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1991 RCRA ANNUAL REPORT VOLUME I

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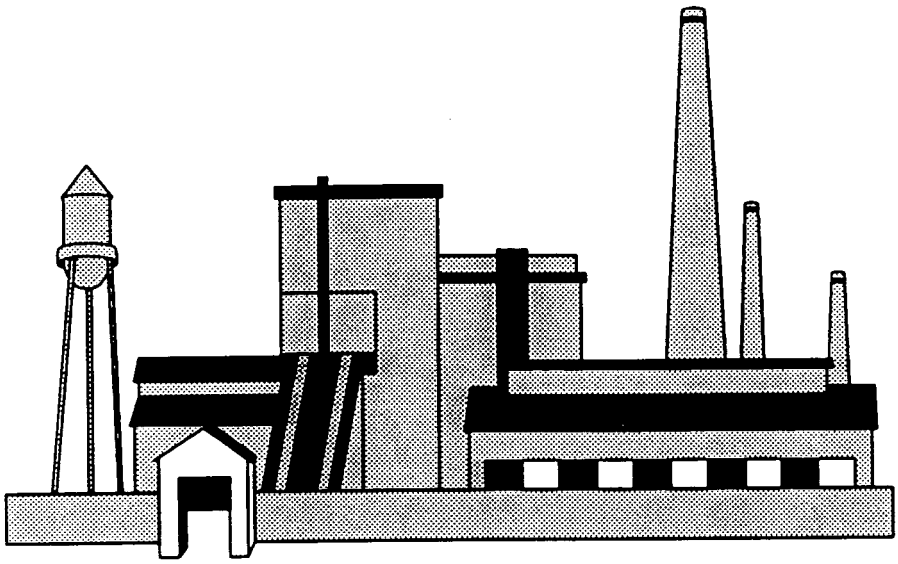


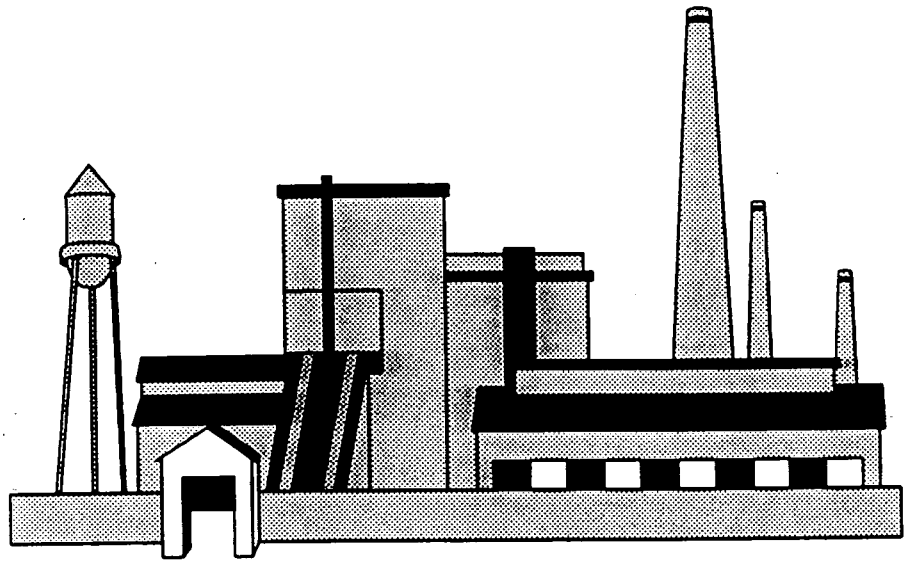
VOLUME I

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

U. S. Department of Energy
USEPA Identification No. OH6890008976

3713

1991 RCRA ANNUAL REPORT



FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Fernald Environmental Management Project
Westinghouse Environmental Management Company of Ohio
P. O. Box 398704
Cincinnati, Ohio 45239-8704

Prepared for the
U. S. Department of Energy
Fernald Office

Supplementary Annual Report For 1991 Ground Water Monitoring Information

Form and Instructions

The Supplementary Annual Report for 1991 Ground Water Monitoring Information is used to report your company's ground water monitoring activities during the 1991 calendar year to the Director of the Ohio EPA. The Annual report must be submitted by March 1, 1992, in accordance with Ohio Administrative Code (OAC) Rules 3745-65-75(F) and 3745-65-94(A)(2)(b), (A)(2)(c), and (B)(2). These rules require the following information:

1. Concentrations or values of the indicator parameters listed in OAC Rule 3745-65-92(B) for each ground water monitoring well.

2. Results of statistical evaluations of the indicator parameters as required by OAC Rule 3745-65-93(B) including the identification of any significant differences from initial background found in the upgradient wells in accordance with OAC Rule 3745-65-93(C)(1).

3. Results of the evaluation of ground water surface elevations required by OAC Rule 3745-65-93(F) to determine whether OAC Rule 3745-65-91(A) is satisfied and a description of the response to that evaluation.

4. A summary of the results of any ground water quality assessment program required by OAC Rule 3745-65-93(D)(4).

If your company has not yet received monitoring results for all four quarters of the calendar year, please send whatever results you have in order to meet the March 1 deadline for submittal.

To obtain additional reporting forms, please call the Data Management Section at (614) 644-2977. Technical questions regarding ground water data and analysis should be directed to the Division of Ground Water at (614) 644-2905.

Keep a copy of the completed report for your records and mail the original to:

Ohio EPA
Div. of Hazardous Waste Mgmt.
Data Management Section
P.O. Box 1049
Columbus, OH 43266-0149

The Data Management Section will send a copy of your report to the appropriate Ohio EPA District Office for their examination. You may elect to send two copies of your completed report to the address listed above and the second copy will be forwarded to the District. If a second copy is mailed directly to the District by you, please make this clear on the report copy that is mailed to Columbus so that duplication can be avoided.

1991 Supplementary Annual Report Form
Ground Water Monitoring Information

This Supplementary Annual Report form should be completed by all facilities required by OAC 3745-65-90 to conduct ground water monitoring.

FACILITY IDENTIFICATION

Name: U. S. DOE - Fernald Environmental Management Project

Address: P. O. Box 398705 Cincinnati, Ohio 45239-8705

EPA ID: OH 6890008976

HWFAB Permit #: _____ Facility Contact: David M. Rast

County: Hamilton Phone Number: 738-6322

Check Applicable Process Codes from Part A Application:

____ S04 - Storage in Surface Impoundment

____ T02 - Treatment in Surface Impoundment

_X_ D80 - Disposal in Landfill

____ D81 - Disposal by Land Application

____ D83 - Disposal in Surface Impoundment

Instructions

Section 1 - Include Indicator Parameter values from all RCRA wells the first time data from the baseline year is submitted; in subsequent years, only report original upgradient values. List values from upgradient well(s) first. Upgradient wells should have four replicate measures of each parameter for each sampling date. Please designate wells as upgradient (UP) or downgradient (DN) [example: W2, DN]. If more than one measure of each indicator parameter was made from samples taken from downgradient wells, please report these as well. Attach additional pages as needed. Facilities that have not completed four quarters of data should explain briefly why.

Section 2 - Only facilities that have completed four quarters of ground water monitoring data and, at least, the first semi-annual sampling of indicator parameters need report anything in this section. Report upgradient well(s) first. Put "Not Applicable" under the section heading, if appropriate. Attach additional pages as needed.

Section 3 - Report well elevations in Mean Sea Level. Identify elevations by well number and location (upgradient, downgradient). Record, under each quarterly heading, the dates that elevations were taken. Report results of evaluation of elevations and describe response to that evaluation, where applicable.

Section 4 - Summarize efforts to determine rate and extent of migration as well as the concentration of the hazardous waste or hazardous waste constituents in the ground water. Report results of analysis. Put "Not Applicable" under the section heading, if appropriate.

1991 Supplementary Annual Report Form
Ground Water Monitoring Information

Section 1

REPORT VALUES OF INDICATOR PARAMETERS FROM SAMPLES COLLECTED DURING BASELINE YEAR - OAC 3745-65-94(A)(2)(b). For upgradient wells, include mean and variance statistics following concentration values. After first submittal of baseline data, report only upgradient well values and statistics on this page.

