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**TETRA TECH HAI**





WACS 87895

February 2, 2006

*Via UPS Overnight*

Mr. John Morris, P.G.
Solid Waste Program Manager
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, Florida 33619

**Subject:** **Water Quality Evaluation Report**
**Enterprise Recycling and Disposal Facility**
**Pasco County, Florida**
**FDEP Permit No. 177982-002-SO**

Tt HAI # 99.0331.028
File 14.4

Dear Mr. Morris:

On behalf of Angelo's Aggregate Materials, Ltd. (Angelo's), Tetra Tech HAI (Tt HAI), is submitting for your review the water quality evaluation report for the above referenced facility in accordance with the requirements listed in the above referenced Florida Department of Environmental Protection (FDEP) permit.

## 1.0 INTRODUCTION

The Enterprise Recycling and Disposal Facility is currently permitted to dispose of Class III waste within an area of approximately 160 acres. The facility is located on Enterprise Road, in Dade City, Pasco County, Florida. The facility is presently permitted by the FDEP through Solid Waste Management Permit Nos. 177982-001-SC and 177982-002-SO.

Tt HAI performed the field work and data evaluation for the July 2003, April 2004, October 2004, and April 2005 semi-annual groundwater monitoring reports. The field work, sampling methodologies, data evaluation, data QA/QC, chemical analysis, and statistical analysis were conducted in accordance with the requirements of Rule 62-701.510(9)(b), F.A.C. This report summarizes the results for the two-year period of July 2003 through the April 2005 semi-annual groundwater monitoring events and includes the following:

- Tabular and graphical displays of any data which show that a monitoring parameter has been detected, including hydrographs for all monitor wells;
- Trend analyses of consistently detected monitoring parameters;
- Comparison between up-gradient and down-gradient wells;
- Comparison between surficial and Floridan aquifer zones;

- Correlation between related parameters such as total dissolved solids and specific conductance and discussion of erratic and/or poorly correlated data;
- Interpretation of the groundwater contour maps, including an estimation of groundwater flow rates;
- Evaluation of the adequacy of the water quality monitoring frequency and sampling locations based upon site conditions; and
- Evaluation of monitor well locations including lateral spacing and screened intervals; and
- Discussion of groundwater elevation fluctuations and representativeness of the collected groundwater elevation data.

## 2.0 GROUNDWATER MONITORING PLAN

The groundwater monitoring plan consists of 14 groundwater monitoring wells, all within the uppermost aquifer. The groundwater monitoring network consists of two up-gradient background monitor wells, MW-1 and MW-1B; 11 down-gradient detection monitor wells, MW-5, MW-5A, MW-6, MW-7A, MW-7B, MW-8, MW-8B, MW-9, MW-9B, MW-10, and MW-10B; and one supply well. Monitor wells MW-8B, MW-9B, and MW-10 were installed prior to the April 2005 sampling event due to dry conditions in monitor wells MW-8, MW-9, and MW-10.

## 3.0 FIELD PARAMETERS

Field parameters are measured for each sample collected during the sampling events and include temperature, dissolved oxygen (DO), turbidity, specific conductance, and pH. These parameters are used to monitor the progress of well purging and to ensure correct sampling procedures. A summary of the field parameters is provided in Table 1. Hydrographs for all wells are provided in Appendix A and graphs for all field parameters are provided in Appendix B.

Groundwater temperatures at the site ranged from 21.1 °C (MW-6, April 2004) to 28.3 °C (MW-8, October 2004). DO has been above 20% saturation at least once in all sampled monitor wells except for monitor wells MW-7B and MW-10B. Graphs of the DO measurements indicate relatively consistent saturation in monitor wells MW-1B and MW-7B, with some variability in the other wells.

Turbidity in all monitor wells has remained below 20 NTU with the exception of an exceedance in MW-10 during the July 2003 sampling event. Graphical analyses indicate consistent trends in all monitor wells sampled for the past four sampling events. Specific conductance measurements indicate an upward trend in MW-7B and no consistent trends in samples collected from the remaining monitor wells.

The pH of the surficial aquifer at this site has been measured between 4.71 and 6.73 SU. Analyses of the pH measurements indicate virtually no trends in most of the monitor wells and a slightly increasing trend in monitor well MW-7B for the past four sampling events.

## 4.0 DETECTIONS AND EXCEEDANCES OF SAMPLING PARAMETERS

Table 2 summarizes all parameters detected in the monitor wells for the past four sampling events. Results that exceed the State minimum criteria or primary drinking standards are bold. Graphical analyses of all consistently detected parameters (at least three detections in the past four sampling events) are provided in Appendix C.

None of the samples exceeded the State criterion for total dissolved solids (TDS). An upward trend was observed in monitor well MW-7B.

Iron detections have consistently exceeded the State minimum criteria in two of the monitor wells, MW-1 and MW-6. Analyses of the measurements indicate a downward trend in MW-1, an upward trend in MW-6. The levels detected in these wells may be due to naturally existing iron in the soils and partially attributed to the low pH in the aquifer in these locations.

Sodium and chloride have consistently been detected in all wells, however, the levels have been relatively consistent, and the State minimum criteria for these parameters have not been exceeded. The results have been consistent since the initial background sampling event and are likely naturally occurring at these levels at this site.

Ammonia has been detected in three of the monitor wells, though none of the detections exceeds the State minimum criteria. Only one well, MW-7B, had a sufficient number of detections to determine whether a trend was forming. The concentrations observed for this well indicate consistent levels with no apparent trend.

Nitrate was detected at least once in all monitor wells. With the exception of up-gradient well MW-1B, the detections were well below the primary drinking water standard for this parameter. The presence of nitrates throughout the site may be due to the existence of an orange grove on the property prior to use as a landfill.

Cadmium has been detected once in monitor well MW-1 and twice in monitor well MW-10, each with a detection during the initial background sampling event. All detections were below the minimum criteria for this parameter. Vanadium was detected twice in MW-5B and three times in MW-7B, each with a detection during the initial background sampling event. All detections were at consistent levels and were below the minimum criteria for this parameter. Zinc was detected once in MW-10 during the initial background sampling event and has not been detected in any monitor well since this event. Phenol was detected in MW-7B during the initial background sampling event and has not been detected in any monitor well since this event. All of these parameters were detected during the initial background sampling event and do not indicate increasing trends over the past four events. These are likely to be naturally occurring in the aquifer in this area.

## 5.0 COMPARISON OF UP-GRADIENT AND DOWN-GRADIENT WELLS

Turbidity and pH measured in the background monitor wells are generally consistent with those measured in the detection monitor wells, with the exception of high pH in monitor well MW-7B. Since the pH has measured high for all sampling events, it is likely that grout entered this monitor well during installation. It is recommended that this monitor well be re-developed during the next sampling event in an effort to remove any residual grout or fluids contaminated by grout. Dissolved oxygen measured varies significantly in both the up-gradient and down-gradient monitor wells.

Total dissolved solids measured in the up-gradient wells are consistent with the measurements in the down-gradient wells.

Iron concentrations in one of the background wells were relatively consistent with those in the down-gradient wells. The exceptions are background monitor well MW-1 and down-gradient monitor well MW-6, which had significantly higher concentrations.

Sodium and chloride concentrations observed in the up-gradient wells were consistent with those observed in the down-gradient wells.

Ammonia has not been detected in the up-gradient monitor wells, but has been detected in one of the down-gradient wells since the initial background sampling event.

Nitrate measured in one of the up-gradient monitor wells, MW-1, has been consistent with the nitrate measured in the down-gradient monitor wells. Up-gradient monitor well MW-1B has exceeded the minimum criteria during two sampling events.

Low levels of cadmium were detected in both up-gradient and down-gradient monitor wells. Low levels of vanadium and zinc were detected in down-gradient monitor wells, but have not been observed in either of the up-gradient monitor wells. Phenol was detected once in a down-gradient monitor well, but has not been observed in either of the up-gradient monitor wells.

## 6.0 COMPARISON BETWEEN SURFICIAL AND FLORIDAN AQUIFER ZONES

With the exception on the initial sampling event for MW-10, all turbidity measurements for the surficial and Floridan aquifer wells have been below 20 NTUs.

With the exception of one sampling event each for MW-1 and MW-10, all pH measurements of the surficial aquifer monitor wells have been below 6.5 S.U. All pH measurements of the Floridan aquifer monitor wells have been above 7.0 S.U.

Dissolved oxygen measured varies significantly in both the up-gradient and down-gradient monitor wells and appears to be specific to the individual monitor wells rather than to the aquifer zone in which they are screened. Dissolved oxygen concentration may depend on sampling technique or may be the result of changes in the rate of recharge of the surficial aquifer.

Iron concentrations for the majority of the surficial and Floridan aquifer monitor wells have been below the minimum criteria or were not detected. The exceptions are surficial monitor wells MW-1 and MW-6, which had significantly higher concentrations.

Sodium and chloride concentrations observed in the surficial aquifer monitor wells were consistent with those observed in the Floridan aquifer monitor wells.

Ammonia was not detected in any of the surficial aquifer monitor wells, but was detected in three of the Floridan aquifer monitor wells at low levels.

Nitrate levels measured are consistent between the surficial and Floridan aquifer monitor wells with the exception of monitor well MW-1B.

Low levels of cadmium and zinc were detected in surficial aquifer monitor wells, but were not observed in any Floridan aquifer monitor wells. Vanadium was not detected in any of the surficial aquifer monitor wells, but low levels were detected in two Floridan aquifer monitor wells. Phenol was detected during the initial background sampling event in a Floridan aquifer monitor well.

## 7.0 CORRELATION OF RELATED PARAMETERS

Two correlations of potentially related parameters were performed based on the parameter detections at this facility. These were total dissolved solids and specific conductance, and pH and metals concentrations. Graphs of these correlations are provided in Appendix D.

A correlation evaluation was performed to evaluate the relationship between total dissolved solids and conductance at this site. Correlation coefficients calculated on the few data ranged from -0.89 at monitor well MW-7A to 0.97 at monitor well MW-1. There appears to be a measured relationship between total dissolved solids and conductance at the majority of the monitoring locations at this site. Monitor well MW-8 was not analyzed because only two samples were reported.

The second correlation evaluation was performed to determine the relationship between pH and metals concentrations at this site. This evaluation was to determine whether a direct relationship existed between the presence of metals and hydrogen ion concentration in groundwater. Therefore, there does not appear to be a relationship between the presence of metals and low pH at this site.

## 8.0 INTERPRETATION OF GROUNDWATER FLOW

The surficial groundwater beneath the site generally flows toward the eastern portion of the site, with slight variations toward the northeast and southeast. Groundwater flow in the Floridan aquifer typically flows toward the southern portion of the site. The July 2003 Floridan aquifer potentiometric head map showed the apparent flow direction toward the east to northeast, these flow directions were due to the use of piezometer P-11 in the contouring model. P-11 was removed from subsequent Floridan groundwater flow maps because the groundwater head elevations were thought to be perched, and thus not representative. The overall flow directions in the surficial and Floridan aquifers are similar to that of the hydrogeological study and the facility's MPIS, with the exception of the westerly flow of groundwater in the surficial aquifer during the October 2004 and sampling event. The westerly flow of groundwater was more than likely due to the exceptionally high groundwater levels caused by the overactive hurricane season. Apparent flow velocities are slightly higher than the hydrogeological study, and continue to support the well locations adopted groundwater monitoring plan. Groundwater contour maps for each aquifer zone monitored during each sampling event are attached.

The average groundwater flow rates for the site are as follows.

- Upper surficial aquifer
  - 0.0205 ft/day 7.50 ft/year
- Floridan aquifer
  - 0.0189 ft/day 6.90 ft/year

Groundwater flow calculations are provided in Tables 3 and 4.

### 8.1 Hydrograph Explanation

Groundwater elevations in all monitor wells decreased approximately one-half to four and a half feet from July 2003 to April 2004. Due to heavy rain conditions that existed during the summer of 2004, groundwater elevations in all monitor wells increased from the initial sampling event in July 2003. Since the winter of 2004, groundwater elevations have been decreasing, with the sharpest drop occurring from October 2004 to April 2005. Monitor wells MW-8, MW-9, and MW-10 were dry during the April 2004 and April 2005 sampling events, and MW-9 was also dry during the October 2004 sampling event. Since these surficial aquifer wells appeared to be dry following the dry season, additional Floridan aquifer monitor wells were installed to obtain groundwater level measurements.

## 9.0 EVALUATION OF GROUNDWATER MONITORING PLAN

The groundwater monitoring plan for this facility monitors the potentially affected zone of the surficial aquifer and Floridan aquifer and includes a total of 18 monitor wells. With the exception of the surficial wells in the southeast corner of the property, which have been dry for the past 3 semi-annual sampling events, the remainder of the surficial aquifer monitor wells appear to be functioning properly as described in the hydrologic groundwater monitoring plan. Three additional Floridan aquifer wells were added to the monitor well network to provide groundwater elevations and flow directions in the southeast portion of the site.

### 9.1 Evaluation of Monitor Well Locations

Department rules require a 500-foot monitor well spacing in the down-gradient directions. A review of the current well locations indicates that this criterion has been met for all down-gradient directions.

### 9.2 Evaluation of Well Screen Locations

A review of well completion reports, dated July 2003 and March 2005, conducted by Tetra Tech HAI, shows that all surficial aquifer wells were installed with 15-foot screens, while the Floridan aquifer wells were installed with 10-foot screens, in an attempt to assure that the well screens intersect the water table at all times. Unfortunately, the extremely high water levels measured in October 2004 rose above the well screens in some wells. The exceptionally high groundwater levels appear to have been caused by the overactive hurricane season. Groundwater levels continue to intersect the well screens throughout most of the year. Thus, the locations of the well screens appear to be appropriate to monitor the groundwater at this site.

## 10.0 FLUCTUATION OF GROUNDWATER ELEVATION LEVELS

Groundwater elevations appear to increase during the rain (summer) season that often coincides with the hurricane season throughout Florida. The groundwater elevations in the surficial and Floridan aquifers are generally affected by the abundance of rain, which typically reaches its peak during the October sampling events. Groundwater levels appear to drop during the dry season and typically adjust to the pre-hurricane season levels by the April sampling events. At the site, groundwater levels have fluctuated from 3 to 8 feet in the surficial aquifer from the July 2003 to the April 2005 sampling events, while groundwater levels have fluctuated from 4 to 8 feet in the Floridan aquifer during the same period.

## 11.0 CONCLUSION

Overall groundwater elevations appear to fluctuate seasonally at this site. Groundwater flow direction has remained generally consistent and continues to comply with the currently approved monitor well locations. Slight trends exist at the site based on the groundwater analytical results with the primary exceedances observed including pH, dissolved oxygen, and iron. Additional trends have been observed in monitor well MW-7B and include upward trends in pH, conductance, and TDS.

Based on the results of the four semi-annual groundwater monitoring events, it does not appear that the Enterprise Recycling and Disposal Facility Class III Landfill has had a negative effect on the groundwater and we believe the currently required wells remain sufficient to monitor the groundwater of the site at this time.

Please call us if you have any questions concerning the data presented in this report.

Very truly yours,

**Tetra Tech HAI**

Jennifer L. Deal, P.E.
Project Manager

Miguel A. Garcia, P.G.
Project Hydrogeologist

W. Bruce Lafrenz, P.G.
Senior Hydrogeologist/Associate

Attachments
JLD/cr/99.0331.028/reports/r-1/biennial report

cc: Jeff Rogers, Angelo's
Andy Alipour, Pasco County Development
John Morris, P.G., FDEP, Tampa

# TABLES

TABLE 1
FIELD PARAMETERS
ENTERPRISE RECYCLING DISPOSAL FACILITY, DADE CITY, FLORIDA

| **Parameter, units** | **MW-1** | | | | **MW-1B** | | | |
|---|---|---|---|---|---|---|---|---|
| | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** |
| Temperature, C | 24.7 | 25 | 27 | 25.5 | 25.5 | 25.2 | 24.6 | 25.8 |
| Dissolved oxygen, % | 2.9 | 2.1 | 17.8 | **42.6** | **75.6** | **46.2** | **68.4** | **65.5** |
| Turbidity, NTUs | 3 | 18 | 2.8 | 8.27 | 11 | 18 | 9.8 | 13.5 |
| Specific Conductance, umhos/cm | 62 | 39 | 34 | 36 | 228 | 240 | 238 | 271 |
| pH, Std. Units | 6.73 | **6.29** | **5.96** | **5.22** | 8.06 | 8.12 | 8.09 | 7.7 |
| | | | | | | | | |
| | **MW-5A** | | | | **MW-5B** | | | |
| | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** |
| Temperature, C | 27.3 | 21.4 | 26.1 | 23.3 | 25.8 | 23.1 | 24.7 | 24.4 |
| Dissolved oxygen, % | **30.2** | **69.6** | **62.6** | **62.5** | **40.2** | **39.7** | **36.5** | **61.5** |
| Turbidity, NTUs | 0 | 16 | 0.1 | 3.32 | 18 | 6 | 0.9 | 9.73 |
| Specific Conductance, umhos/cm | 39 | 25 | 26 | 73 | 195 | 184 | 190 | 196 |
| pH, Std. Units | **5.84** | **5.4** | **5.18** | **5.1** | 7.94 | 7.83 | 7.72 | 7.72 |
| | | | | | | | | |
| | **MW-6** | | | | **MW-7A** | | | |
| | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** |
| Temperature, C | 25.8 | 21.1 | 26.9 | 22.6 | 27.2 | 21.6 | 28 | 23.8 |
| Dissolved oxygen, % | **54** | **23.3** | 6.4 | **22.2** | **67.5** | **39.6** | 2.2 | **66** |
| Turbidity, NTUs | 14 | 19 | 3.6 | 18 | 11 | 6 | 0.05 | 10.8 |
| Specific Conductance, umhos/cm | 80 | 60 | 69 | 53 | 25 | 22 | 25 | 23 |
| pH, Std. Units | **5.19** | **5** | **4.71** | **5.06** | **5.37** | **5.39** | **4.83** | **5.3** |
| | | | | | | | | |
| | **MW-7B** | | | | **MW-8** | | | |
| | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** |
| Temperature, C | 24.7 | 23 | 24.9 | 24.7 | 25.6 | Dry | 28.3 | Dry |
| Dissolved oxygen, % | 16.8 | 7.1 | 7.1 | 6.7 | **45.3** | Dry | **64.5** | Dry |
| Turbidity, NTUs | 2 | 0 | 0 | 0.42 | 5 | Dry | 0.5 | Dry |
| Specific Conductance, umhos/cm | 162 | 201 | 306 | 485 | 49 | Dry | 45 | Dry |
| pH, Std. Units | **11.05** | **11.5** | **11.55** | **11.99** | **5.87** | Dry | **5.24** | Dry |
| | | | | | | | | |
| **Parameter, units** | **MW-8B** | | | | **MW-9** | | | |
| | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** |
| Temperature, C | NI | NI | NI | 24.2 | Dry | Dry | Dry | Dry |
| Dissolved oxygen, % | NI | NI | NI | **33.4** | Dry | Dry | Dry | Dry |
| Turbidity, NTUs | NI | NI | NI | 0.45 | Dry | Dry | Dry | Dry |
| Specific Conductance, umhos/cm | NI | NI | NI | 193 | Dry | Dry | Dry | Dry |
| pH, Std. Units | NI | NI | NI | 7.56 | Dry | Dry | Dry | Dry |
| | | | | | | | | |
| | **MW-9B** | | | | **MW-10** | | | |
| | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** |
| Temperature, C | NI | NI | NI | 25.9 | 26.6 | Dry | Dry | Dry |
| Dissolved oxygen, % | NI | NI | NI | **82.1** | **64.7** | Dry | Dry | Dry |
| Turbidity, NTUs | NI | NI | NI | 6.17 | **157** | Dry | Dry | Dry |
| Specific Conductance, umhos/cm | NI | NI | NI | 194 | 54 | Dry | Dry | Dry |
| pH, Std. Units | NI | NI | NI | 7.87 | 6.57 | Dry | Dry | Dry |
| | | | | | | | | |
| | **MW-10B** | | | | **Supply Well** | | | |
| | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** |
| Temperature, C | NI | NI | NI | 25.2 | NS | NS | NS | 23.8 |
| Dissolved oxygen, % | NI | NI | NI | 15.1 | NS | NS | NS | **57.2** |
| Turbidity, NTUs | NI | NI | NI | 8.2 | NS | NS | NS | 1.02 |
| Specific Conductance, umhos/cm | NI | NI | NI | 148 | NS | NS | NS | 175 |
| pH, Std. Units | NI | NI | NI | 7.34 | NS | NS | NS | 8.12 |
| Notes: | | | | | | | | |
| **Bold** indicates exceedance | | | | | | | | |
| NI = Not installed | | | | | | | | |
| NS = Not sampled | | | | | | | | |
| ND = Not detected | | | | | | | | |

TABLE 2
DETECTED GROUNDWATER QUALITY PARAMETERS
ENTERPRISE RECYCING DISPOSAL FACILITY, DADE CITY, FLORIDA

| **Detected Parameter, units** | **MCL/GCTL** | **MW-1** | | | | **MW-1B** | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** |
| Total dissolved solids, mg/L | 500 | 120.0 | 24.0 | 32.0 | 34.0 | 210.0 | 200.0 | 220.0 | 246.0 |
| Iron, ug/L | 300 | **5800.0** | **4300.0** | **3700.0** | **380.0** | ND | 80.0 | ND | 53.0 |
| Sodium, mg/L | 160 | 2.6 | 2.8 | 2.1 | 3.7 | 7.3 | 7.1 | 7.0 | 7.1 |
| Chlorides, mg/L | 250 | 5.7 | 7.1 | 6.3 | 11.1 | 18.0 | 18.0 | 18.0 | 22.9 |
| Ammonia, mg/L | 2.8 | ND | ND | ND | ND | ND | ND | ND | ND |
| Nitrate, mg/L | 10 | ND | ND | ND | 0.11 | 8.7 | **12.0** | 6.2 | **14.2** |
| Cadmium, mg/L | 0.005 | 0.0011 | ND | ND | ND | ND | ND | ND | ND |
| Vanadium, mg/L | 0.049 | ND | ND | ND | ND | ND | ND | ND | ND |
| Zinc, mg/L | 5 | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol, ug/L | 10 | ND | ND | ND | ND | ND | ND | ND | ND |
| **Detected Parameter, units** | **MCL/GCTL** | **MW-5A** | | | | **MW-5B** | | | |
| | | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** |
| Total dissolved solids, mg/L | 500 | 28.0 | 60.0 | 16.0 | 72.0 | 140.0 | 160.0 | 150.0 | 154.0 |
| Iron, ug/L | 300 | ND | ND | ND | ND | 100.0 | ND | ND | ND |
| Sodium, mg/L | 160 | 1.7 | 1.4 | 1.3 | 2.4 | 3.9 | 3.7 | 3.2 | 2.8 |
| Chlorides, mg/L | 250 | 2.2 | 2.4 | 3.8 | 14.5 | 4.9 | 3.8 | 5.1 | 5.1 |
| Ammonia, mg/L | 2.8 | ND | ND | ND | ND | ND | ND | ND | ND |
| Nitrate, mg/L | 10 | 0.74 | 0.58 | 0.36 | 3.0 | 0.88 | 0.63 | 0.39 | 0.60 |
| Cadmium, mg/L | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| Vanadium, mg/L | 0.049 | ND | ND | ND | ND | 0.010 | 0.011 | ND | ND |
| Zinc, mg/L | 5 | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol, ug/L | 10 | ND | ND | ND | ND | ND | ND | ND | ND |
| **Detected Parameter, units** | **MCL/GCTL** | **MW-6** | | | | **MW-7A** | | | |
| | | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** |
| Total dissolved solids, mg/L | 500 | 130.0 | 76.0 | 72.0 | 66.0 | 24.0 | 110.0 | 6.0 | 36.0 |
| Iron, ug/L | 300 | **500.0** | 210.0 | **770.0** | **2000.0** | 100.0 | ND | ND | 96.0 |
| Sodium, mg/L | 160 | 6.2 | 4.3 | 5.9 | 4.9 | 2.2 | 1.8 | 1.9 | 1.7 |
| Chlorides, mg/L | 250 | 14.0 | 15.0 | 7.2 | 15.2 | 2.7 | 2.8 | 3.4 | 3.3 |
| Ammonia, mg/L | 2.8 | ND | ND | ND | ND | ND | ND | ND | ND |
| Nitrate, mg/L | 10 | 1.5 | 0.64 | ND | ND | 0.62 | 0.50 | 0.37 | 0.44 |
| Cadmium, mg/L | 0.005 | ND | ND | ND | ND | ND | ND | ND | ND |
| Vanadium, mg/L | 0.049 | ND | ND | ND | ND | ND | ND | ND | ND |
| Zinc, mg/L | 5 | ND | ND | ND | ND | ND | ND | ND | ND |
| Phenol, ug/L | 10 | ND | ND | ND | ND | ND | ND | ND | ND |
| **Detected Parameter, units** | **MCL/GCTL** | **MW-7B** | | | | **MW-8** | | | |
| | | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** |
| Total dissolved solids, mg/L | 500 | 68.0 | 100.0 | 64.0 | 212.0 | 48.0 | DRY | 28.0 | DRY |
| Iron, ug/L | 300 | ND | ND | ND | ND | 160.0 | DRY | ND | DRY |
| Sodium, mg/L | 160 | 8.7 | 5.7 | 4.6 | 4.2 | 5.0 | DRY | 4.8 | DRY |
| Chlorides, mg/L | 250 | 4.2 | 4.1 | 5.3 | 5.3 | 4.5 | DRY | 4.4 | DRY |
| Ammonia, mg/L | 2.8 | 0.45 | ND | 0.41 | 0.73 | ND | DRY | ND | DRY |
| Nitrate, mg/L | 10 | 0.70 | 0.74 | 0.42 | 0.54 | 2.2 | DRY | 2.0 | DRY |
| Cadmium, mg/L | 0.005 | ND | ND | ND | ND | ND | DRY | ND | DRY |
| Vanadium, mg/L | 0.049 | 0.011 | 0.010 | ND | 0.010 | ND | DRY | ND | DRY |
| Zinc, mg/L | 5 | ND | ND | ND | ND | ND | DRY | ND | DRY |
| Phenol, ug/L | 10 | **11.0** | ND | ND | ND | ND | DRY | ND | DRY |

TABLE 2
DETECTED GROUNDWATER QUALITY PARAMETERS
ENTERPRISE RECYCING DISPOSAL FACILITY, DADE CITY, FLORIDA

| **Detected Parameter, units** | **MCL/GCTL** | **MW-8B** | | | | **MW-9** | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** |
| Total dissolved solids, mg/L | 500 | NI | NI | NI | 194.0 | DRY | DRY | DRY | DRY |
| Iron, ug/L | 300 | NI | NI | NI | ND | DRY | DRY | DRY | DRY |
| Sodium, mg/L | 160 | NI | NI | NI | 7.9 | DRY | DRY | DRY | DRY |
| Chlorides, mg/L | 250 | NI | NI | NI | 7.6 | DRY | DRY | DRY | DRY |
| Ammonia, mg/L | 2.8 | NI | NI | NI | 0.22 | DRY | DRY | DRY | DRY |
| Nitrate, mg/L | 10 | NI | NI | NI | 2.6 | DRY | DRY | DRY | DRY |
| Cadmium, mg/L | 0.005 | NI | NI | NI | ND | DRY | DRY | DRY | DRY |
| Vanadium, mg/L | 0.049 | NI | NI | NI | ND | DRY | DRY | DRY | DRY |
| Zinc, mg/L | 5 | NI | NI | NI | ND | DRY | DRY | DRY | DRY |
| Phenol, ug/L | 10 | NI | NI | NI | ND | DRY | DRY | DRY | DRY |
| **Detected Parameter, units** | **MCL/GCTL** | **MW-9B** | | | | **MW-10** | | | |
| | | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** |
| Total dissolved solids, mg/L | 500 | NI | NI | NI | 198.0 | 110.0 | DRY | 38.0 | DRY |
| Iron, ug/L | 300 | NI | NI | NI | 75.0 | 300.0 | DRY | 230.0 | DRY |
| Sodium, mg/L | 160 | NI | NI | NI | 3.8 | 4.6 | DRY | 2.9 | DRY |
| Chlorides, mg/L | 250 | NI | NI | NI | 8.2 | 9.9 | DRY | 6.0 | DRY |
| Ammonia, mg/L | 2.8 | NI | NI | NI | ND | ND | DRY | ND | DRY |
| Nitrate, mg/L | 10 | NI | NI | NI | 2.0 | 0.75 | DRY | 0.70 | DRY |
| Cadmium, mg/L | 0.005 | NI | NI | NI | ND | 0.0013 | DRY | 0.0015 | DRY |
| Vanadium, mg/L | 0.049 | NI | NI | NI | ND | ND | DRY | ND | DRY |
| Zinc, mg/L | 5 | NI | NI | NI | ND | 0.11 | DRY | ND | DRY |
| Phenol, ug/L | 10 | NI | NI | NI | ND | ND | DRY | ND | DRY |
| **Detected Parameter, units** | **MCL/GCTL** | **MW-10B** | | | | **Supply Well** | | | |
| | | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** | **Jul-03** | **Apr-04** | **Oct-04** | **Apr-05** |
| Total dissolved solids, mg/L | 500 | NI | NI | NI | 132.0 | NS | NS | NS | 124.0 |
| Iron, ug/L | 300 | NI | NI | NI | 160.0 | NS | NS | NS | ND |
| Sodium, mg/L | 160 | NI | NI | NI | 4.6 | NS | NS | NS | 4.4 |
| Chlorides, mg/L | 250 | NI | NI | NI | 13.0 | NS | NS | NS | 10.7 |
| Ammonia, mg/L | 2.8 | NI | NI | NI | 1.1 | NS | NS | NS | ND |
| Nitrate, mg/L | 10 | NI | NI | NI | 0.99 | NS | NS | NS | 4.5 |
| Cadmium, mg/L | 0.005 | NI | NI | NI | ND | NS | NS | NS | ND |
| Vanadium, mg/L | 0.049 | NI | NI | NI | ND | NS | NS | NS | ND |
| Zinc, mg/L | 5 | NI | NI | NI | ND | NS | NS | NS | ND |
| Phenol, ug/L | 10 | NI | NI | NI | ND | NS | NS | NS | ND |
| MCL = Maximum Contaminant Level, as defined in FAC 62-550 | | | | | | | | | |
| GCTL = Groundwater Cleanup Targel Level, as defined in FAC 62-777 | | | | | | | | | |
| NI = Well not installed | | | | | | | | | |
| NS = Well not sampled | | | | | | | | | |
| ND = Parameter not detected above laboratory method detection limit | | | | | | | | | |

