001	<0.0001	<0.001	<0.001
2MW4	Dry	Dry	Dry	Dry
4MW4	<0.0001	<0.0001	<0.001	
2MW5	Dry	Dry	Dry	Dry
4MW5	<0.0001	<0.0001	<0.001	<0.001
2MW6	Dry	Dry	Dry	Dry
4MW6	<0.0001	<0.0001	<0.001	<0.001
2MW13D	Dry	Dry	Dry	Dry
4MW11D	<0.0001	0.00168	<0.001	0.00679
4MW12D	0.002020	0.00035	<0.001	<0.001
4MW13D	<0.0001	<0.0001	<0.001	<0.001
4MW14D	<0.0001	0.00214	<0.001	<0.001
2MW15D				<0.001
4MW15D	<0.0001	<0.0001	Capped	Capped
4MW16D	<0.0001	0.0209	Capped	Capped
2MW17S			<0.001	<0.001
2MW18D			<0.001	<0.001
2MW19D				
4MW-19D				0.00590
2MW20D				0.00230

Note: All results in milligrams per liter (mg/L), unless noted

Blank = Well Data Not Recorded/Available

Maximum Contaminant Level (MCL) = 0.015 mg/L (Chapter 62-550, FAC)

BOLD = exceedance of MCL

Table 13
Summary of Chromium Analytical Results
2001 - 2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/22 - 6/19/2002	11/07/02
2MW1	Dry	Dry	Dry	Dry
4MW1	<0.0001	0.00233	<0.001	<0.001
2MW2	<0.0001	0.00199	<0.001	<0.001
4MW2	<0.0001	0.00192	<0.001	<0.001
2MW4	Dry	Dry	Dry	Dry
4MW4	<0.0001	0.00151	<0.001	
2MW5	Dry	Dry	Dry	Dry
4MW5	<0.0001	0.00272	0.00157	0.00219
2MW6	Dry	Dry	Dry	Dry
4MW6	<0.0001	0.00057	<0.001	0.00110
2MW13D	Dry	Dry	Dry	Dry
4MW11D	0.000359	0.00422	0.00290	0.00143
4MW12D	<0.0001	0.00052	0.00310	<0.001
4MW13D	0.02560	0.00252	0.00581	0.00360
4MW14D	0.00199		0.00170	0.00150
2MW15D				<0.001
4MW15D	<0.0001	<0.0001	Capped	Capped
4MW16D	<0.0001	0.00922	Capped	Capped
2MW17S			0.00370	0.00200
2MW18D			0.00180	0.00180
2MW19D				
4MW19D				0.00160
2MW20D				0.00100

Note: All results in milligrams per liter (mg/L), unless noted

Blank = Well Data Not Recorded/Available

Maximum Contaminant Level (MCL) = 0.1 mg/L (Chapter 62-550, FAC)

BOLD = exceedance of MCL

Table 14
Summary of Cadmium Analytical Results
2001-2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/22 - 6/19/2002	11/07/02
2MW1	Dry	Dry	Dry	Dry
4MW1	0.000247	<0.0001	0.001480	<0.001
2MW2	0.000644	<0.0001	<0.001	<0.001
4MW2	<0.0001	<0.0001	<0.001	<0.001
2MW4	Dry	Dry	Dry	Dry
4MW4	0.000203	<0.0001	<0.001	
2MW5	Dry	Dry	Dry	Dry
4MW5	<0.0001	<0.0001	<0.001	<0.001
2MW6	Dry	Dry	Dry	Dry
4MW6	<0.0001	<0.0001	<0.001	<0.001
2MW13D	Dry	Dry	Dry	Dry
4MW11D	<0.0001	<0.0001	<0.001	<0.001
4MW12D	0.000277		<0.001	<0.001
4MW13D	<0.0001	<0.0001	<0.001	<0.001
4MW14D	0.000143	<0.0001	<0.001	<0.001
2MW15D				<0.001
4MW15D	0.000241	<0.0001	Capped	Capped
4MW16D	<0.0001	0.00055	Capped	Capped
2MW17S			<0.001	<0.001
2MW18D			<0.001	<0.001
2MW19D				
4MW-19D				<0.001
2MW20D				<0.001

Note: All results in milligrams per liter (mg/L), unless noted

Blank = Well Data Not Recorded/Available

Maximum Contaminant Level (MCL) = 0.005 mg/L (Chapter 62-550, FAC)

BOLD = exceedance of MCL

Table 15
Summary of Antimony Analytical Results
2001 - 2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/22 - 6/19/2002	11/07/02
2MW1	Dry	Dry	Dry	Dry
4MW1	0.000650	0.00956	<0.001	<0.001
2MW2	0.000162	0.001270	0.001500	<0.001
4MW2	<0.0001	<0.0001	<0.001	<0.001
2MW4	Dry	Dry	Dry	Dry
4MW4	<0.0001	<0.0001	<0.001	
2MW5		Dry	Dry	Dry
4MW5	<0.0001	<0.0001	<0.001	<0.001
2MW6	Dry	Dry	Dry	Dry
4MW6	<0.0001	<0.0001	<0.001	<0.001
2MW13D	Dry	Dry	Dry	Dry
4MW11D	<0.0001	<0.0001	<0.001	<0.001
4MW12D	<0.0001	<0.001	0.002800	0.00120
4MW13D	<0.0001	0.000079	<0.001	<0.001
4MW14D	<0.0001	<0.0001	0.001700	<0.001
2MW15D				<0.001
4MW15D	<0.0001	<0.0001	Capped	Capped
4MW16D	<0.0001	0.000100	Capped	Capped
2MW17S			0.001000	<0.001
2MW18D			<0.001	<0.001
2MW19D				
4MW19D				0.00150
2MW20D				0.00120

Note: All results in milligrams per liter (mg/L), unless noted

Blank = Well Data Not Recorded/Available

Maximum Contaminant Level (MCL) = 0.006 mg/L (Chapter 62-550, FAC)

BOLD = exceedance of MCL

Table 16
Summary of Arsenic Analytical Results
2001-2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/22 - 6/19/2002	11/07/02
2MW1	Dry	Dry	Dry	Dry
4MW1	0.001530	0.00087	0.001950	0.00112
2MW2	0.000414	0.00017	<0.001	<0.001
4MW2	0.001330	0.00066	0.001100	<0.001
2MW4	Dry	Dry	Dry	Dry
4MW4	0.001180	0.00035	<0.001	
2MW5	Dry	Dry	Dry	Dry
4MW5	0.001420	0.001000	<0.001	0.001210
2MW6	Dry	Dry	Dry	Dry
4MW6	0.001130	0.00025	<0.001	<0.001
2MW13D	Dry	Dry	Dry	Dry
4MW11D	0.001040	0.00084	<0.001	0.001120
4MW12D	0.001120	0.00035	<0.001	<0.001
4MW13D	0.000867		0.001280	<0.001
4MW14D	0.001340	0.00039	<0.001	<0.001
2MW15D				<0.001
4MW15D	0.001340	0.00025	Capped	Capped
4MW16D	0.000744	<0.0001	Capped	Capped
2MW17S			<0.001	<0.001
2MW18D			<0.001	<0.001
2MW19D				
4MW19D				<0.001
2MW20D				<0.001

Note: All results in milligrams per liter (mg/L), unless noted

Blank = Well Data Not Recorded/Available

Maximum Contaminant Level (MCL) = 0.05 mg/L (Chapter 62-550, FAC)

BOLD = exceedance of MCL

Table 17
Summary of Selenium Analytical Results
2001 - 2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Monitoring Well ID	2/13-15/01	10/10-11/01	5/22 - 6/19/2002	11/07/02
2MW1	Dry	Dry	Dry	Dry
4MW1	0.00644	0.02360	0.00816	0.00921
2MW2	0.00229	0.00360	<0.002	<0.002
4MW2	0.00144	<0.002	0.00350	0.00440
2MW4	Dry	Dry	Dry	Dry
4MW4	0.00128	0.00230	<0.002	
2MW5	Dry	Dry	Dry	Dry
4MW5	0.00366	0.01380	0.00912	<0.002
2MW6	Dry	Dry	Dry	Dry
4MW6	0.00242	0.00400	<0.002	<0.002
2MW13D	Dry	Dry	Dry	Dry
4MW11D	0.00367	0.00641	0.00470	0.00503
4MW12D	0.00459	0.00640	0.00340	0.00970
4MW13D	0.00356	0.00500	0.00478	0.00330
4MW14D	0.00433	0.00470	0.00540	0.00240
2MW15D				<0.002
4MW15D	0.00394	0.00780	Capped	Capped
4MW16D	0.000606	0.00260	Capped	Capped
2MW17S		0.00590	0.00370	<0.002
2MW18D		0.00480	<0.002	<0.002
2MW19D				
4MW19D				0.00740
2MW20D				<0.002

Note: All results in milligrams per liter (mg/L), unless noted

Blank = Well Data Not Recorded/Available

Maximum Contaminant Level (MCL) = 0.05 mg/L (Chapter 62-550, FAC)

BOLD = exceedance of MCL

Table 18
Summary of Leachate Indicator Parameters
2001 - 2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Leachate Holding Tank	pH in Standard Units (GCTL 6.5 to 8.5)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	6.44	7.24	8.20	7.01
A-1 Secondary	7.01	7.16	T.L.T.S.	Dry
SW Primary	6.90	6.45	8.80	6.83
SW Secondary	6.47	6.51	7.90	6.82

Leachate Holding Tank	Chloride in mg/L (GCTL 250 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	12,237	6,836	2,582	1,665
A-1 Secondary	2,382	1,474	T.L.T.S.	Dry
SW Primary	398	72.0	241	226
SW Secondary	50.0	52.5	186	313

Leachate Holding Tank	Ammonia Nitrogen in mg/L (GCTL 2.8 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	24.1	15.30	5.17	5.20
A-1 Secondary	<0.03	0.26	T.L.T.S.	Dry
SW Primary	<0.03	21.5	26.9	25.0
SW Secondary	0.81	5.57	16.2	15.6

Leachate Holding Tank	Nitrate in mg/L (GWCTL 10 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	<0.11	<0.11	<0.11	4.41
A-1 Secondary	0.71	1.89	T.L.T.S.	Dry
SW Primary	<0.11	<0.11	0.12	0.18
SW Secondary	<0.11	<0.11	<0.11	0.17

Leachate Holding Tank	Total Dissolved Solids in mg/L (GCTL 500 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	40,000	16,900	28,700	7,100
A-1 Secondary	9,640	6,540	T.L.T.S.	Dry
SW Primary	3,240	1,530	3,060	3,200
SW Secondary	642	680	1,330	3,320

Note: All results in milligrams per liter (mg/L), unless noted

Bold = exceedance of GCTL (Chapter 62-777, FAC)

T.L.T.S. = Too Low to Sample

Table 19
Summary of Leachate Parameters (Metals)
2001 - 2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Leachate Holding Tank	Iron in mg/L (GCTL 0.3 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	0.37	0.28	0.50	0.29
A-1 Secondary	0.46	0.08	T.L.T.S.	Dry
SW Primary	1.17	4.81	1.01	2.95
SW Secondary		2.77	14.7	2.77

Leachate Holding Tank	Sodium in mg/L (GCTL 160 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	3,330	1,640	2,260	624
A-1 Secondary	546	430	T.L.T.S.	Dry
SW Primary	342	78.2	586	503
SW Secondary		14.7	117	386

Leachate Holding Tank	Mercury in mg/L (GCTL 0.002 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	<0.0005	0.0005	<0.0005	<0.0005
A-1 Secondary	<0.005	<0.0005	T.L.T.S.	Dry
SW Primary	0.0014	<0.0005	<0.0005	<0.0005
SW Secondary		<0.0005	<0.0005	<0.0005

Note: All results in milligrams per liter (mg/L), unless noted

Bold = exceedance of GCTL (Chapter 62-777, FAC)

T.L.T.S. = Too Low to Sample

Blank = Data Not Recorded/Available

Table 19 (Continued)
Summary of Leachate Parameters (Metals)
2001 -2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Barium in mg/L (GCTL 2 mg/L)				
Leachate Holding Tank	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	0.8830	0.3810	0.6680	0.1490
A-1 Secondary	0.1870	0.1040		
SW Primary	0.0517	0.0376	0.0414	0.0378
SW Secondary	0.0187		0.0692	0.0356

Beryllium in mg/L (GCTL 0.004 mg/L)				
Leachate Holding Tank	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	<0.001	<0.001	<0.001	<0.001
A-1 Secondary	<0.001	<0.001		
SW Primary	<0.001	<0.001	<0.001	<0.001
SW Secondary	<0.001		<0.001	<0.001

Cadmium in mg/L (GCTL 0.005 mg/L)				
Leachate Holding Tank	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	0.001010	<0.001	0.001810	0.006460
A-1 Secondary	0.003040	<0.001		
SW Primary	<0.001	<0.001	<0.001	<0.001
SW Secondary	<0.001		<0.001	<0.001

Chromium in mg/L (GCTL 0.100 mg/L)				
Leachate Holding Tank	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	0.00628	0.00979	<0.001	0.02180
A-1 Secondary	0.01230	0.01220		
SW Primary	0.00789	0.00880	0.02050	0.01630
SW Secondary	0.00891		0.00320	0.01010

Cobalt in mg/L (GCTL 0.420 mg/L)				
Leachate Holding Tank	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	0.00471	0.00445	0.00401	0.00145
A-1 Secondary	0.00146	0.00350		
SW Primary	0.00319	0.00210	0.00690	0.00830
SW Secondary	<0.001		<0.001	0.00790

Note: All results in milligrams per liter (mg/L), unless noted

Bold = exceedance of GCTL (Chapter 62-777, FAC)

T.L.T.S. = Too Low to Sample

Blank = Data Not Recorded/Available

Table 19 (Continued)
Summary of Leachate Parameters (Metals)
2001 -2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Leachate Holding Tank	Copper in mg/L (GCTL 1.0 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	0.00273	<0.01	<0.01	0.01780
A-1 Secondary	0.12200	0.01350		
SW Primary	<0.001	<0.01	<0.01	<0.01
SW Secondary	<0.001		<0.01	<0.01

Leachate Holding Tank	Lead in mg/L (GCTL 0.015 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	0.00402	<0.001	<0.001	0.012200
A-1 Secondary	0.02530	<0.001		
SW Primary	<0.001	<0.001	<0.001	<0.001
SW Secondary	<0.001		<0.001	<0.001

Leachate Holding Tank	Nickel in mg/L (GCTL 0.100 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	0.0754	0.0661	0.0928	0.0190
A-1 Secondary	0.0308	0.0383		
SW Primary	0.0301	0.0378	0.0387	0.0429
SW Secondary	0.00549		0.0077	0.0429