Well ID	Date Sampled	TOH (mg/l)	TOC (mg/l)	pH (S.U.)	Specific Conductance (uMHOS)

N/A Facility in assessment monitoring

See RCRA Ground Water report Volume 6, Round 6 Sampling, DOE March 1988.

4

1991 Supplementary Annual Report Form
Groundwater Monitoring Information

Section 2

REPORT STATISTICAL EVALUATION OF INDICATOR PARAMETERS (RESULTS OF t-TEST) - OAC 3745-65-94(A)(2)(b). Indicate t-test method used (check one): ___ AT t-test or ___ CABF t-test.

Semi-Annual Sampling

Well ID	Date Sampled	TOH (mg/l)	TOC (mg/l)	pH (S.U.)	Specific Conductance (uMHOS)

N/A Facility in assessment monitoring
See RCRA Ground Water report Volume 6, Round 6 Sampling, DOE March 1988.

Mean:
Variance:
Background Mean:
t*:
tc:
Significant Difference at 0.01? (Yes or No)

Well ID	Date Sampled	TOH (mg/l)	TOC (mg/l)	pH (S.U.)	Specific Conductance (uMHOS)

N/A Facility in assessment monitoring
See RCRA Ground Water report Volume 6, Round 6 Sampling, DOE March 1988.

Mean:
Variance:
Background Mean:
t*:
tc:
Significant Difference at 0.01? (Yes or No)

1991 SupplementaryAnnual Report Form
Groundwater Monitoring Information

Section 3

REPORT RESULTS OF THE EVALUATION OF GROUND WATER SURFACE ELEVATIONS AND A DESCRIPTION OF THE RESPONSE TO THAT EVALUATION, WHERE APPLICABLE - OAC 3745-65-94(A)(2)(C).

Well Elevations in MSL by Sampling Date

Date: Well ID	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter

SUMMARIZE RESULTS OF AND DESCRIBE RESPONSE TO EVALUATION OF ELEVATIONS

See attached report for assessment monitoring water elevations

1991 Supplementary Annual Report Form
Groundwater Monitoring Information

Section 4

REPORT RESULTS OF GROUND WATER QUALITY ASSESSMENT PROGRAM - OAC 3745-65-94(B).

See attached report

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1.0 EXECUTIVE SUMMARY

The Resource Conservation and Recovery Act (RCRA) Annual Groundwater Report for the Fernald Environmental Management Project (FEMP) provides an update on assessment monitoring activities and reports the data which was collected in calendar year 1991. The RCRA Groundwater Quality Assessment Program is an ongoing program designed to determine the rate and extent of contamination in the vicinity of Waste Pit 4 as required by the Code of Federal Regulations (CFR), Volume 40, Parts 265.93 through 265.94 and the Ohio Administrative Code (OAC), Parts 3745-65-93 through 3745-65-94. The controlling document for this program is the Groundwater Quality Assessment Program Plan (GQAPP), Revision 2, April 1991. The RCRA Assessment Monitoring Program is an Applicable, Relevant, or Appropriate Requirement (ARAR) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

The controlling document of the RCRA program (GQAPP) was revised in 1991 to include comments received by the EPA on Revision 1 and was submitted in April 1991. Revision 2 of the GQAPP included an expanded well monitoring program and more detailed sampling procedures. The revision to the GQAPP provided assessment objectives and statistical procedures also. The revision to the GQAPP included the addition of eleven new monitoring wells in the RCRA program.

Four quarters of sampling were completed for the RCRA monitoring wells in 1991. Collected data was assessed using statistical methods to determine the presence of contamination in the Waste Pit Area. An analysis of analytical results indicates that the types of site-specific parameters affecting groundwater quality are consistent. The results of the statistical assessment indicate that all 12 glacial overburden monitoring wells and 22 of 23 downgradient sand and gravel aquifer monitoring wells assessed had at least one statistically significant site-specific parameter. Of 59 parameters statistically analyzed, 18 were determined to have statistically significant concentrations in the glacial overburden; 20 were determined to have statistically significant concentrations in the sand and gravel aquifer.

A comparison to statistical results from 1989 and 1990 determined that groundwater quality is degrading in the glacial overburden around the Waste Pit Area, but groundwater quality is improving in the sand and gravel aquifer. These statistical findings have been supported by time versus concentration plots that indicate 42% of glacial overburden monitoring well concentrations are increasing with time, but 83% of sand and gravel monitoring well concentrations are decreasing with time.

An evaluation of the glacial overburden boring logs and groundwater data indicates that a silt deposit and silty gravel deposit occurs in boring logs near Waste Pit 4. These deposits are saturated, and portions of the clay deposits are saturated. Water elevation data indicates a radial flow pattern south and west of Waste Pit 4. Flow patterns could not be determined to the north or east because of variant water elevations and limited coarse-grained deposits. An estimated flow velocity of 5.33×10^{-3} ft/day was determined to the south of Waste Pit 4 in a silty gravel deposit. An estimated flow velocity of 9.673×10^{-5} ft/day was determined to the southwest of

Waste Pit 4 in a silty clay deposit. A conservative rate of migration of constituents in the glacial overburden can be assumed to be the advective flow rate.

A vadose zone transport model calculated a vertical flow rate for many constituents. Initial findings from this model determined that it would take longer than 500 years for magnesium, silver, toluene, acetone, and many other constituents to migrate through five feet of saturated clay and 20 feet of unsaturated sand and gravel.

Concentration contour maps were developed to determine the extent of contamination in the sand and gravel aquifer. In the upper portion of the sand and gravel aquifer (2000-series wells), the water quality differences extend between 500 and 1000 feet northeast of Monitoring Well 2027. The water quality differences extend east between 2000 and 3000 feet away from the waste pit area in the lower portion of the sand and gravel aquifer (3000-series wells). The conservative rate of migration of constituents affecting water quality can be assumed to be equal to the advective flow rate of the groundwater, which has been estimated to be 868.7 feet per year in the water table zone, 657 feet per year in the 3000-series zone, and 868.7 feet per year in the 4000-series.

Four flow modeling studies have been completed in the sand and gravel aquifer under the FEMP. Results of this modeling indicate that groundwater velocities range between 233 ft/yr and 3394.5 ft/yr. The calculated flow rates mentioned above fall within this range of flow velocities. The flow models also indicate a downward flow pattern east of the Waste Pit Area. This vertical flow is supported by vertical water elevation differences in cluster wells and vertical concentration contours of sulfate, the most widespread constituent affecting groundwater quality east of the Waste Pit Area.

Organic compounds were detected in only one well within the sand and gravel aquifer. In November 1990, Monitoring Well 2649 was completed in the water table zone in the sand and gravel aquifer to determine if organics found in the glacial overburden (Monitoring Well 1031) had reached the aquifer. Results from 1991 indicate that Monitoring Well 2649 has concentrations of the same volatile organics found in Monitoring Well 1031.

The source of the volatile organic compounds (VOCs) appears to be separate from the source of the inorganic constituent plume originating in the vicinity of Monitoring Well 2084. This conclusion is supported by the absence of organic compounds in the inorganic constituent plume, and the fact that the two wells (1031 and 2649) in which the organic compounds were detected are located upgradient and over 1000 feet away from the inorganic constituent plume.