TABLE 3, SURFICIAL AQUIFER
GROUNDWATER FLOW VELOCITY
ENTERPRISE RECYCLING AND DISPOSAL FACILITY, PASCO COUNTY, FLORIDA

| **Sampling Date** | **Groundwater Flow Direction** | **Flow Velocity Calculation** | **Velocity, ft/day** | **Velocity, ft/year** |
|---|---|---|---|---|
| Jul-03 | East-Northeast | (1.16 ft/d*0.00962)/0.22 | 0.051 | 18.514 |
| | | | | |
| | | | | |
| Apr-04 | East | (1.16 ft/d*0.00157)/0.22 | 0.008 | 3.022 |
| | | | | |
| | | | | |
| Oct-04 | West-Northwest | (1.16 ft/d*0.0026)/0.22 | 0.014 | 5.004 |
| | | | | |
| | | | | |
| Apr-05 | East | (1.16 ft/d*0.00174)/0.22 | 0.009 | 3.349 |
| | | | | |
| Note: Groundwater flow velocity is calculated by V = Kh * i / n | | | | |
| Kh = Horizontal hydraulic conductivity | | | | |
| i = Hydraulic gradient defined by head difference over a measured horizontal | | | | |
| | separation in the down-gradient direction | | | |
| n = Effective porosity | | | | |

TABLE 3, FLORIDAN AQUIFER
GROUNDWATER FLOW VELOCITY
ENTERPRISE RECYCLING AND DISPOSAL FACILITY, PASCO COUNTY, FLORIDA

| **Sampling Date** | **Groundwater Flow Direction** | **Flow Velocity Calculation** | **Velocity, ft/day** | **Velocity, ft/year** |
|---|---|---|---|---|
| Jul-03 | East-Northeast | (3.78 ft/d*0.00112)/0.22 | 0.0192 | 7.024 |
| | | | | |
| | | | | |
| Apr-04 | South | (3.78 ft/d*0.00111)/0.22 | 0.0191 | 6.961 |
| | | | | |
| | | | | |
| Oct-04 | South | (3.78 ft/d*0.00108)/0.22 | 0.0186 | 6.773 |
| | | | | |
| | | | | |
| Apr-05 | South | (3.78 ft/d*0.00109)/0.22 | 0.0187 | 6.836 |
| | | | | |
| Note: Groundwater flow velocity is calculated by V = Kh * i / n | | | | |
| Kh = Horizontal hydraulic conductivity | | | | |
| i = Hydraulic gradient defined by head difference over a measured horizontal | | | | |
| | separation in the down-gradient direction | | | |
| n = Effective porosity | | | | |

# FIGURES

0 150 300 600

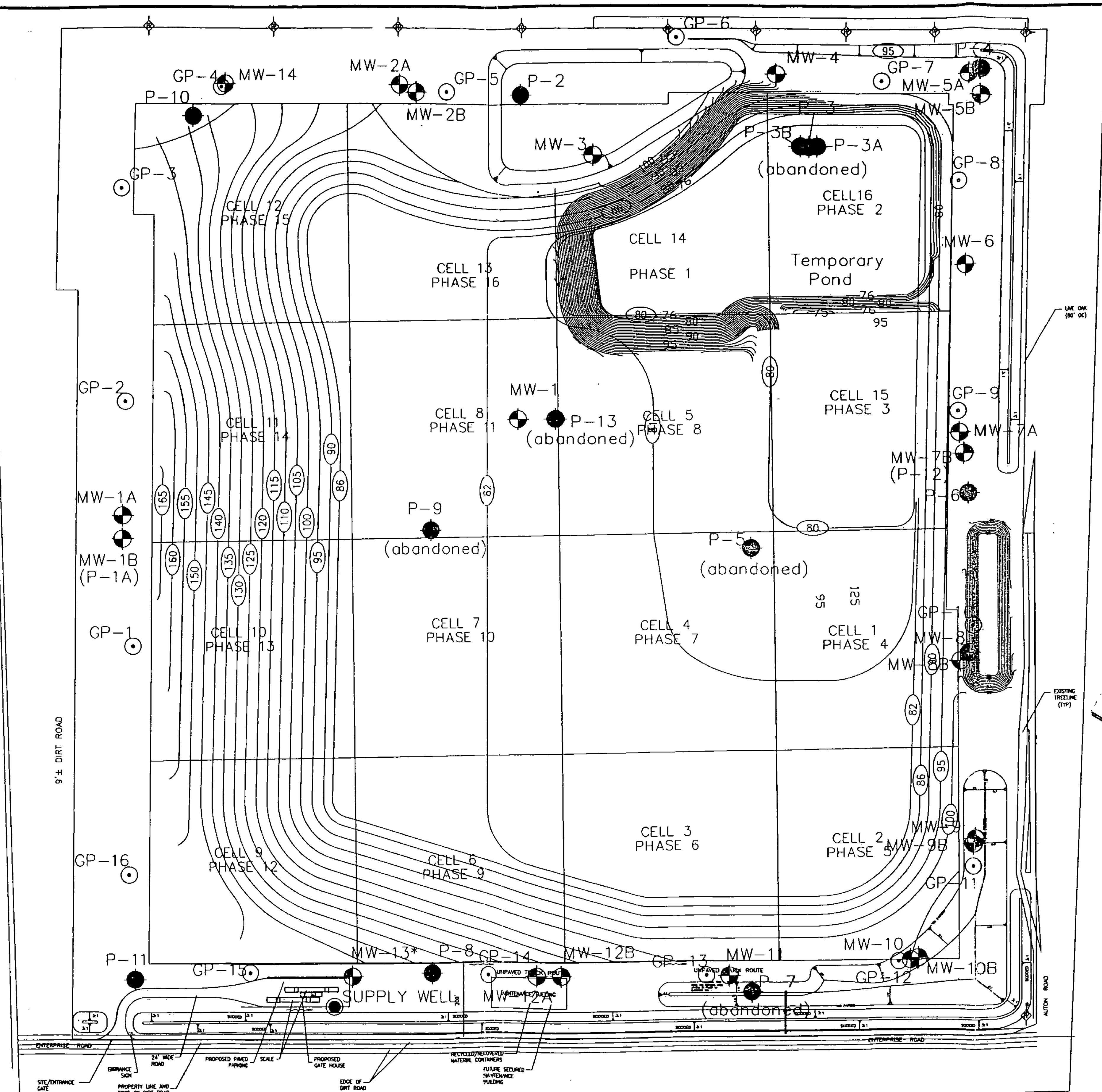
# LEGEND

MW-1 MONITOR WELL LOCATION

GP-1 GASPROBE LOCATION

P-9 PIEZOMETER WELL LOCATION

SUPPLY WELL



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engineers, hydrogeologists, surveyors & management consultants
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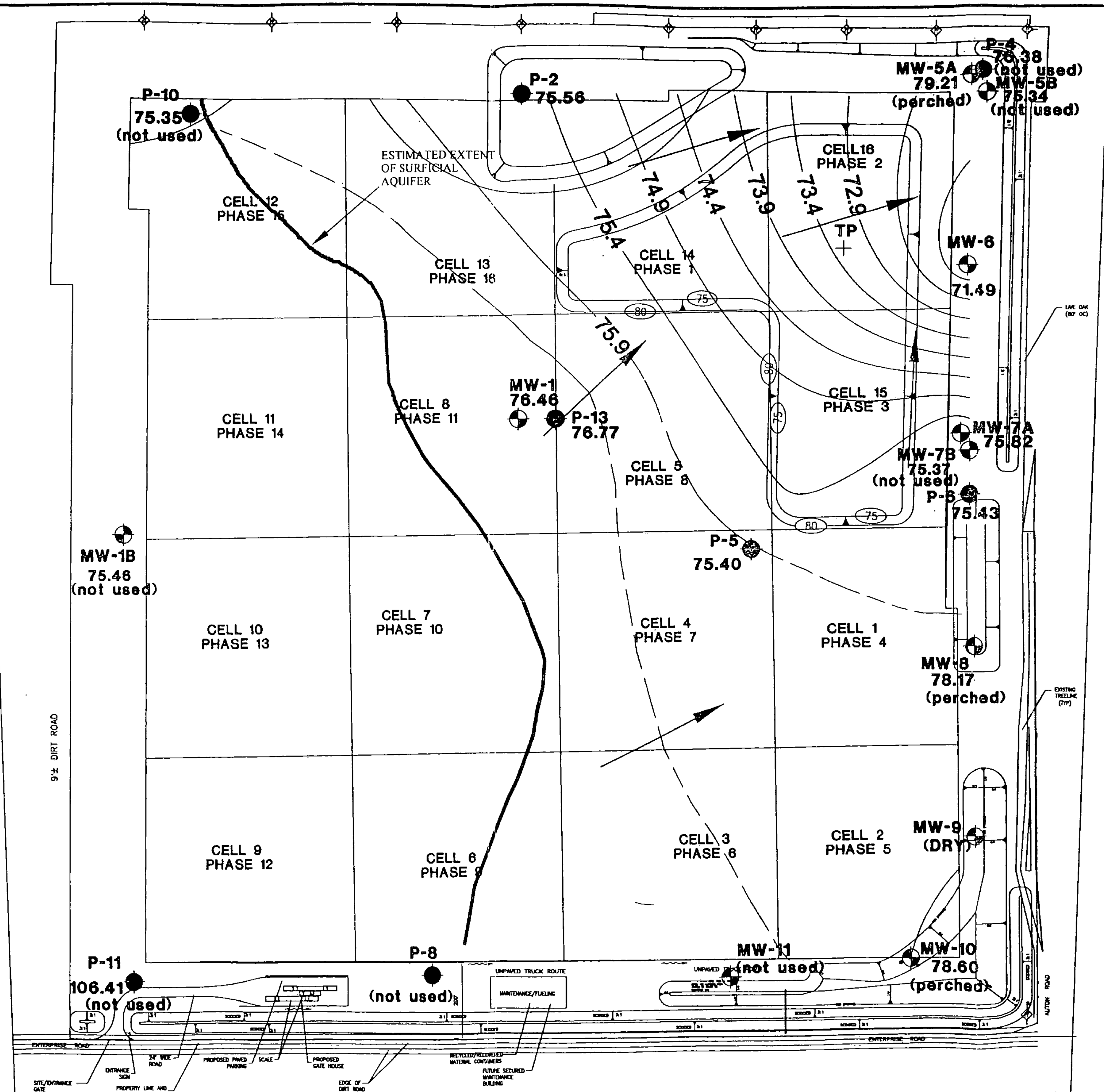
TELEPHONE (407) 839-3955 - FAX (407) 839-3790

WELL LOCATION MAP
ENTERPRISE ROAD RECYCLING AND DISPOSAL FACILITY
DADE CITY, FLORIDA

FIGURE
1




# LEGEND

MW-1 — MONITOR WELL LOCATION

76.46 — WATER LEVEL, (ft. NGVD) 7/17/03

— 76 — GROUNDWATER CONTOUR ELEVATION (ft. NGVD)

ESTIMATED GROUNDWATER FLOW DIRECTION

P-5 — PIEZOMETER LOCATION

INFERRED GROUNDWATER CONTOUR ELEVATION



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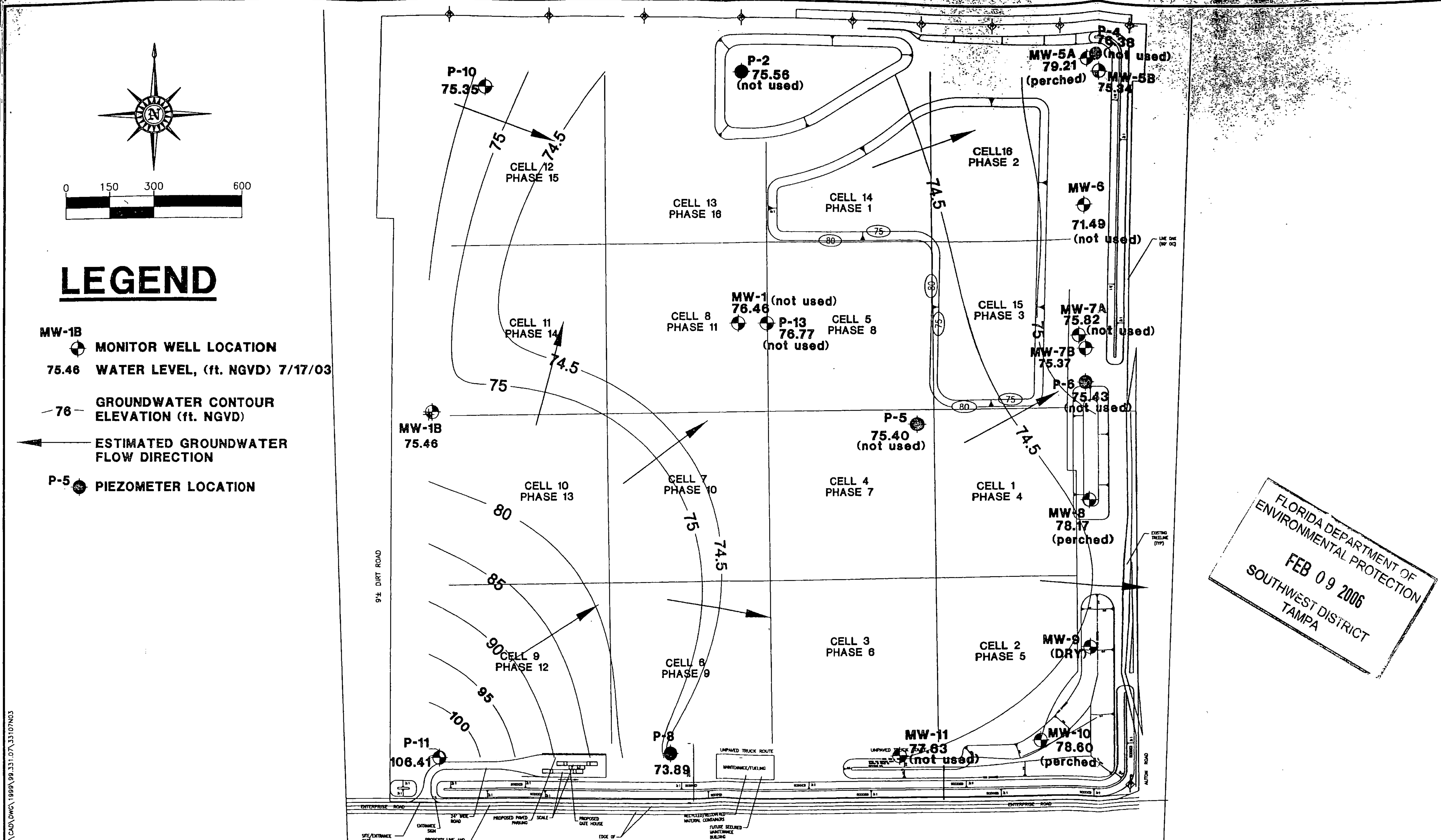
GROUNDWATER CONTOUR MAP
SURFICIAL AQUIFER - JULY 17, 2003
ENTERPRISE ROAD RECYCLING AND DISPOSAL FACILITY
DADE CITY, FLORIDA

FIGURE 4

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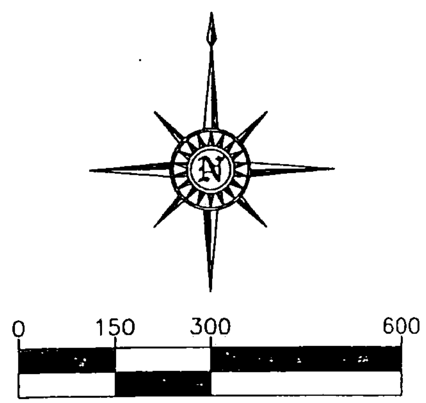
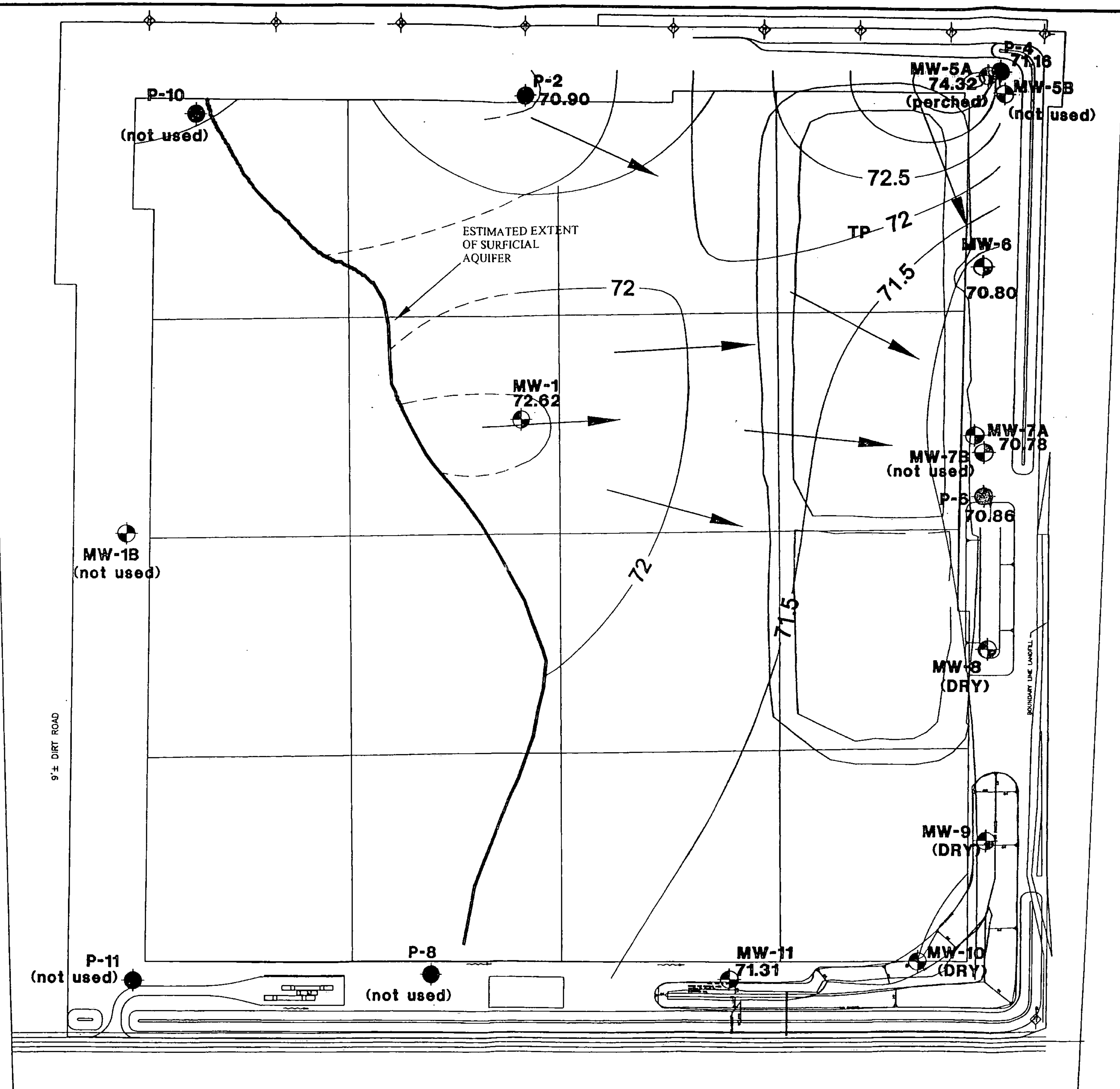
**GROUNDWATER CONTOUR MAP**
**FLORIDAN AQUIFER - JULY 17, 2003**
**ENTERPRISE ROAD RECYCLING AND DISPOSAL FACILITY**
**DADE CITY, FLORIDA**

**FIGURE 5**




# LEGEND

MW-1 — MONITOR WELL LOCATION

72.62 — WATER LEVEL, (ft. NGVD) 4/14/04

71.5 — GROUNDWATER CONTOUR ELEVATION (ft. NGVD)

ESTIMATED GROUNDWATER FLOW DIRECTION

P-5 — PIEZOMETER LOCATION

INFERRED GROUNDWATER CONTOUR ELEVATION

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
FEB 09 2006
SOUTHWEST DISTRICT
TAMPA

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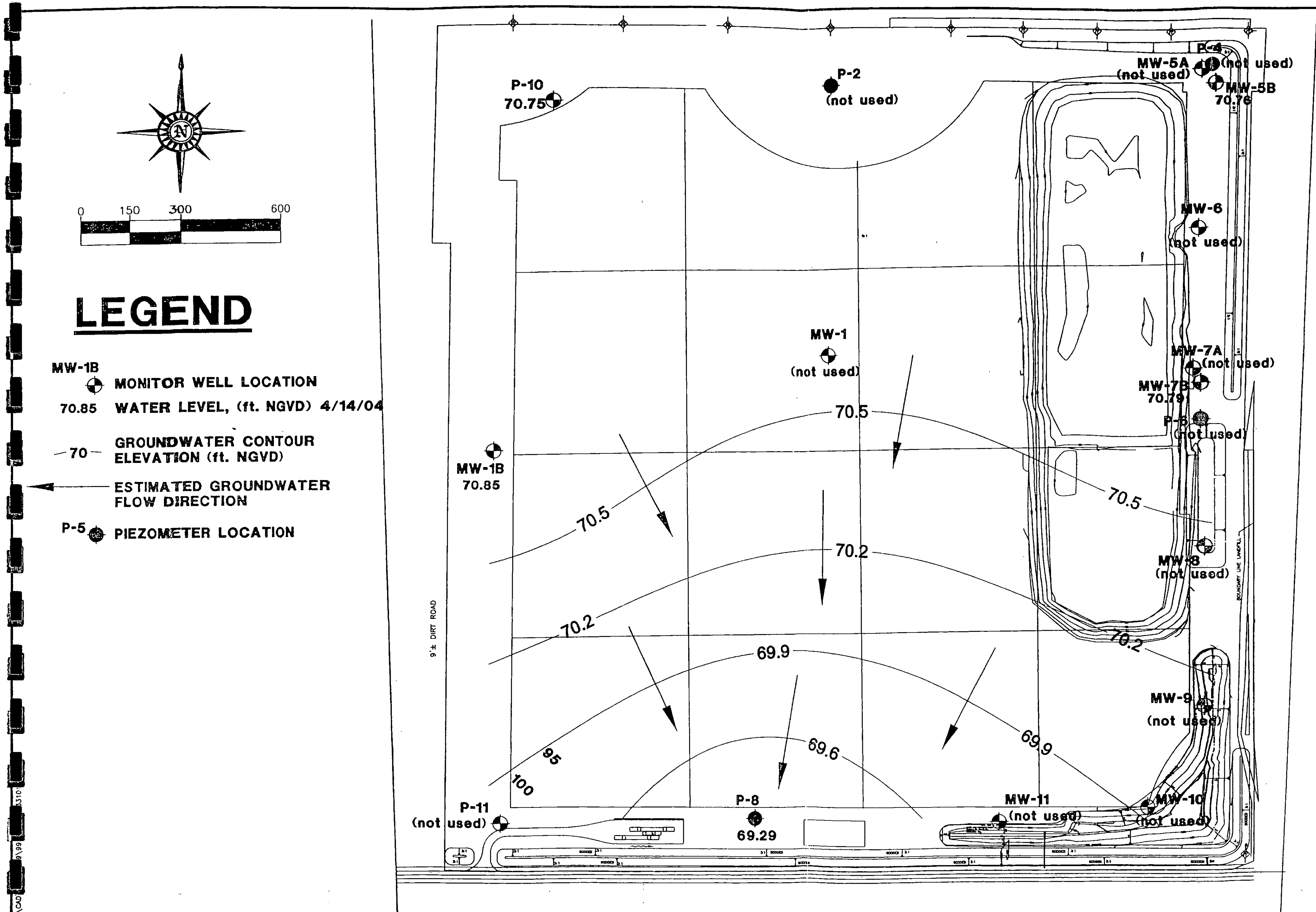
**GROUNDWATER CONTOUR MAP**
**SURFICIAL AQUIFER - APRIL 14, 2004**
**ENTERPRISE RECYCLING AND DISPOSAL FACILITY**
**DADE CITY, FLORIDA**

FIGURE 2

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SOUTHWEST DISTRICT
TAMPA

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**GROUNDWATER CONTOUR MAP**
**FLORIDAN AQUIFER - APRIL 14, 2004**
**ENTERPRISE RECYCLING AND DISPOSAL FACILITY**
**DADE CITY, FLORIDA**

**FIGURE 3**

0 150 300 600

# LEGEND

MW-1 MONITOR WELL LOCATION

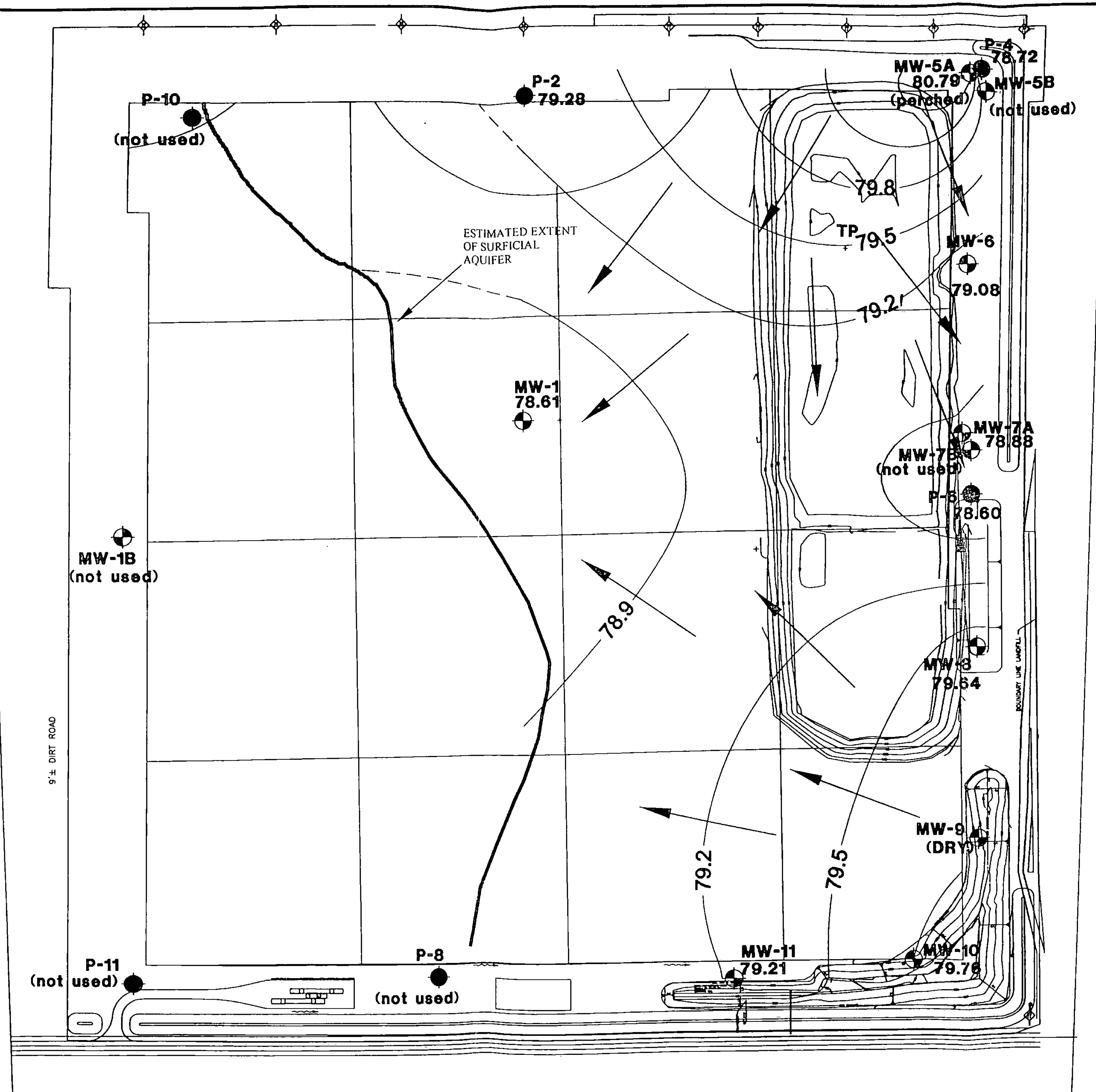
78.61 WATER LEVEL, (ft. NGVD) 4/14/04

78.9 GROUNDWATER CONTOUR ELEVATION (ft. NGVD) CONTOUR INTERVAL = 0.3 ft.

ESTIMATED GROUNDWATER FLOW DIRECTION

P-5 PIEZOMETER LOCATION

INFERRED GROUNDWATER CONTOUR ELEVATION



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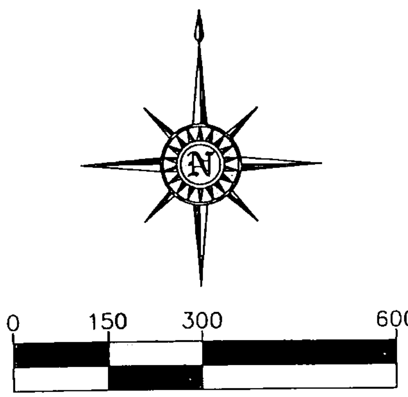
GROUNDWATER CONTOUR MAP
SURFICIAL AQUIFER - OCTOBER 12, 2004
ENTERPRISE RECYCLING AND DISPOSAL FACILITY
DADE CITY, FLORIDA

FIGURE 2




# LEGEND

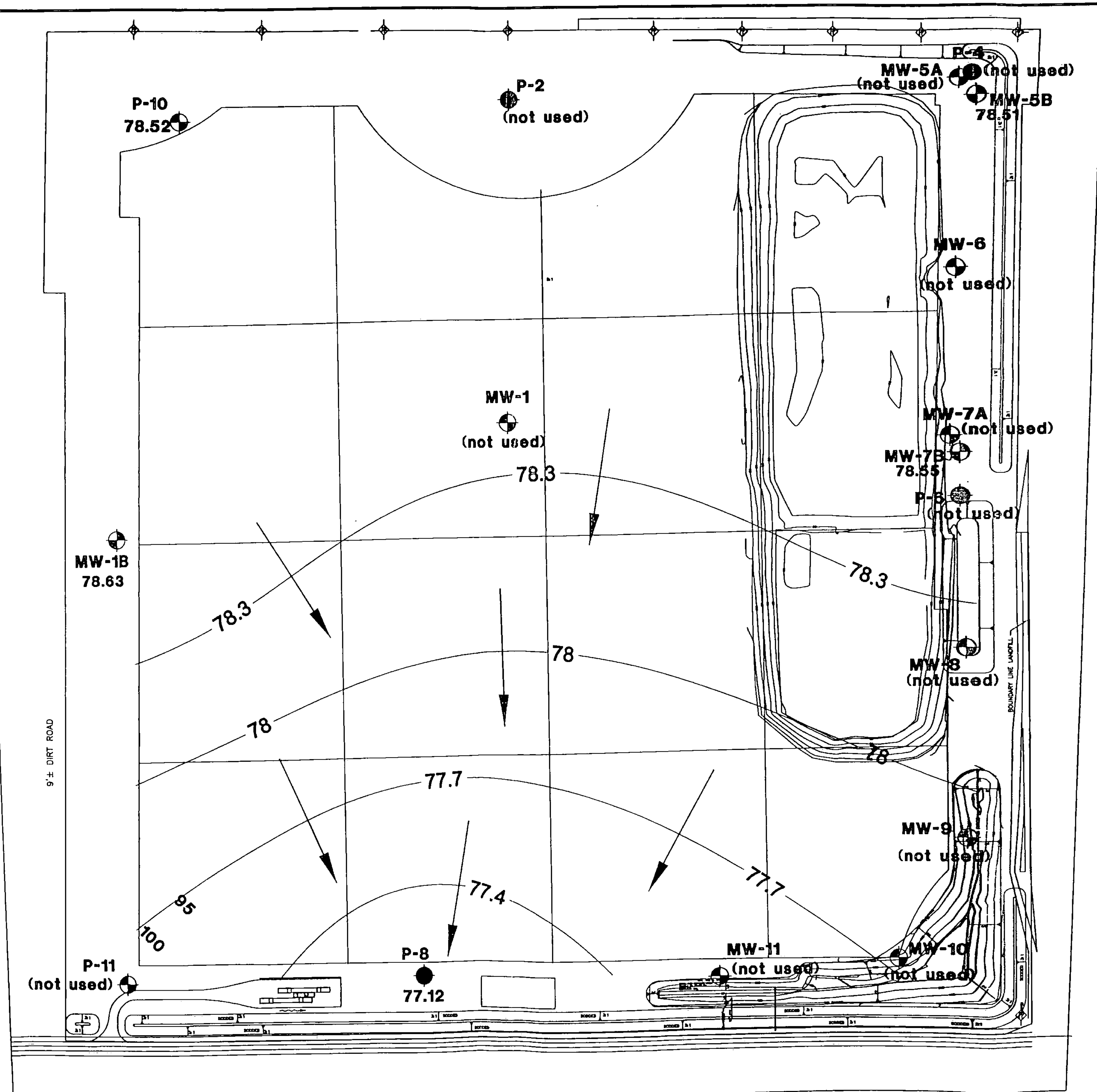
MW-1B MONITOR WELL LOCATION

78.63 WATER LEVEL, (ft. NGVD) 4/14/04

—78— GROUNDWATER CONTOUR ELEVATION (ft. NGVD) CONTOUR INTERVAL = 0.3 ft.