Leachate Holding Tank	Selenium in mg/L (GCTL 0.050 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	0.844	<0.002	0.8520	0.0706
A-1 Secondary	0.163	<0.002		
SW Primary	0.0487	<0.002	0.0453	0.0436
SW Secondary	0.00654		0.0278	0.0161

Leachate Holding Tank	Silver in mg/L (GCTL 0.100 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	0.000667	<0.001	<0.001	<0.001
A-1 Secondary	<0.0005	<0.001		
SW Primary	<0.0005	<0.001	<0.001	<0.001
SW Secondary	<0.0005		<0.001	<0.001

Note: All results in milligrams per liter (mg/L), unless noted

Bold = exceedance of GCTL (Chapter 62-777, FAC)

T.L.T.S. = Too Low to Sample

Blank = Data Not Recorded/Available

Table 19 (Continued)
Summary of Leachate Parameters (Metals)
2001 -2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Leachate Holding Tank	Tin in mg/L (GCTL 4.2 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	0.0178	-	<0.005	-
A-1 Secondary	0.0119	-		
SW Primary	0.00509	-	<0.005	-
SW Secondary	<0.001		<0.005	-

Leachate Holding Tank	Vanadium in mg/L (GCTL 0.049 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	0.07280	<0.001	0.05180	0.01980
A-1 Secondary	0.01690	<0.001		
SW Primary	0.00894	<0.001	0.01100	0.00870
SW Secondary	<0.001		0.00350	0.00840

Leachate Holding Tank	Zinc in mg/L (GWCTL 5.0 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	0.589	<0.01	0.0925	0.1010
A-1 Secondary	0.126	<0.01		
SW Primary	<0.001	<0.01	0.0401	<0.01
SW Secondary	0.00438		0.1030	0.0668

Leachate Holding Tank	Thallium in mg/L (GCTL 0.002 mg/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	<0.001	<0.001	<0.001	0.001780
A-1 Secondary	<0.001	<0.001		
SW Primary	0.001350	<0.001	<0.001	<0.001
SW Secondary	<0.001		<0.001	<0.001

Note: All results in milligrams per liter (mg/L), unless noted

Bold = exceedance of GCTL (Chapter 62-777, FAC)

T.L.T.S. = Too Low to Sample

Blank = Data Not Recorded/Available

Table 19
Summary of Select Leachate Parameters (Organics)
2001 - 2002
West Pasco Class I Landfill
MACTEC Project No. 6515-03-0022.01

Leachate Holding Tank	Acetone in ug/L (GCTL 700 ug/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	<5.0	<5.0	28.4	<5.0
A-1 Secondary	<5.0	<5.0		
SW Primary	13	1720	<50.0	375
SW Secondary	<1.0		<5.0	352

Leachate Holding Tank	Benzene in ug/L (MCL 1 ug/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	<1.0	<1.0	<1.0	<1.0
A-1 Secondary	<1.0	<1.0		
SW Primary	<1.0	6.05	<10.0	5.29
SW Secondary	<1.0		<1.0	6.24

Leachate Holding Tank	Toluene in ug/L (MCL 40 ug/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	<1.0	<1.0	<1.0	<1.0
A-1 Secondary	<1.0	<1.0		
SW Primary	<1.0	101	<10.0	50.8
SW Secondary	<1.0	<1.0	<1.0	57.8

Leachate Holding Tank	Total Xylenes in ug/L (MCL 20 ug/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	<1.0	<1.0	<1.0	<1.0
A-1 Secondary	<1.0	<1.0		
SW Primary	6.82	39.3	<10.0	31
SW Secondary	<1.0	<1.0	<1.0	35.5

Leachate Holding Tank	Vinyl Chloride in ug/L (MCL 1 ug/L)			
	02/27/01	07/24/01	05/21/02	07/23/02
A-1 Primary	<1.0	<1.0	<1.0	<1.0
A-1 Secondary	<1.0	<1.0		
SW Primary	5.42	11.5	<10.0	<5.0
SW Secondary	<1.0	4.53	3.97	11.1

Note: All results in micrograms per liter (ug/L), unless noted

Bold = exceedance of GCTL (Chapter 62-777, FAC) or MCL (Chapter 62-550, FAC)

T.L.T.S. = Too Low to Sample

Blank = Data Not Recorded/Available



SITE LOCATION

Reference:

Terraserver.com

http://www.terraserver.com/image_usgs.asp?file_name={99C52160-AF1F-4563-AB4B-A3618E91F6F2}&ulx=-82.6106&uly=28.4243&lrx=-82.5106&lry=28.3243&cpx=-82.5606&cpy=28.3743&initRes=13

Prepared/Date: BLB 07/03/03

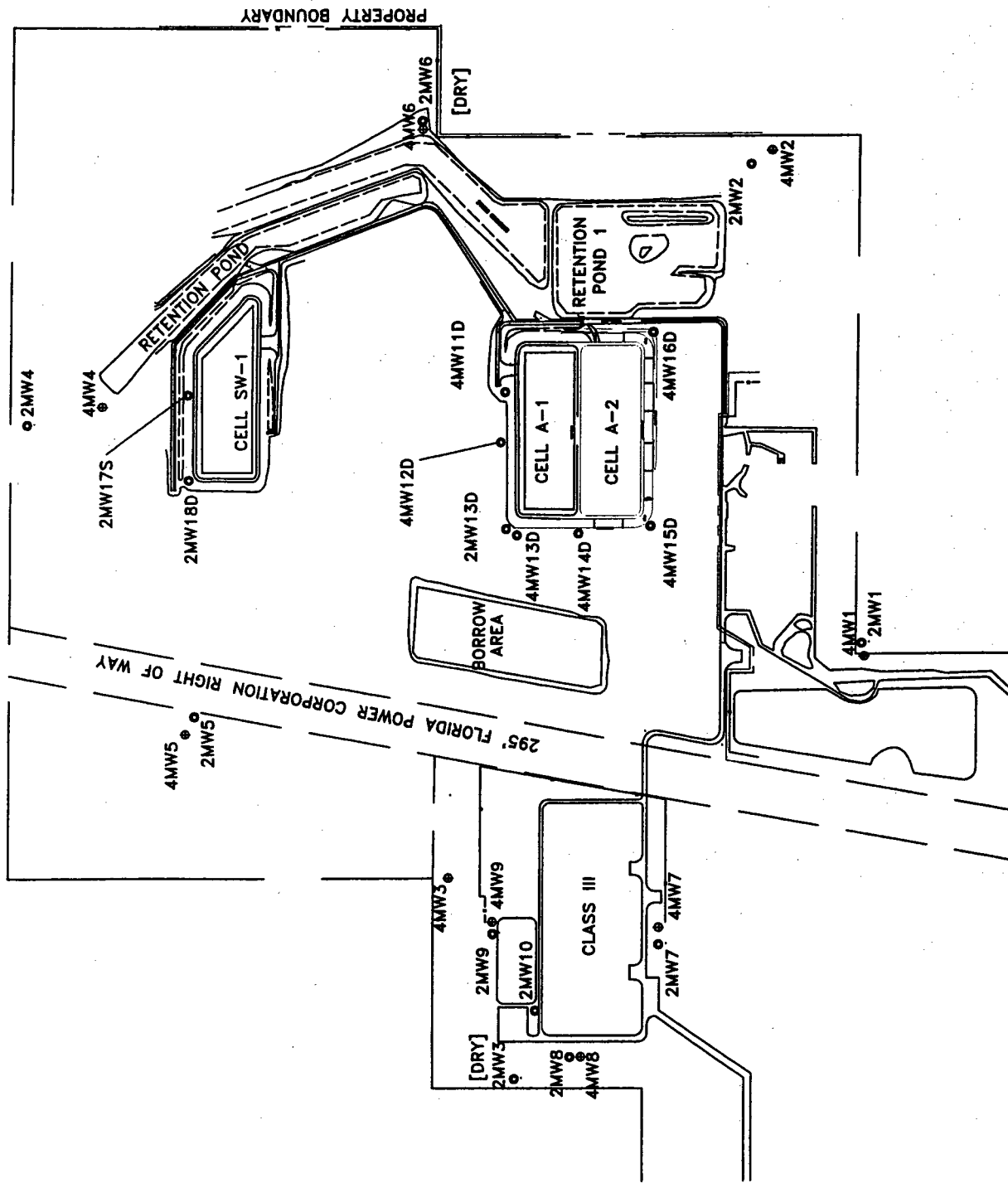
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 **MACTEC**

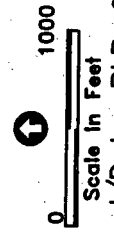
SITE MAP

Project 6515-03-0022 Figure 1



EXPLANATION

- 4MW2
● EXISTING GROUNDWATER MONITORING WELL AND DESIGNATION
- 2MW2
● EXISTING GROUNDWATER MONITORING WELL AND DESIGNATION (4MW)
- 4" PVC FLORIDAN AQUIFER WELL (2MW)
- 2" PVC SURFICIAL AQUIFER WELL



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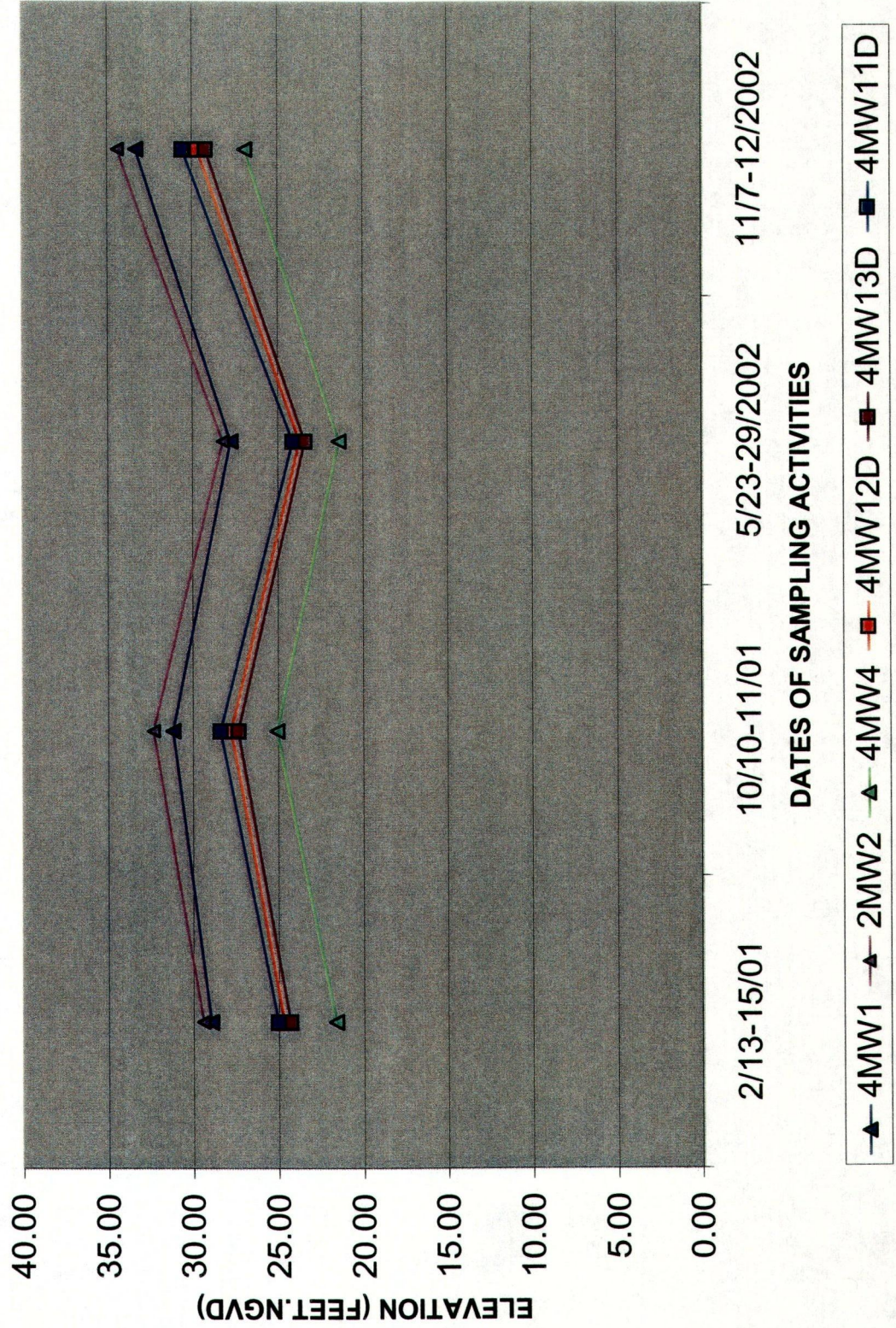


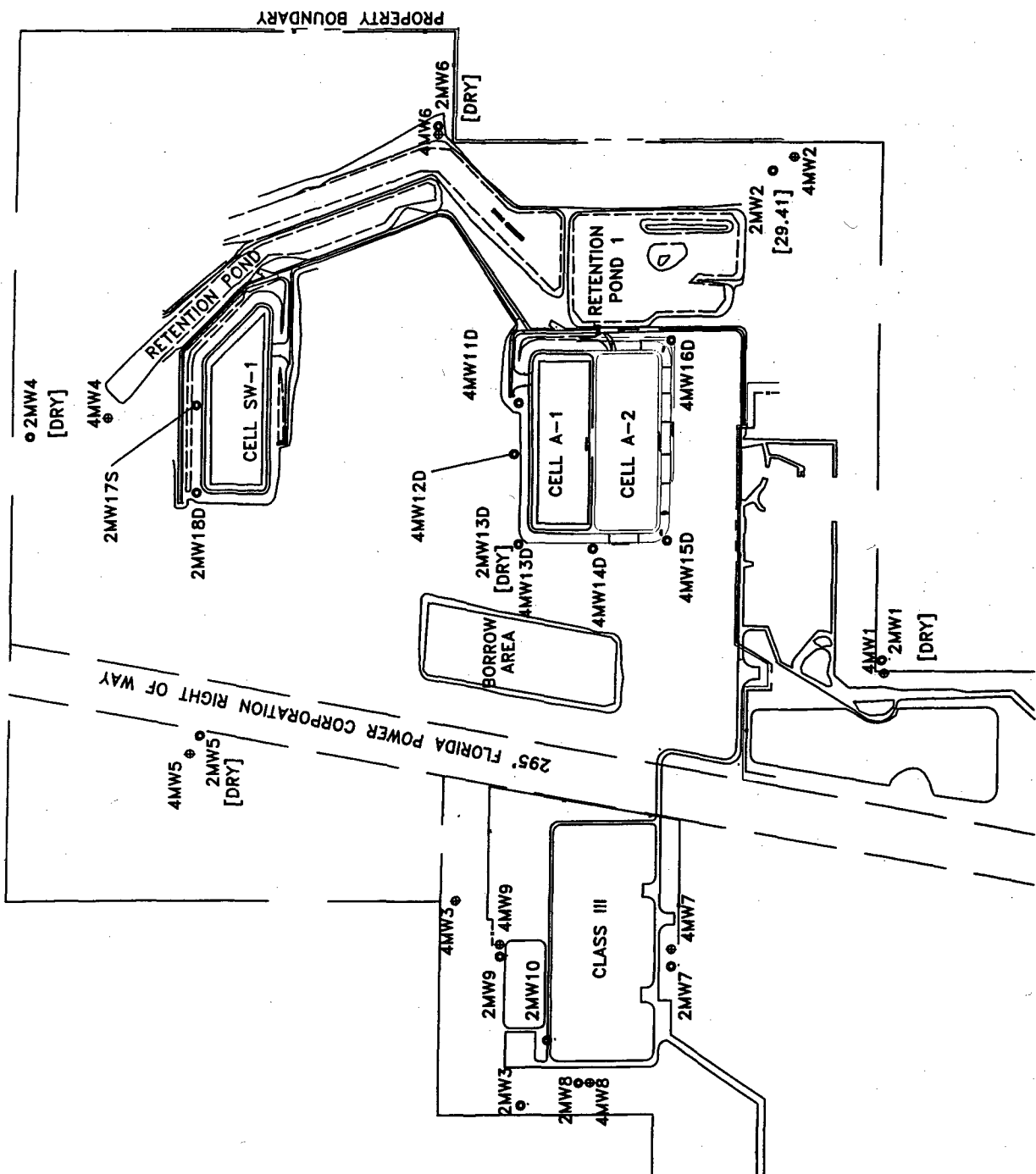
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PASCO COUNTY, FLORIDA

MONITORING WELL LOCATION MAP

Figure 3: Groundwater Elevations of Select Monitoring Wells vs.