2.0 INTRODUCTION

The Resource Conservation and Recovery Act (RCRA) Annual Groundwater Report for the Fernald Environmental Management Project (FEMP) provides an update on assessment monitoring activities and reports the data which was collected in calendar year 1991. The RCRA Groundwater Quality Assessment Program is an ongoing program designed to determine the rate and extent of contamination in the vicinity of Waste Pit 4 as required by the Code of Federal Regulations (CFR), Volume 40, Parts 265.93 through 265.94 and the Ohio Administrative Code (OAC), Parts 3745-65-93 through 3745-65-94. The controlling document for this program is the Groundwater Quality Assessment Program Plan (GQAPP), Revision 2, April 1991. The RCRA Assessment Monitoring Program is an Applicable, Relevant, or Appropriate Requirement (ARAR) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

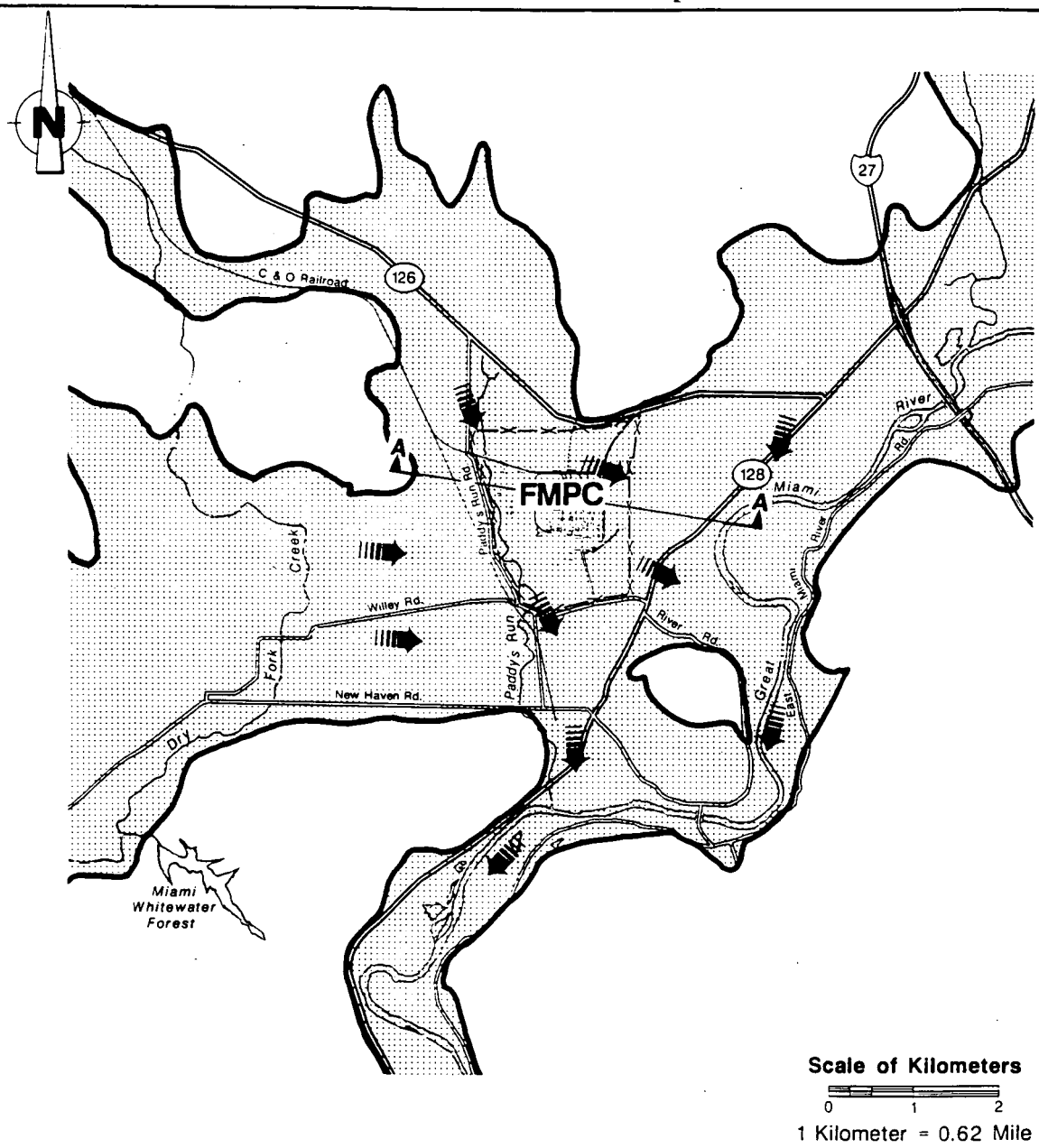
The FEMP is located above a two to three mile wide subterranean valley known as the New Haven Trough. This valley formed as a result of Pleistocene Glaciation. Approximately 150 feet of regionally extensive Pleistocene glacial valley fill deposits (sands and gravels) overlie the shales in the bedrock channel. Figure 2.0A is a generalized areal map of the valley fill deposits around the FEMP. As indicated by the generalized hydrogeologic cross-section (Figure 2.0B), the buried valley is about one-half to over two miles wide and is U-shaped, having a broad, primarily flat bottom and steep valley walls.

Fine-grained glacial deposits overlie the bedrock uplands and portions of the sand and gravel deposits where they form the thick unconsolidated sediment layers beneath the soil zone. This glacial overburden is composed of dense, silty clay that varies in composition vertically and laterally. The glacial overburden contains lenses of poorly sorted fine- to medium-grained sand and gravel, silty sand, and silt with layers of silty clay.

The site setting, geology, and hydrologic environment at the FEMP are described in the RCRA GQAPP. The well numbering system corresponds to the geologic unit and relative depth being monitored by each of the wells. A 1000-series well is completed in the glacial overburden and 2000-, 3000-, and 4000-series wells are completed at different depths in the underlying sand and gravel aquifer. Figure 2.0C presents a generalized description of the relative depth positions of these monitoring wells. Geographic well locations for each network are shown in Figures 2.0D, 2.0E, and 2.0F and 2.0G.

2.1 Summary of the RCRA Groundwater Detection Monitoring Program

In accordance with the requirements of OAC 3745-65-93 (D)(2) and 40 CFR 265.90 through 93 (d)(2), a Detection Monitoring Program was initiated at Waste Pit 4 in August 1985. The Detection Monitoring Program included quarterly monitoring for one year of wells upgradient and downgradient of the regulated unit for general water quality, drinking water suitability, and indicator parameters as specifically defined in OAC 3745-65-92 and 40 CFR 265.92.



LEGEND

Buried Channel Aquifer	Plant Perimeter
General Direction of Groundwater Flow	Location of Cross Section Shown in Figure 2.0B