ESTIMATED GROUNDWATER FLOW DIRECTION

P-5 PIEZOMETER LOCATION



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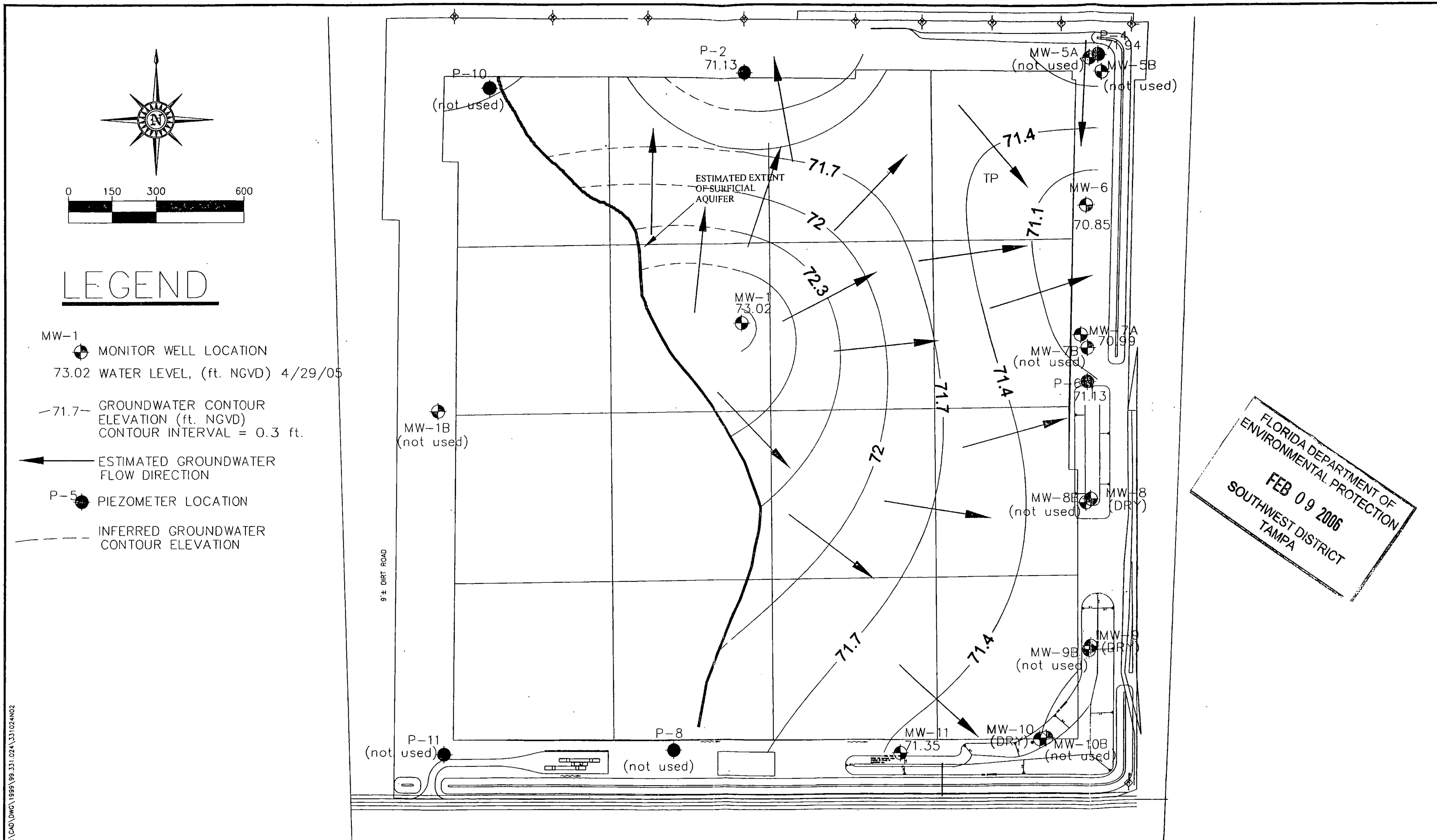
GROUNDWATER CONTOUR MAP
FLORIDAN AQUIFER - OCTOBER 12, 2004
ENTERPRISE RECYCLING AND DISPOSAL FACILITY
DADE CITY, FLORIDA

FIGURE 3

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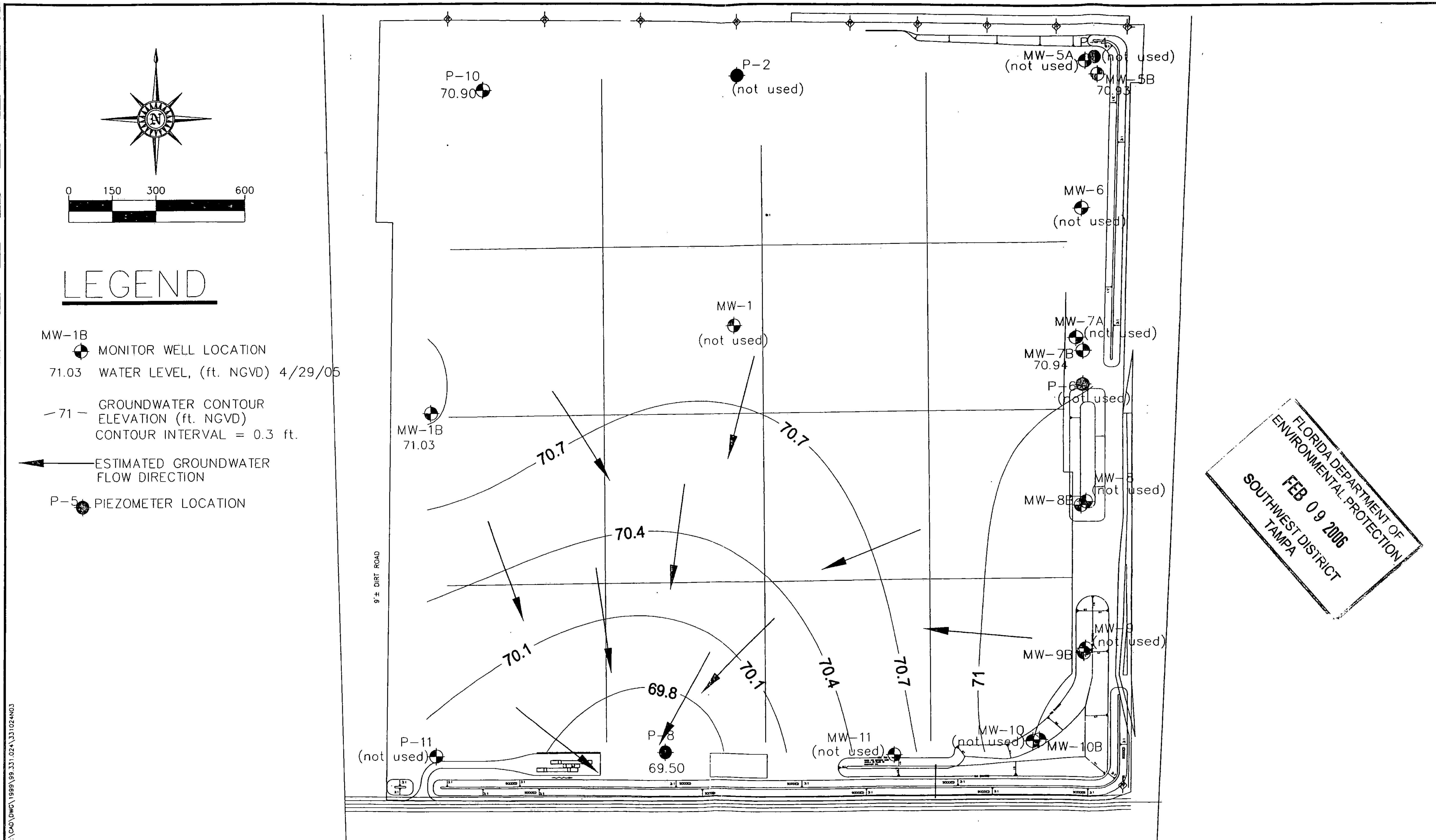
GROUNDWATER CONTOUR MAP
SURFICIAL AQUIFER - APRIL 29, 2005
ENTERPRISE RECYCLING AND DISPOSAL FACILITY
DADE CITY, FLORIDA

FIGURE 2

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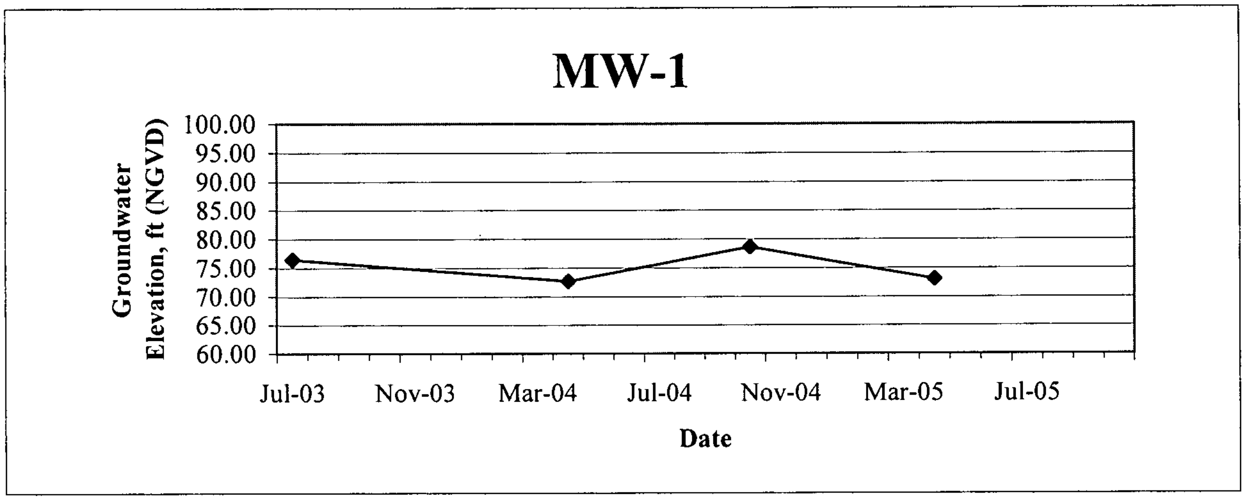
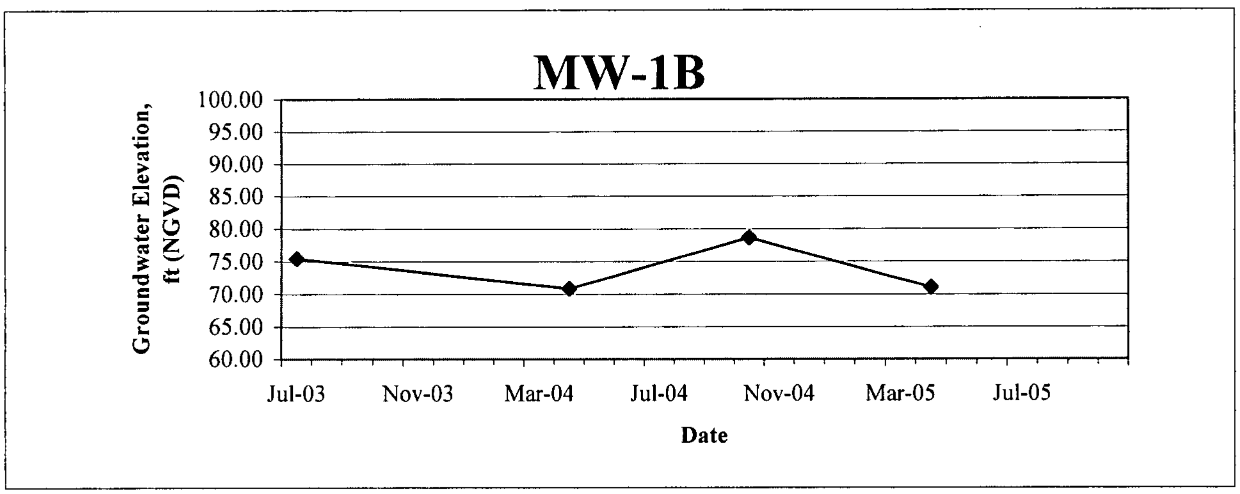
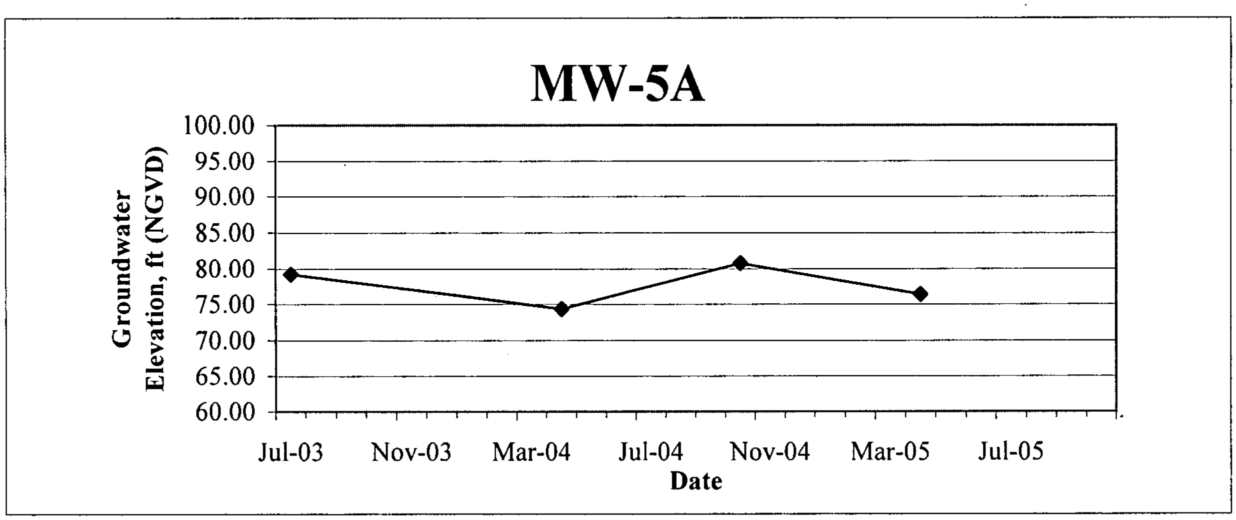
GROUNDWATER CONTOUR MAP
FLORIDAN AQUIFER - APRIL 29, 2005
ENTERPRISE RECYCLING AND DISPOSAL FACILITY
DADE CITY, FLORIDA

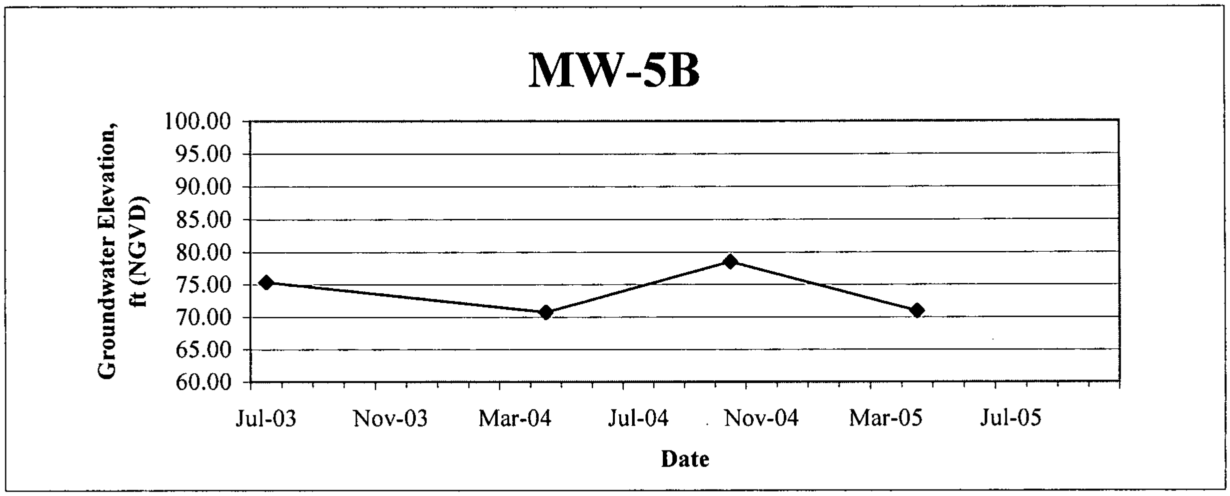
FIGURE
3

# APPENDIX A

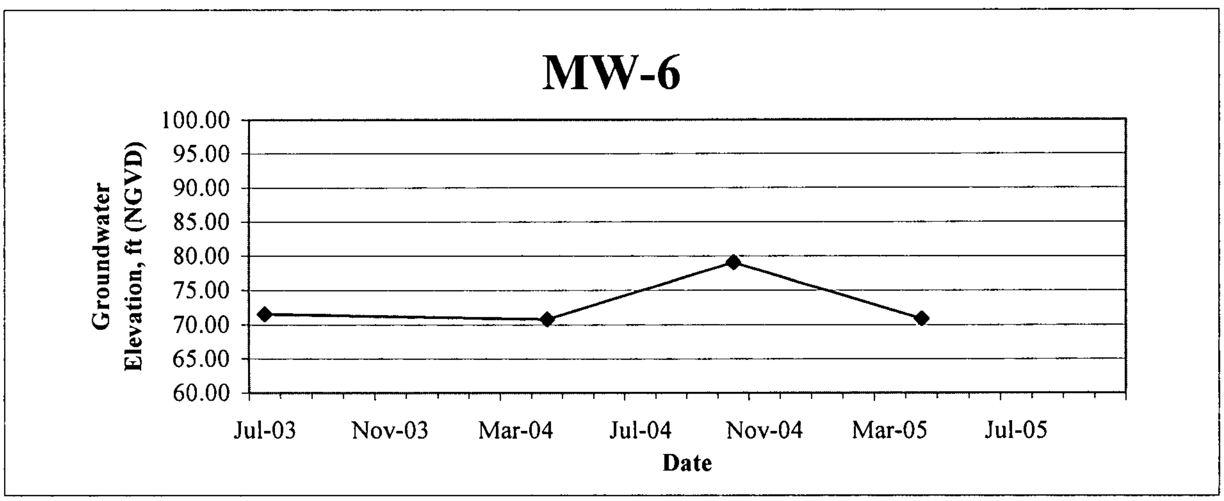

MW-1
Groundwater Elevation, ft (NGVD)
100.00
95.00
90.00
85.00
80.00
75.00
70.00
65.00
60.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date


MW-1B
Groundwater Elevation, ft (NGVD)
100.00
95.00
90.00
85.00
80.00
75.00
70.00
65.00
60.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

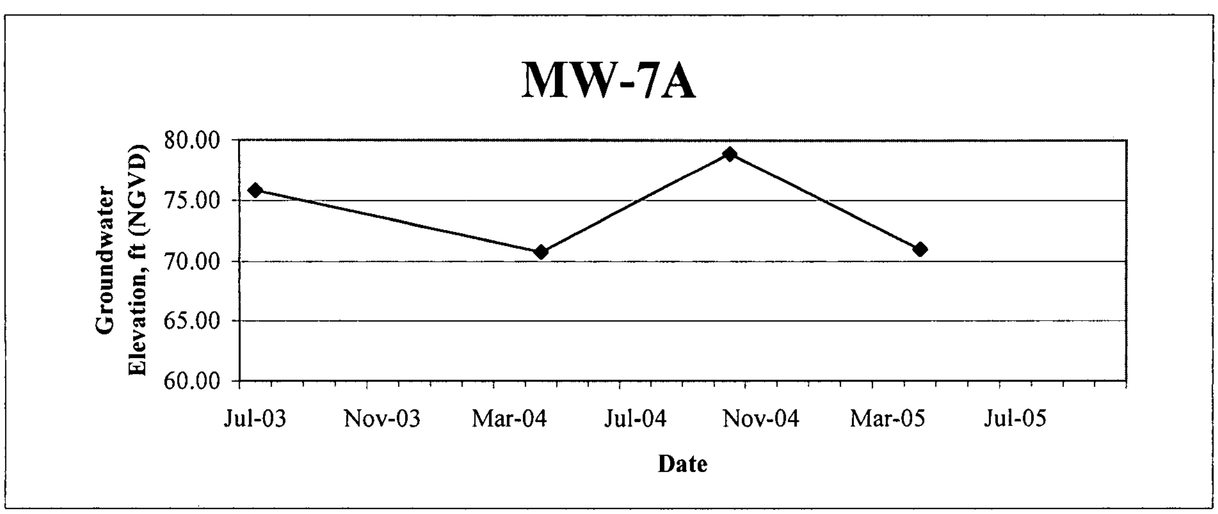

MW-5A
Groundwater Elevation, ft (NGVD)
100.00
95.00
90.00
85.00
80.00
75.00
70.00
65.00
60.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date



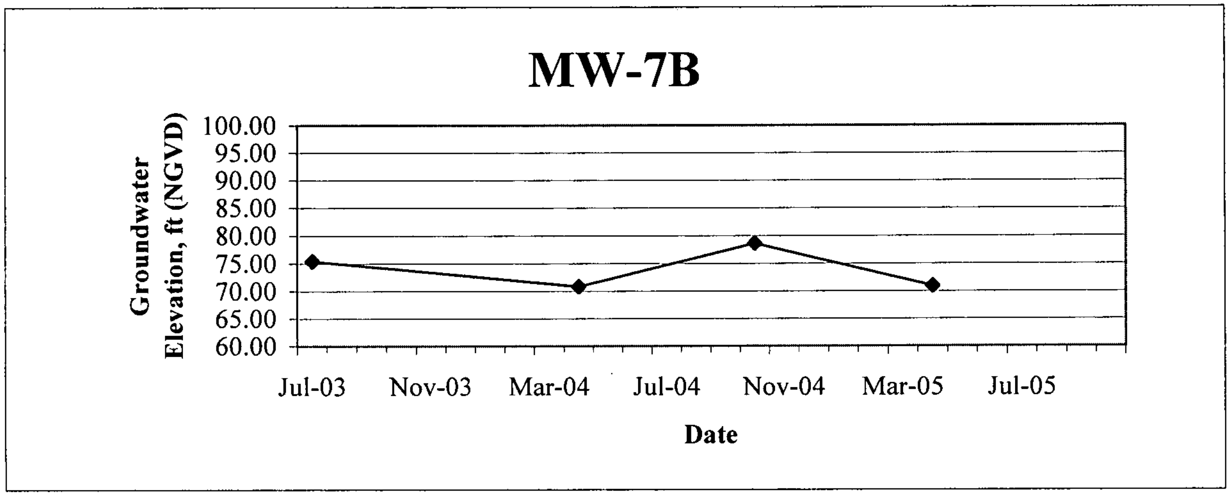
MW-5B
Groundwater Elevation, ft (NGVD)
100.00
95.00
90.00
85.00
80.00
75.00
70.00
65.00
60.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

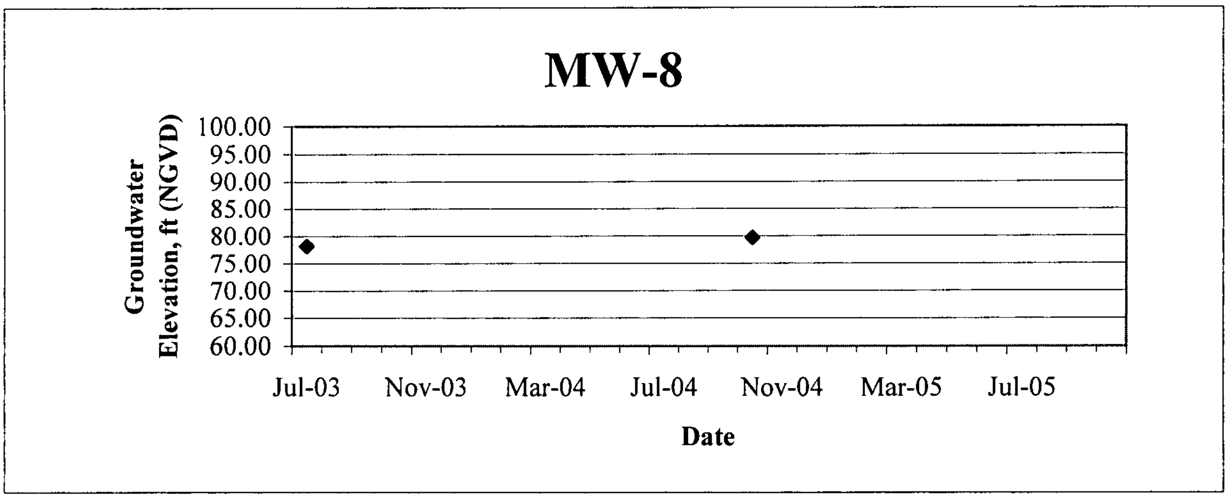



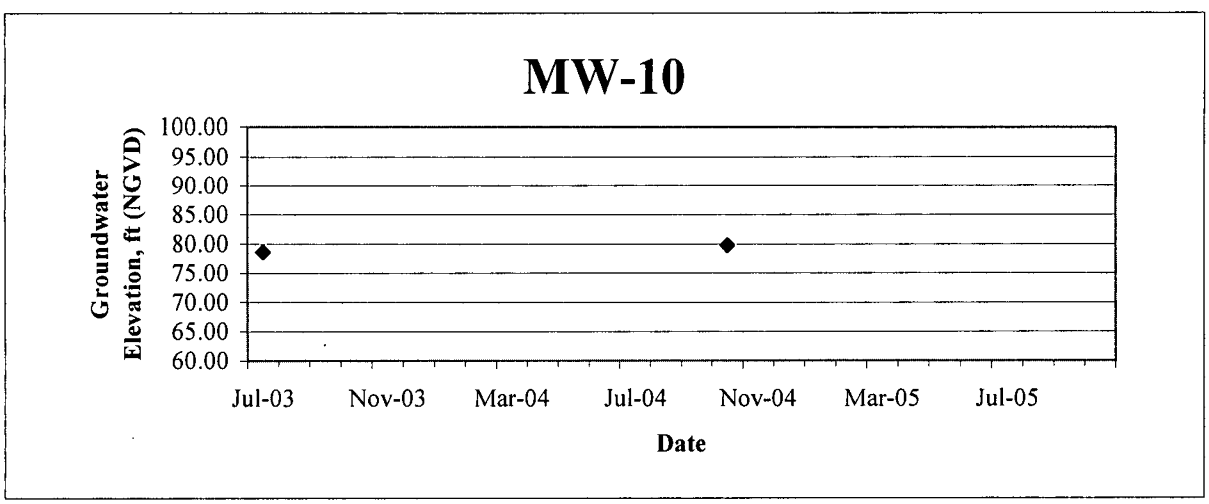
MW-6
Groundwater Elevation, ft (NGVD)
100.00
95.00
90.00
85.00
80.00
75.00
70.00
65.00
60.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