Time





EXPLANATION

- 4MW2 e EXISTING GROUNDWATER
MONITORING WELL AND DESIGNATION
- 2MW2 e EXISTING GROUNDWATER
MONITORING WELL AND DESIGNATION
(4MW)
- 4" PVC FLORIDAN AQUIFER WELL
(2MW)
- 2" PVC SURFICIAL AQUIFER WELL
[34.37]
- GROUNDWATER ELEVATION
(IN FEET, NGVD)
- 33.00- GROUNDWATER ELEVATION
ISOCONTOUR (IN FEET, NGVD)

Scale In Feet

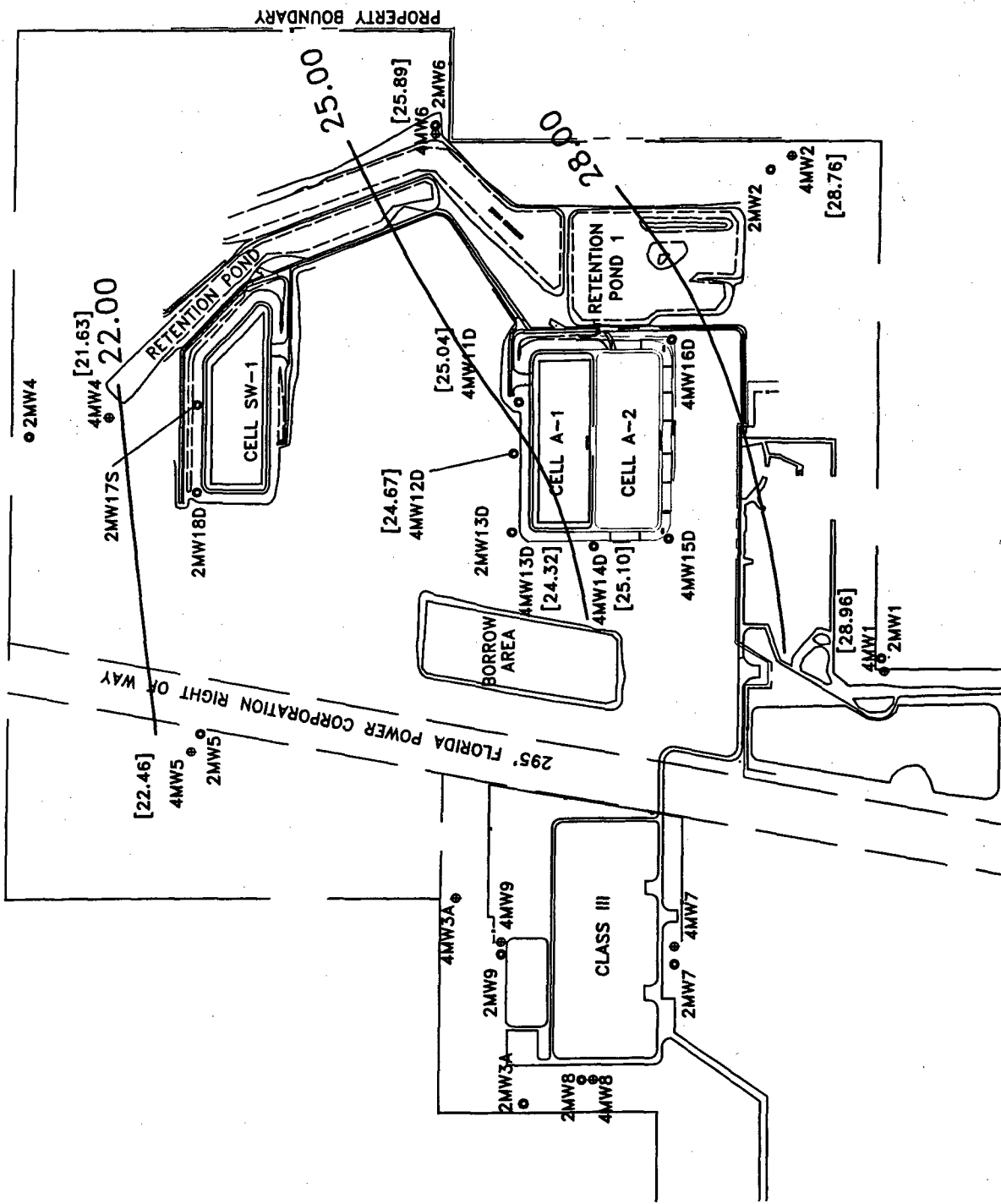
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Prepared/Date: BLB 07/03/03
Checked/Date:

**SURFICIAL AQUIFER WATER TABLE MAP
FEBRUARY 2001**

Project 6515-03-0022
Figure

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EXPLANATION

- 4MW2 * EXISTING GROUNDWATER
MONITORING WELL AND DESIGNATION
- 2MW2 * EXISTING GROUNDWATER
MONITORING WELL AND DESIGNATION
- (4MW) 4" PVC FLORIDAN AQUIFER WELL
- (2MW) 2" PVC SURFICIAL AQUIFER WELL
- [34.37] GROUNDWATER ELEVATION
(IN FEET, NGVD)
- 33.00- GROUNDWATER ELEVATION
ISOCONTOUR (IN FEET, NGVD)

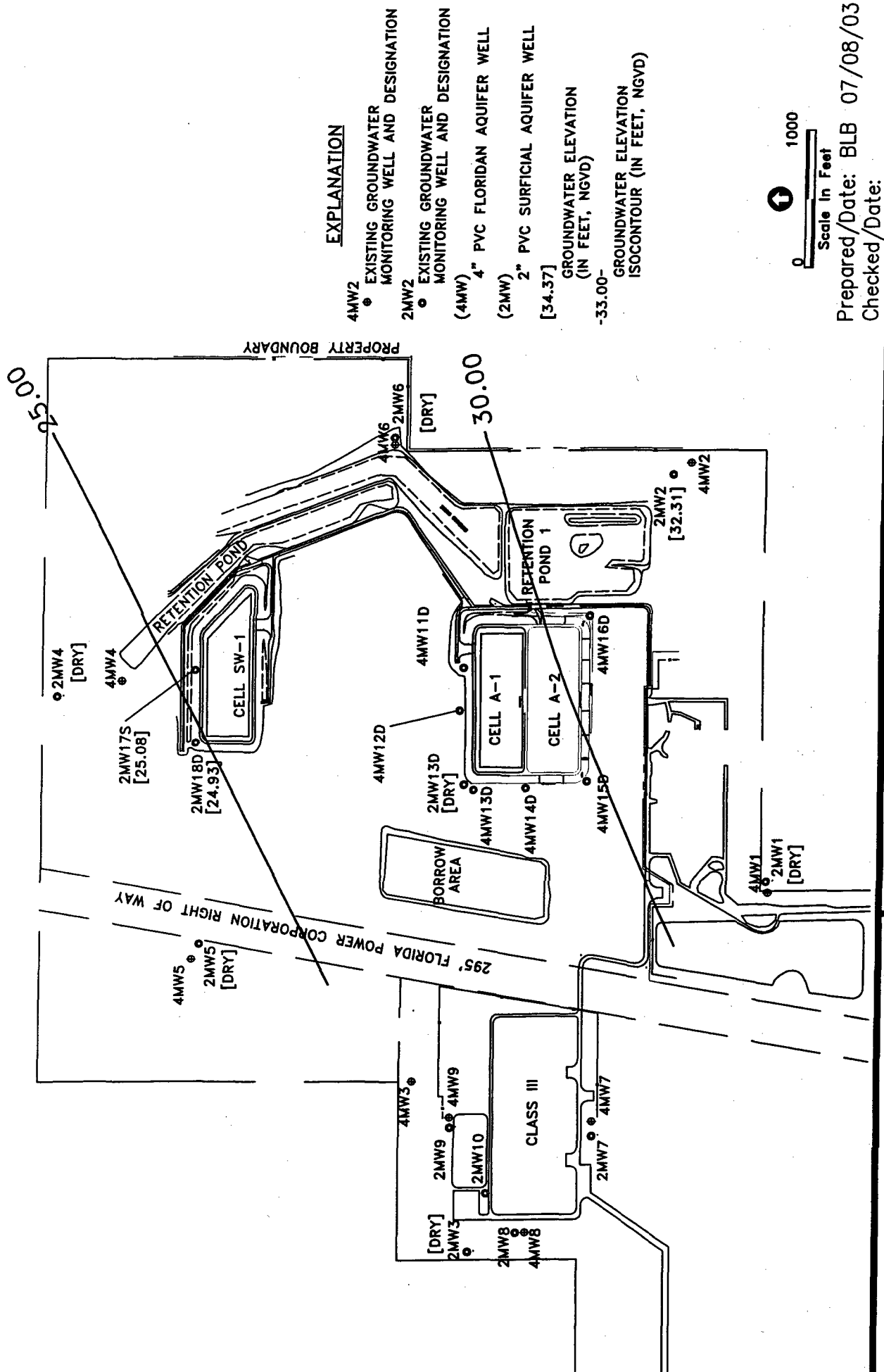
A vertical scale in feet with an arrow pointing to the 1000 mark.

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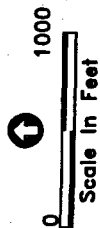


FLORIDAN AQUIFER POTENTIOMETRIC
SURFACE MAP
FEBRUARY 2001
Project 6515-03-0022 Figure 5



EXPLANATION

- 4MW2 ● EXISTING GROUNDWATER MONITORING WELL AND DESIGNATION
- 2MW2 ● EXISTING GROUNDWATER MONITORING WELL AND DESIGNATION
- (4MW) 4" PVC FLORIDAN AQUIFER WELL
- (2MW) 2" PVC SURFICIAL AQUIFER WELL
- [34.37] GROUNDWATER ELEVATION (IN FEET, NGVD)
- 33.00- GROUNDWATER ELEVATION ISOCONTOUR (IN FEET, NGVD)



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Checked/Date:

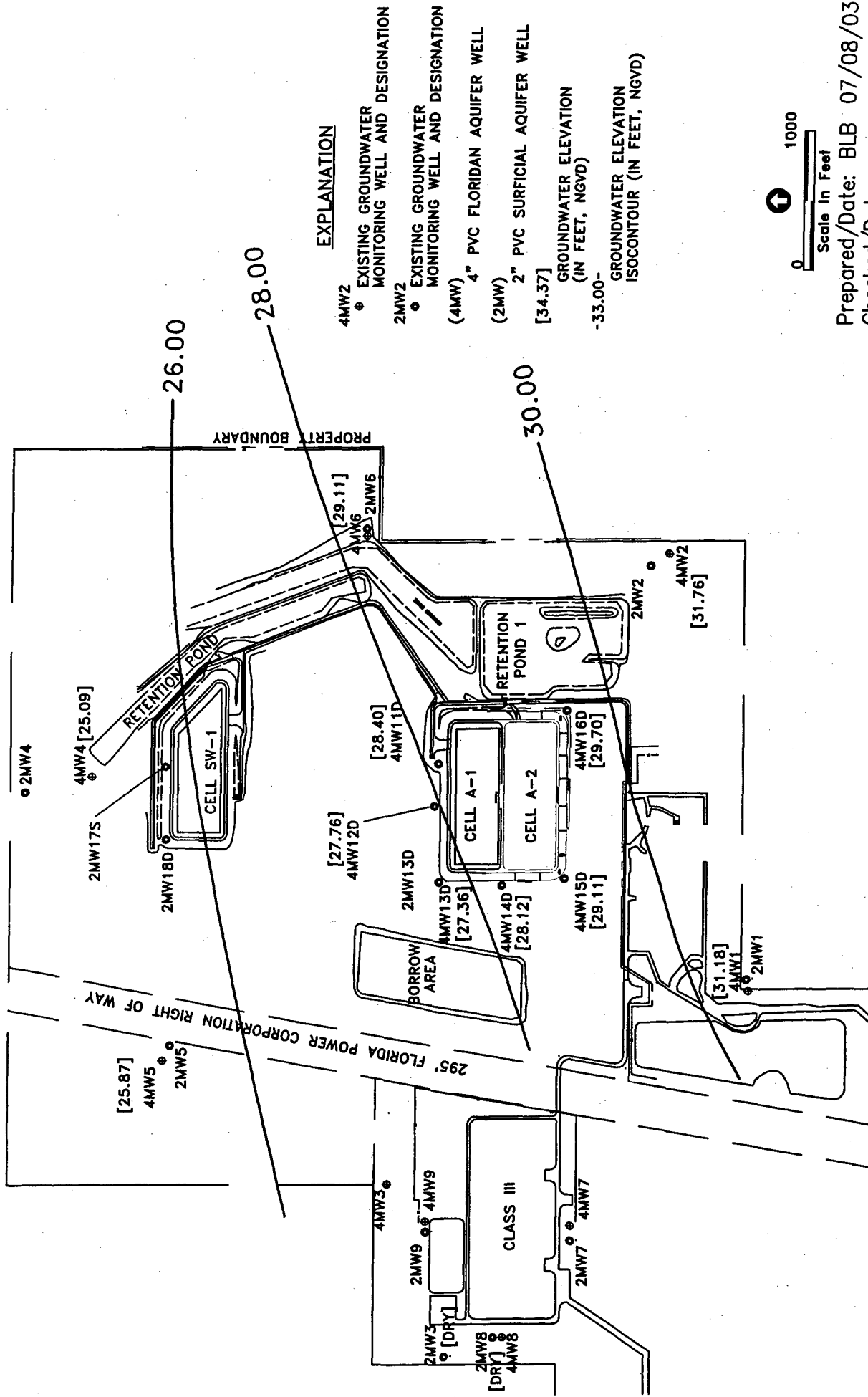


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PASCO COUNTY, FLORIDA

SURFICIAL AQUIFER WATER TABLE MAP
OCTOBER 2001

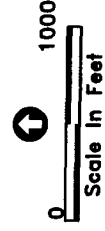
Project 6515-03-0022

Figure 6



EXPLANATION

- 4MW2 ○ EXISTING GROUNDWATER MONITORING WELL AND DESIGNATION
- 2MW2 ○ EXISTING GROUNDWATER MONITORING WELL AND DESIGNATION
- (4MW) 4" PVC FLORIDAN AQUIFER WELL
- (2MW) 2" PVC SURFICIAL AQUIFER WELL
- [34.37] GROUNDWATER ELEVATION (IN FEET, NGVD)
- 33.00- GROUNDWATER ELEVATION ISOCONTOUR (IN FEET, NGVD)