Figure 2.0A Buried Valley Aquifer Underlying the FMPC and Vicinity

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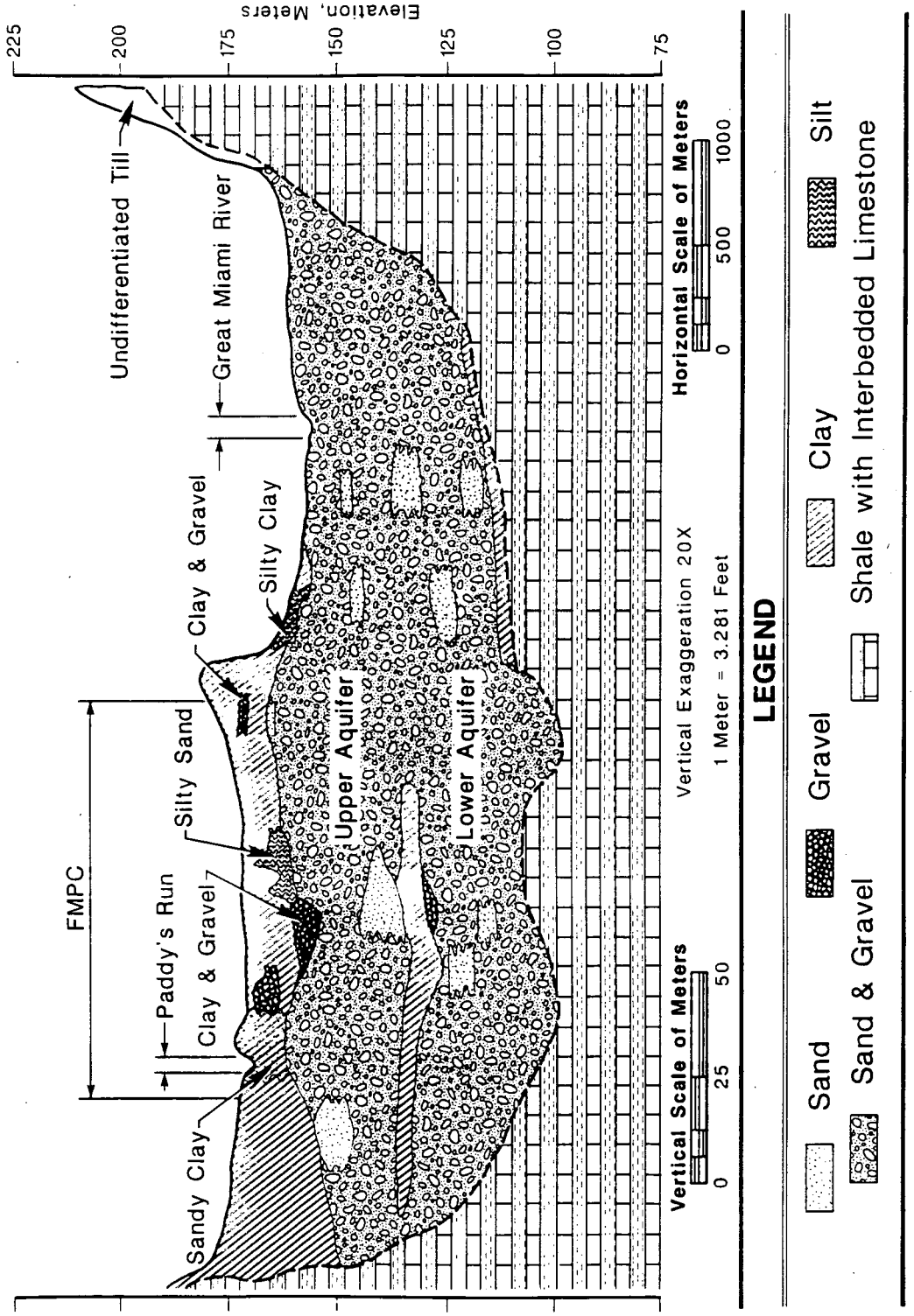

Figure 2.0B Cross Section of the Great Miami River Valley, Looking North

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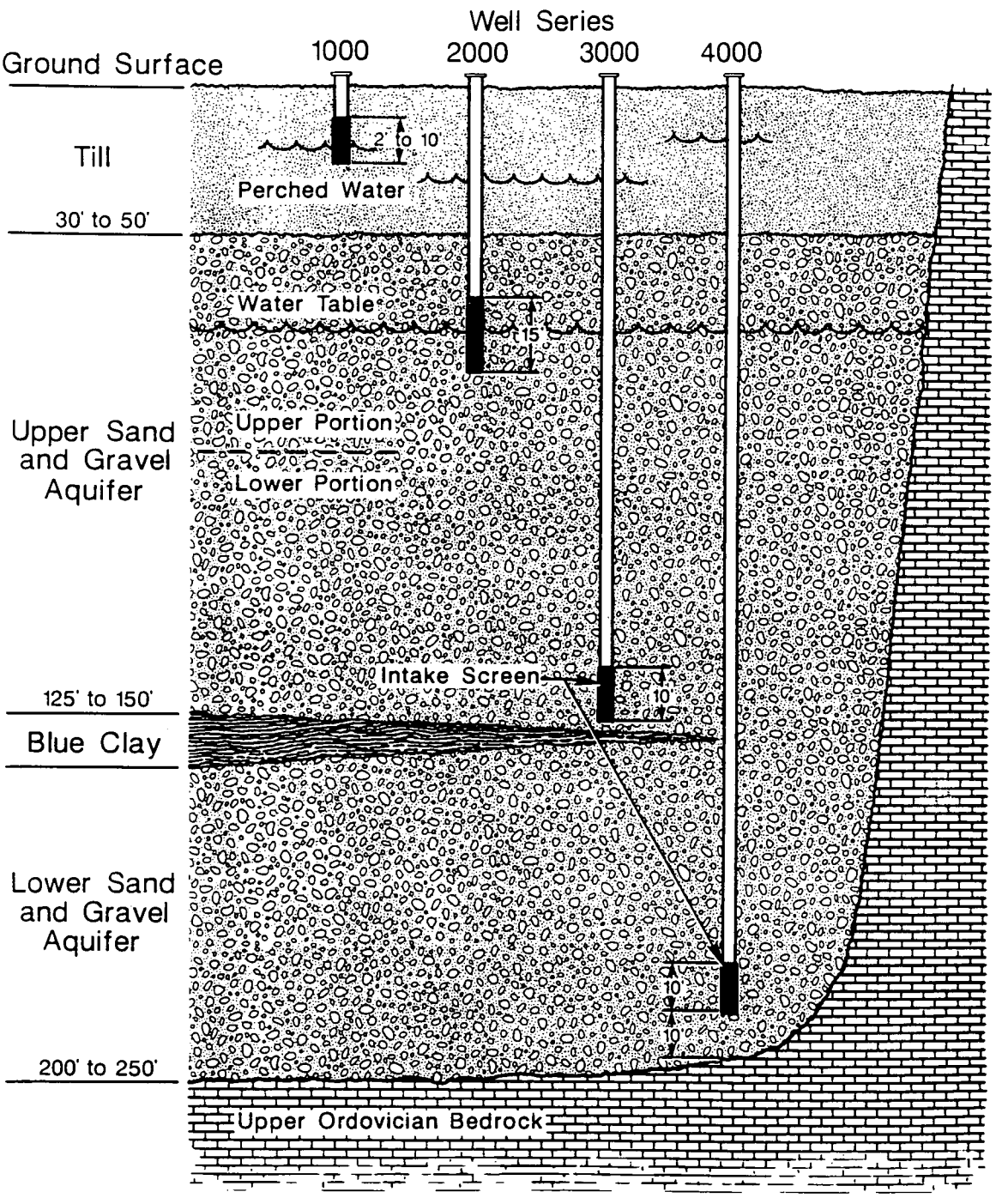