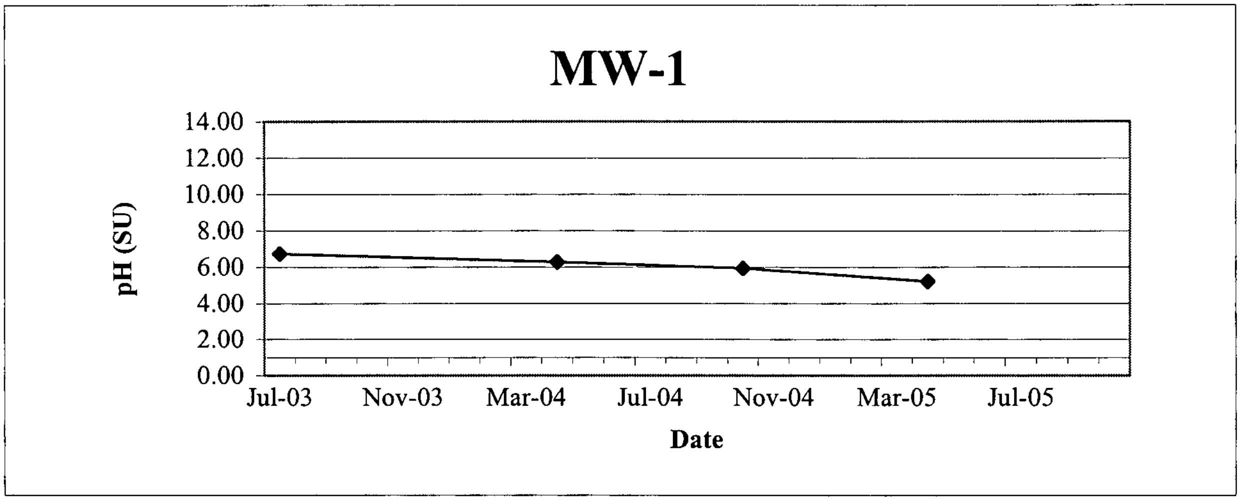
MW-7A
Groundwater Elevation, ft (NGVD)
80.00
75.00
70.00
65.00
60.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

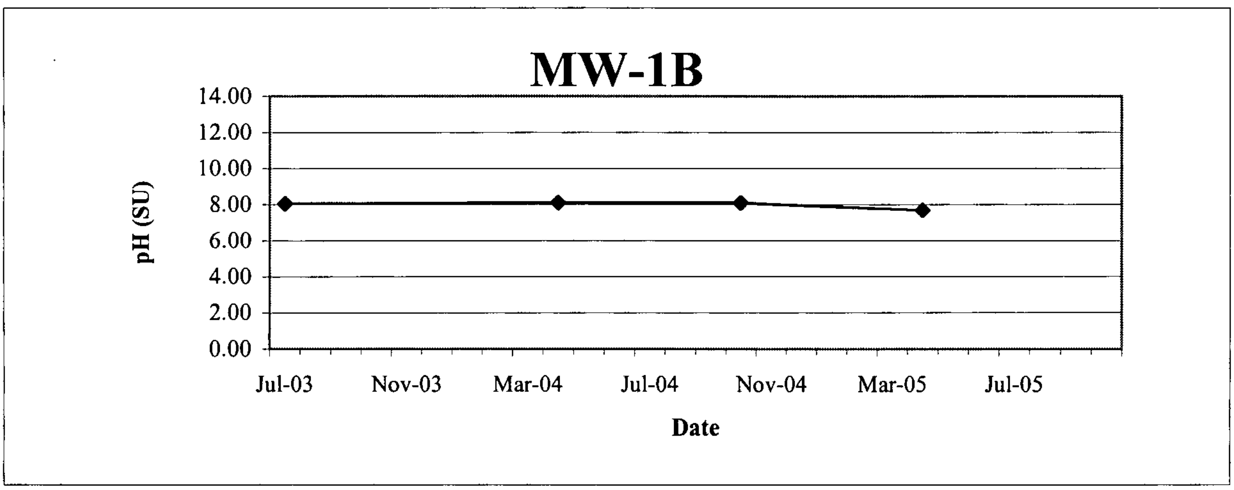

MW-7B
Groundwater Elevation, ft (NGVD)
100.00
95.00
90.00
85.00
80.00
75.00
70.00
65.00
60.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

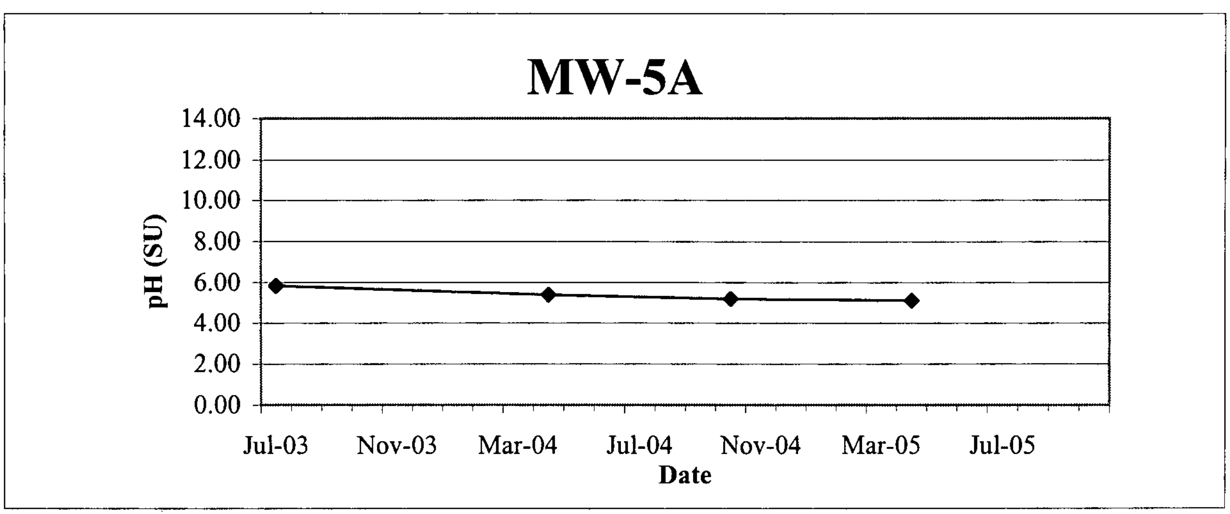

MW-8
Groundwater Elevation, ft (NGVD)
100.00
95.00
90.00
85.00
80.00
75.00
70.00
65.00
60.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

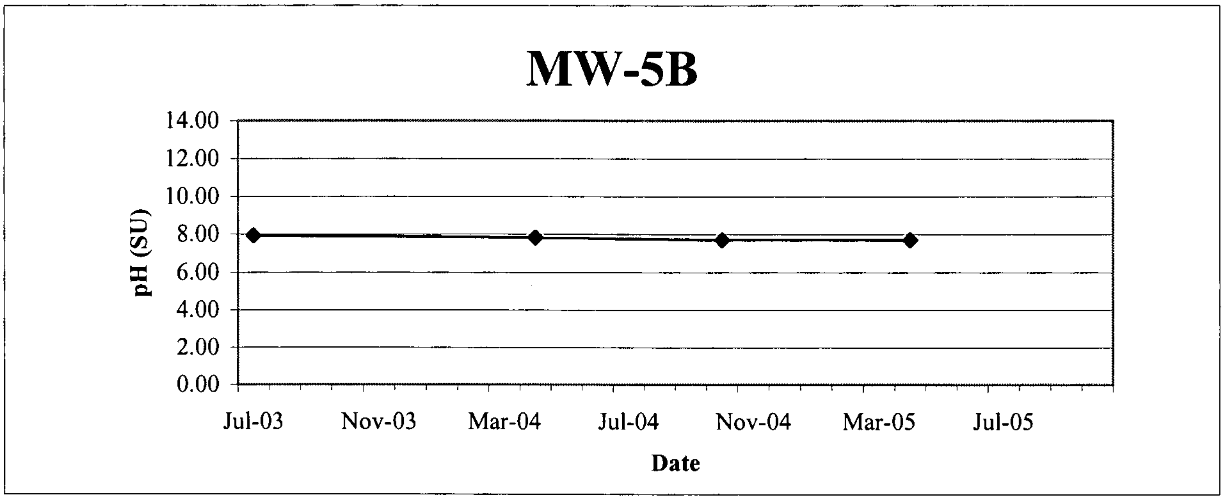

MW-10
Groundwater Elevation, ft (NGVD)
100.00
95.00
90.00
85.00
80.00
75.00
70.00
65.00
60.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

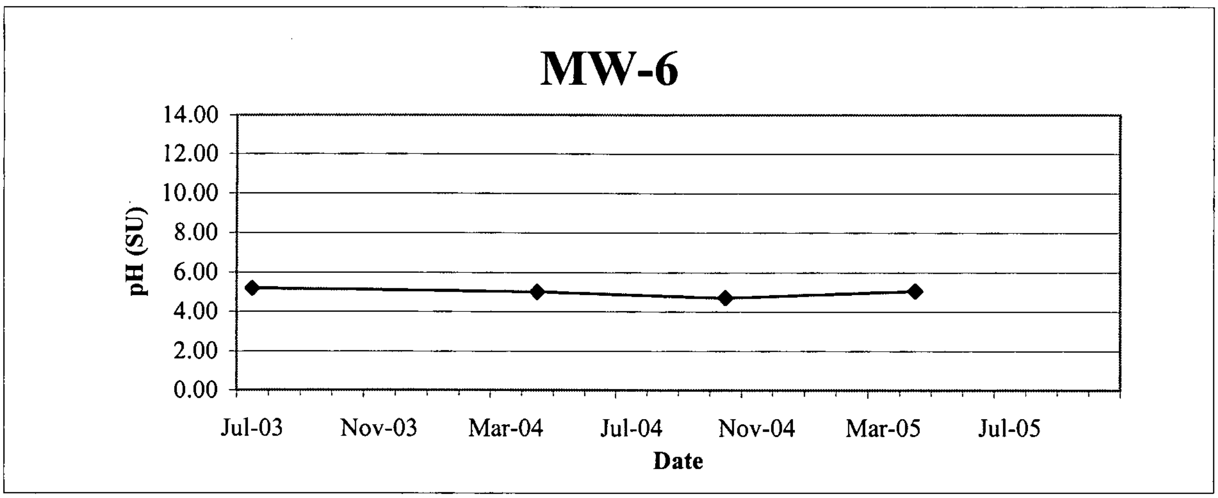
# APPENDIX B

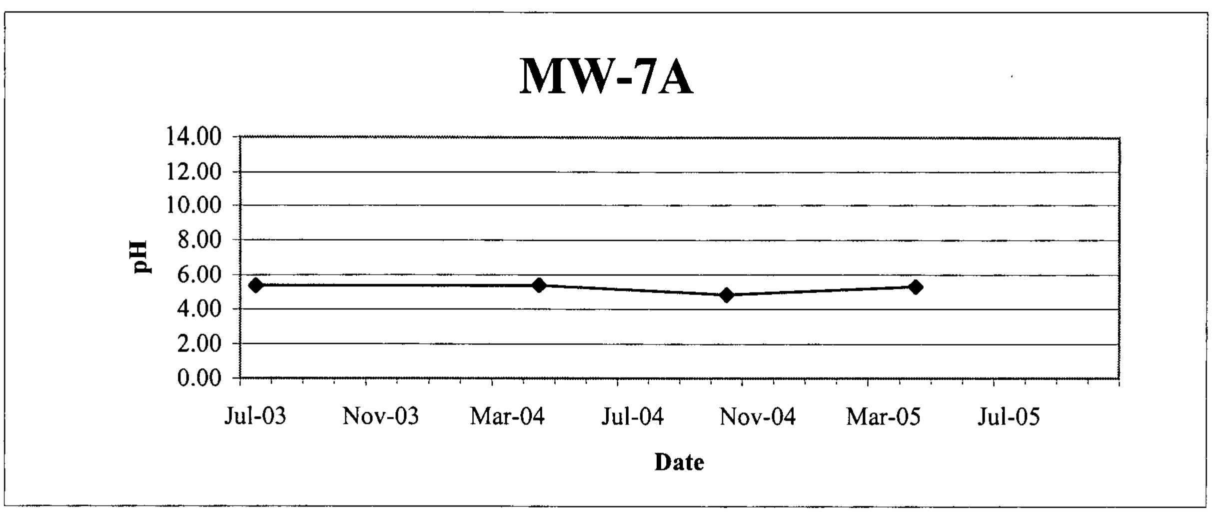

MW-1
pH (SU)
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

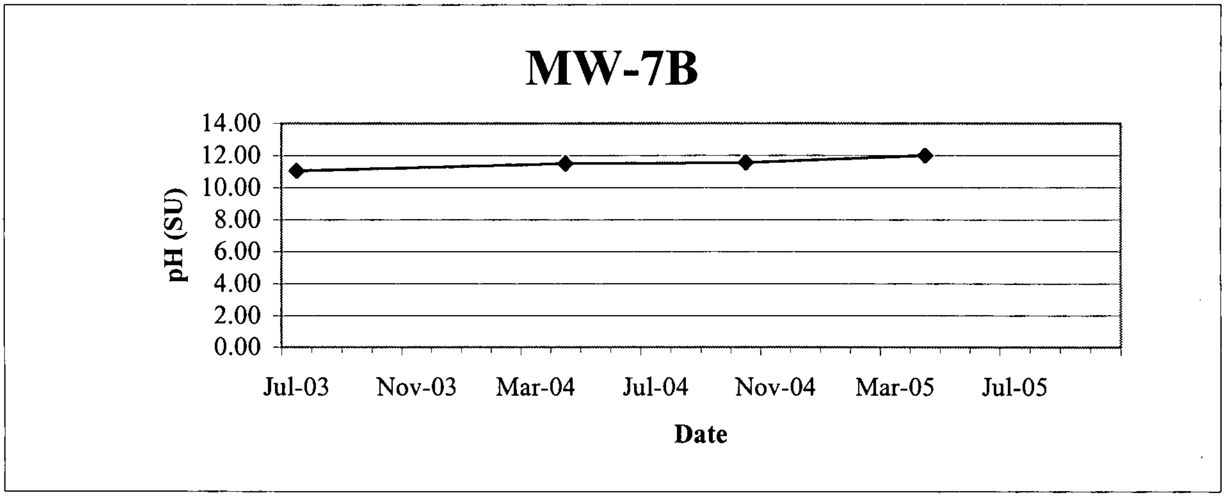

MW-1B
pH (SU)
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

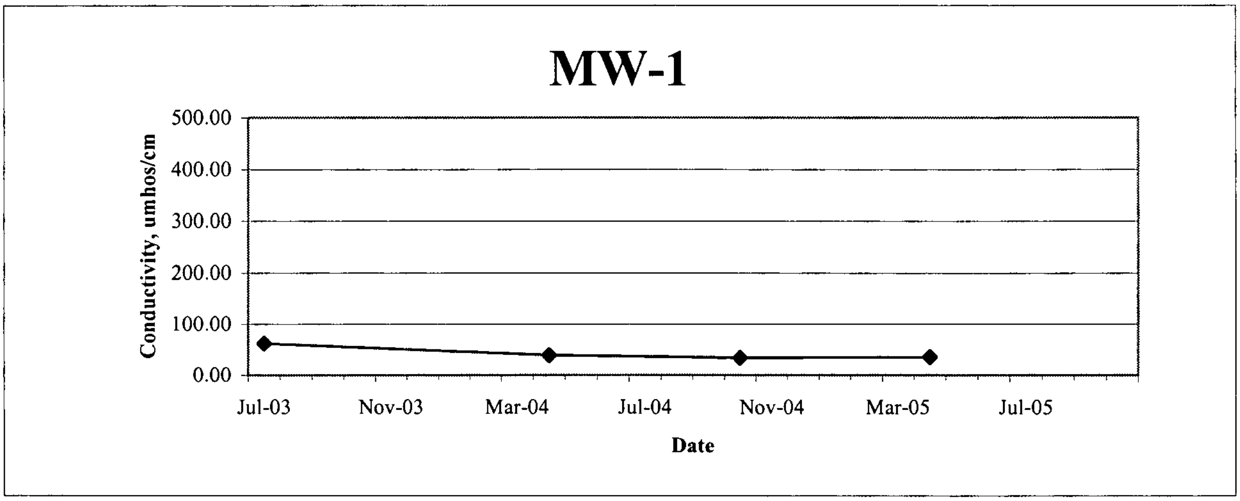

MW-5A
pH (SU)
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

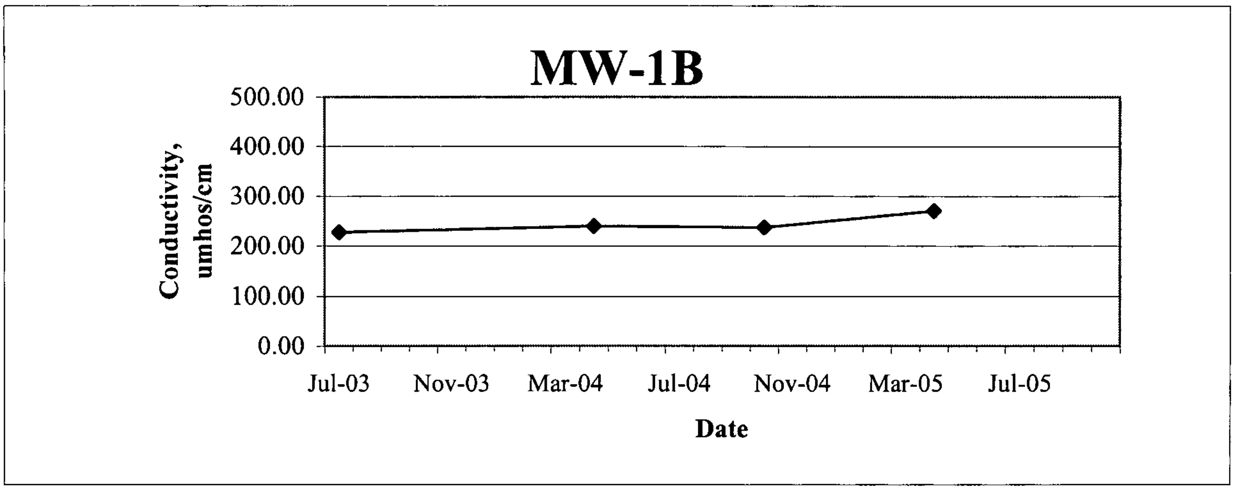

MW-5B
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
pH (SU)
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

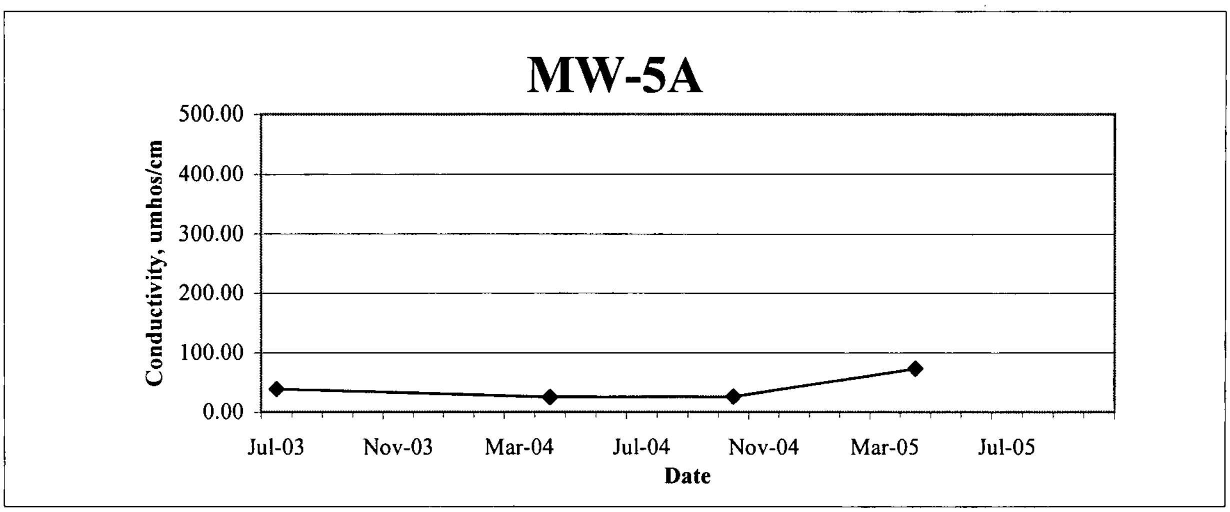

MW-6
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
pH (SU)
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

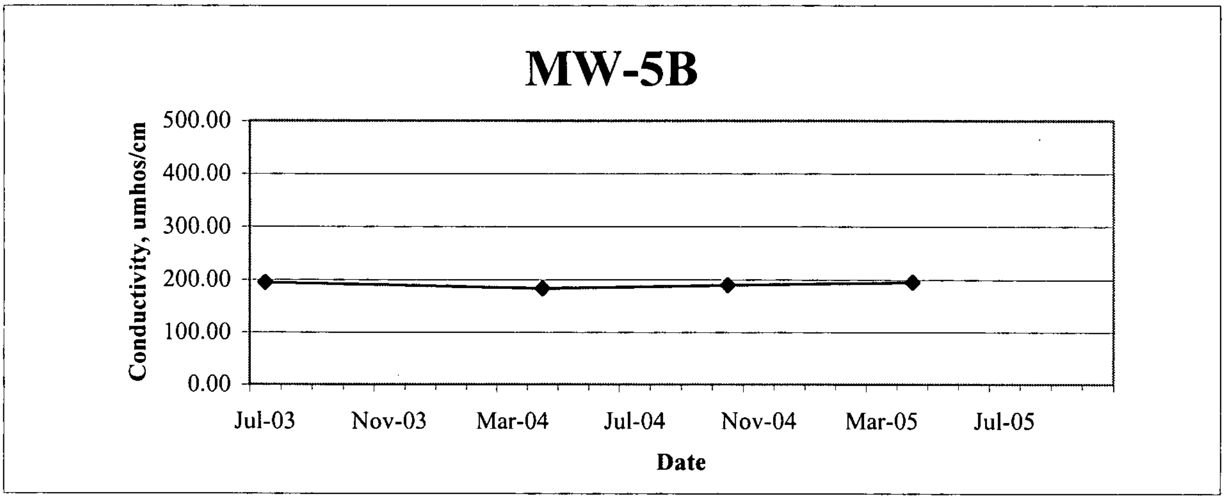

MW-7A
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
pH
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

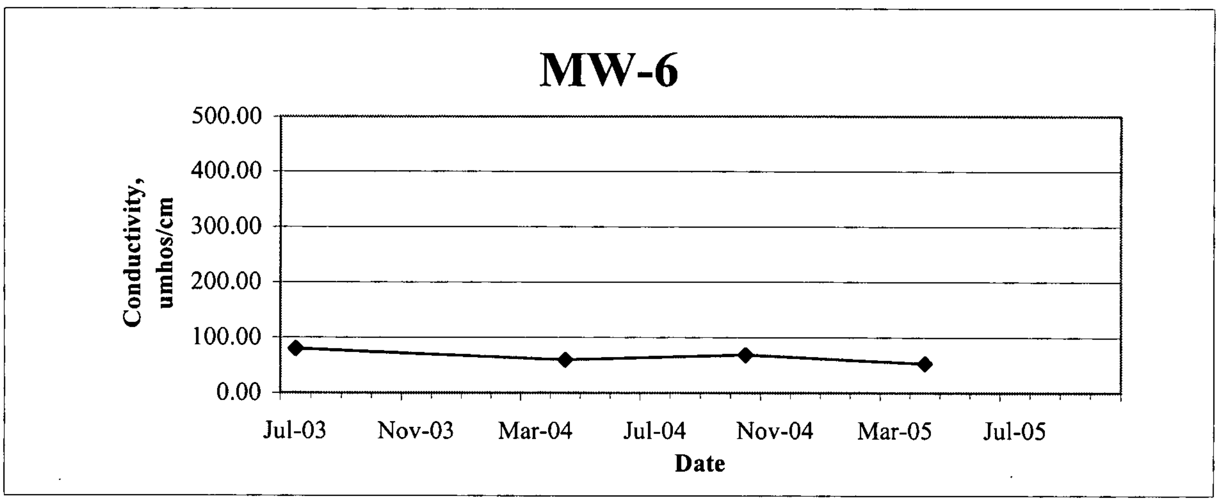

MW-7B
pH (SU)
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

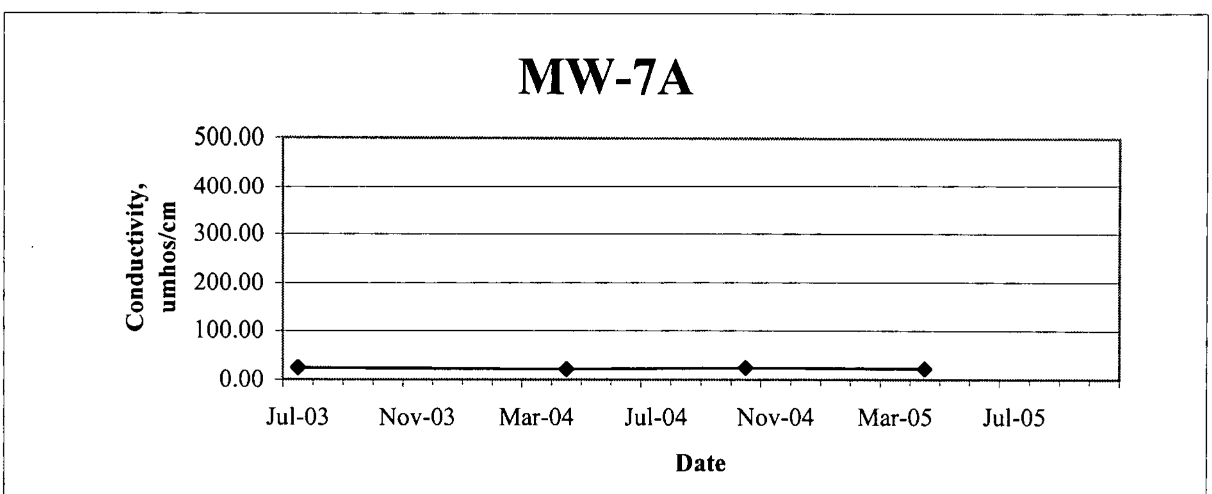

MW-1
500.00
400.00
300.00
200.00
100.00
0.00
Conductivity, umhos/cm
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

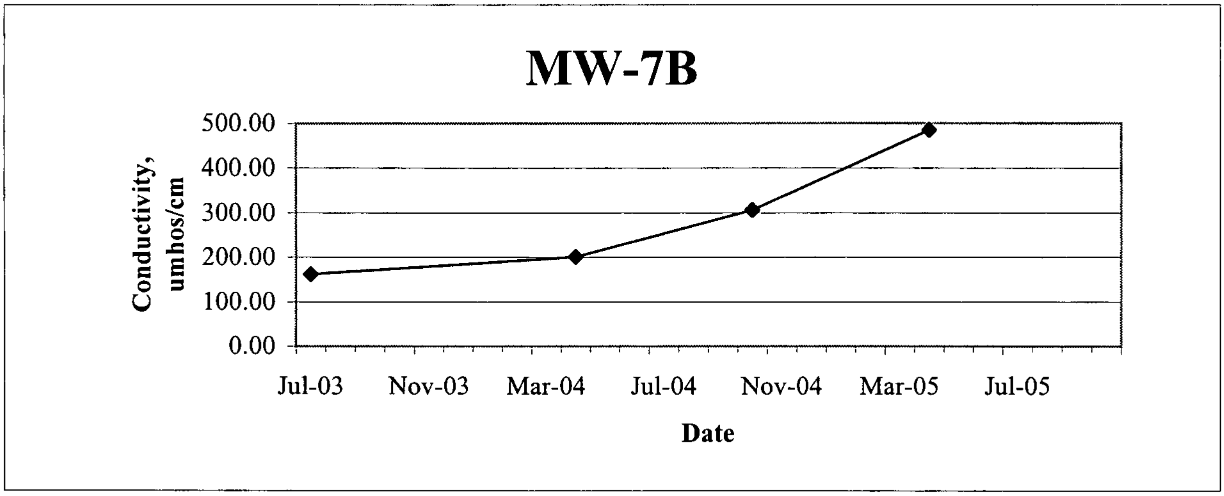

MW-1B
500.00
400.00
300.00
200.00
100.00
0.00
Conductivity, umhos/cm
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

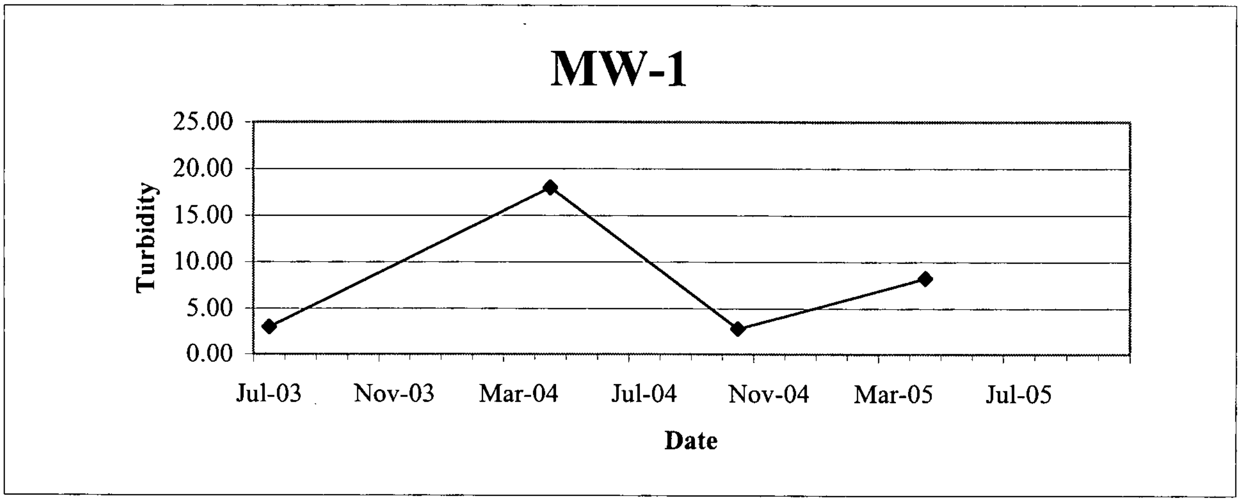

MW-5A
500.00
400.00
300.00
200.00
100.00
0.00
Conductivity, umhos/cm
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