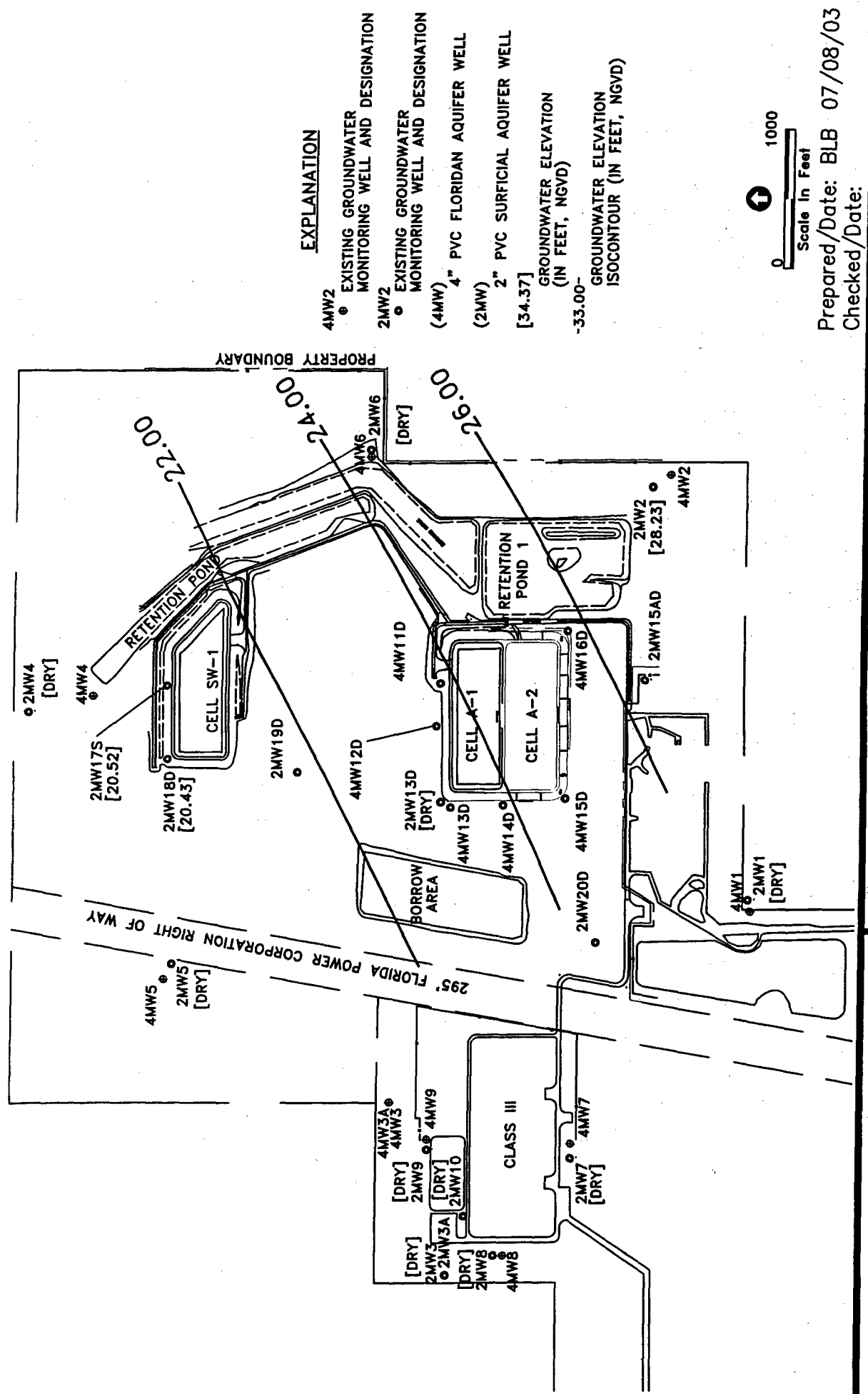


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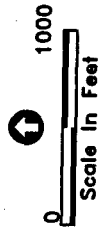
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FLORIDAN AQUIFER POTENTIOMETRIC
SURFACE MAP
OCTOBER 2001
Project 6515-03-0022 Figure 7



EXPLANATION

- 4MW2 ○ EXISTING GROUNDWATER MONITORING WELL AND DESIGNATION
- 2MW2 ○ EXISTING GROUNDWATER MONITORING WELL AND DESIGNATION
- (4MW) ○ 4" PVC FLORIDAN AQUIFER WELL
- (2MW) ○ 2" PVC SURFICIAL AQUIFER WELL
- [34.37] ○ GROUNDWATER ELEVATION (IN FEET, NGVD)
- 33.00- ○ GROUNDWATER ELEVATION ISOCONTOUR (IN FEET, NGVD)

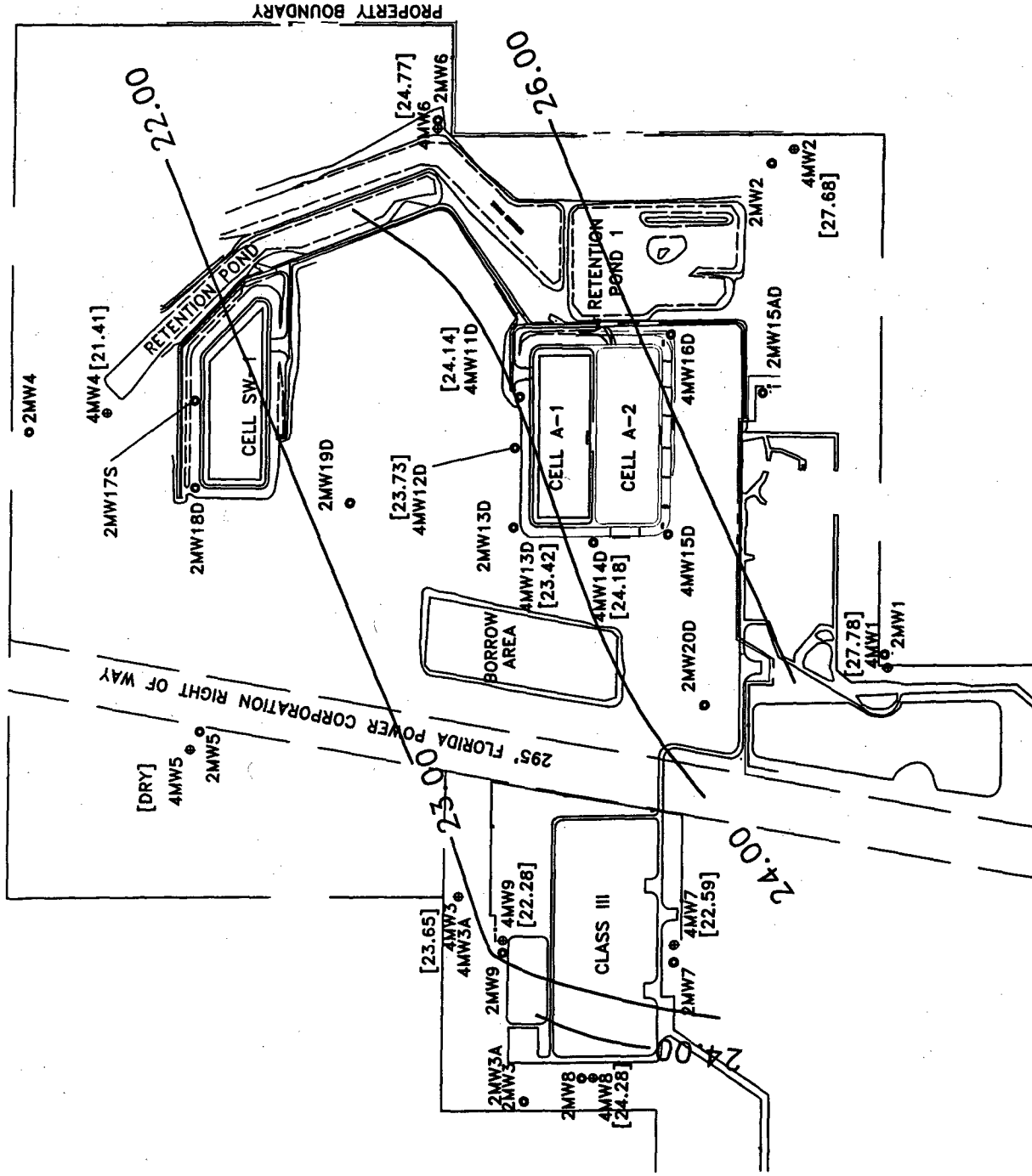


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SURFICIAL AQUIFER WATER TABLE MAP
MAY 2002



EXPLANATION

- 4MW2 • EXISTING GROUNDWATER MONITORING WELL AND DESIGNATION
- 2MW2 • EXISTING GROUNDWATER MONITORING WELL AND DESIGNATION (4MW)
- 4" PVC FLORIDAN AQUIFER WELL (2MW)
- 2" PVC SURFICIAL AQUIFER WELL [34.37]
- GROUNDWATER ELEVATION (IN FEET, NGVD)
- GROUNDWATER ELEVATION ISOCONTOUR (IN FEET, NGVD)

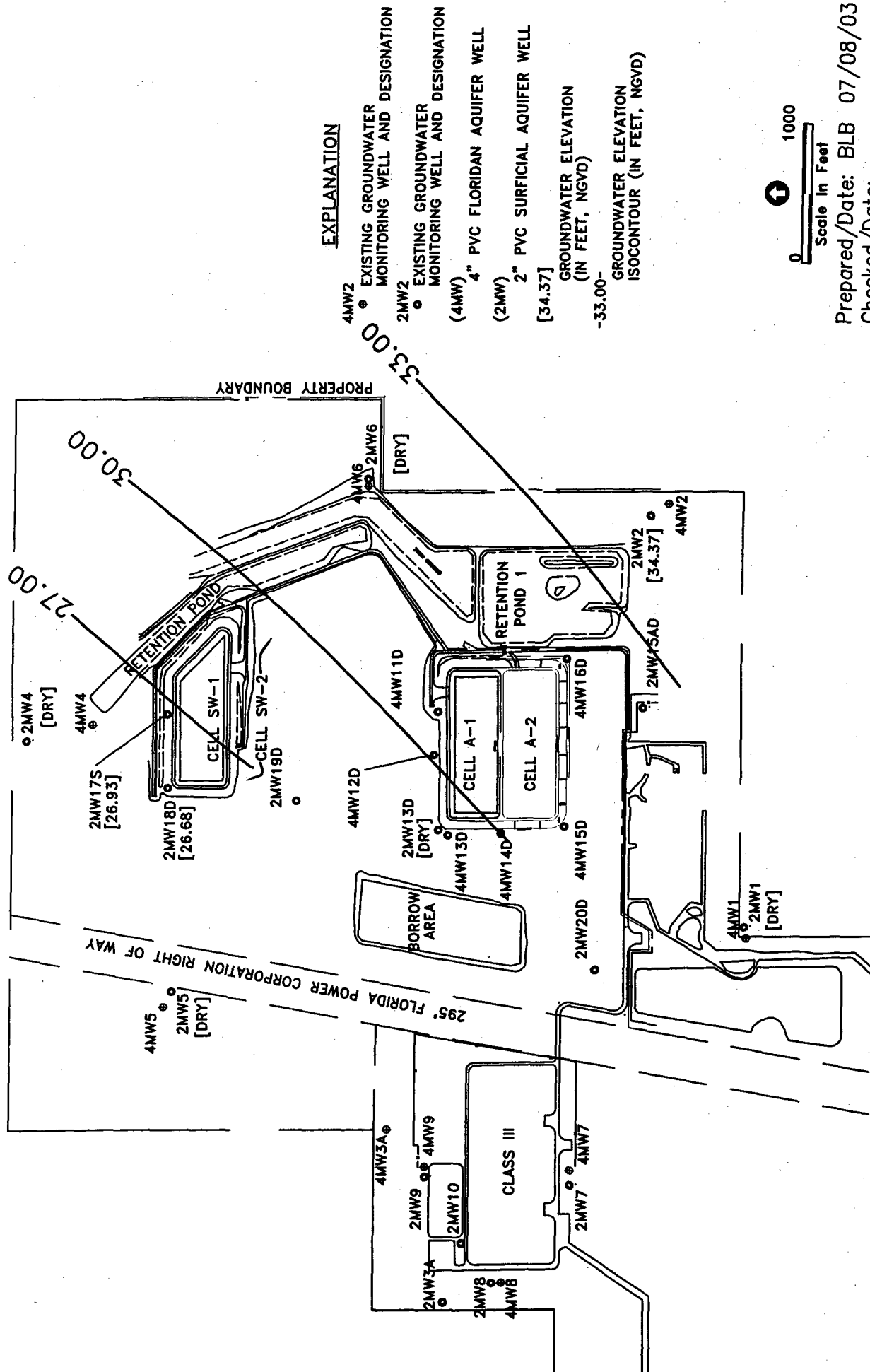


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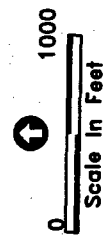
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FLORIDAN AQUIFER POTENTIOMETRIC
SURFACE MAP
MAY 2002
Project 6515-03-0022 Figure 9