Figure 2.0C Monitoring Well Depths and Screen Locations

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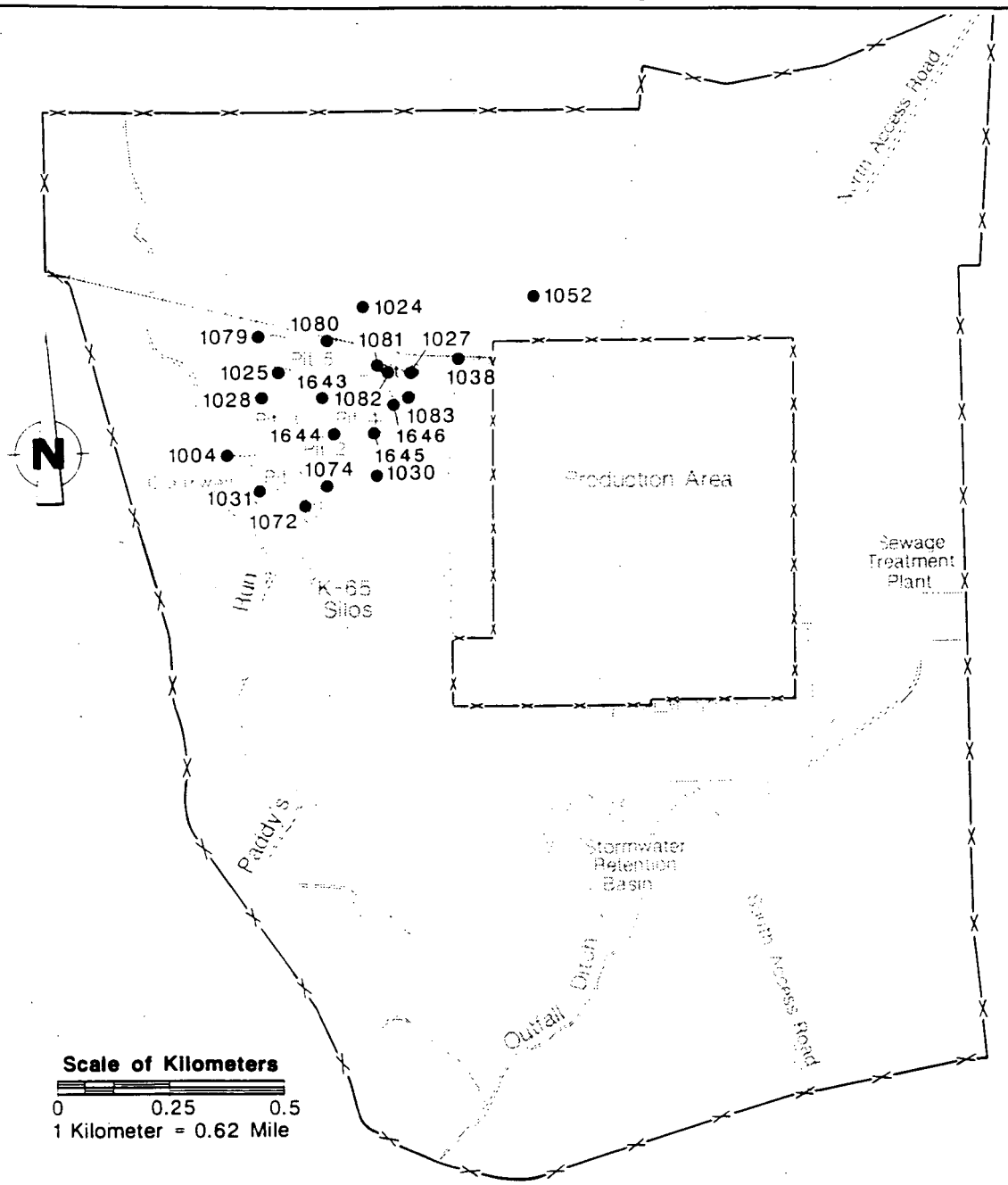
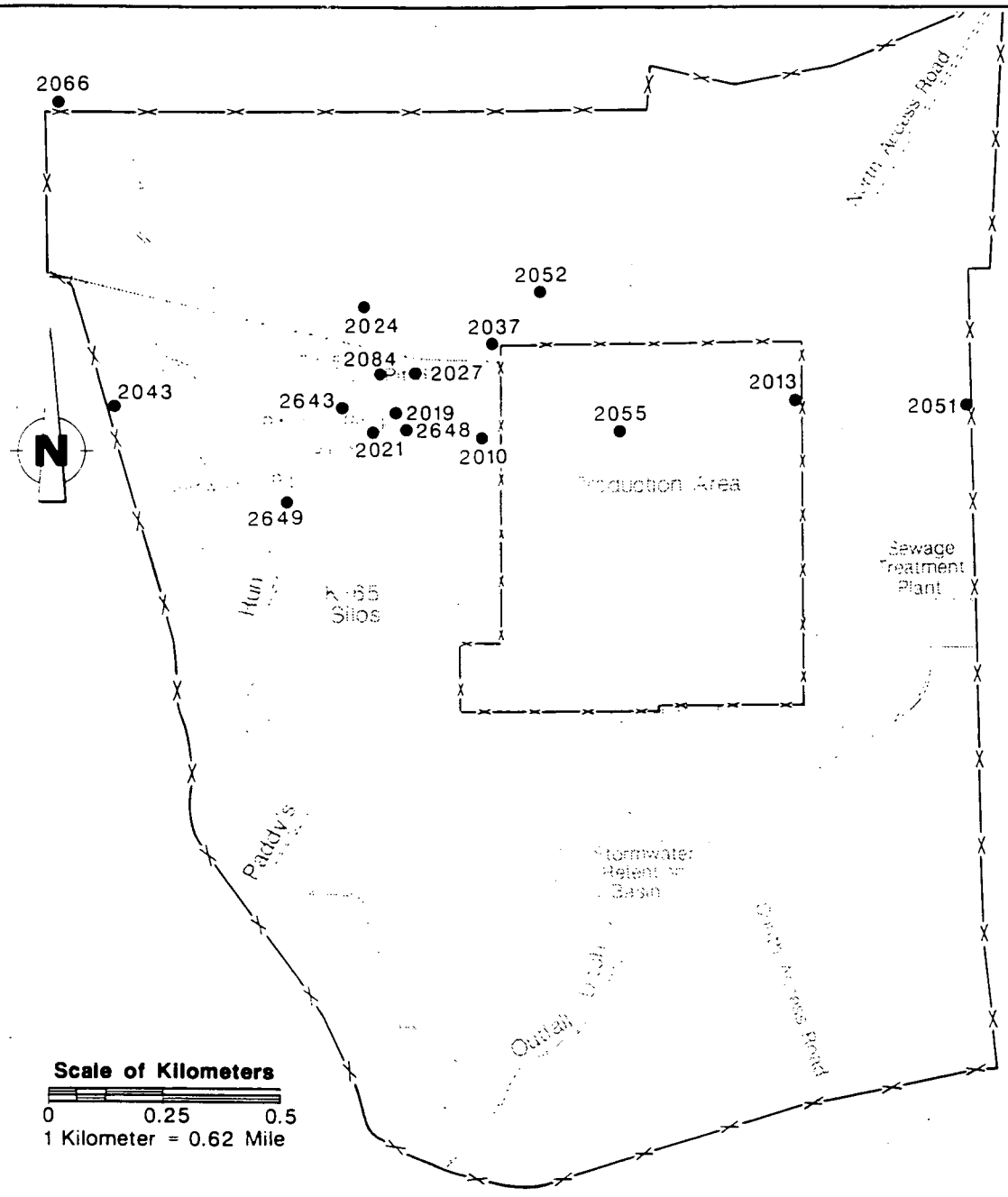


LEGEND

- ● 1000 Series Monitoring Network
- ×—× Plant Perimeter
- ×–×–× Production Area Perimeter