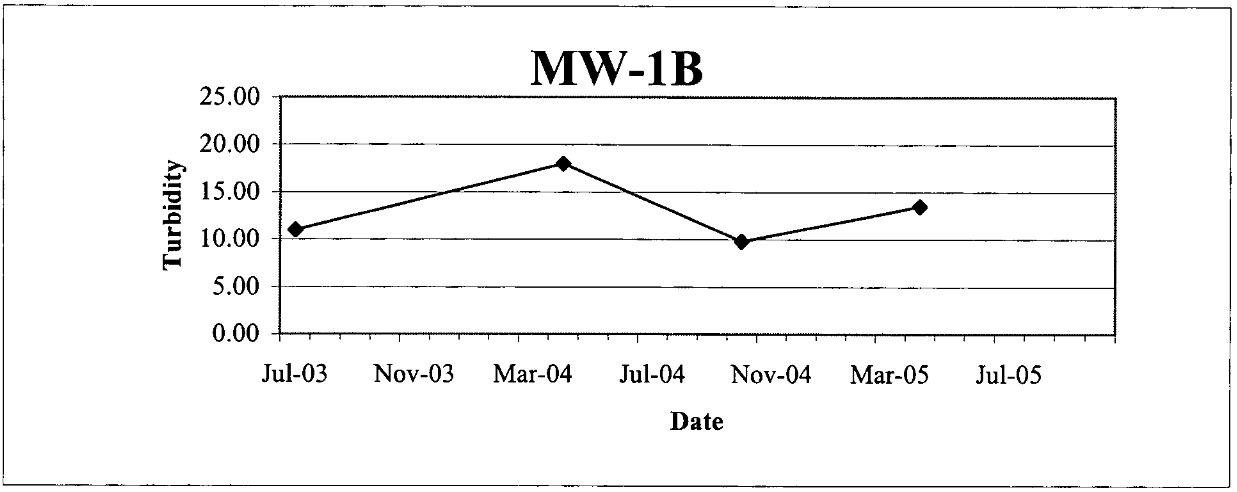

MW-5B
Conductivity, umhos/cm
500.00
400.00
300.00
200.00
100.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

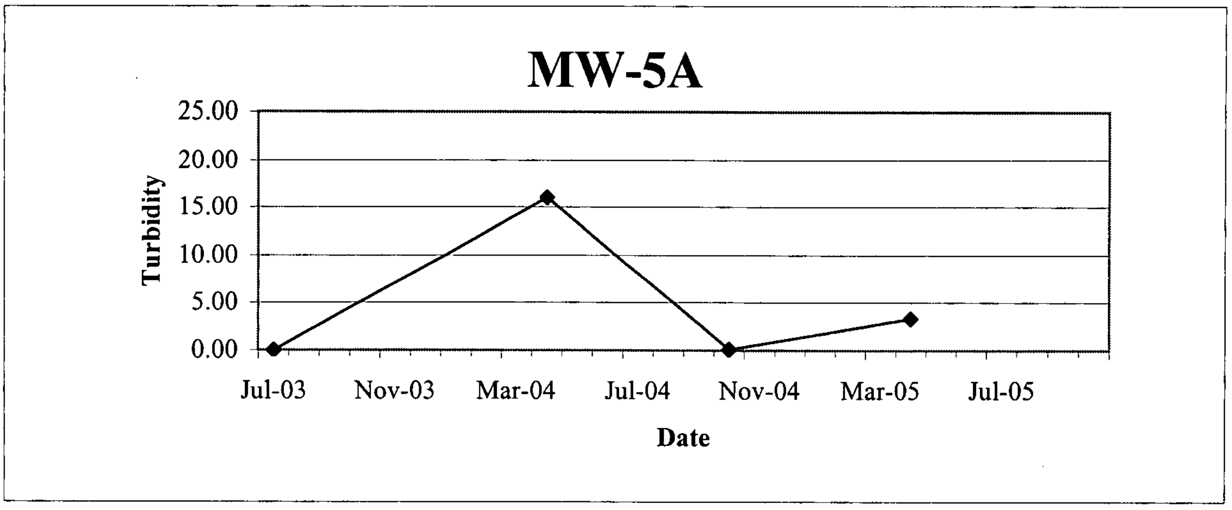

MW-6
Conductivity, umhos/cm
500.00
400.00
300.00
200.00
100.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

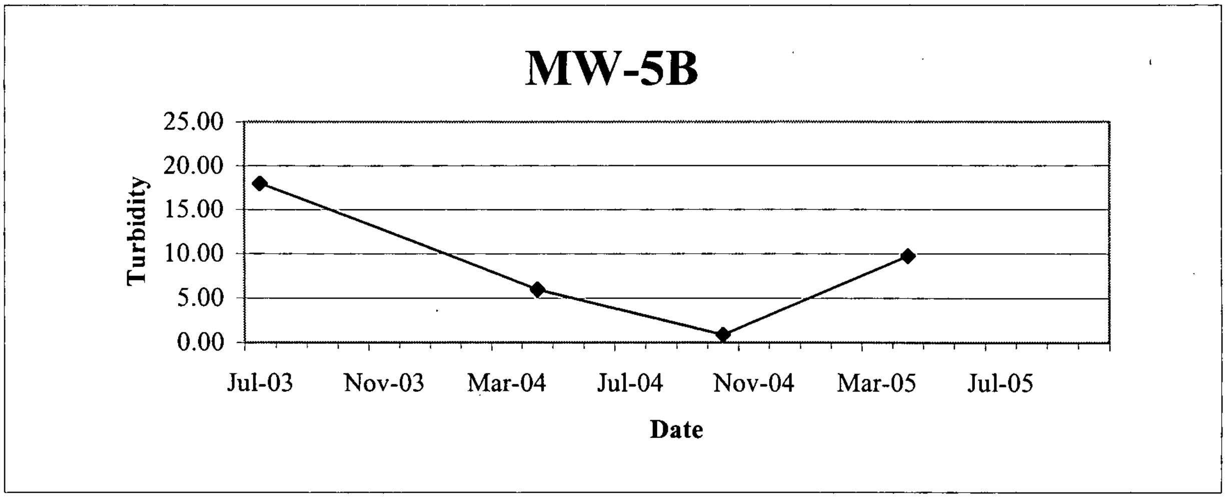

MW-7A
Conductivity, umhos/cm
500.00
400.00
300.00
200.00
100.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

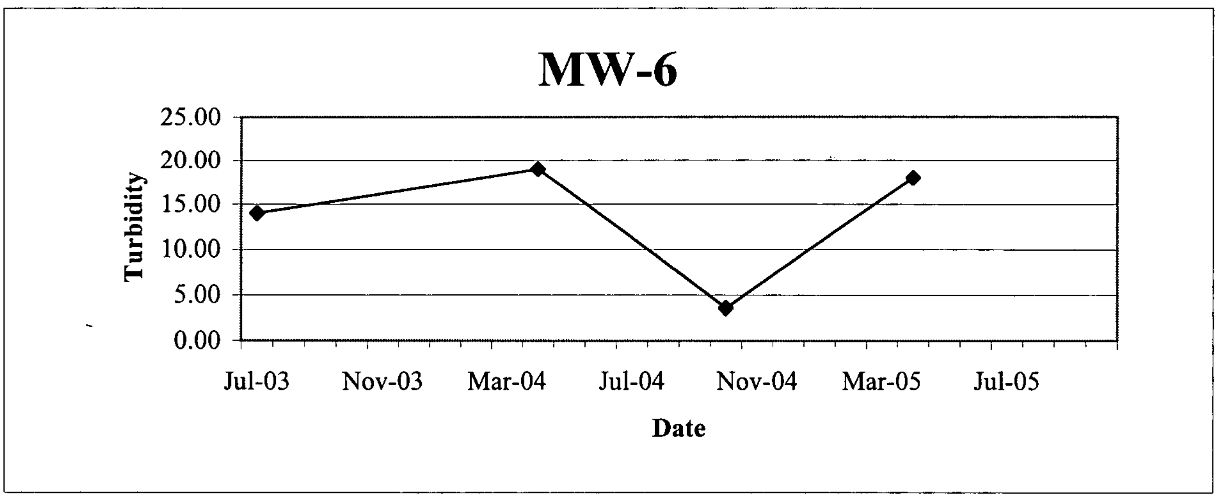

MW-7B
Conductivity, umhos/cm
500.00
400.00
300.00
200.00
100.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

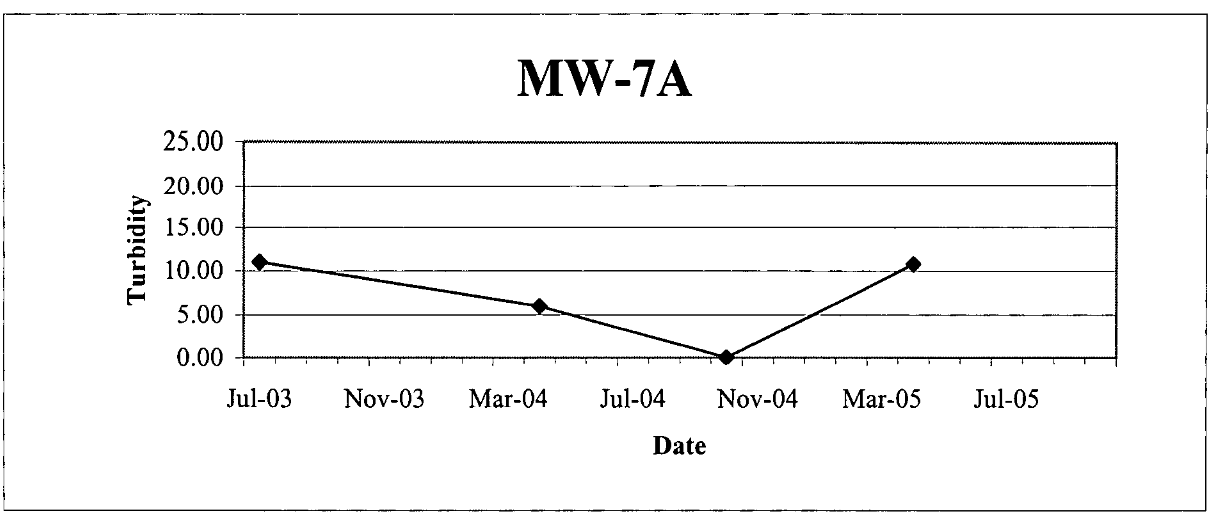

MW-1
Turbidity
25.00
20.00
15.00
10.00
5.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

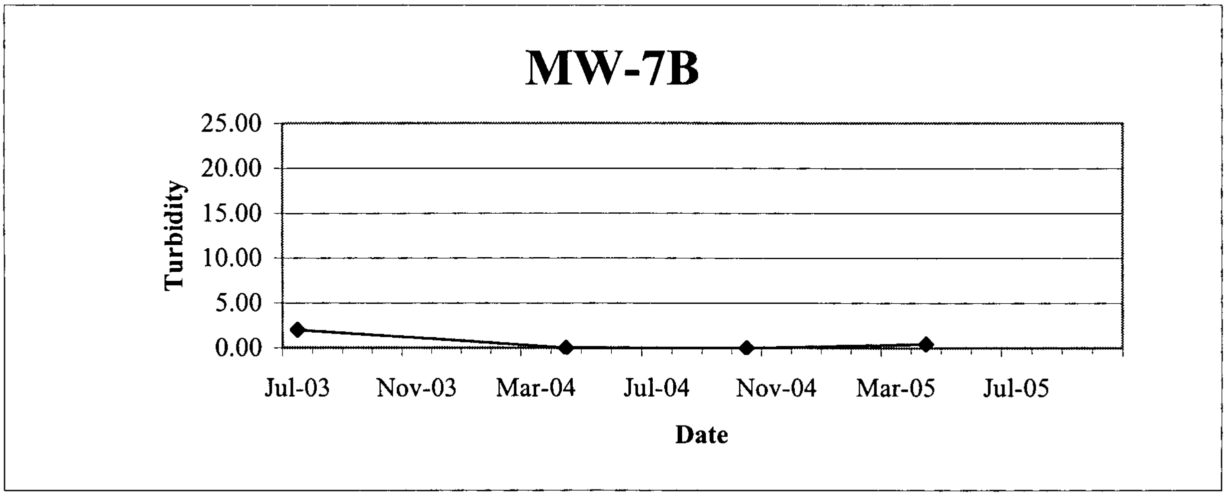

MW-1B
Turbidity
25.00
20.00
15.00
10.00
5.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date


MW-5A
Turbidity
25.00
20.00
15.00
10.00
5.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

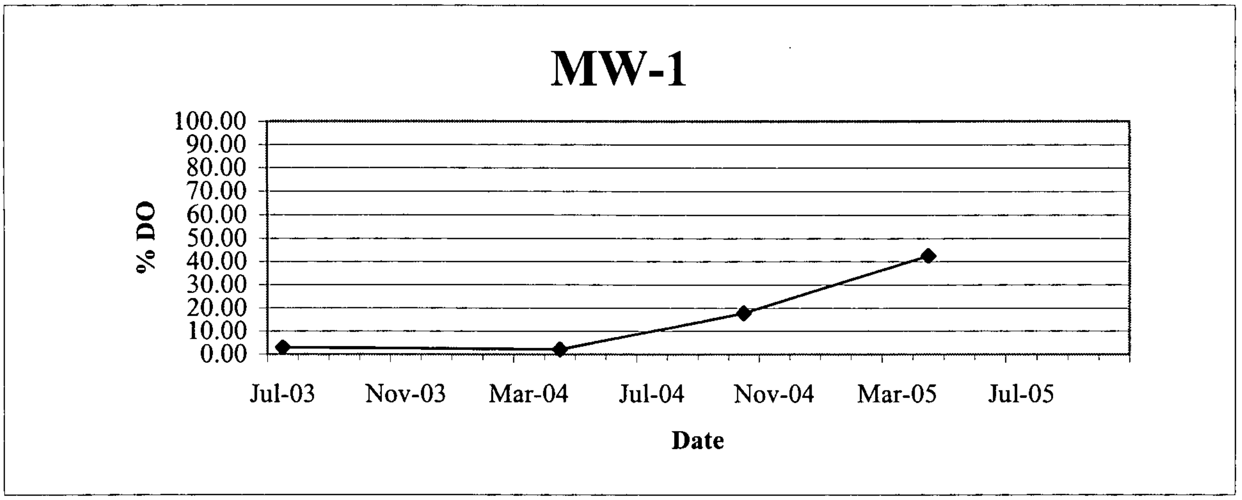

MW-5B
25.00
20.00
15.00
10.00
5.00
0.00
Turbidity
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

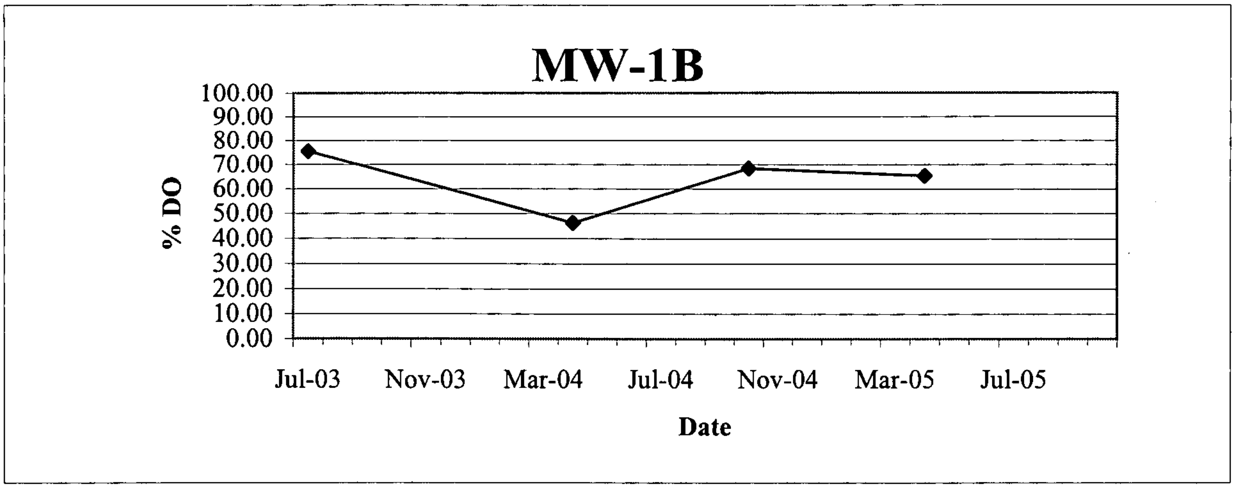

MW-6
25.00
20.00
15.00
10.00
5.00
0.00
Turbidity
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

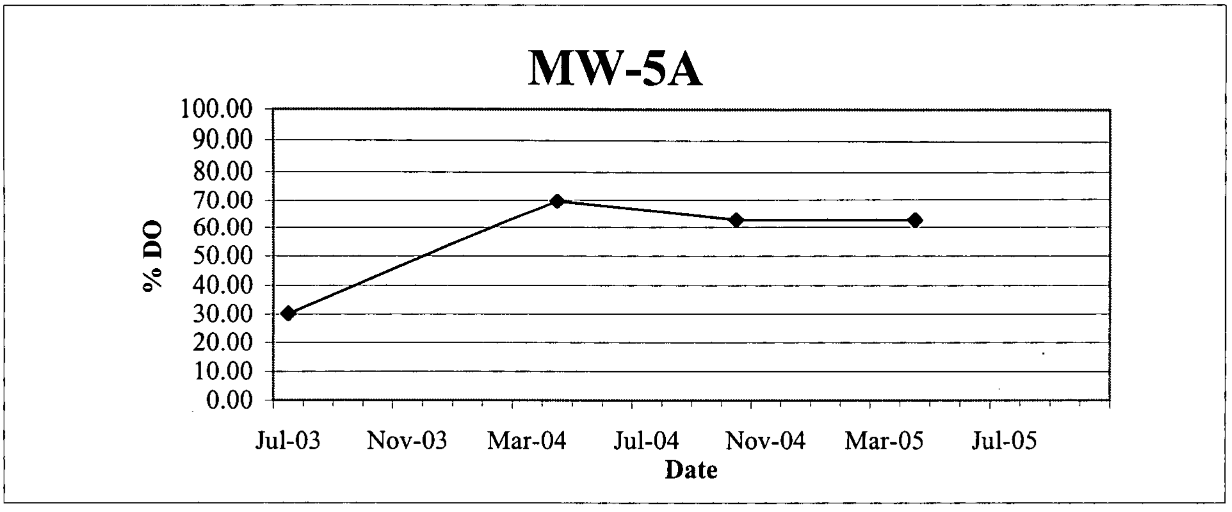

MW-7A
25.00
20.00
15.00
10.00
5.00
0.00
Turbidity
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

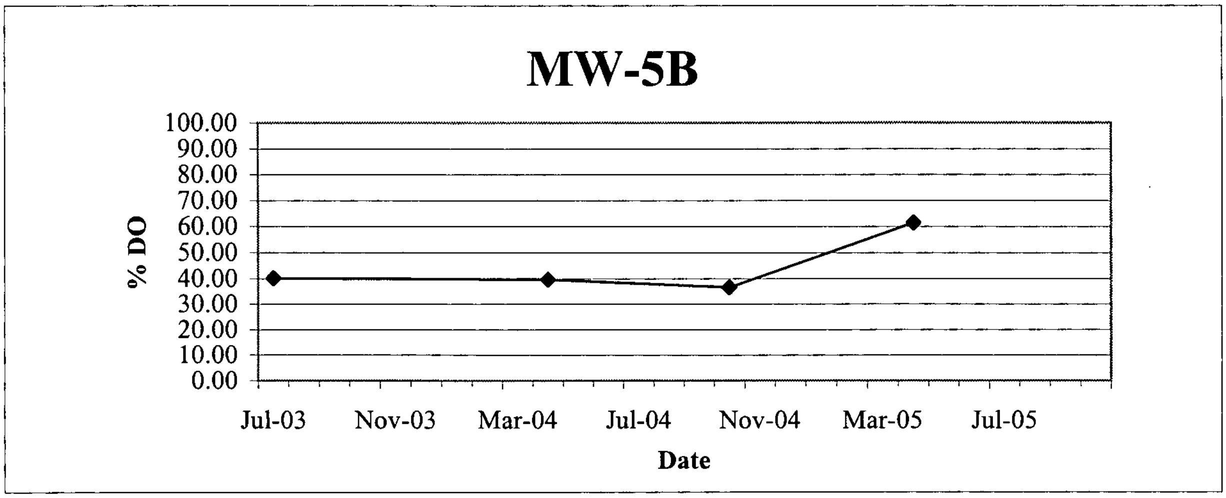


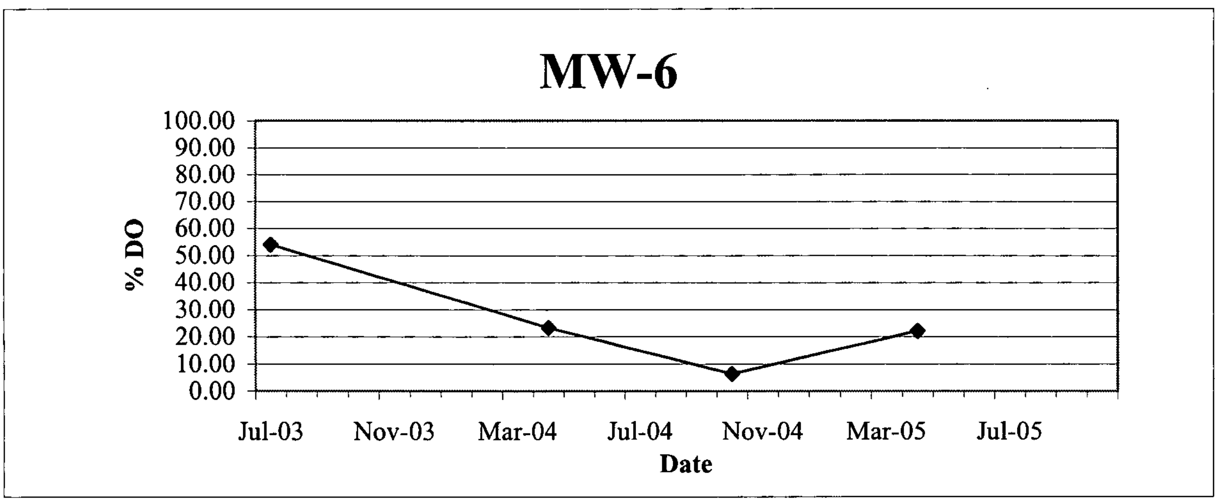
MW-7B
Turbidity
25.00
20.00
15.00
10.00
5.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

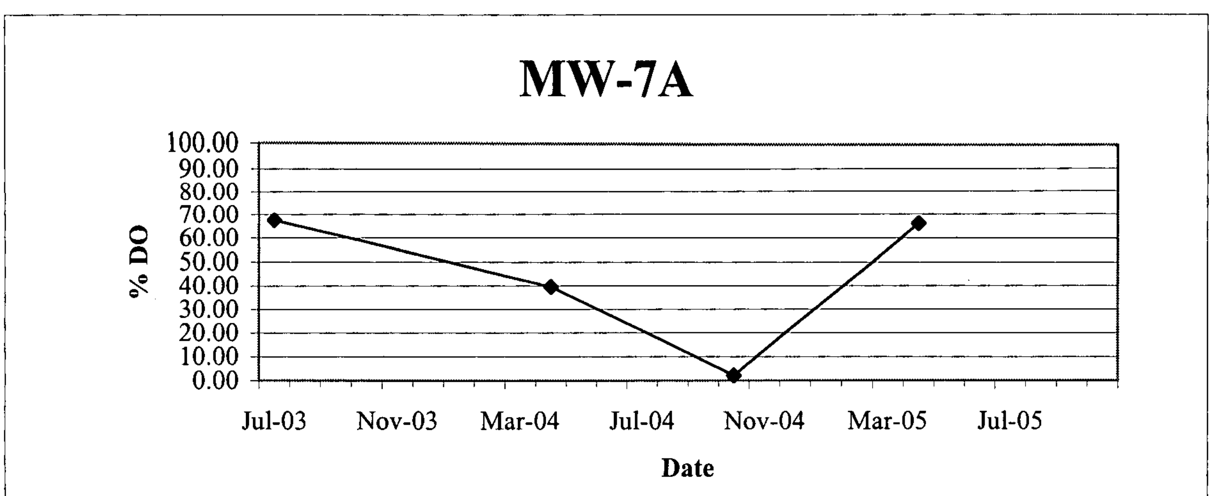

MW-1
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
% DO
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

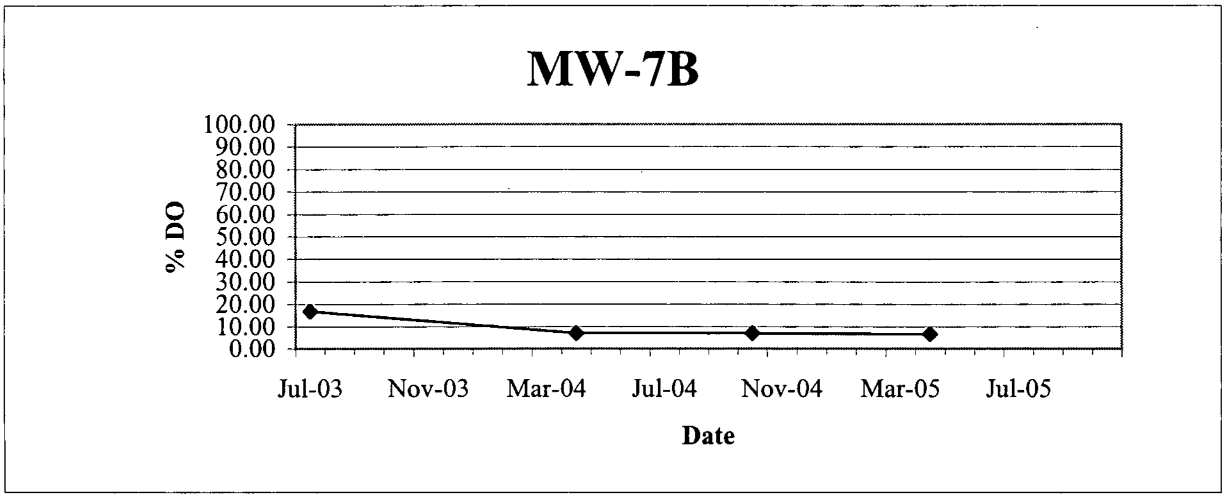

MW-1B
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
% DO
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date


MW-5A
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
% DO
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date


MW-5B
% DO
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

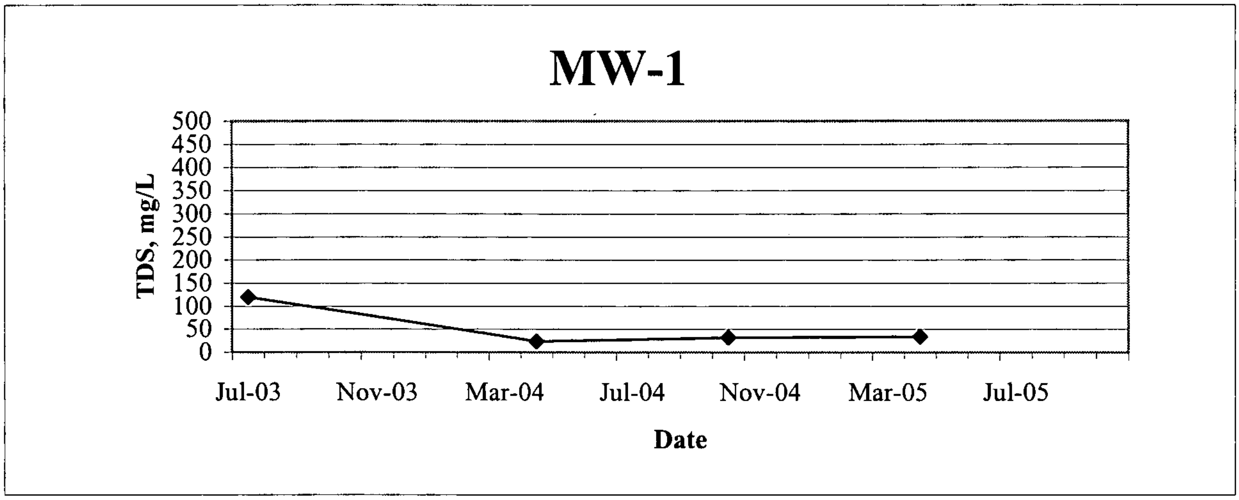

MW-6
% DO
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

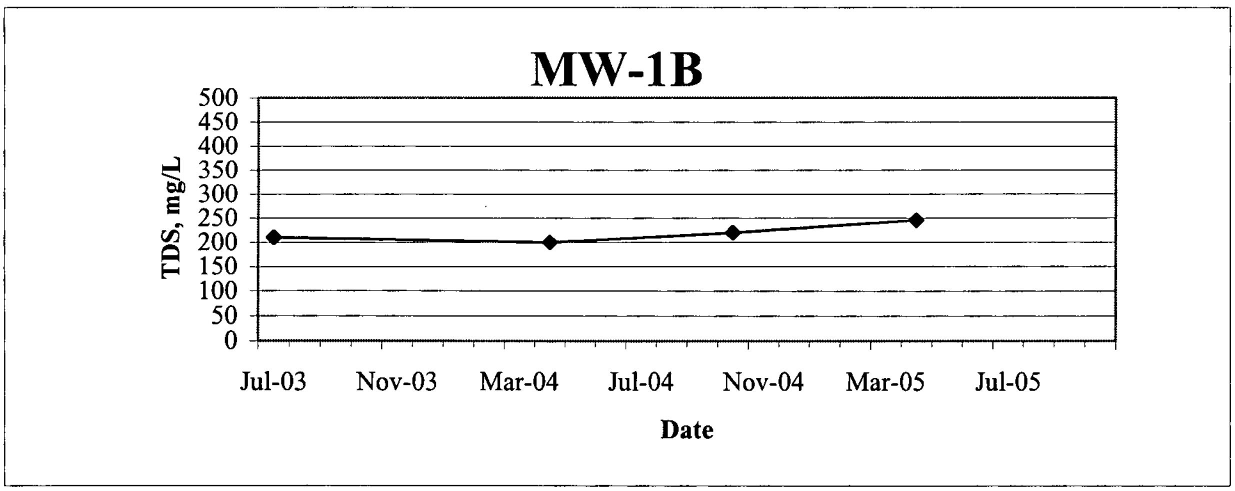

MW-7A
% DO
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

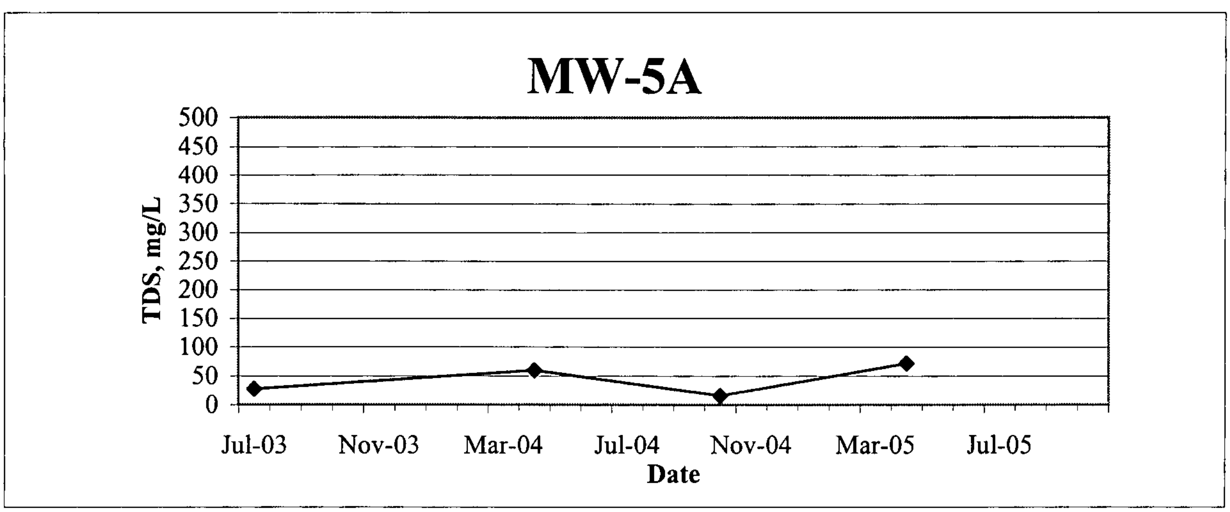


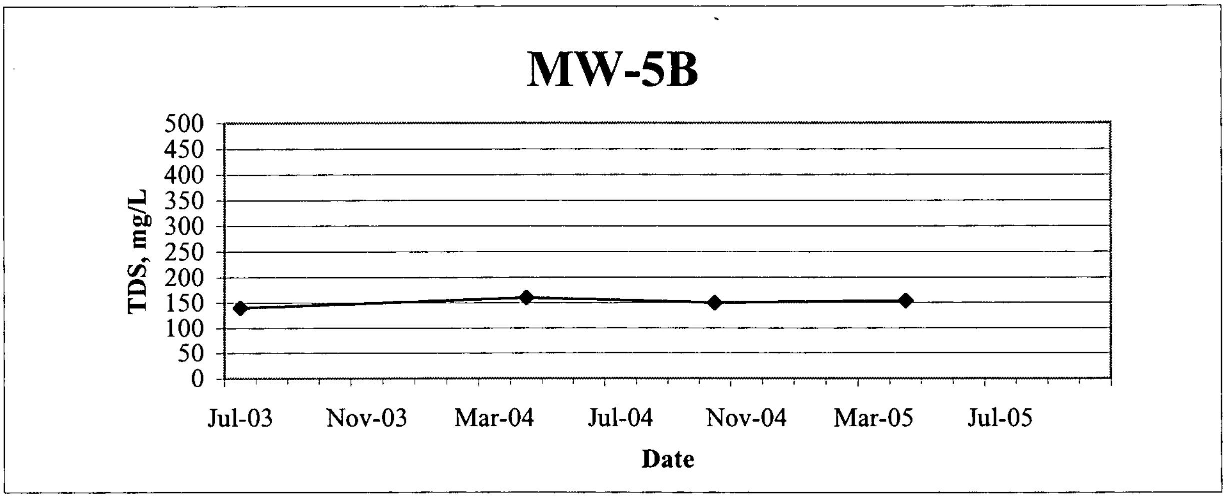
MW-7B
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
% DO
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