EXPLANATION

- 4MW2 • EXISTING GROUNDWATER MONITORING WELL AND DESIGNATION
- 2MW2 • EXISTING GROUNDWATER MONITORING WELL AND DESIGNATION
- (4MW) 4" PVC FLORIDAN AQUIFER WELL
- (2MW) 2" PVC SURFICIAL AQUIFER WELL
- [34.37] GROUNDWATER ELEVATION (IN FEET, NGVD)
- 33.00- GROUNDWATER ELEVATION ISOCONTOUR (IN FEET, NGVD)

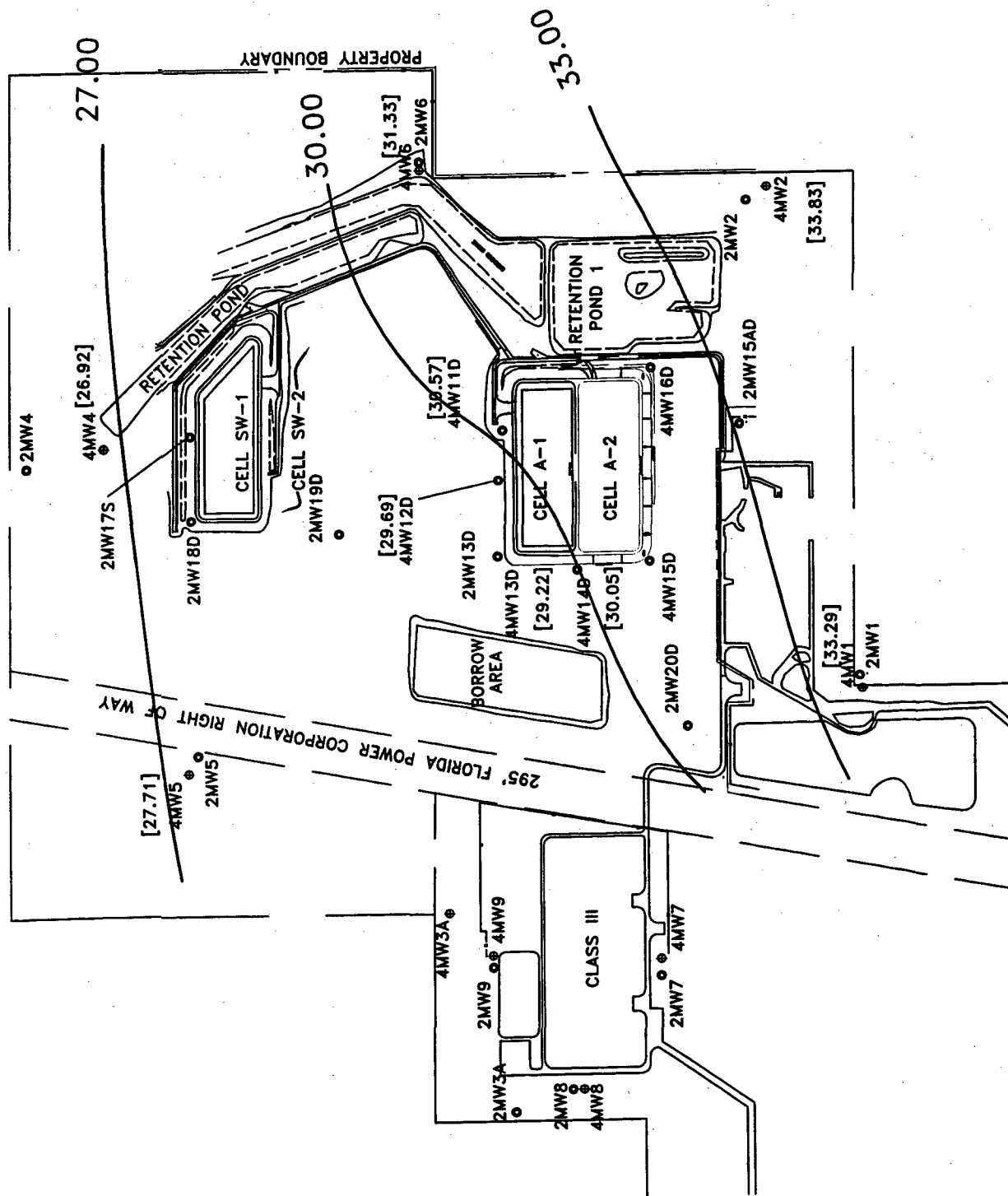


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SURFICIAL AQUIFER WATER TABLE MAP
NOVEMBER 2002



EXPLANATION

- 4MW2 • EXISTING GROUNDWATER MONITORING WELL AND DESIGNATION
- 2MW2 • EXISTING GROUNDWATER MONITORING WELL AND DESIGNATION
- (4MW) 4" PVC FLORIDAN AQUIFER WELL
- (2MW) 2" PVC SURFICIAL AQUIFER WELL
- [34.37] GROUNDWATER ELEVATION (IN FEET, NGVD)
- 33.00- GROUNDWATER ELEVATION ISOCONTOUR (IN FEET, NGVD)



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FLORIDAN AQUIFER POTENTIOMETRIC
SURFACE MAP
NOVEMBER 2002
Project 6515-03-0022 Figure 11