Figure 2.0D 1000–Series Monitoring Well Locations

WMCO Graphics #1223.2

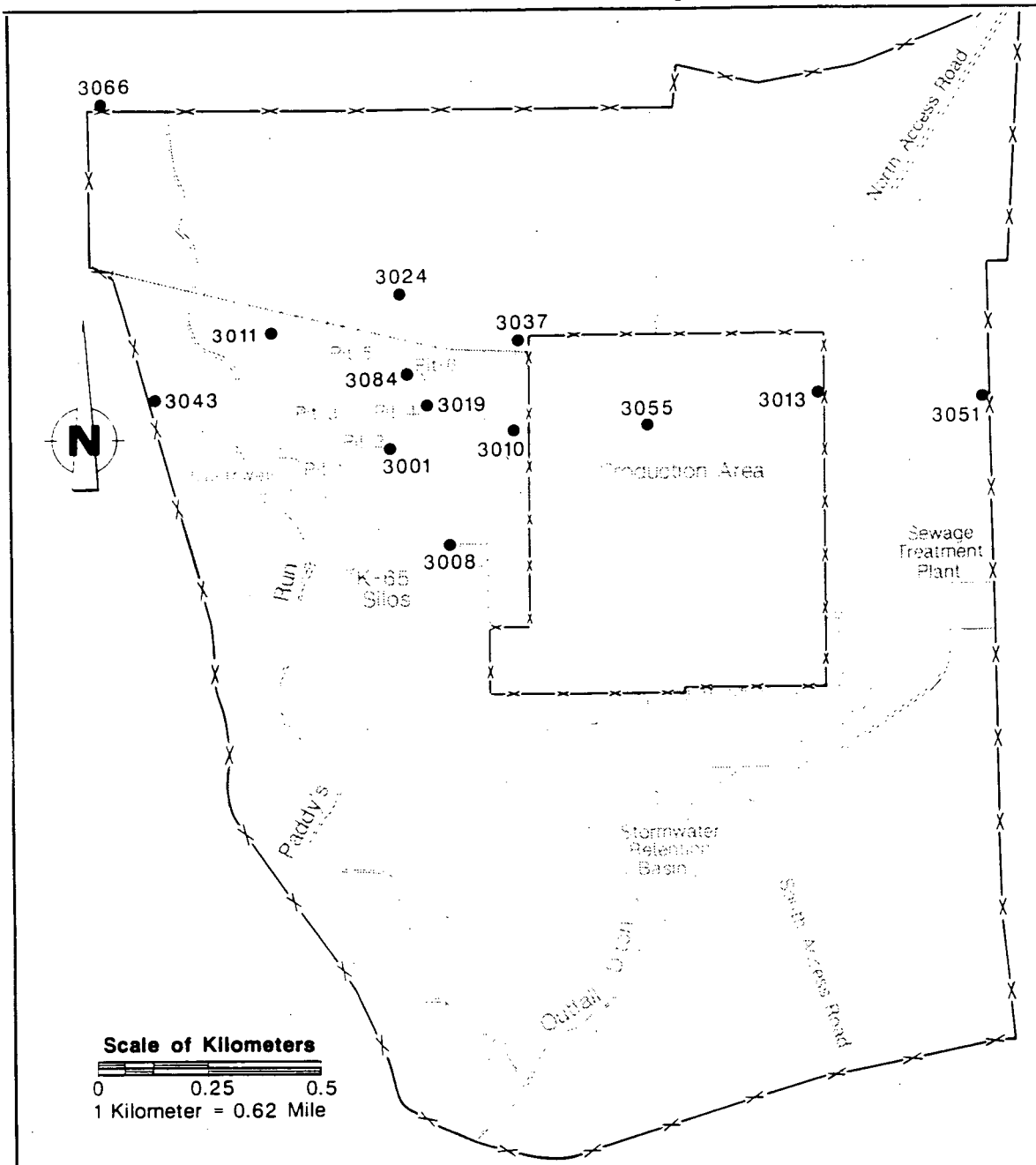


LEGEND

- ● 2000 Series Monitoring Network
- ×—× Plant Perimeter
- ×–×–× Production Area Perimeter

Figure 2.0E 2000-Series Monitoring Well Locations

WMCO Graphics #1223.3



LEGEND

- 3000 Series Monitoring Network
- Plant Perimeter
- Production Area Perimeter

Figure 2.0F 3000-Series Monitoring Well Locations

WMCO Graphics #1223.4

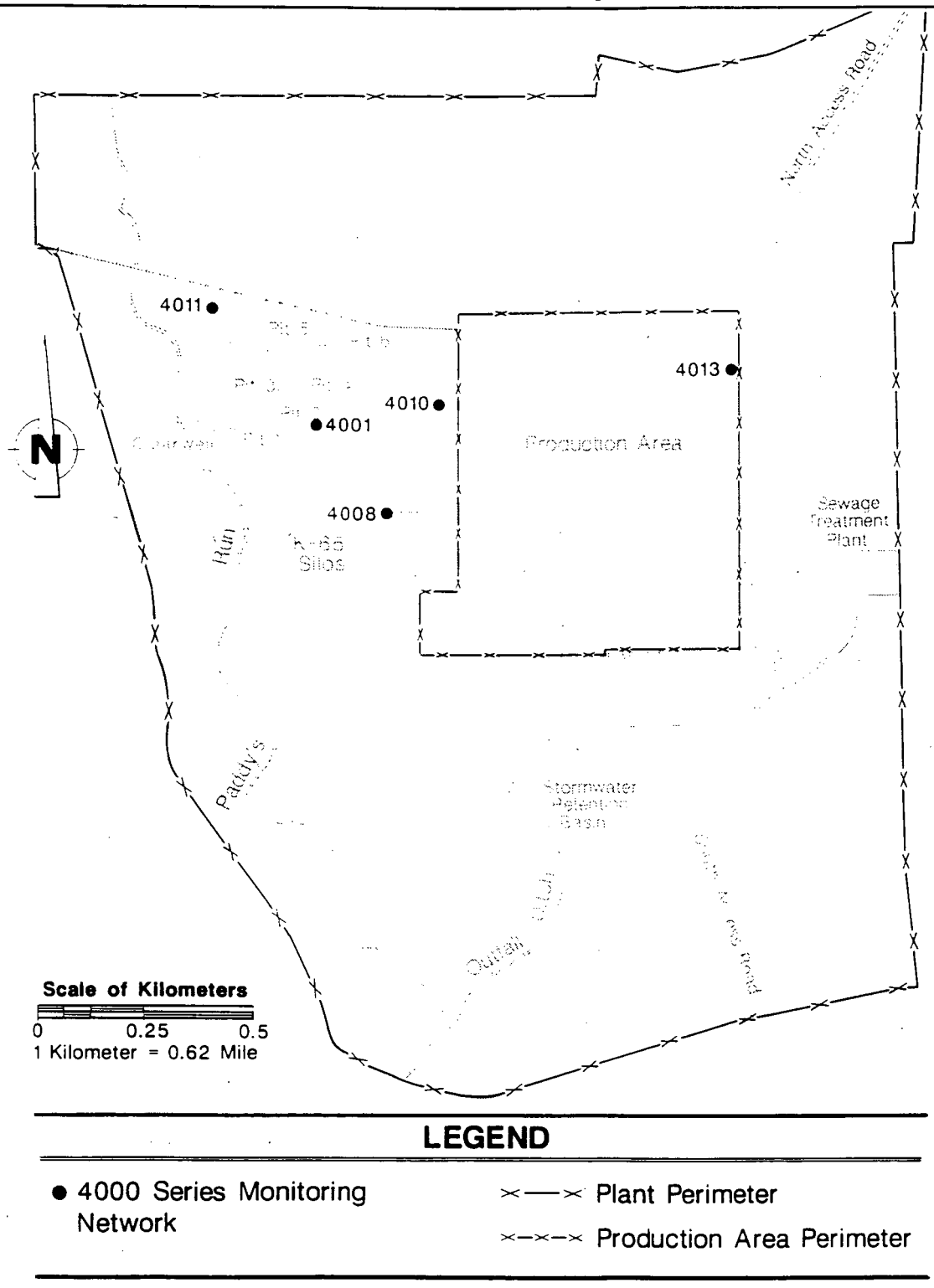


Figure 2.0G 4000-Series Monitoring Well Locations

WMCO Graphics #1223.5

Water quality samples were withdrawn from the 41 detection monitoring wells during six rounds of sampling. Figure 2.1 identifies the detection monitoring program wells. A statistical analysis that compared upgradient to downgradient monitoring well water quality results was completed following Round 5. A more detailed discussion of the RCRA Detection Monitoring Program may be found in the RCRA Groundwater Monitoring Report, Volume 6 - Round 6 Sampling (March 1988). In general, the water quality data collected under this program indicated the following:

* Water quality parameters in the Great Miami Aquifer beneath the FEMP Waste Pit Area appear to indicate degradation of water quality with respect to sulfate and nitrates.

* No pesticides/herbicides were detected in any of the wells sampled.

* No confirmable concentrations of organic compounds were detected. Concentrations of organic compounds ranging from less than one part per billion (ppb) to approximately 30 ppb were identified but occurred inconsistently. The origin of these organic compounds could not be specifically traced to any individual unit within the Waste Pit Area.

2.2 Summary of the RCRA Groundwater Assessment Program

In accordance with OAC 3745-65-93(D)(1), the USEPA and the OEPA were notified on November 13, 1987, that Waste Pit 4 may be affecting groundwater quality in the Waste Pit Area. This notification was based upon the statistical comparisons completed as part of the Interim Status Detection Monitoring Program implemented in the vicinity of Waste Pit 4. On November 25, 1987, a FEMP RCRA GQAPP for Waste Pit 4 was submitted to the USEPA and OEPA. This plan stated that the Assessment Program could be most efficiently accomplished as part of the on-going sitewide Remedial Investigation/Feasibility Study (RI/FS) at the FEMP.