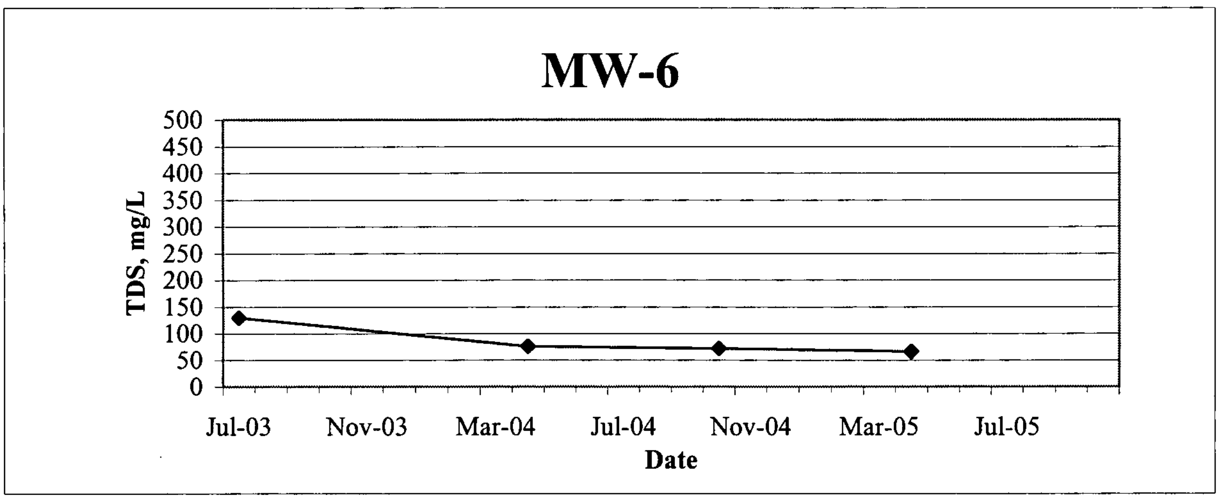
# APPENDIX C

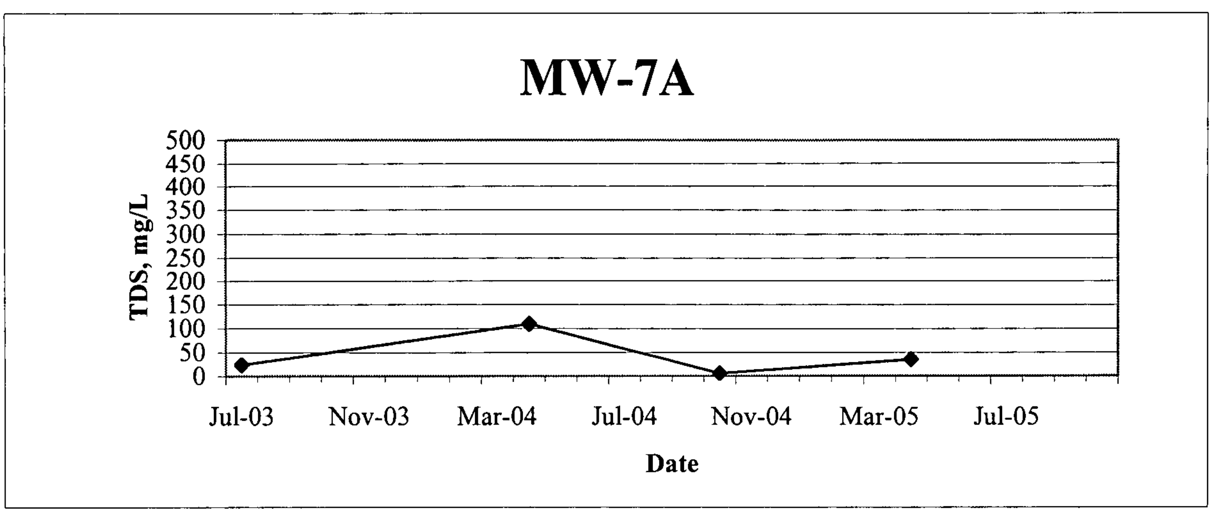

MW-1
TDS, mg/L
500
450
400
350
300
250
200
150
100
50
0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

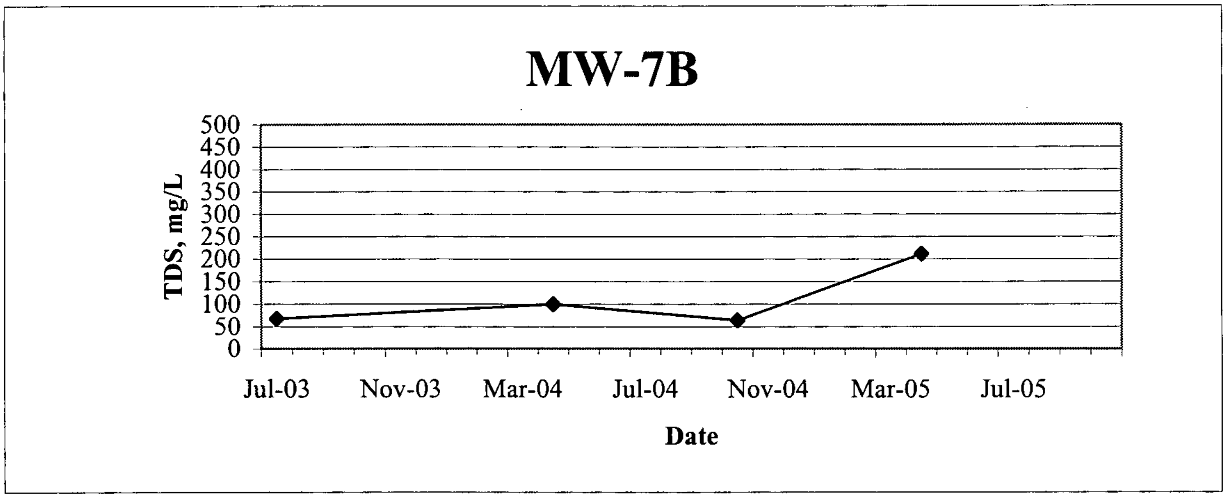

MW-1B
TDS, mg/L
500
450
400
350
300
250
200
150
100
50
0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

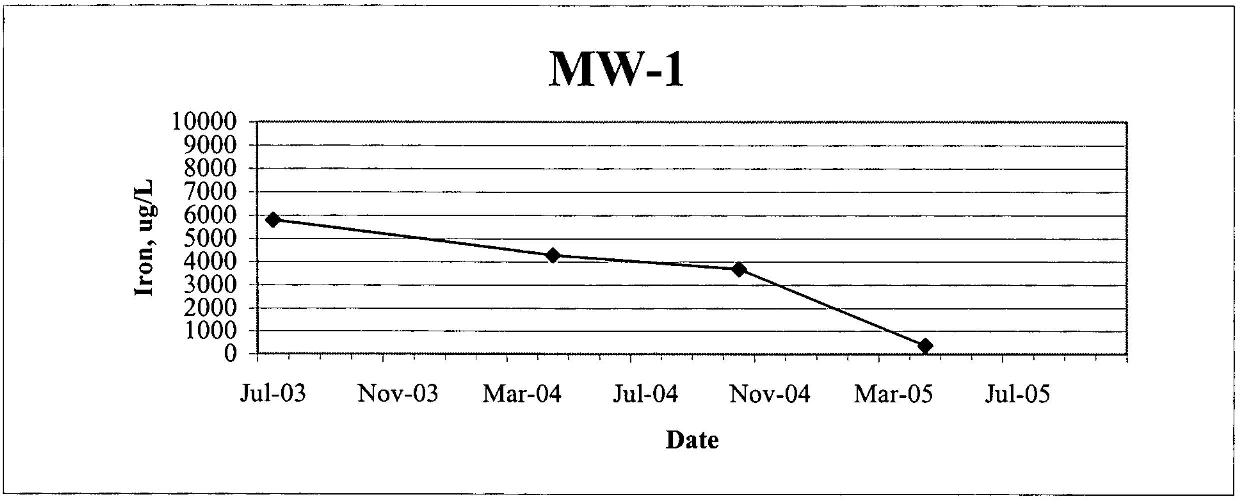

MW-5A
TDS, mg/L
500
450
400
350
300
250
200
150
100
50
0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

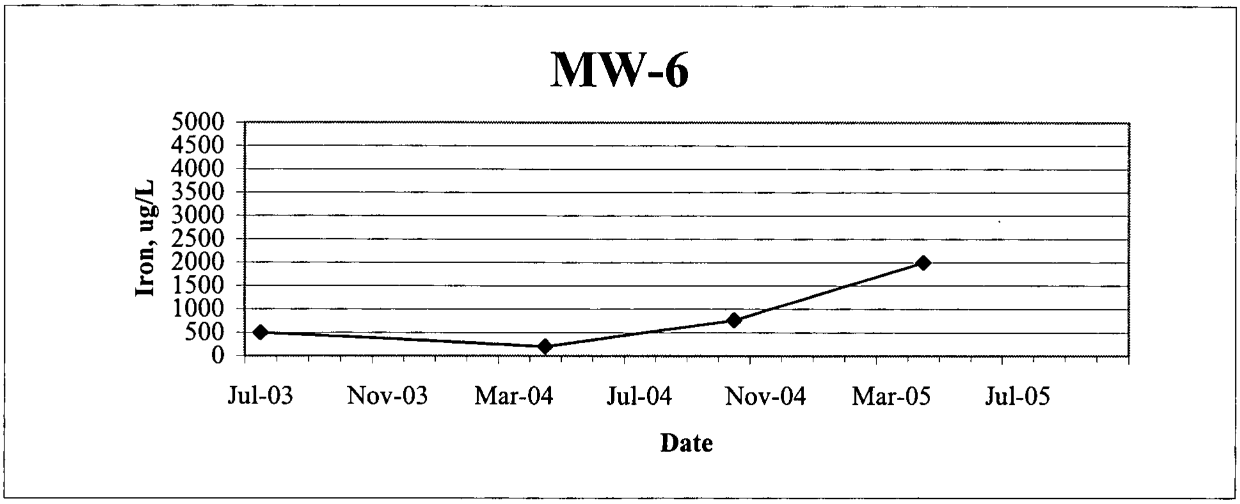

MW-5B
TDS, mg/L
500
450
400
350
300
250
200
150
100
50
0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

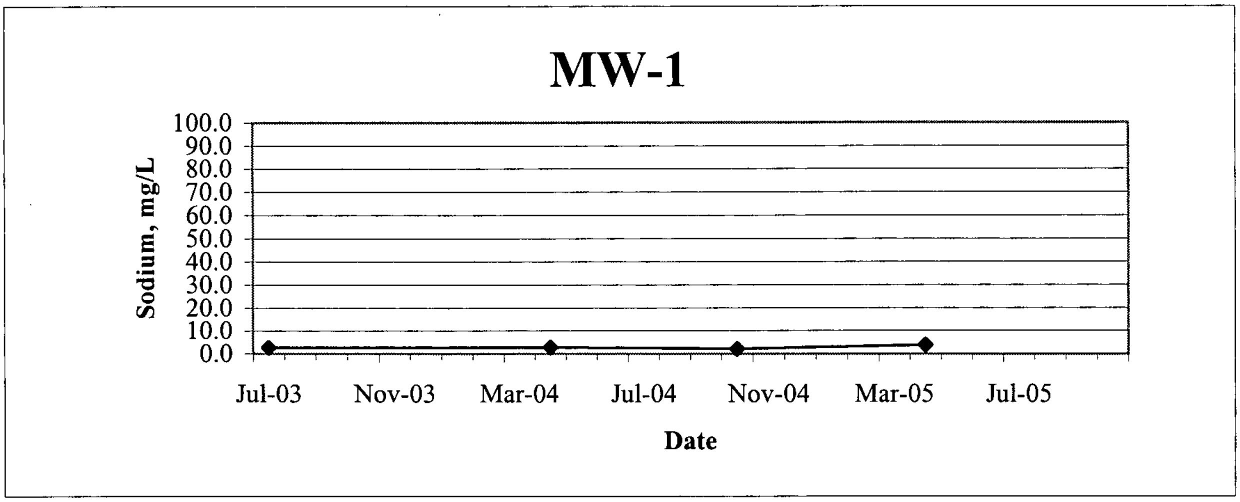

MW-6
TDS, mg/L
500
450
400
350
300
250
200
150
100
50
0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

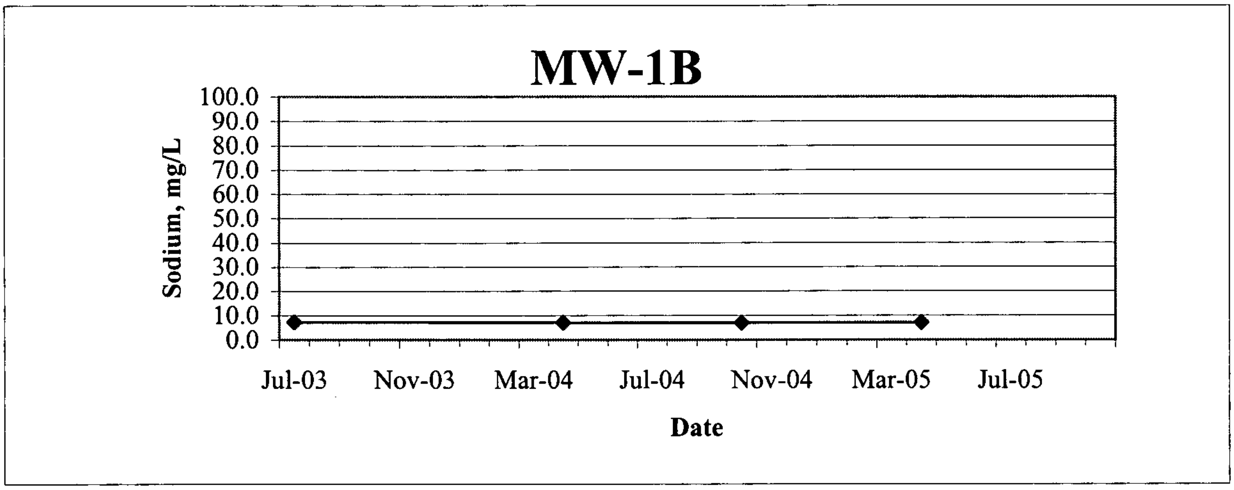

MW-7A
TDS, mg/L
500
450
400
350
300
250
200
150
100
50
0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

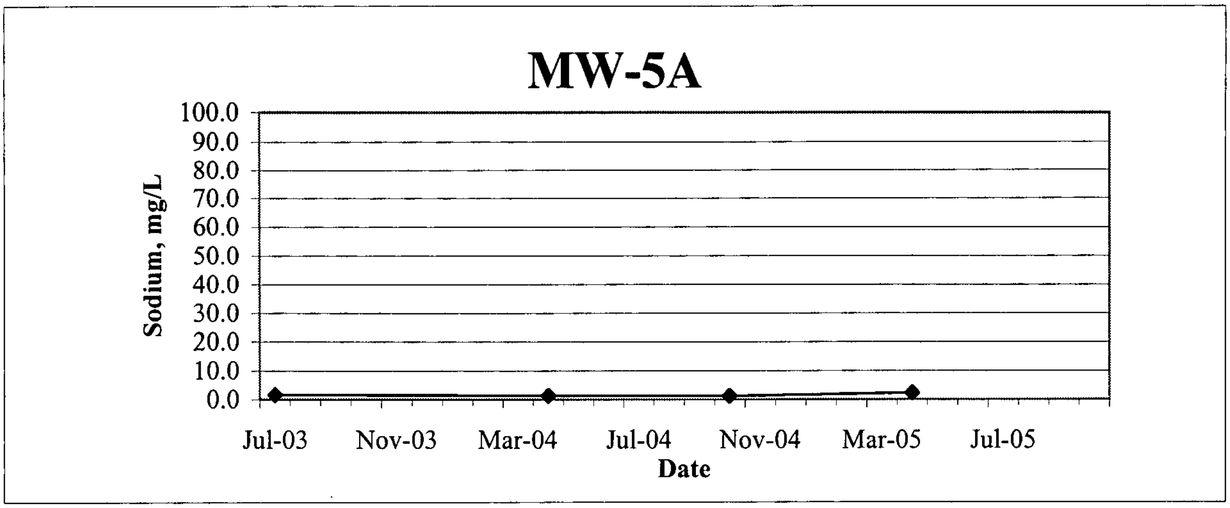

MW-7B
TDS, mg/L
500
450
400
350
300
250
200
150
100
50
0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