Figure 12: Total Dissolved Solid Concentrations vs. Time

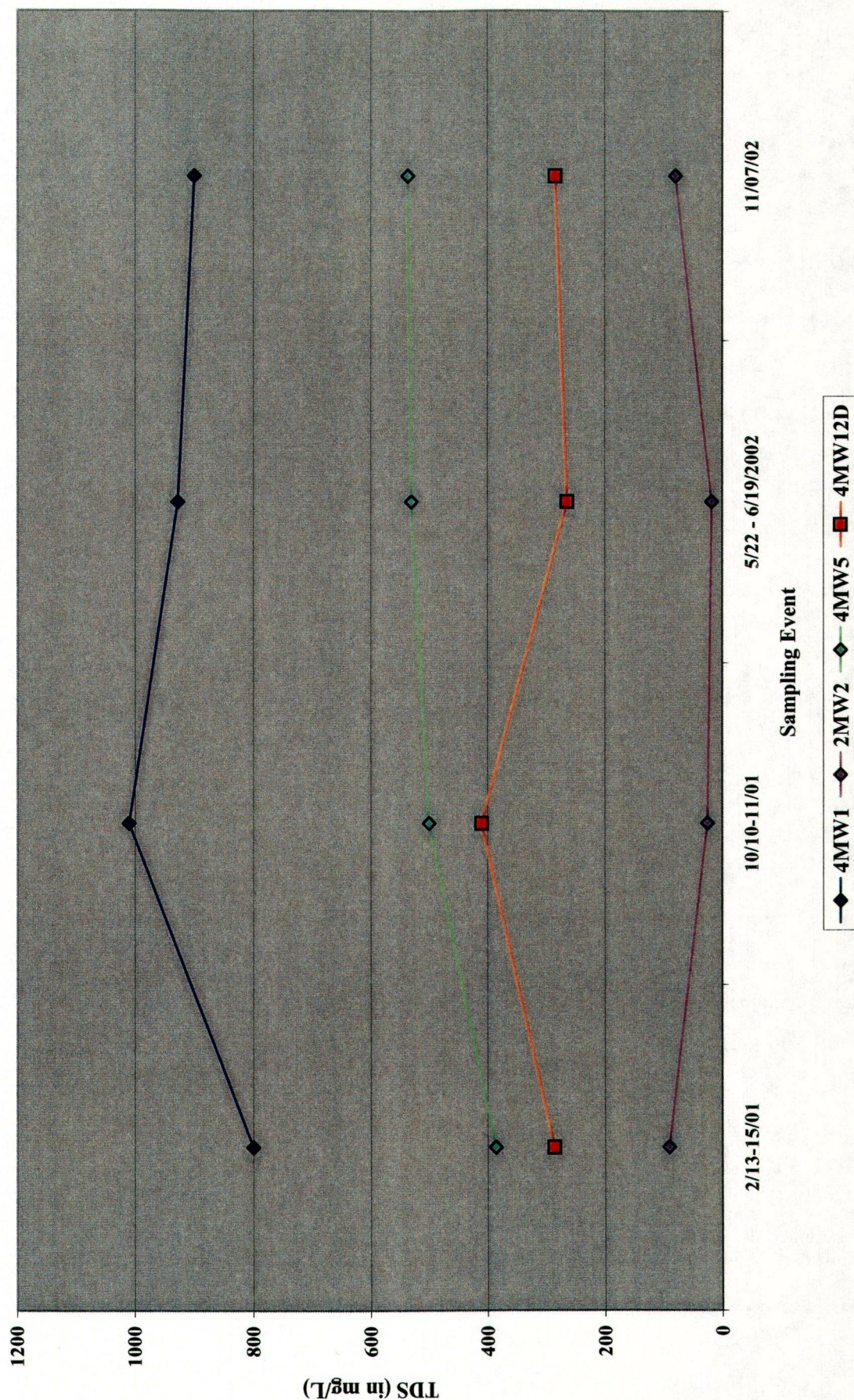


Figure 13: Specific Conductance Levels vs. Time

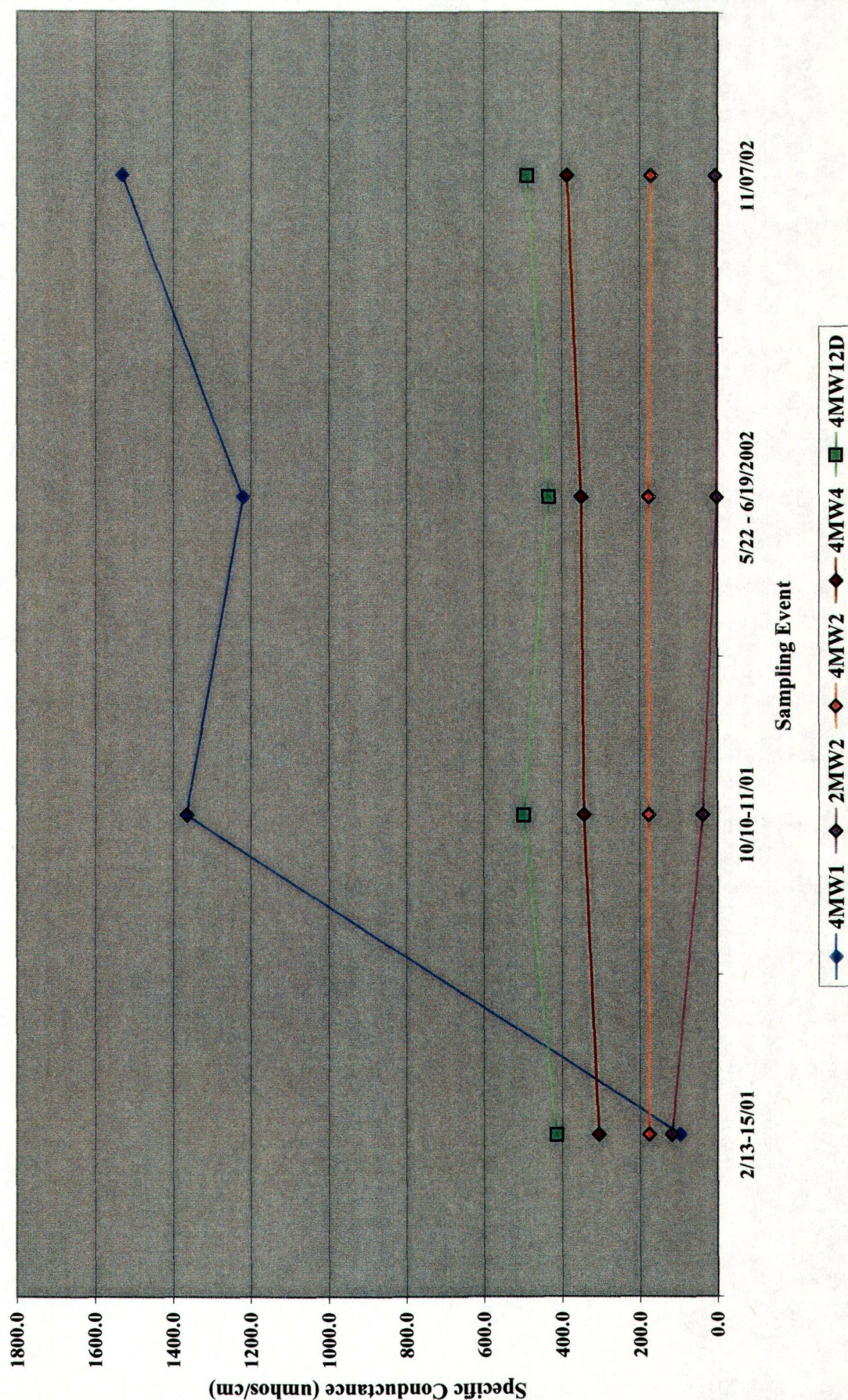


Figure 14: pH Levels vs. Time

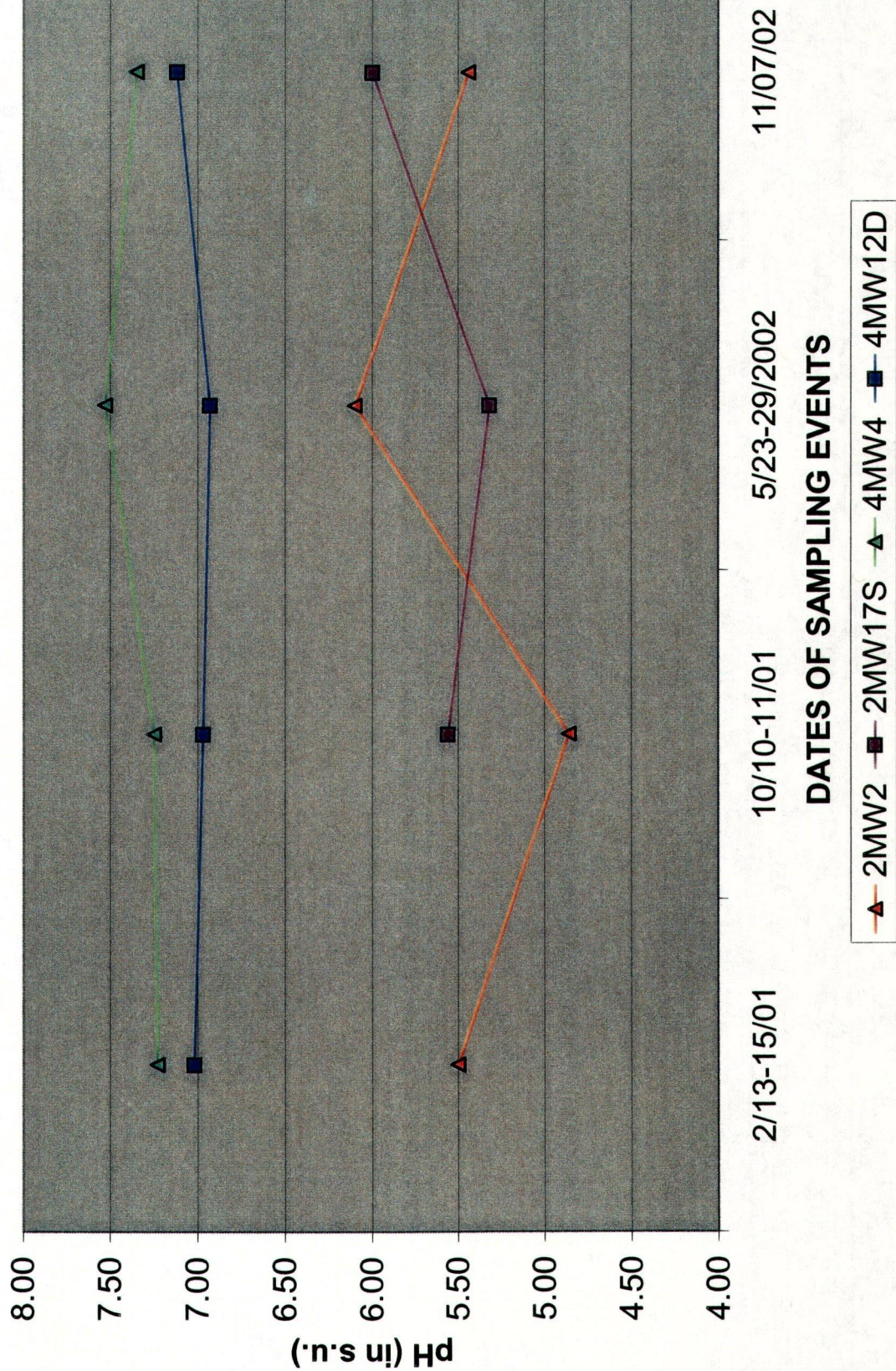


Figure 15: Nitrate Concentrations vs. Time

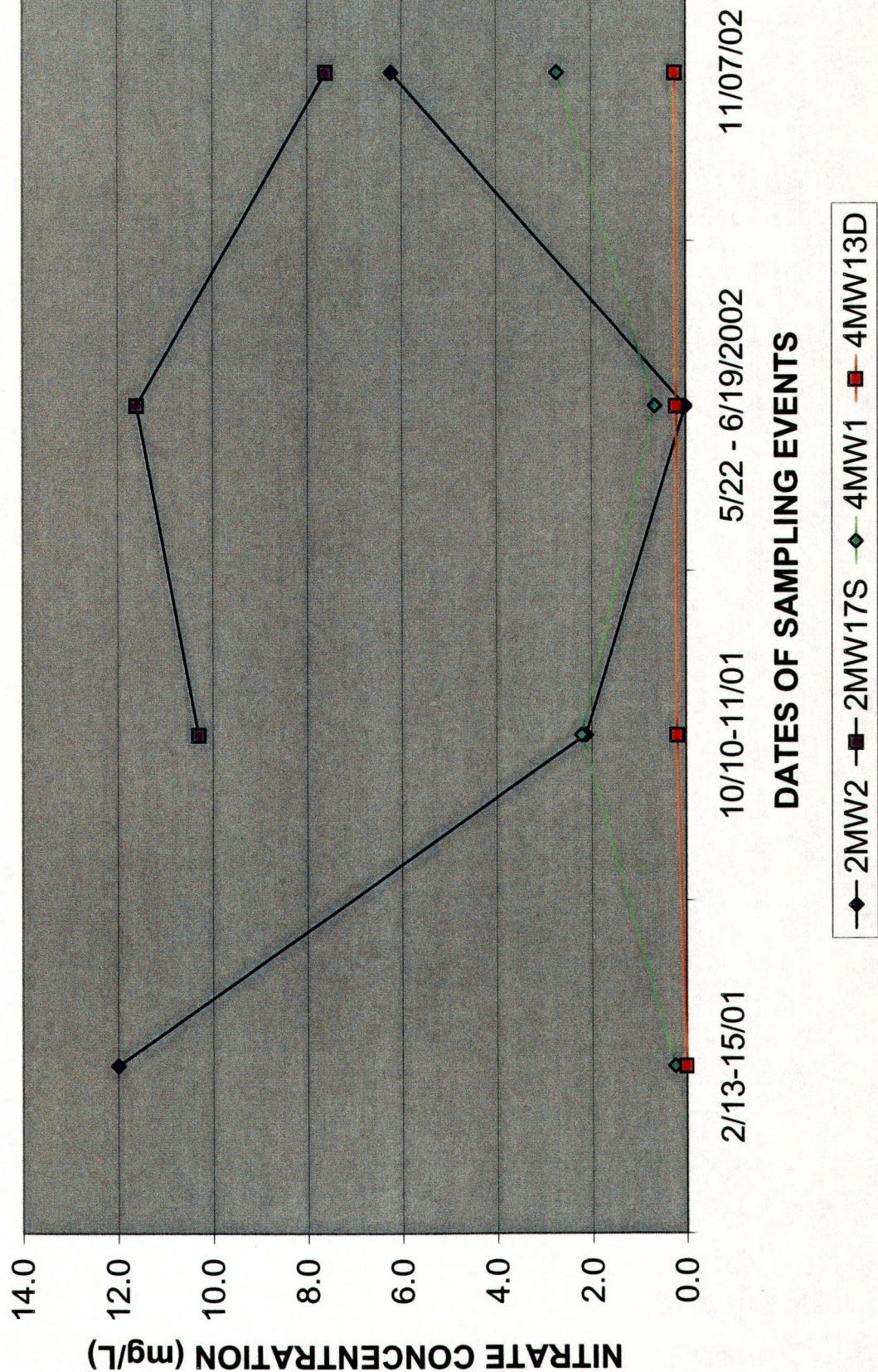


Figure 16: Chloride Concentrations vs. time

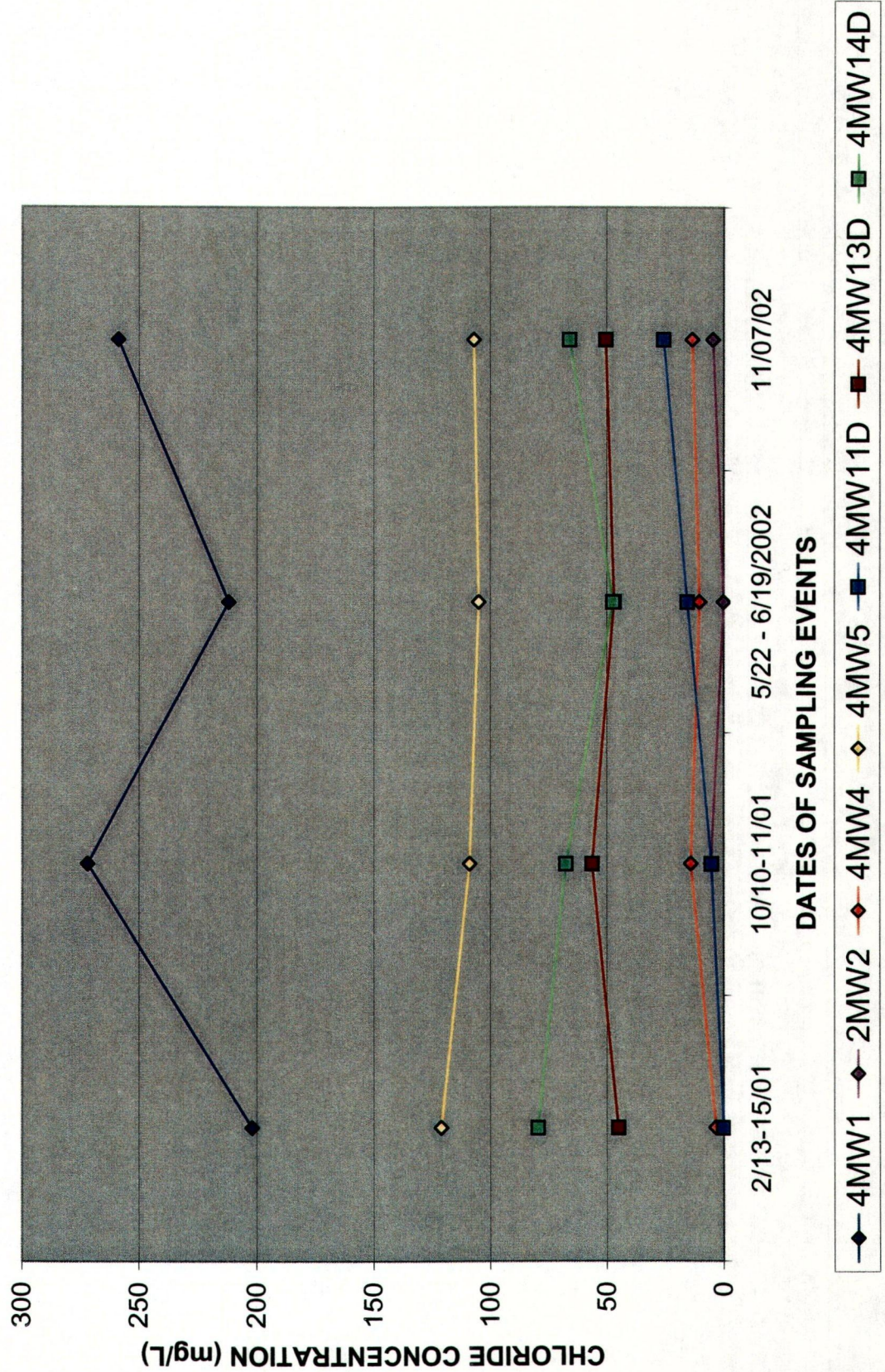