Assessment sampling was initiated in May 1988. Each well was sampled quarterly for one year. The fourth round of sampling was completed in March of 1989. All groundwater samples collected during the first four rounds of the Assessment Monitoring Program were analyzed for a full suite of general water quality parameters. Over 200 parameters were analyzed, including radionuclides, volatile and semi-volatile organics, metals, water quality parameters, Pesticides/PCBs, Organophosphorus Pesticides, Dioxins, and Furans.

In response to comments from USEPA and to keep pace with progressive activities and findings made under the Assessment Program, a revised GQAPP was submitted to the USEPA and OEPA on March 23, 1989. On the basis of a detailed evaluation of the available water quality and flow information, the revised GQAPP identified 43 specific wells (Table 2.2A) for continuation of the RCRA Groundwater Quality Assessment Program following the fourth round of sampling. Each well was sampled for the parameters listed in Table 2.2B.

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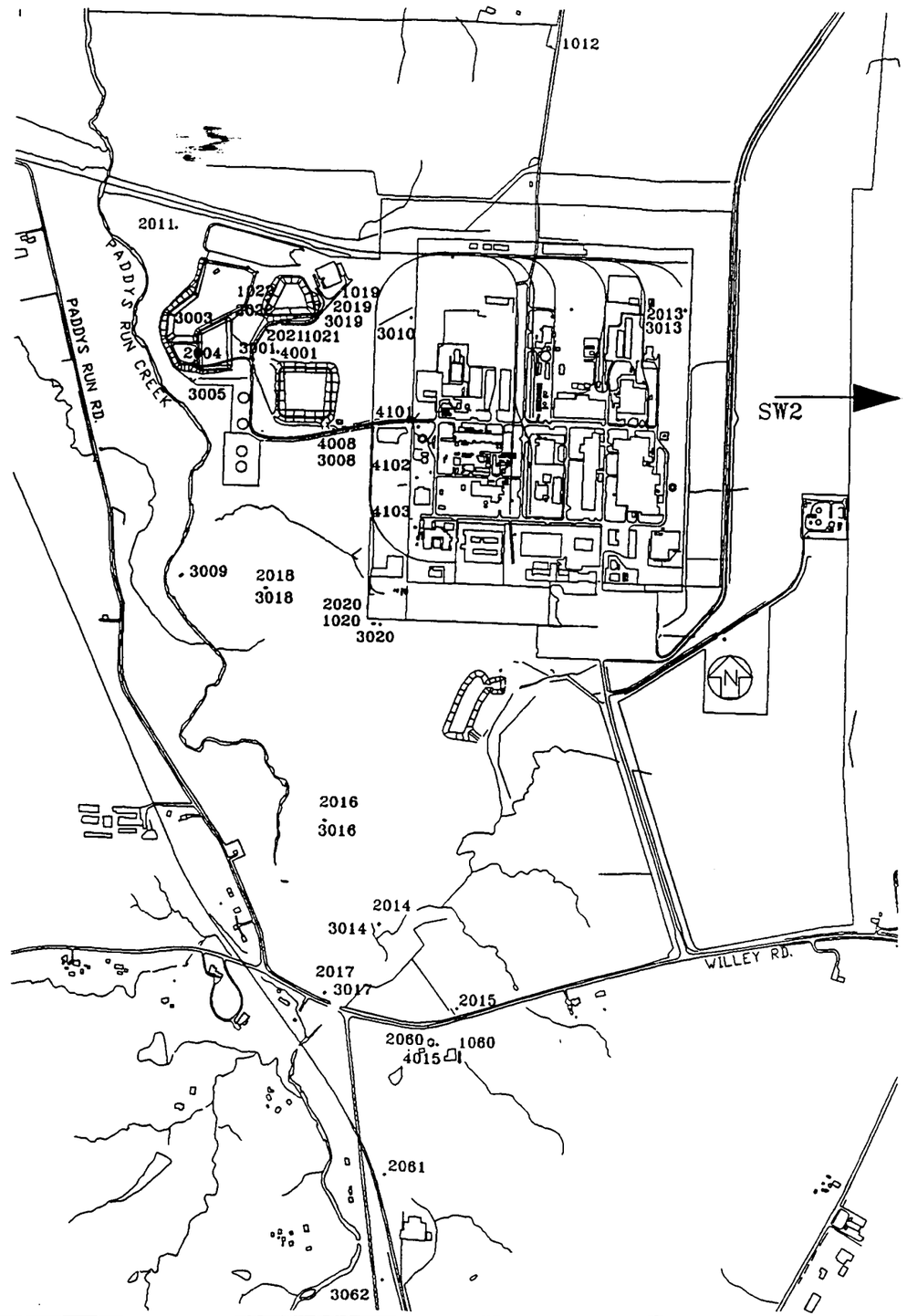


Legend

Well locations identified by numbers (1000, 2000 3000, or 4000)

SW2 is a Southwestern Ohio Collector Well

FIGURE 2.1

RCRA Detection Monitoring Program Map

Scale (in feet)
0 250 500 1000

TABLE 2.2A

RCRA Assessment Monitoring Wells Identified in the GQAPP Rev. 1, (March-89)

1000 series	2000 series	3000 series	4000 series
1004	2010	3001	4001
1024[1]	2013	3008	4008
1025	2019	3010	4010
1027	2021	3013	4013
1028	2027	3019	
1030	2037	3024	
1031	2043[2]	3037	
1038	2051	3043[2]	
1052[1]	2055	3051	
1072	2066[2]	3055	
1074	2084	3066[2]	
1079		3084	
1080			
1081			
1082			
1083			

[1] Background Well

[2] Upgradient Well

TABLE 2.2B

Parameters Tested for in the GQAPP, Rev. 1., 3-89

Dichloroethane
Acetone
Toluene
Tetrachloroethene
TOX
TOC
Trichloroethane
Thorium-228
Total Uranium
Thorium-230
Technetium-99
Methylene chloride
Uranium-238
Uranium-235
Uranium-234
pH
Conductivity
Sulfate
Magnesium
Calcium
Barium
Nickel
Vanadium
Zinc
Aluminum
Fluoride
Chromium
Nitrate
Chloride
Copper
Iron
Silver
Lead
Cobalt
Beryllium

During 1990, the RCRA Groundwater Quality Assessment Program determined that 33 compliance monitoring wells from the 43 well program indicated that downgradient groundwater quality had been affected. Eighteen site-specific constituents were determined to be statistically significant, six of which are listed in 40 CFR 264, Appendix IX. Data analysis was performed to determine the highest concentrations, the rates, and the extent of occurrence of these constituents in the groundwater. A listing of the monitoring wells and constituents found to be statistically significant in the 1990 assessment is provided in Tables 2.2C and Table 2.2D.

3.0 PROGRAM EVENTS IN 1991

The controlling document of the RCRA program (GQAPP) was revised in 1991 to include comments received by the EPA on Revision 1 and was submitted in April 1991. Revision 2 of the GQAPP included an expanded well monitoring program and more detailed sampling procedures. The revision to the GQAPP provided assessment objectives and statistical procedures also.

The RCRA Groundwater Monitoring Plan (GMP) was prepared to address RCRA monitoring requirements and to be consistent with the mission of the FEMP. This plan was submitted to the OEPA and USEPA on December 20, 1991. The program integrated the requirement to provide groundwater monitoring for RCRA regulated units with current CERCLA remedial activities at the FEMP. There are nine regulated units at the FEMP: Waste Pit 4, Waste Pit 5, the Clearwell, the Biodenitrification Lagoon, the Lime Sludge Pond, the Sludge Drying Beds, the Tank Farm Sump, the Coal Pile Runoff Basin, and the Fire Training Area. These regulated units were identified in the Part A Permit Application submitted to the Ohio Environmental Protection Agency (OEPA) in June of 1991 (Figure I.B).

Eleven new wells were added to the RCRA Groundwater Assessment Program in July 1991 to improve the monitoring system, bringing the total number of wells to 54. The GQAPP was revised in April 1991 to reflect these changes. Monitoring Well 4011 was installed to provide a 4000-series upgradient well. Monitoring Wells 2643 and 2648 were installed downgradient of Waste Pit 4 in the water table zone of the Great Miami Aquifer. Monitoring Well 2649 was installed downgradient to Monitoring Well 1031 in the water table zone of the Great Miami Aquifer to determine if the constituents found in the glacial overburden are also present in the underlying aquifer.