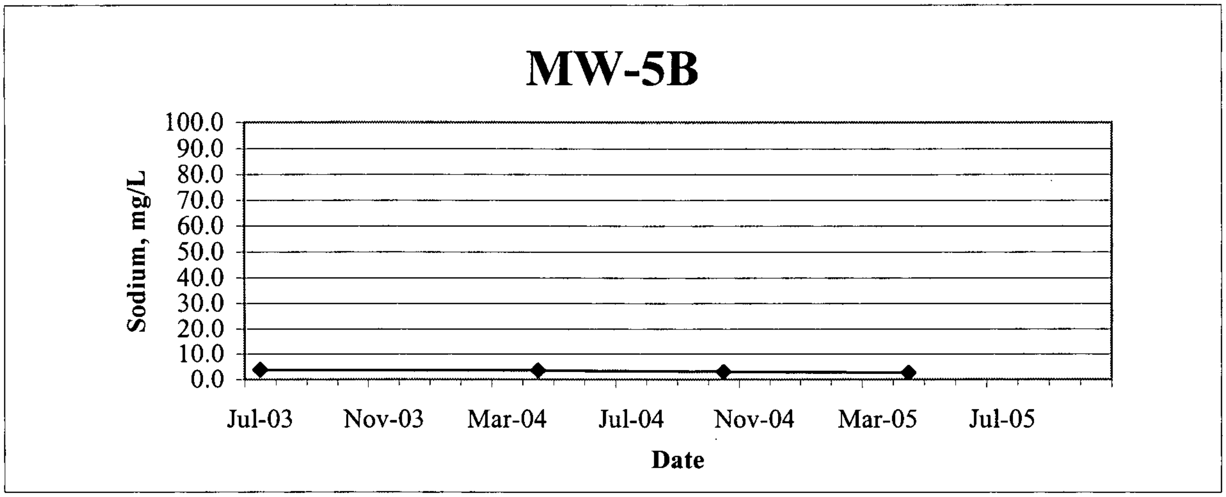

MW-1
Iron, ug/L
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

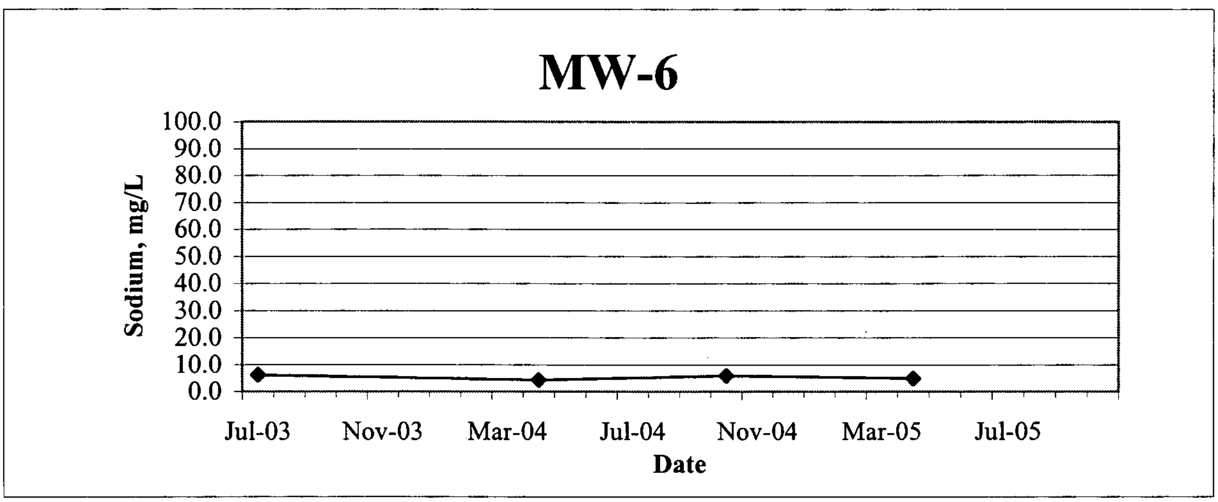

MW-6
Iron, ug/L
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

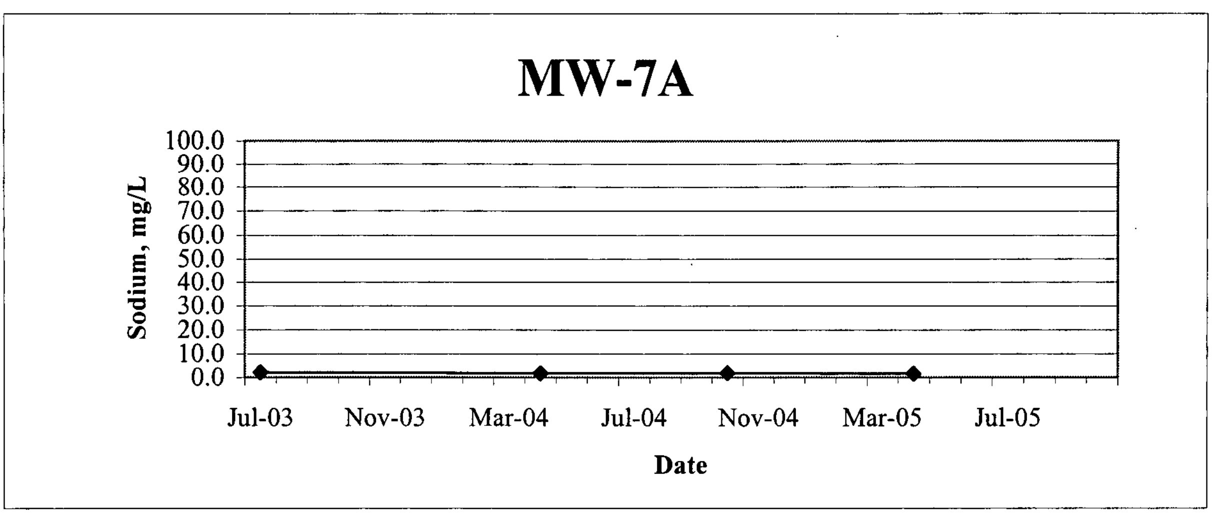

MW-1
Sodium, mg/L
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

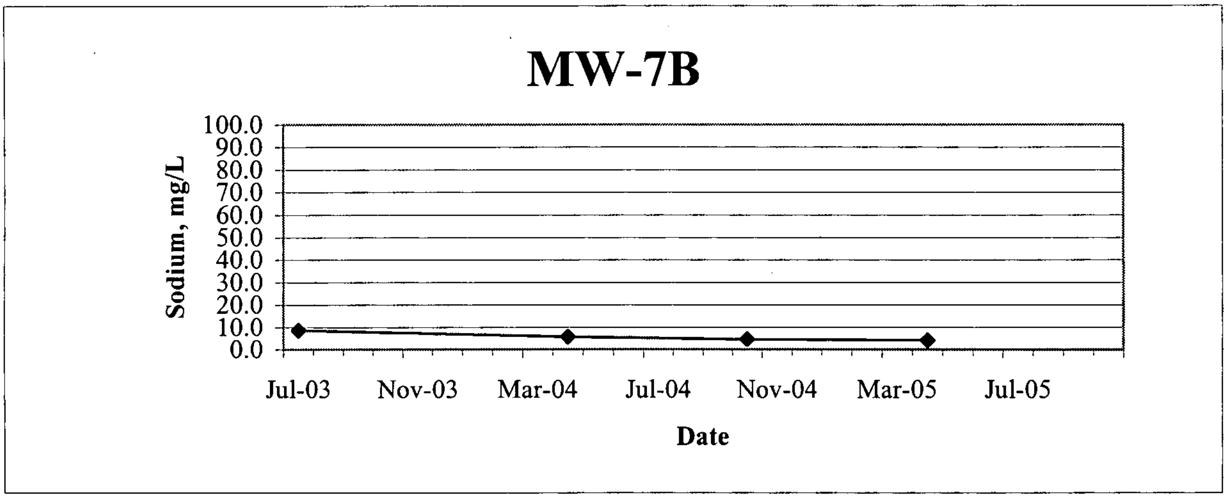

MW-1B
Sodium, mg/L
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

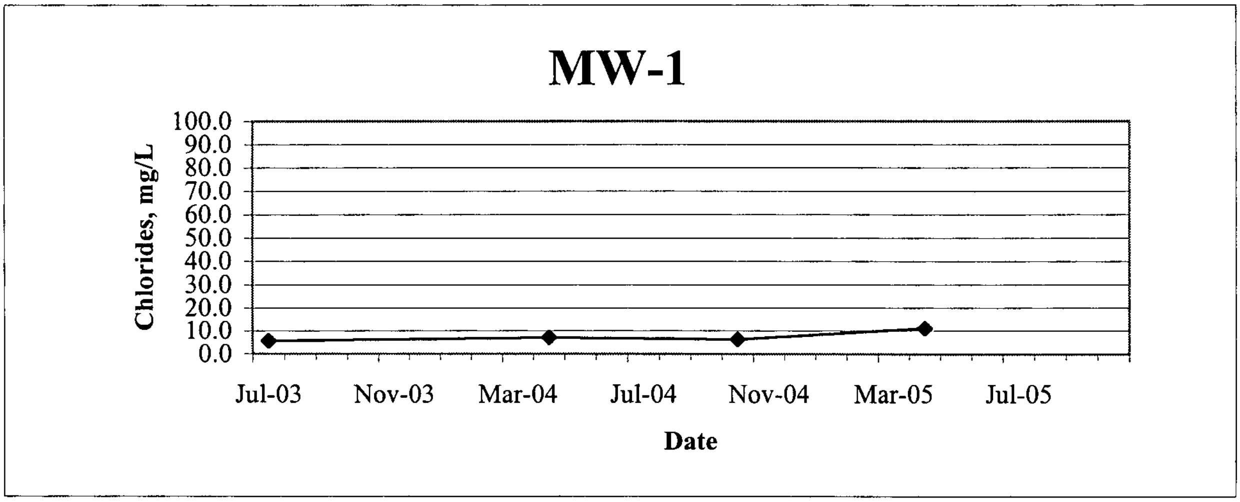

MW-5A
Sodium, mg/L
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

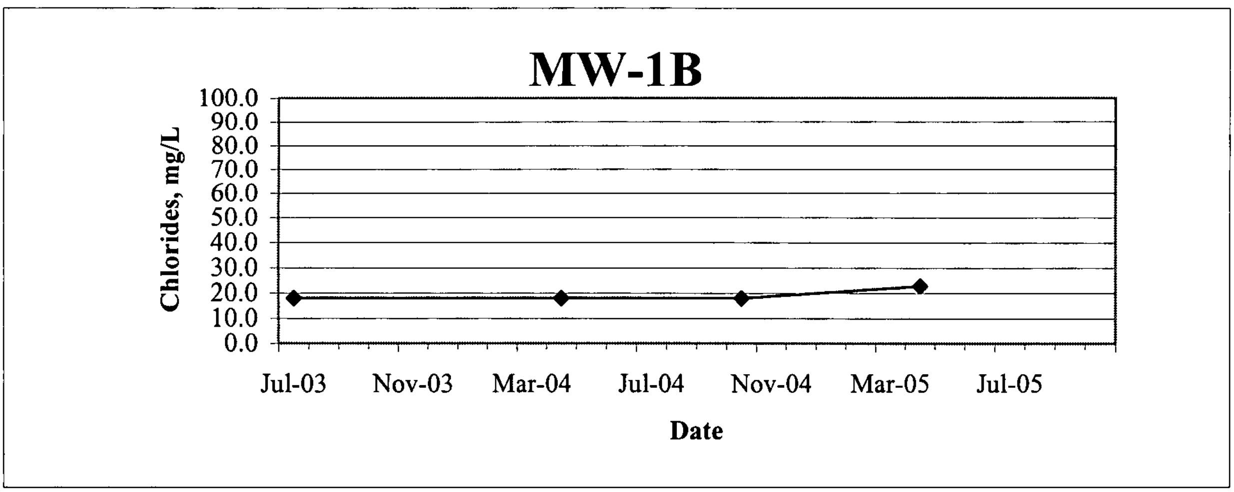

MW-5B
Sodium, mg/L
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

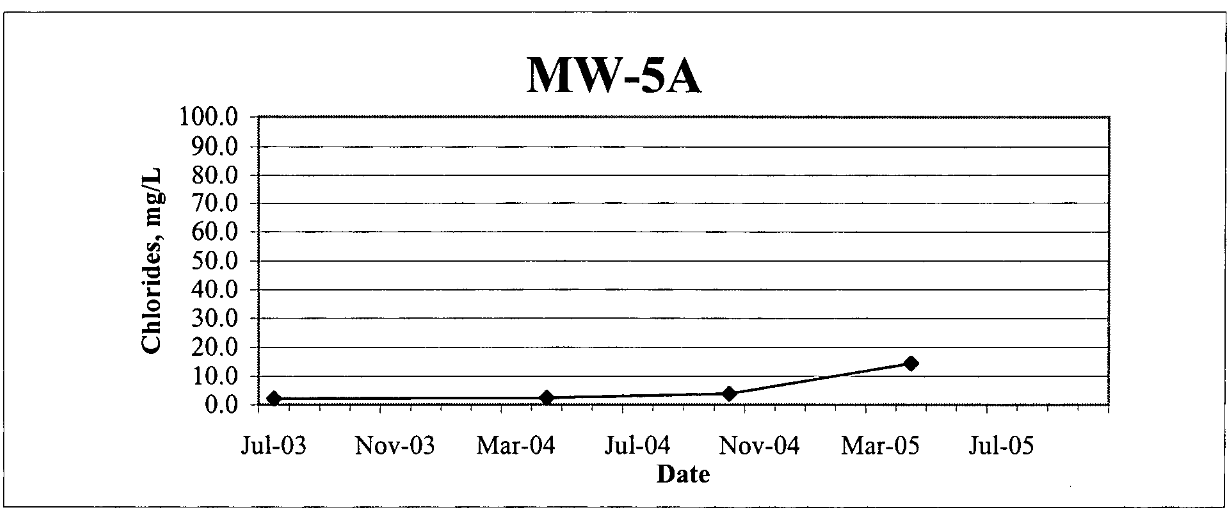

MW-6
Sodium, mg/L
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

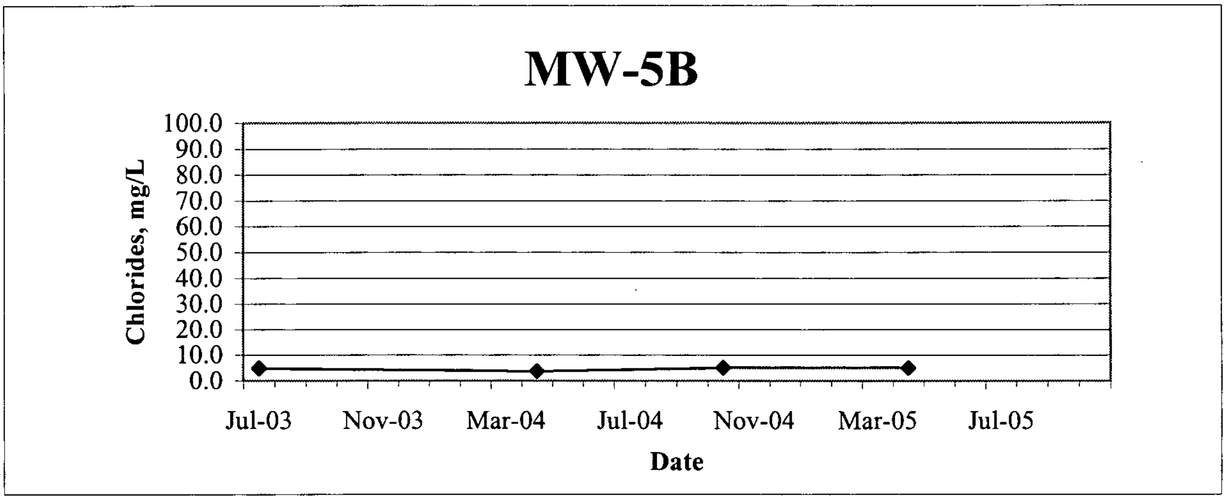

MW-7A
Sodium, mg/L
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

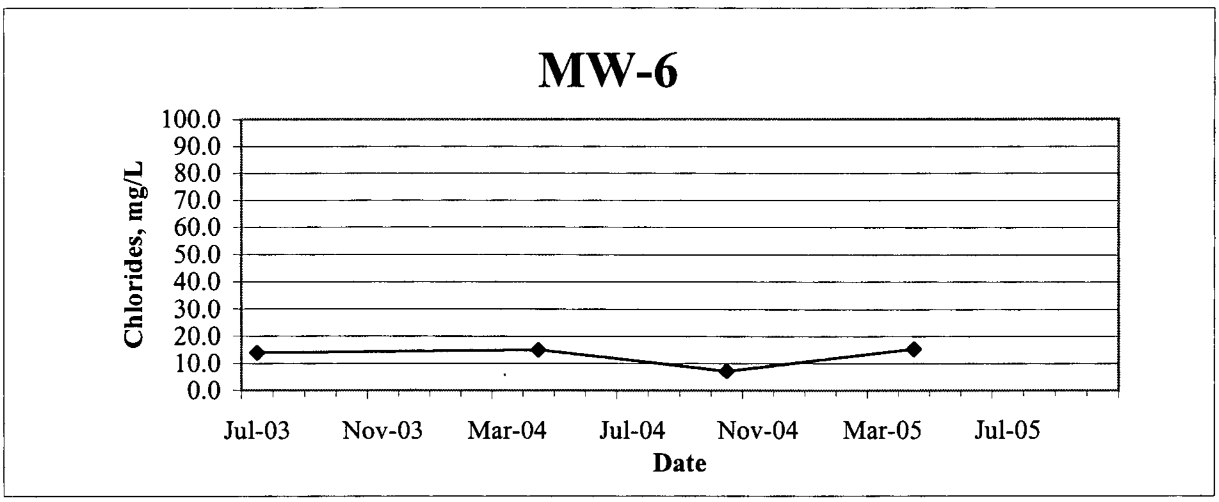

MW-7B
Sodium, mg/L
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

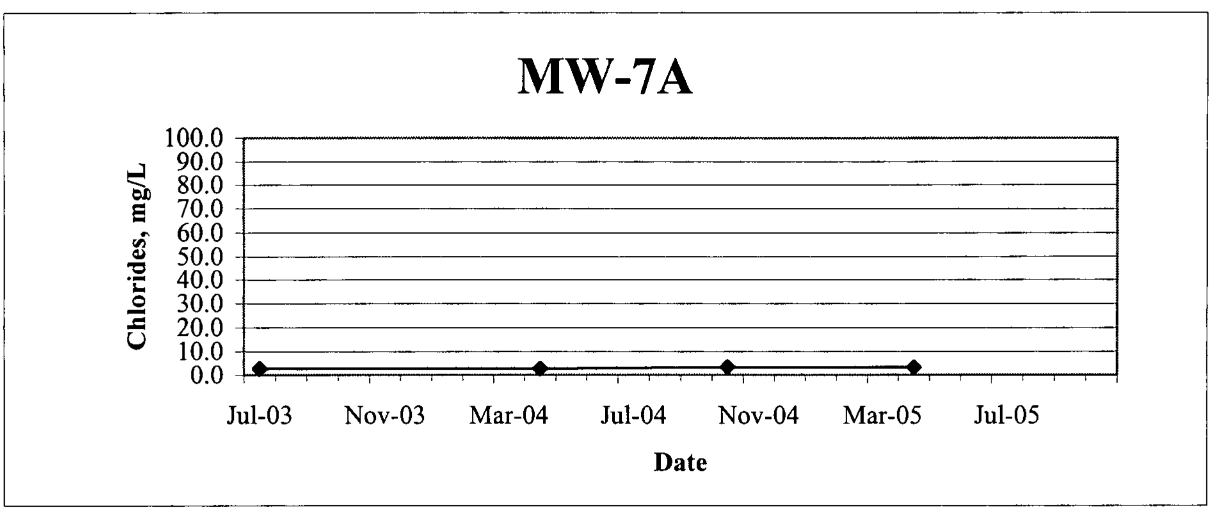

MW-1
Chloride, mg/L
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

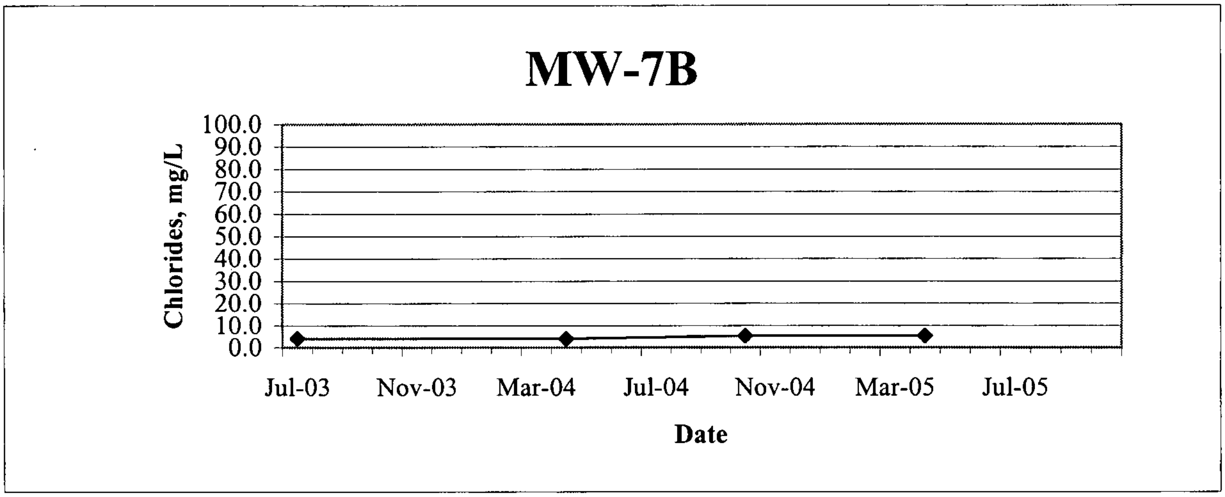

MW-1B
Chloride, mg/L
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

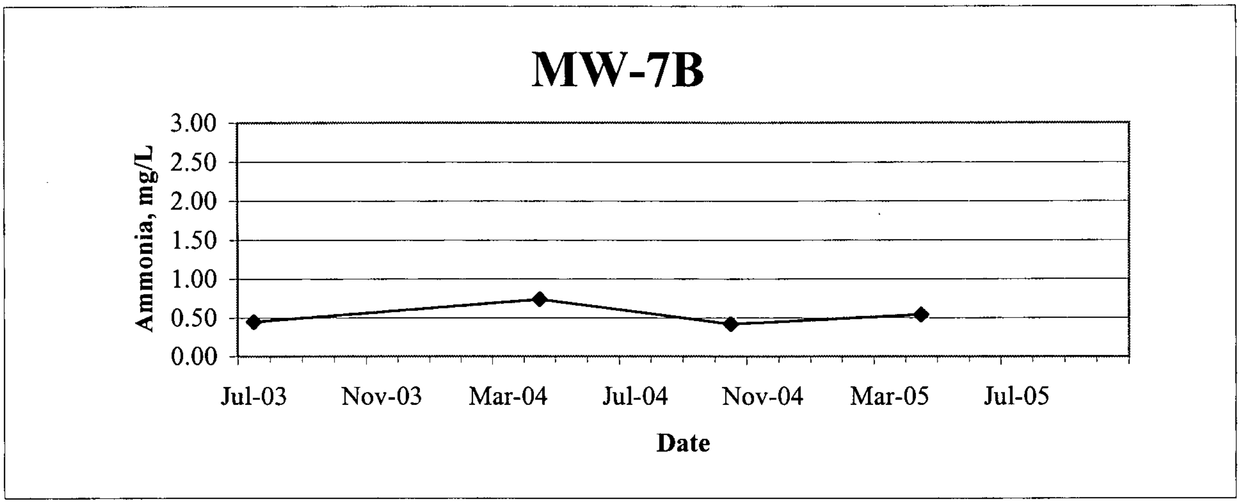

MW-5A
Chloride, mg/L
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

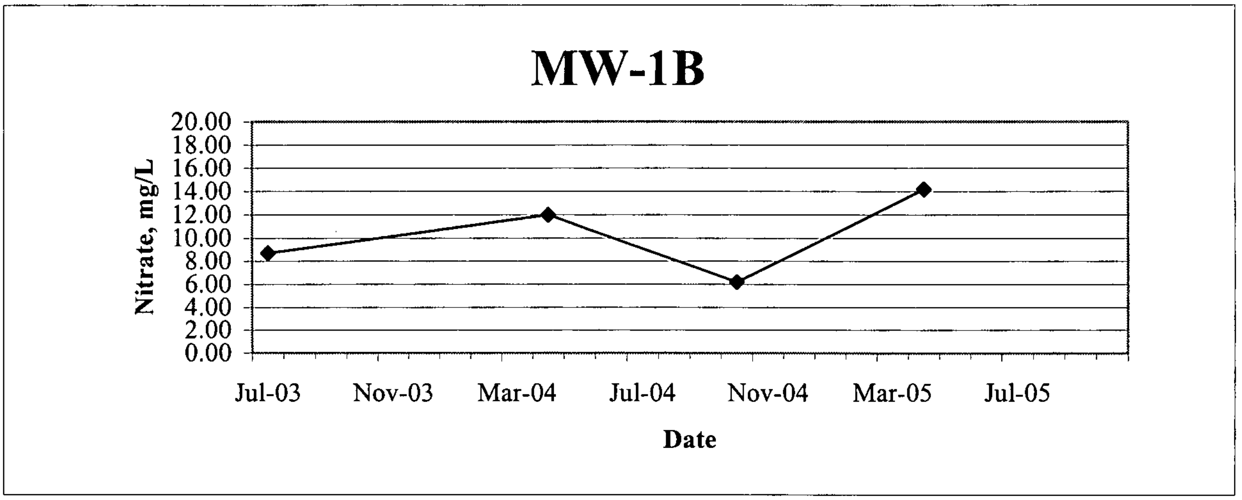

MW-5B
Chlorides, mg/L
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

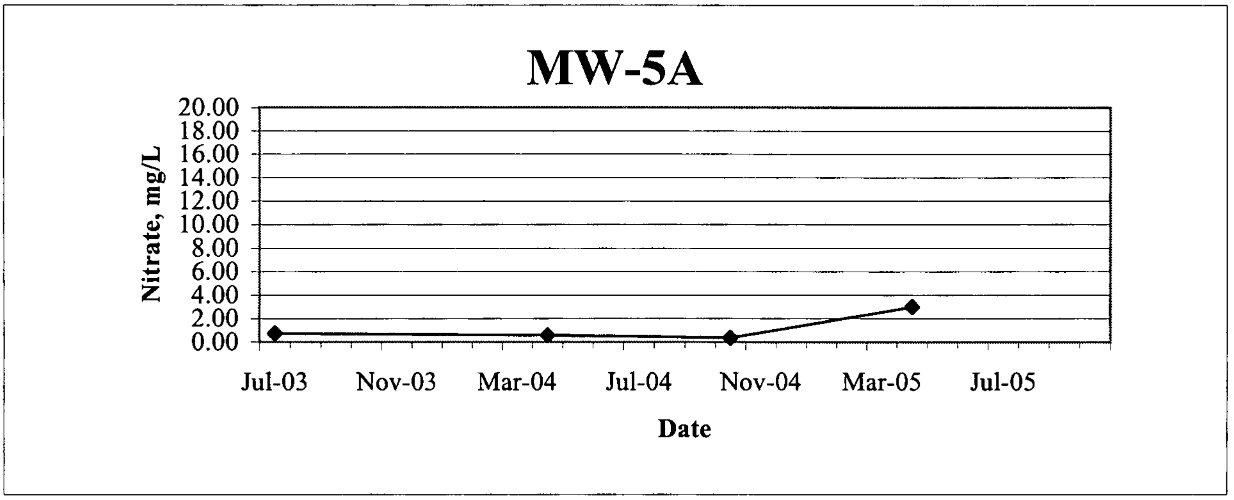

MW-6
Chlorides, mg/L
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

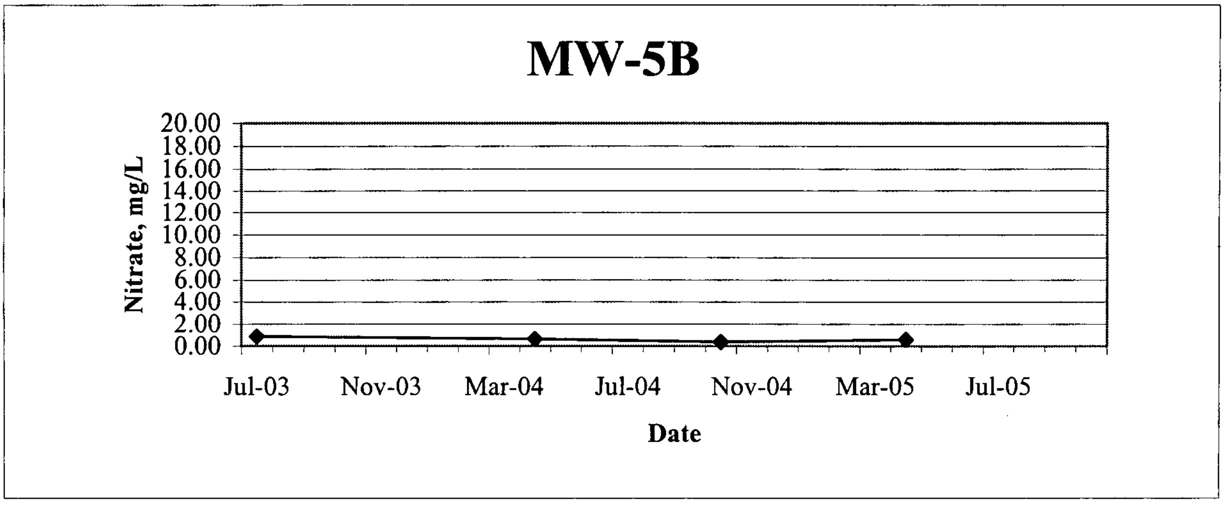

MW-7A
Chlorides, mg/L
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

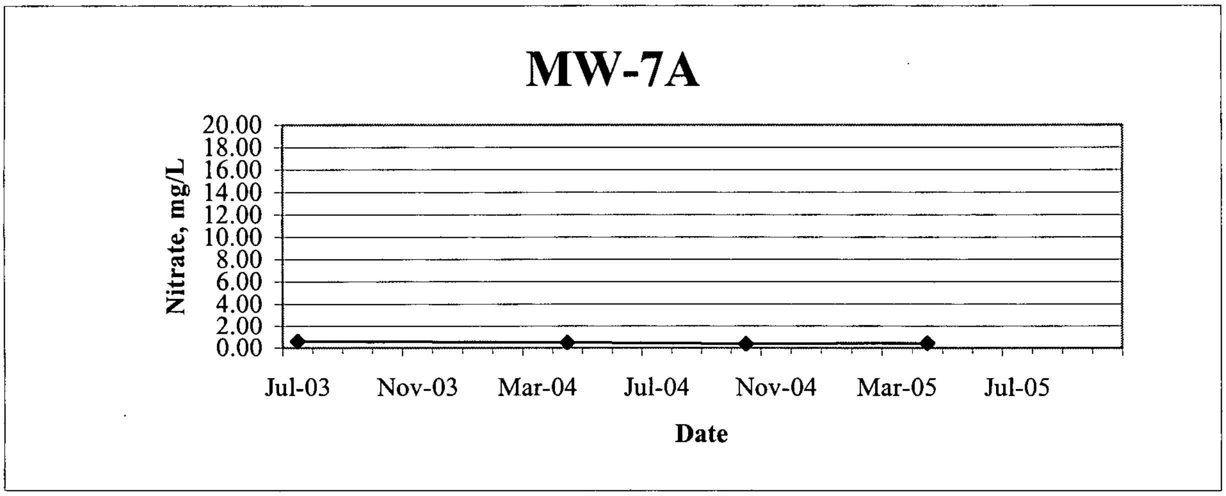

MW-7B
Chlorides, mg/L
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

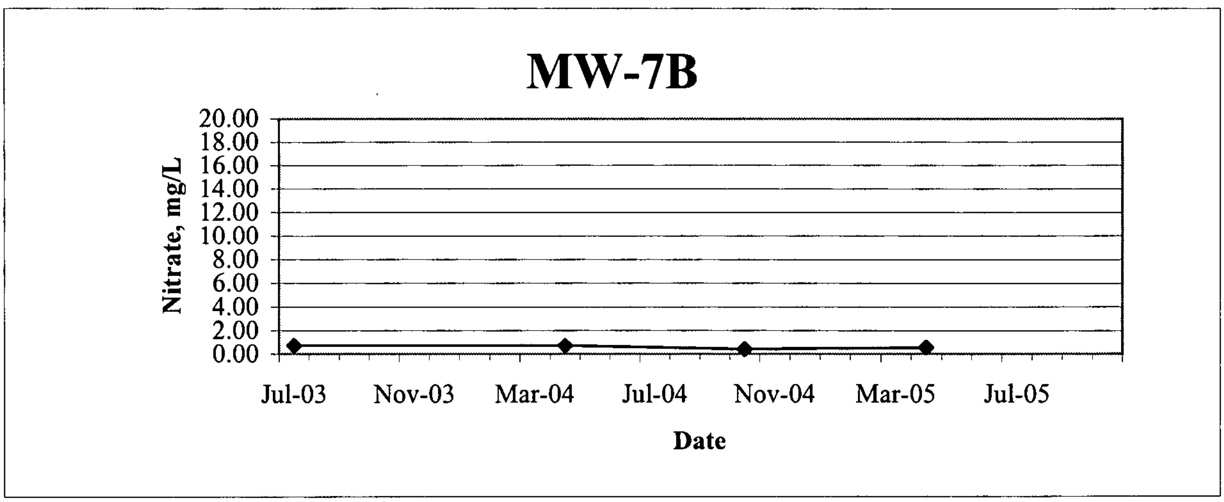

MW-7B
Ammonia, mg/L
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date


MW-1B
Nitrate, mg/L
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

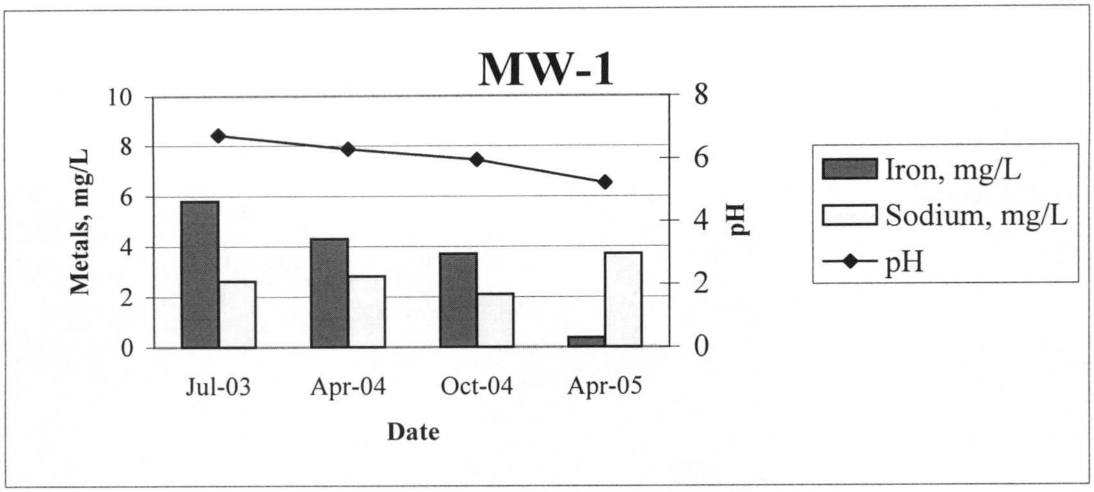

MW-5A
Nitrate, mg/L
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date


MW-5B
Nitrate, mg/L
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

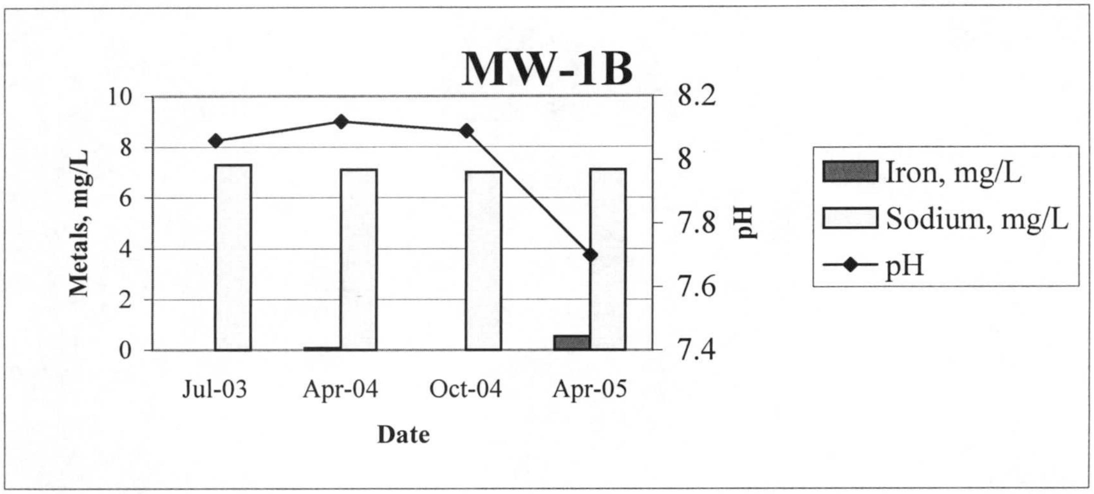

MW-7A
Nitrate, mg/L
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date


MW-7B
Nitrate, mg/L
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Jul-03
Nov-03
Mar-04
Jul-04
Nov-04
Mar-05
Jul-05
Date

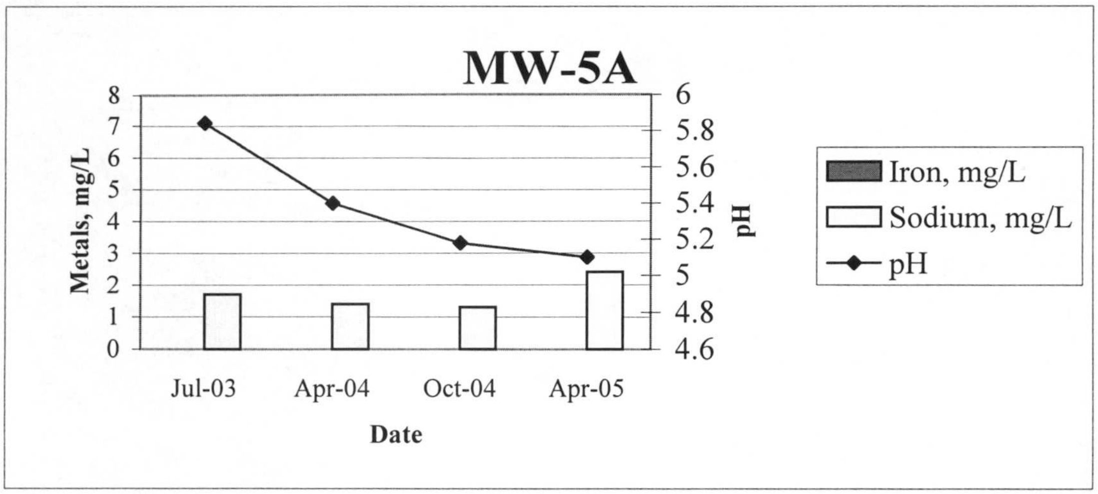
# APPENDIX D



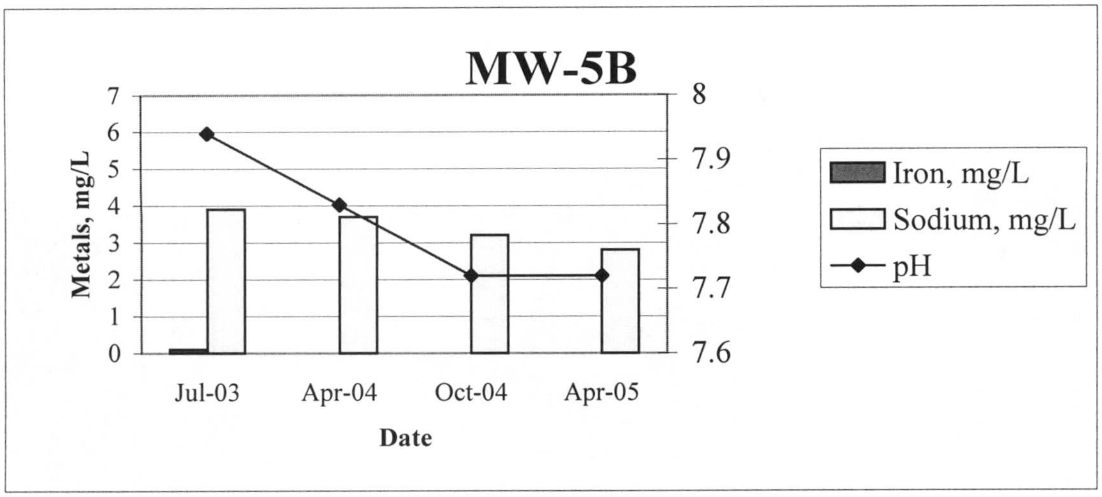
MW-1
Metals, mg/L
pH
0
2
4
6
8
10
0
2
4
6
8
Jul-03
Apr-04
Oct-04
Apr-05
Date
Iron, mg/L
Sodium, mg/L
pH