Figure 17: Sodium Concentrations vs. Time

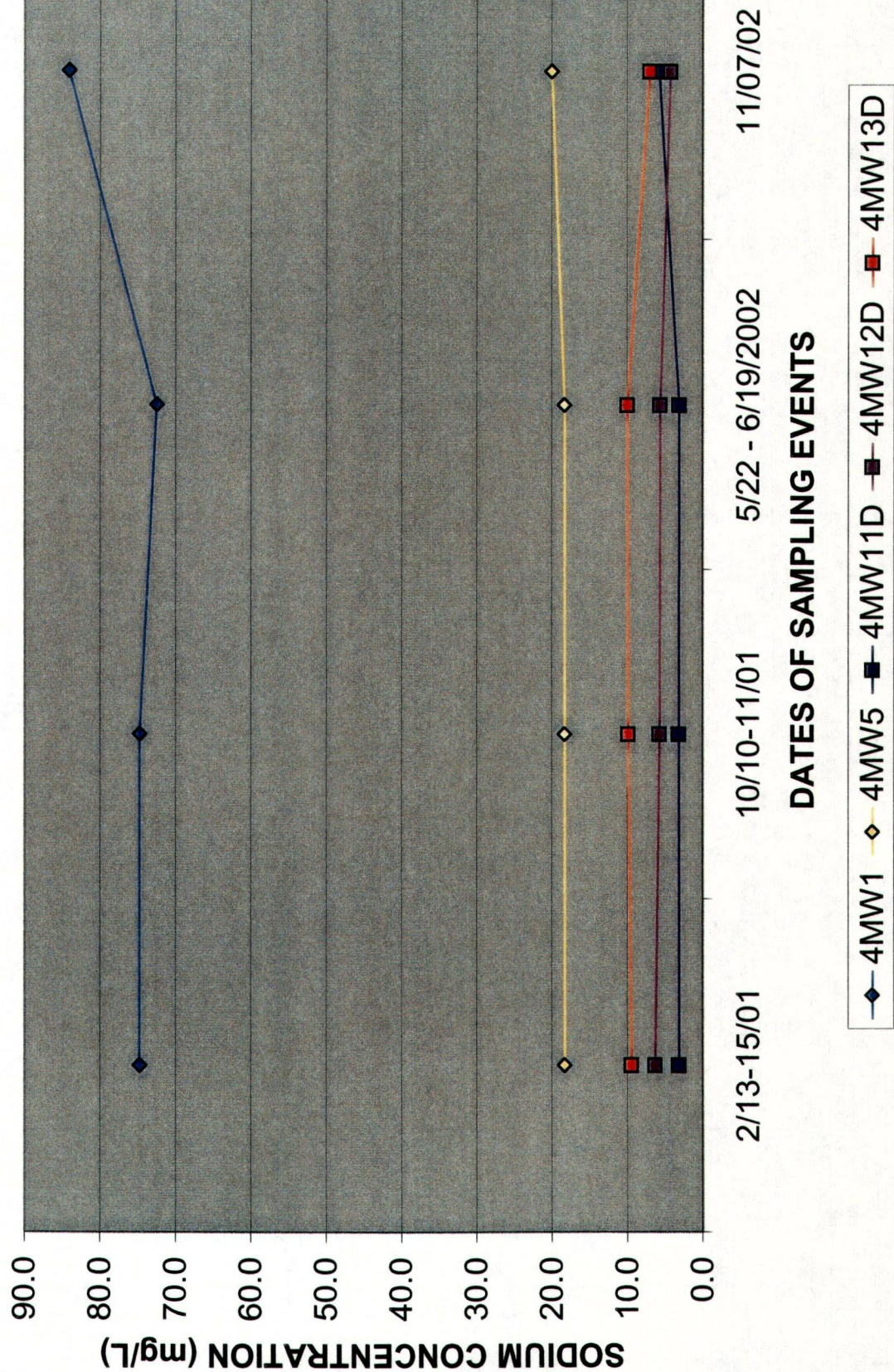


Figure 18: Copper Concentrations vs. Time

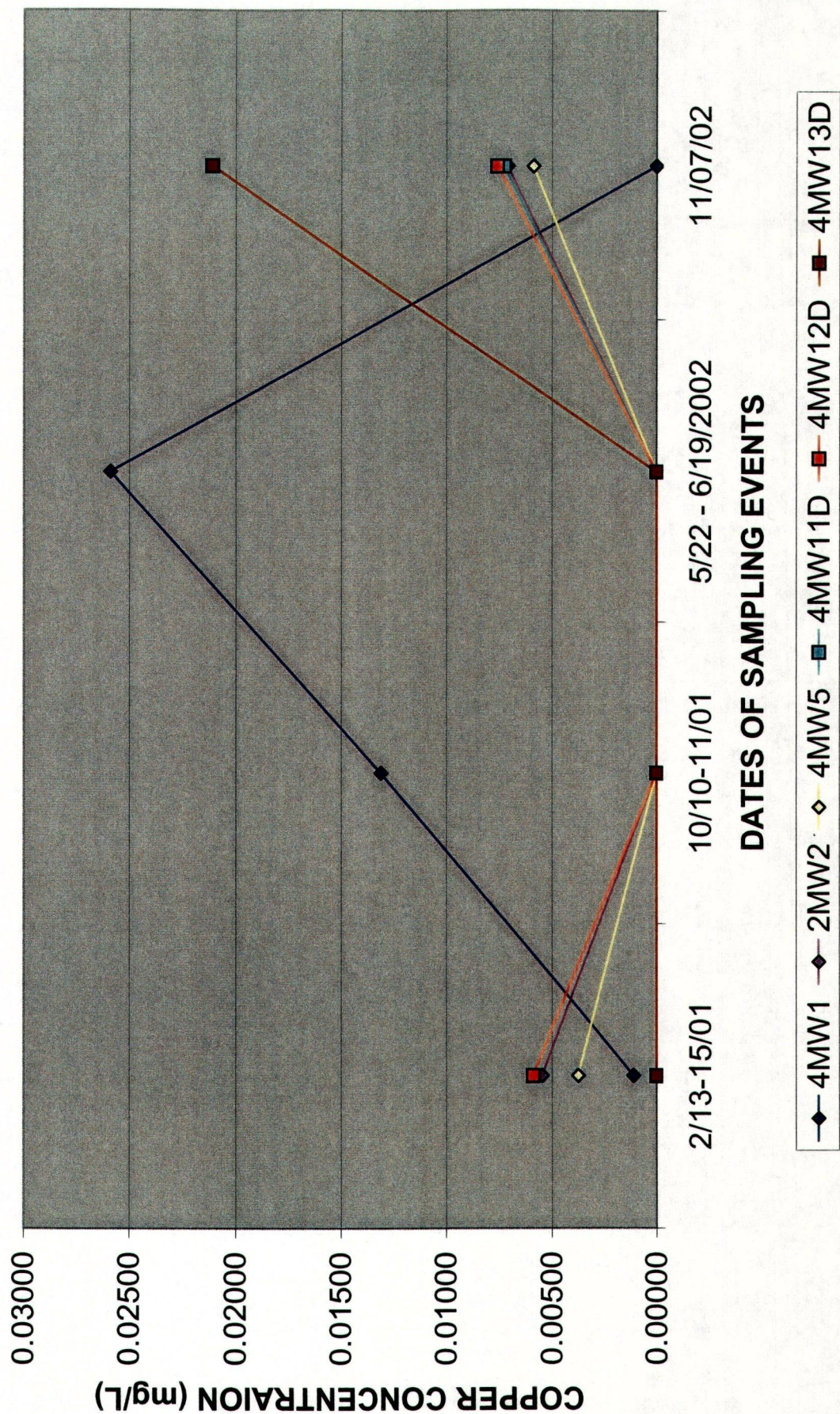


Figure 19: Iron Concentrations vs. Time

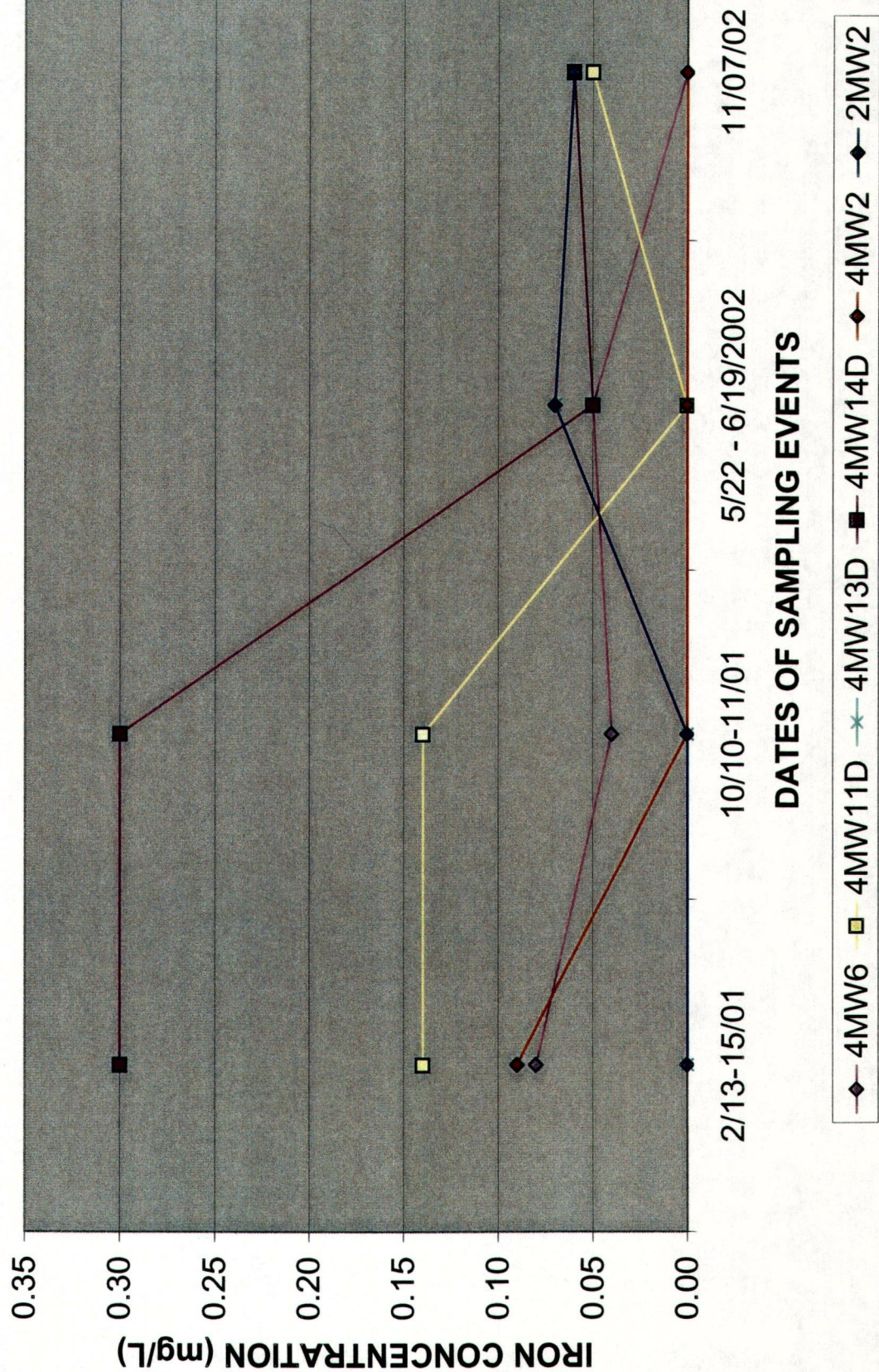


Figure 20: Mercury Concentrations vs. Time

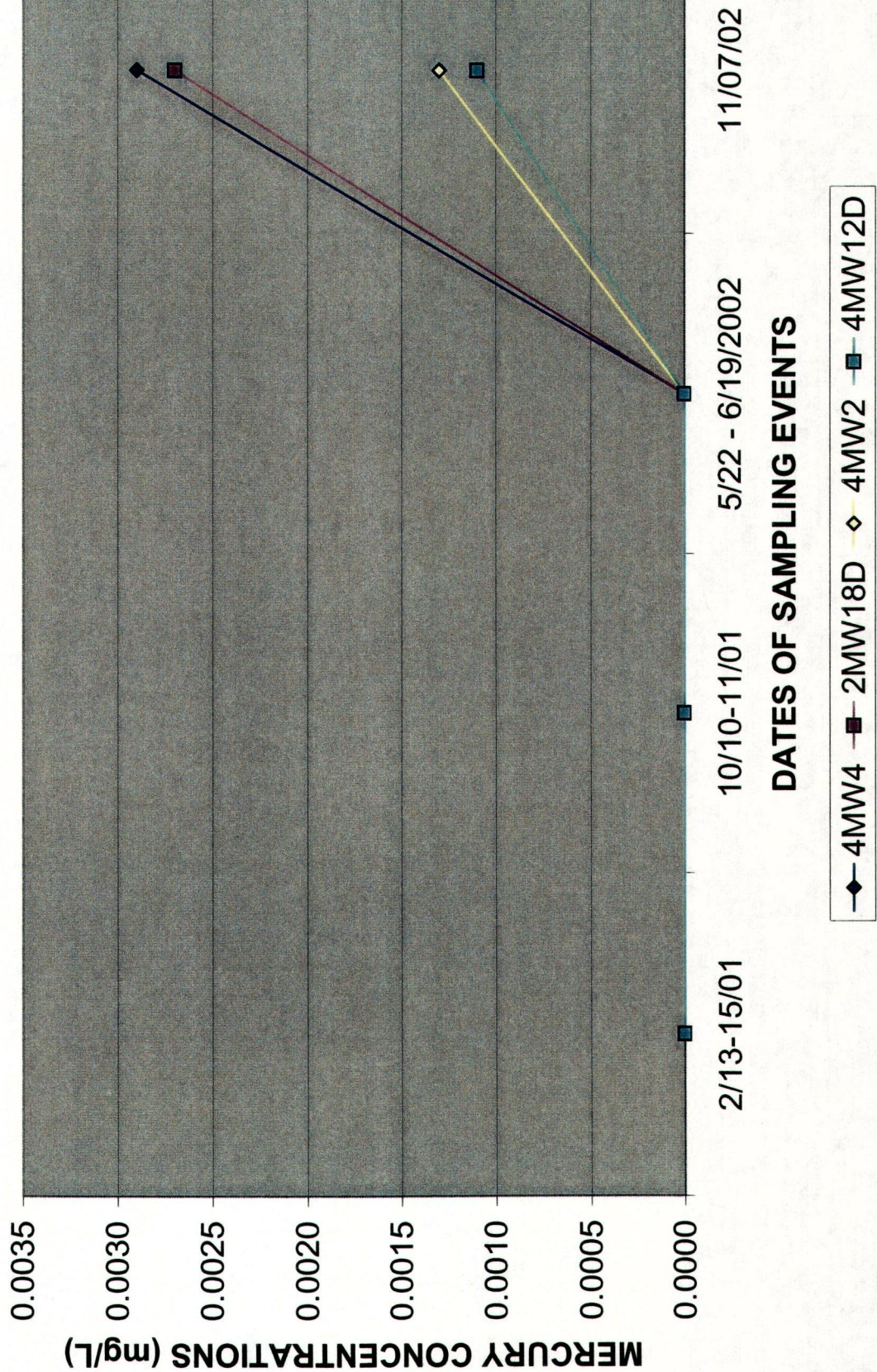


Figure 21: Lead Concentrations vs. Time