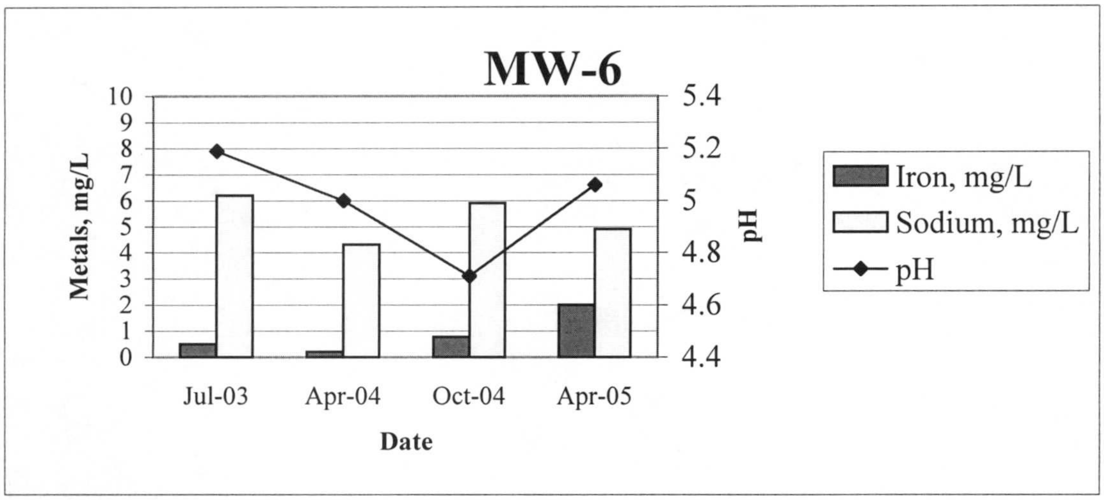



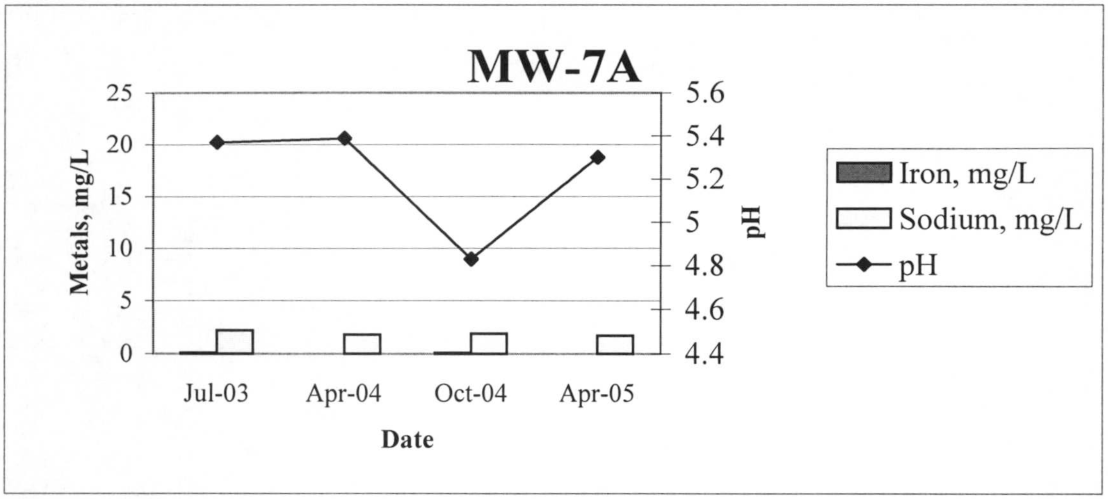
MW-1B
Metals, mg/L
pH
0
2
4
6
8
10
7.4
7.6
7.8
8
8.2
Jul-03
Apr-04
Oct-04
Apr-05
Date
Iron, mg/L
Sodium, mg/L
pH

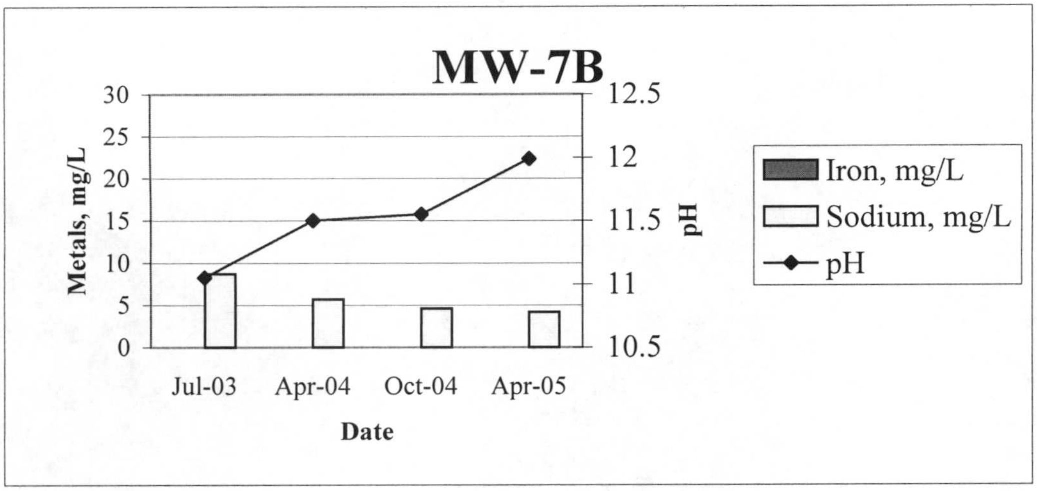



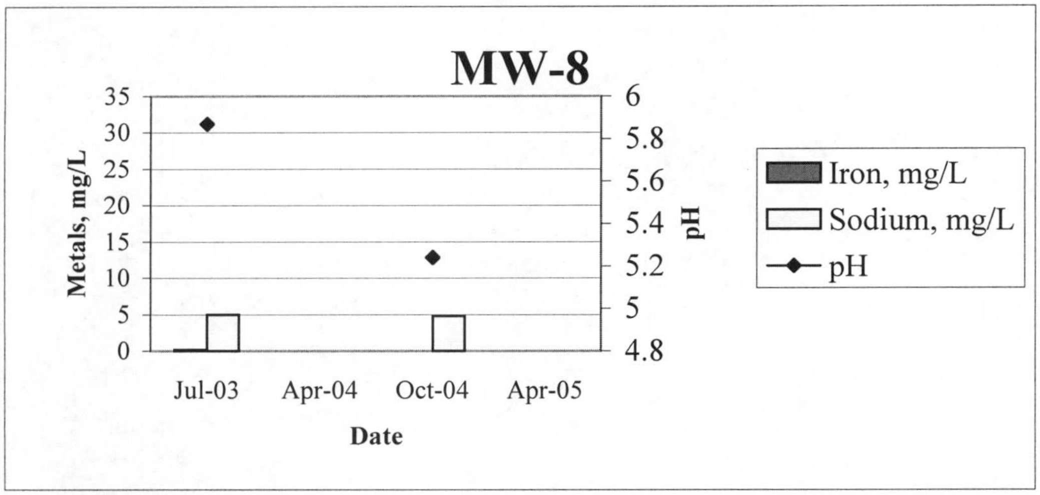
MW-5A
Metals, mg/L
pH
0
1
2
3
4
5
6
7
8
4.6
4.8
5
5.2
5.4
5.6
5.8
6
Jul-03
Apr-04
Oct-04
Apr-05
Date
Iron, mg/L
Sodium, mg/L
pH


MW-5B
Metals, mg/L
Date
Jul-03
Apr-04
Oct-04
Apr-05
Iron, mg/L
Sodium, mg/L
pH


MW-6
Metals, mg/L
pH
Date
Jul-03
Apr-04
Oct-04
Apr-05
Iron, mg/L
Sodium, mg/L
pH


MW-7A
Metals, mg/L
pH
Date
Jul-03
Apr-04
Oct-04
Apr-05
Iron, mg/L
Sodium, mg/L
pH


MW-7B
Metals, mg/L
30
25
20
15
10
5
0
12.5
12
11.5
11
10.5
pH
Jul-03
Apr-04
Oct-04
Apr-05
Date
Iron, mg/L
Sodium, mg/L
pH


MW-8
Metals, mg/L
35
30
25
20
15
10
5
0
6
5.8
5.6
5.4
5.2
5
4.8
pH
Jul-03
Apr-04
Oct-04
Apr-05
Date
Iron, mg/L
Sodium, mg/L
pH

TDS Conductance Correlation

| *MW-1* | *TDS* | *Conductance* |
|---|---|---|
| *TDS* | 1 | |
| *Conductance* | 0.970422 | 1 |

| *MW-1B* | *TDS* | *Conductance* |
|---|---|---|
| *TDS* | 1 | |
| *Conductance* | 0.855482 | 1 |

| *MW-5A* | *TDS* | *Conductance* |
|---|---|---|
| *TDS* | 1 | |
| *Conductance* | 0.616428 | 1 |

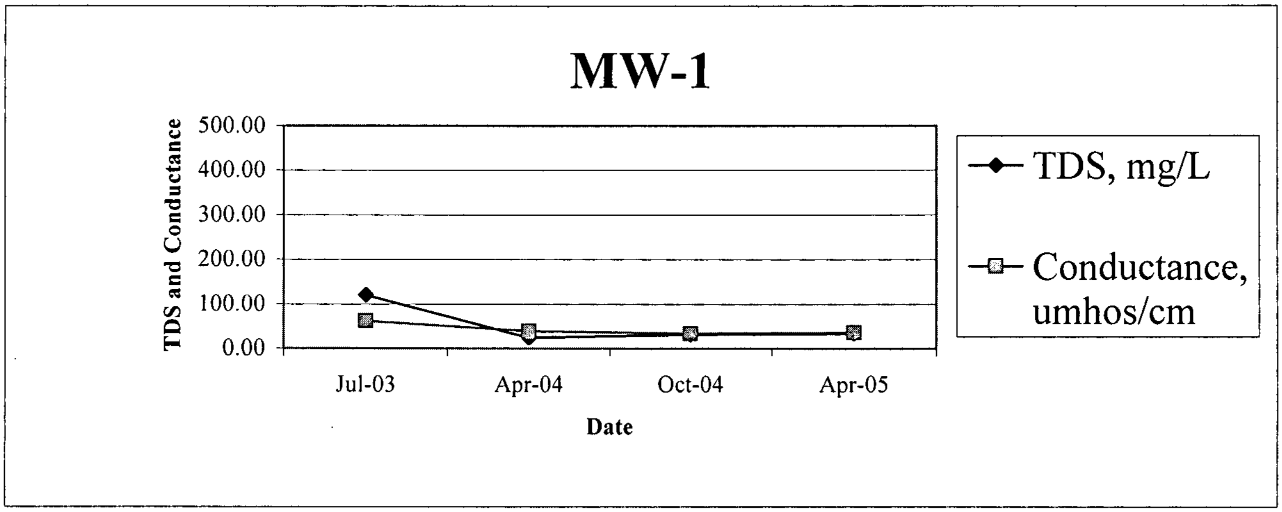
| *MW-5B* | *TDS* | *Conductance* |
|---|---|---|
| *TDS* | 1 | |
| *Conductance* | -0.65607 | 1 |

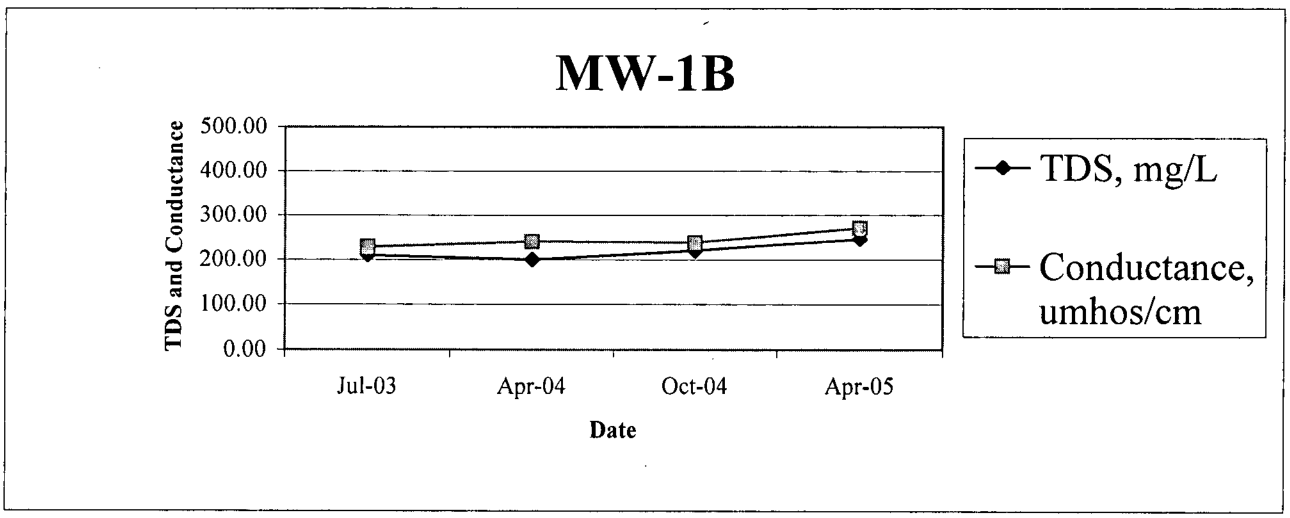
| *MW-6* | *TDS* | *Conductance* |
|---|---|---|
| *TDS* | 1 | |
| *Conductance* | 0.861654 | 1 |

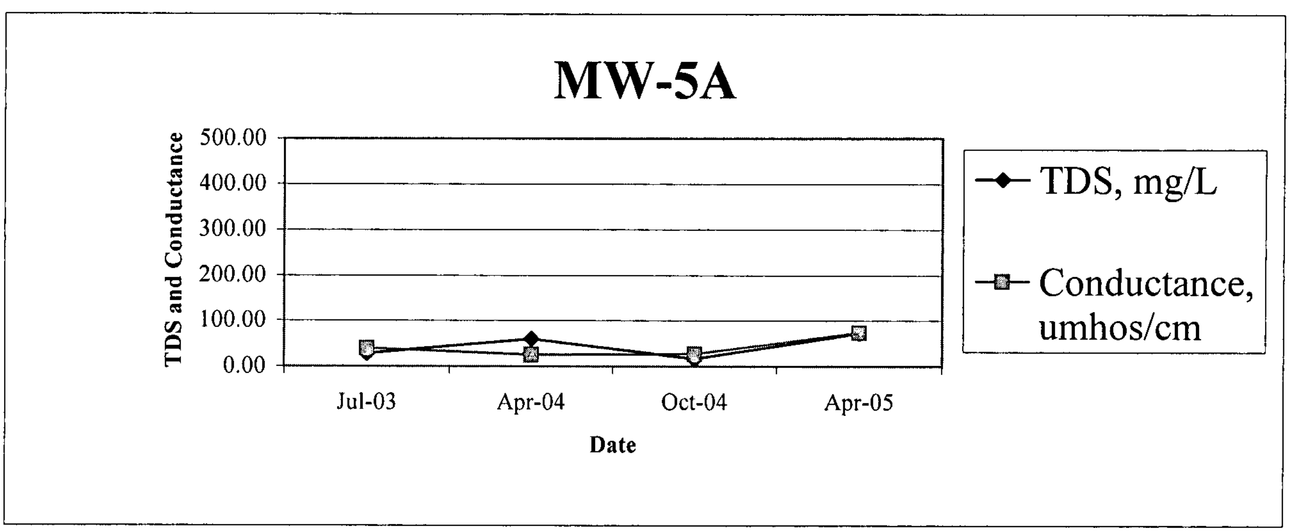
| *MW-7A* | *TDS* | *Conductance* |
|---|---|---|
| *TDS* | 1 | |
| *Conductance* | -0.8851 | 1 |

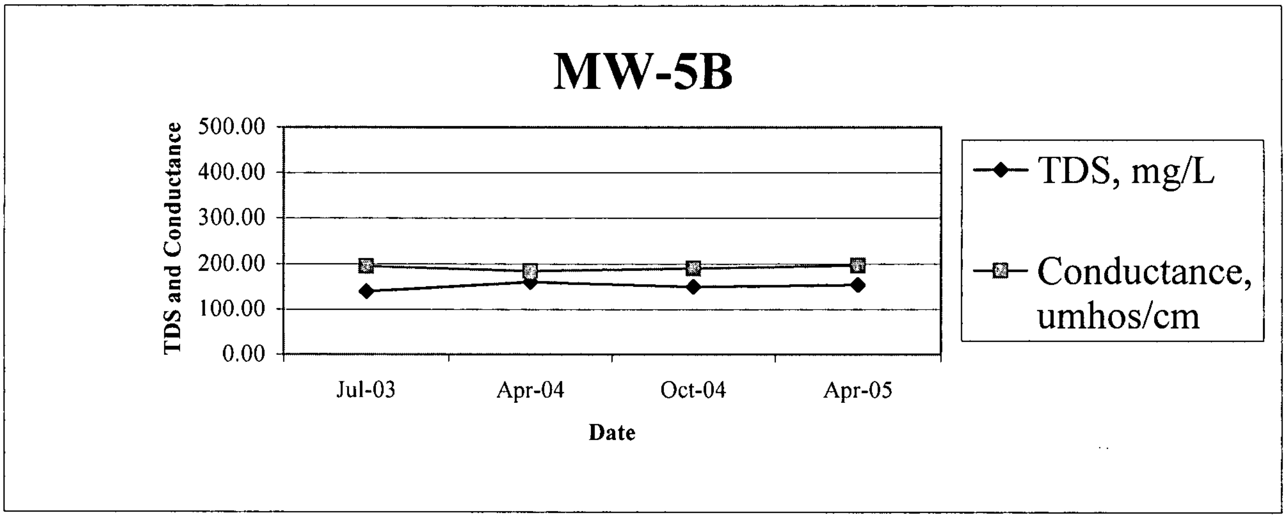
| *MW-7B* | *TDS* | *Conductance* |
|---|---|---|
| *TDS* | 1 | |
| *Conductance* | 0.847601 | 1 |

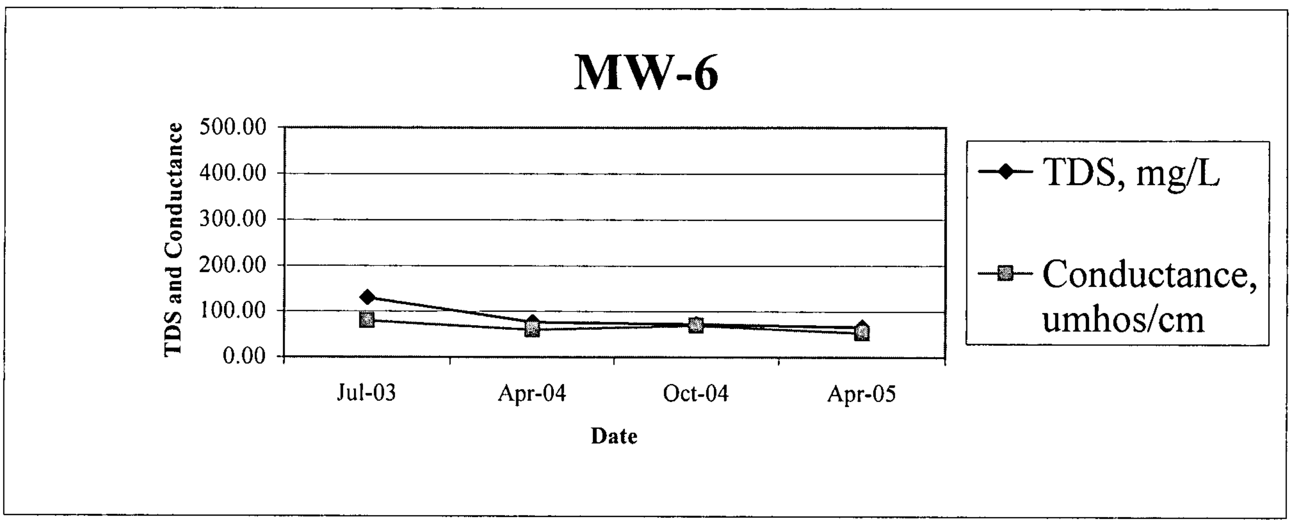
| *MW-8* | *TDS* | *Conductance* |
|---|---|---|
| *TDS* | 1 | |
| *Conductance* | 1 | 1 |

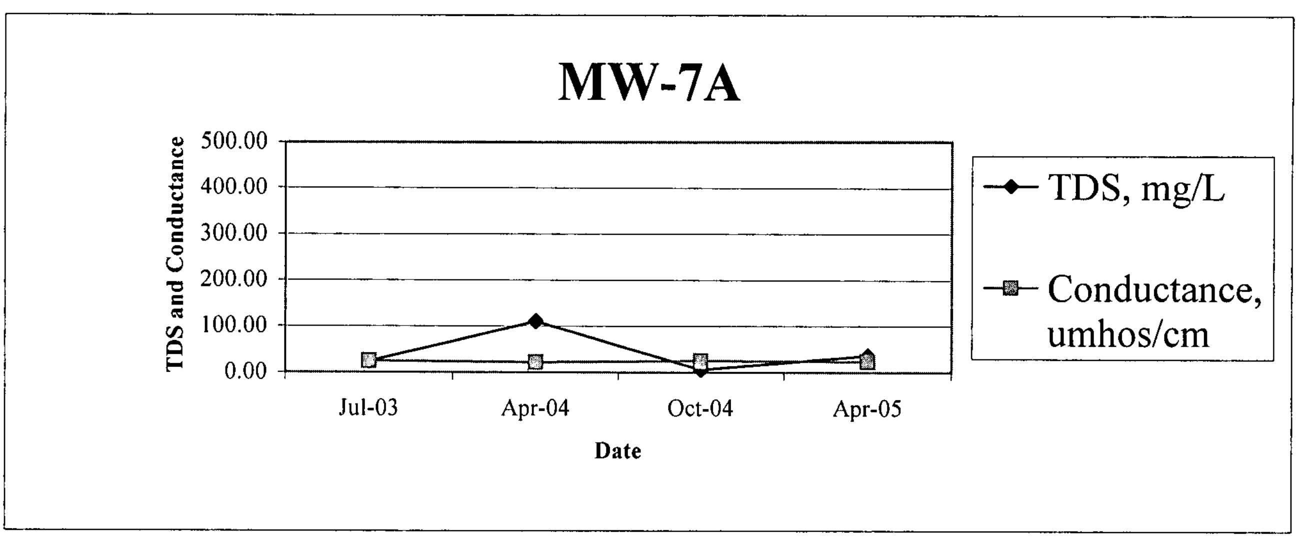

MW-1
TDS and Conductance
500.00
400.00
300.00
200.00
100.00
0.00
Jul-03
Apr-04
Oct-04
Apr-05
Date
TDS, mg/L
Conductance, umhos/cm

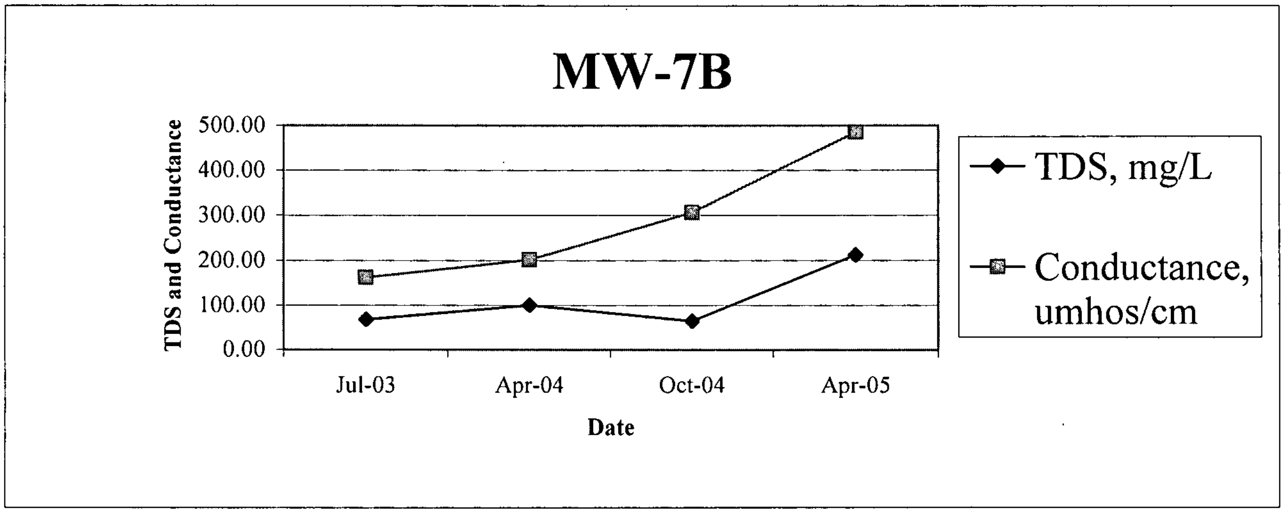

MW-1B
TDS and Conductance
500.00
400.00
300.00
200.00
100.00
0.00
Jul-03
Apr-04
Oct-04
Apr-05
Date
TDS, mg/L
Conductance, umhos/cm

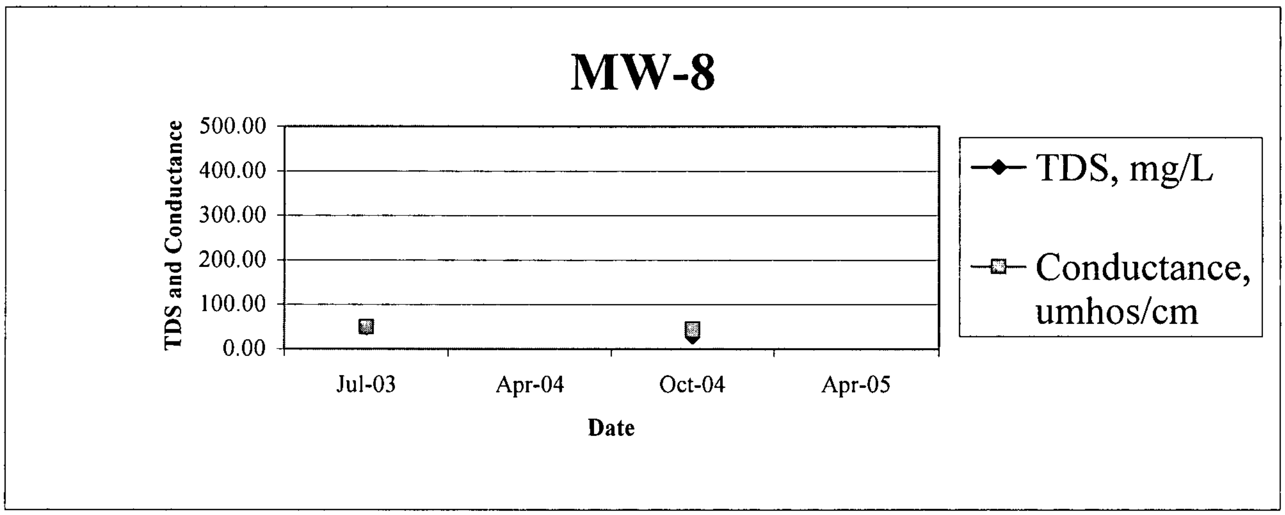

MW-5A
TDS and Conductance
500.00
400.00
300.00
200.00
100.00
0.00
Jul-03
Apr-04
Oct-04
Apr-05
Date
TDS, mg/L
Conductance, umhos/cm


MW-5B
TDS and Conductance
500.00
400.00
300.00
200.00
100.00
0.00
Jul-03
Apr-04
Oct-04
Apr-05
Date
TDS, mg/L
Conductance, umhos/cm


MW-6
TDS and Conductance
500.00
400.00
300.00
200.00
100.00
0.00
Jul-03
Apr-04
Oct-04
Apr-05
Date
TDS, mg/L
Conductance, umhos/cm


MW-7A
TDS and Conductance
500.00
400.00
300.00
200.00
100.00
0.00
Jul-03
Apr-04
Oct-04
Apr-05
Date
TDS, mg/L
Conductance, umhos/cm


MW-7B
TDS and Conductance
500.00
400.00
300.00
200.00
100.00
0.00
Jul-03
Apr-04
Oct-04
Apr-05
Date
TDS, mg/L
Conductance, umhos/cm


MW-8
TDS and Conductance
500.00
400.00
300.00
200.00
100.00
0.00
Jul-03
Apr-04
Oct-04
Apr-05
Date
TDS, mg/L
Conductance, umhos/cm

Metals pH Correlation

| *MW-1* | *pH* | *Iron* | *Sodium* |
|---|---|---|---|
| *pH* | 1 | | |
| *Iron* | 0.990155 | 1 | |
| *Sodium* | -0.64212 | -0.7431 | 1 |

| *MW-1B* | *pH* | *Iron* | *Sodium* |
|---|---|---|---|
| *pH* | 1 | | |
| *Iron* | -1 | 1 | |
| *Sodium* | 0.050546 | #DIV/0! | 1 |

| *MW-5A* | *pH* | *Iron* | *Sodium* |
|---|---|---|---|
| *pH* | 1 | | |
| *Iron* | #DIV/0! | 1 | |
| *Sodium* | -0.24673 | #DIV/0! | 1 |

| *MW-5B* | *pH* | *Iron* | *Sodium* |
|---|---|---|---|
| *pH* | 1 | | |
| *Iron* | #DIV/0! | 1 | |
| *Sodium* | 0.9113 | #DIV/0! | 1 |

| *MW-6* | *pH* | *Iron* | *Sodium* |
|---|---|---|---|
| *pH* | 1 | | |
| *Iron* | 0.055323 | 1 | |
| *Sodium* | -0.04851 | -0.08893 | 1 |

| *MW-7A* | *pH* | *Iron* | *Sodium* |
|---|---|---|---|
| *pH* | 1 | | |
| *Iron* | 1 | 1 | |
| *Sodium* | 0.070006 | 1 | 1 |

| *MW-7B* | *pH* | *Iron* | *Sodium* |
|---|---|---|---|
| *pH* | 1 | | |
| *Iron* | #DIV/0! | 1 | |
| *Sodium* | -0.91609 | #DIV/0! | 1 |

| *MW-8* | *pH* | *Iron* | *Sodium* |
|---|---|---|---|
| *pH* | 1 | | |
| *Iron* | #DIV/0! | 1 | |
| *Sodium* | 1 | #DIV/0! | 1 |