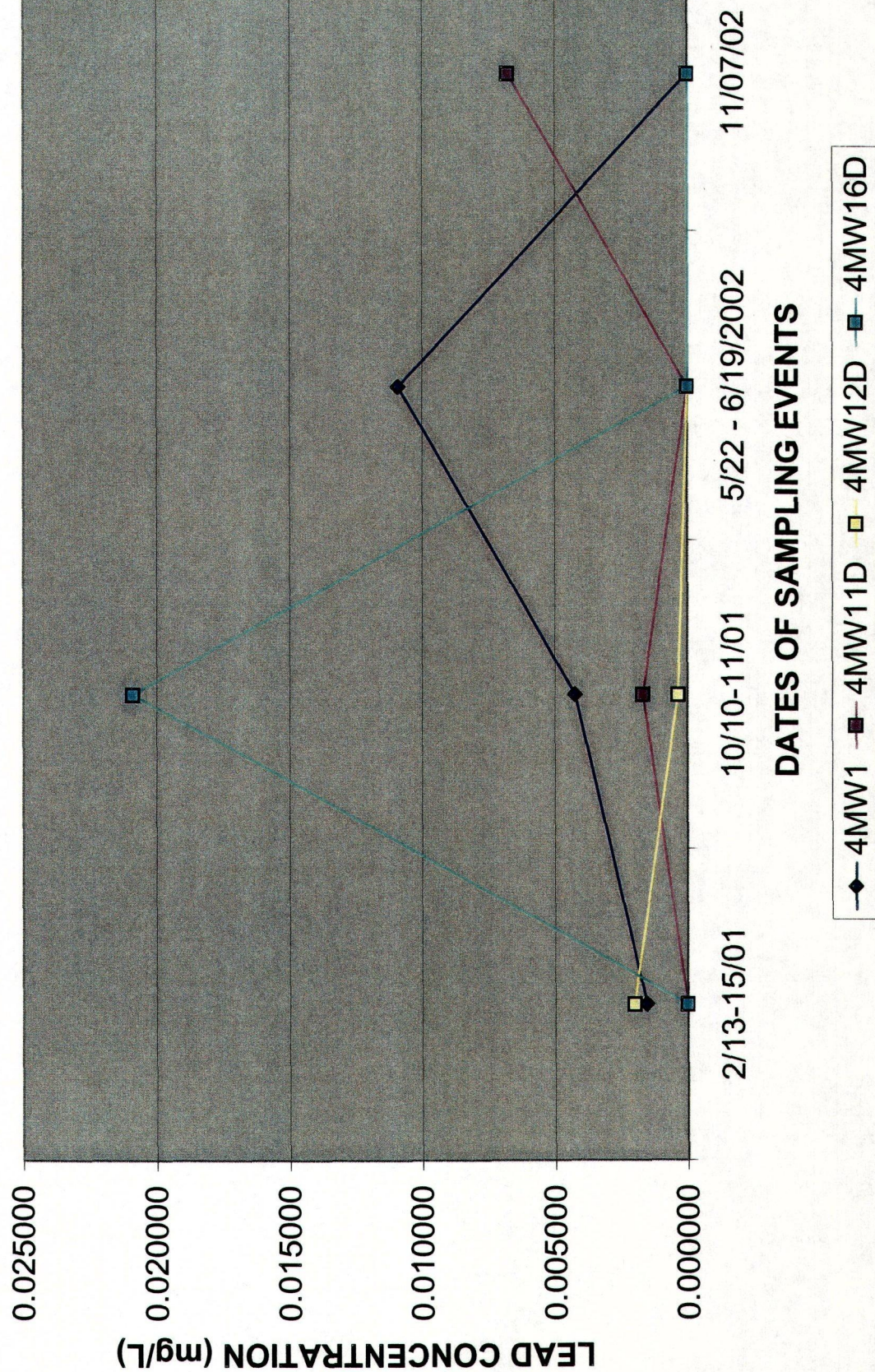


Figure 22: Chromium Concentrations vs. Time

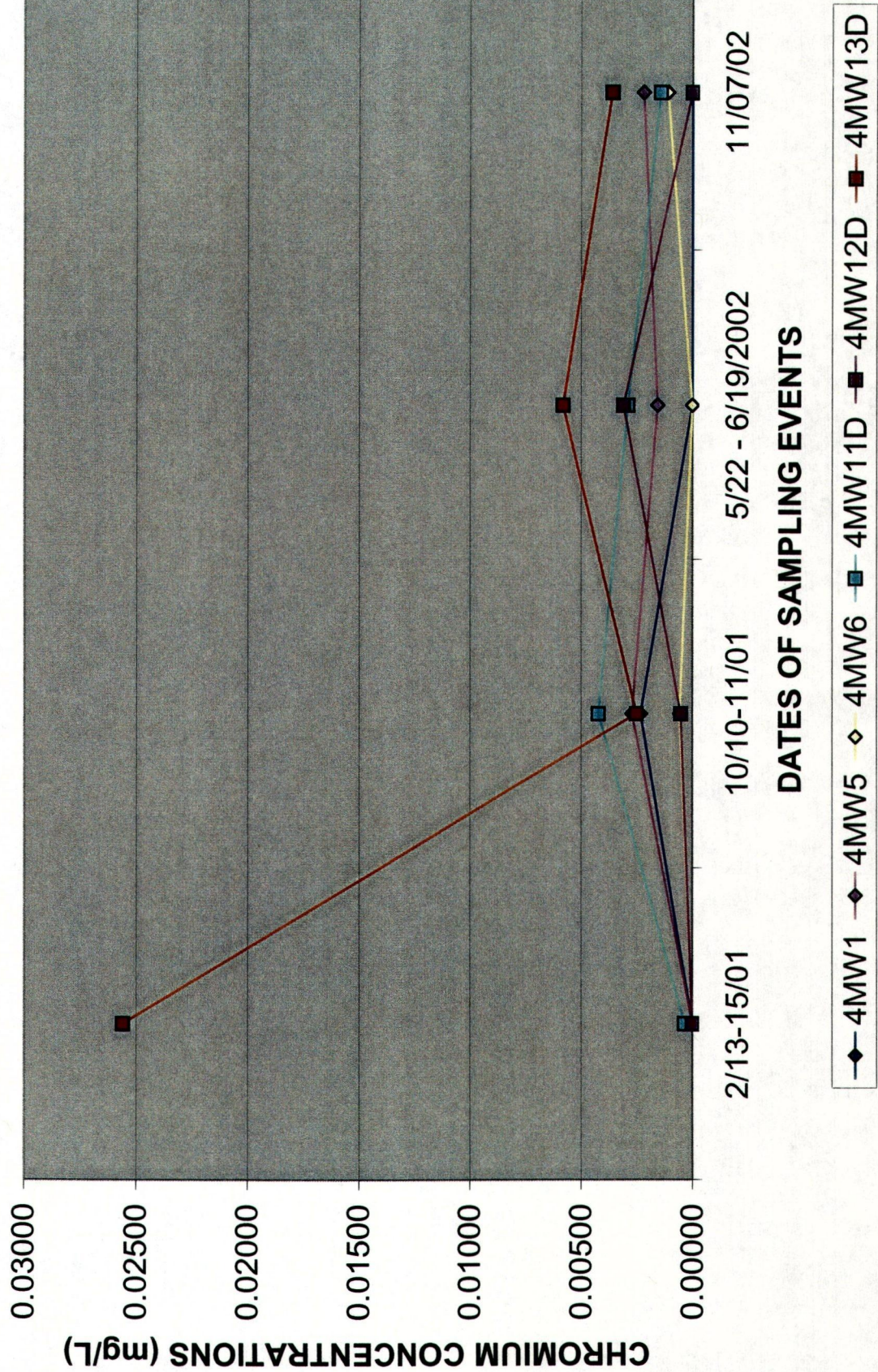


Figure 23: Cadmium Concentrations vs. Time

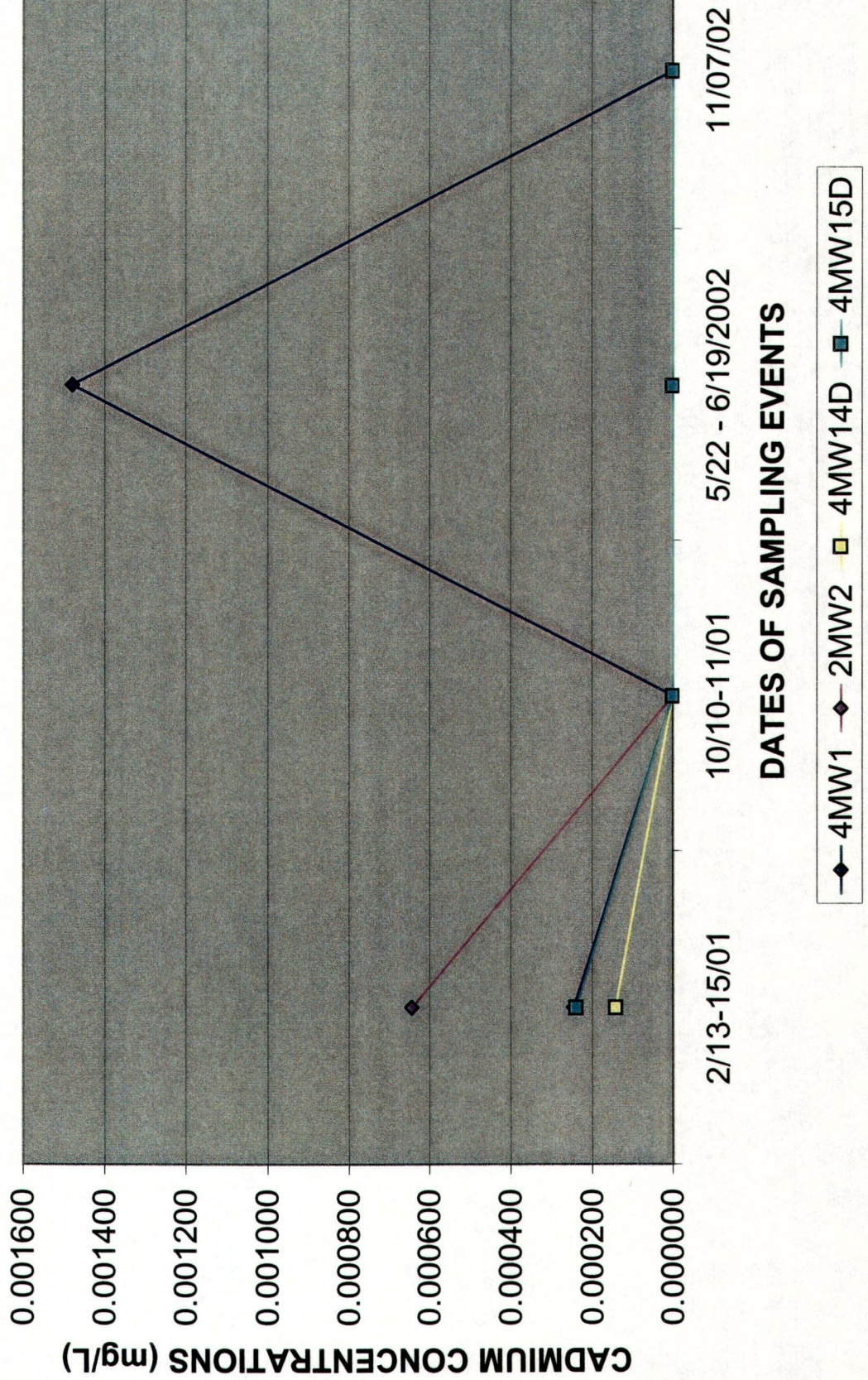


Figure 24: Antimony Concentrations vs. Time

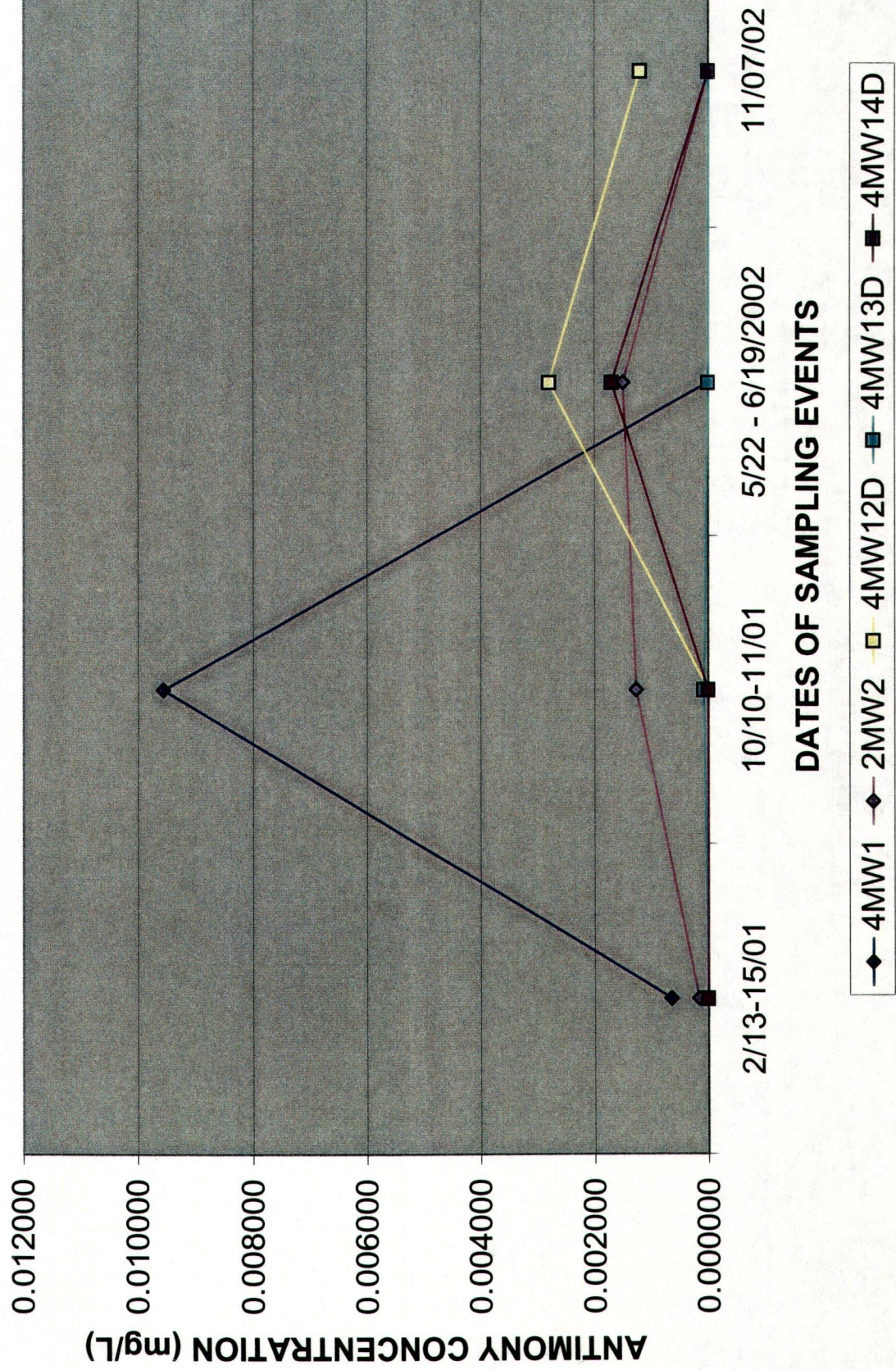


Figure 25: Arsenic Concentrations vs. Time

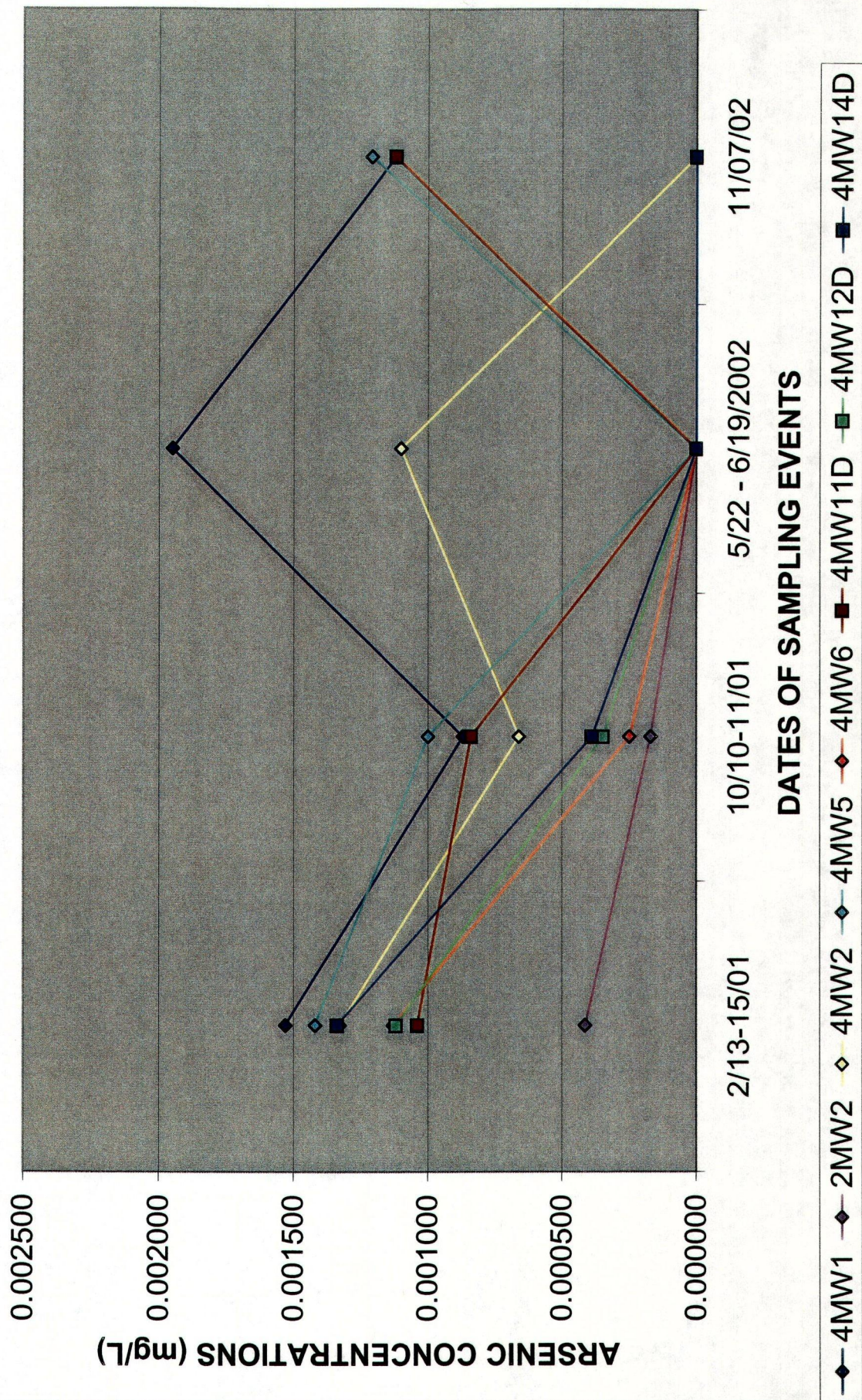


Figure 26: Selenium Concentrations vs. Time