Monitoring Wells 1643, 1644, 1645, and 1646 were installed around Waste Pit 4 to enhance the monitoring network in the glacial overburden. Monitoring Wells 2024 and 2052 were added to the program to provide downgradient monitoring northeast of the Waste Pit Area. Monitoring Well 3011 was added to the program to provide upgradient groundwater quality measurements closer to the Waste Pit Area.

The process of locating and installing four additional sand and gravel aquifer wells downgradient of Monitoring Well 2649 was initiated in 1991. Monitoring Well 2649 has confirmed concentrations of volatile organic compounds similar to those found in Monitoring Well 1031 in

Table 2.2C

Wells and Site-Specific Constituents Found to Have Statistically Significant Concentrations in 1990 in the Glacial Overburden

Parameter	Monitoring Wells										
	1025	1027	1028	1031	1038	1074	1079	1080	1081	1082	1083
1,1-Dichloroethane				X			X				
Calcium	X			X	X	X		X	X	X	X
Chloride	X			X	X	X			X	X	X
Conductivity	X		X	X		X			X	X	
Copper				X							
Fluoride				X		X					
Iron											
Magnesium	X				X	X	X	X	X	X	X
Manganese	X										
Nickel	X		X	X		X					
Nitrate	X			X					X		X
pH	X		X	X	X						
Sodium	X			X							
Sulfate	X	X		X	X		X	X	X	X	
Tetrachloroethane				X							
Total Organic Carbon				X							
Total Organic Halides				X							
Trichloroethene				X							

Table 2.2D

Wells and Site-Specific Constituents Found to Have Statistically Significant Concentrations in 1990 in the Sand and Gravel Aquifer

Parameter	Monitoring Wells								
	2010	2013	2019	2021	2027	2037	2051	2055	2084
1,1-Dichloroethane									
Calcium	X		X	X	X	X	X		X
Chloride					X				X
Conductivity	X		X	X	X				X
Copper									
Fluoride									
Iron					X				
Magnesium					X				X
Manganese	X				X	X	X		X
Nickel									
Nitrate			X	X					X
pH									
Sodium									X
Sulfate	X	X		X	X	X	X	X	X
Tetrachloroethane									
Total Organic Carbon									
Total Organic Halides									
Trichloroethene									

Table 2.2D

Parameter	Monitoring Wells												
	3001	3008	3010	3013	3019	3024	3037	3051	3055	3084	4001	4008	4013
1,1-Dichloroethane													
Calcium			X		X		X			X			X
Chloride													
Conductivity		X											
Copper													
Fluoride													
Iron													
Magnesium							X			X			X
Manganese	X	X	X	X	X		X			X	X	X	
Nickel													
Nitrate					X					X			
pH					X		X		X	X			
Sodium													
Sulfate			X	X	X	X	X	X	X	X			X
Tetrachloroethane													
Total Organic Carbon													
Total Organic Halides													
Trichloroethene													

the glacial overburden. Two 2000-series monitoring wells are planned to be installed east and northeast of Monitoring Well 2649 to determine any downgradient migration of these organics. Two 3000-series monitoring wells are planned, one next to Monitoring Well 2649 and one downgradient. The 3000-series monitoring wells are planned because the 1990 RCRA Annual Report indicated that vertical gradients might be present in the Waste Pit Area.

In September 1991, the FEMP investigated the occurrence of variant groundwater quality in Monitoring Well 4013. The FEMP notified the OEPA of these findings in Letter No. DOE 167-92. A downhole video camera was used to determine that the joints in the casing of the Monitoring Wells 1913, 1013, 2013, and 3013 were leaking. These wells were scheduled to be plugged and abandoned. A new monitoring well cluster was planned just downgradient to the 13-group cluster to monitor changes in groundwater quality. Monitoring Well 4013 did not indicate leaking at the joints of the casing. Monitoring Well 4013 will stay in service to monitor groundwater quality at the old 013 location.

Monitoring Well 3051 had a purge pump lodged in the casing during sampling in 1990. The purge pump became lodged above the water table of the aquifer. Efforts to dislodge the pump have been unsuccessful. Monitoring Well 3051 was scheduled to be plugged and abandoned along with the 13-group cluster. The FEMP notified the OEPA of these findings in Letter No. DOE 167-92. A replacement 3000-series monitoring well is planned to continue monitoring the boundary of the facility. Since Monitoring Well 3051 is downgradient of the 13-group cluster, its replacement will help evaluate groundwater quality changes related to the cross-leaching created by the 13-group cluster. A 4000-series monitoring well is planned next to the Monitoring Well 3051 replacement to provide monitoring coverage for the lower aquifer at the facility boundary.

The FEMP began a program to install dedicated monitoring equipment into its monitoring wells in 1991 to enhance the groundwater monitoring program (Letter No. DOE 1051-91, July 1991). The dedicated monitoring system is composed of an indirect air-driven bladder pump, monitoring well cap, a pneumatic packer, and the pump controller. The system is designed to provide a more consistent monitoring system, to reduce the purge volume and waste generated, and to decrease sampling times.

The RCRA monitoring program for 1991 was scheduled to sample 43 monitoring wells in February and May, and 54 monitoring wells in July and October for a list of site-specific parameters. The 43 monitoring well program is listed in Table 2.2A, the 54 monitoring well program is listed in Table 3.0A, and the list of site-specific parameters sampled each quarter can be found in Table 3.0B.

A number of monitoring wells could not be sampled as scheduled. A list of the wells that could not be sampled during all four quarters and the reason why they were not sampled is outlined in Table 3.0C. The sampling schedule was changed from August to July and from November to October during 1991 to provide more time to analyze the four quarters of information for the annual report. Quarterly sampling will continue annually in January, April, July, and October.

TABLE 3.0A

RCRA Assessment Monitoring Wells Identified in the GQAPP Rev. 2, (April-91)

1000 series	2000 series	3000 series	4000 series
1004	2010	3001	4001
1024[1]	2013	3008	4008
1025	2019	3010	4010
1027	2021	3011	4013
1028	2024	3013	
1030	2027	3019	
1031	2037	3024	
1038	2043[2]	3037	
1052[1]	2051	3043[2]	
1072	2052	3051	
1074	2055	3055	
1079	2066[2]	3066[2]	
1080	2084	3084	
1081	2643		
1082	2648		
1083	2649		
1643			
1644			
1645			
1646			

[1] Background Well

[2] Upgradient Well

Table 3.0B
RCRA 1991 Analytical Parameters

Volatile Organics	Inorganics	General Water Quality and Indicator Parameters
1,1-Dichloroethane	Aluminum	Alkalinity, as CaCO3
1,1-Dichloroethene	Antimony	Ammonia
1,1,1-Trichloroethane	Arsenic	Chloride
1,1,2-Trichloroethane	Barium	Cyanide
1,1,2,2-Tetrachloroethane	Beryllium	Fluoride
1,2-Dichloroethane	Cadmium	Nitrate
1,2-Dichloroethene	Calcium	pH
1,2-Dichloropropane	Chromium	Phenols
2-Chloroethyl vinyl ether	Cobalt	Phosphorus (Total)
2-Hexanone	Copper	Specific conductance
4-Methyl-2-Pentanone	Iron	Sulfate
Acetone	Lead	TOC
Benzene	Magnesium	Total dissolved solids
Bromodichloromethane	Manganese	TOX
Bromoform	Mercury	
Bromomethane	Molybdenum	
Carbon Disulfide	Nickel	
Carbon Tetrachloride	Potassium	
Chlorobenzene	Selenium	
Chloroethane	Silver	
Chloroform	Sodium	
Chloromethane	Thallium	
cis-1,3-Dichloropropene	Vanadium	
Dibromochloromethane	Zinc	
Ethyl benzene		
Methyl ethyl ketone		
Methylene Chloride		
Styrene		
Tetrachloroethene		
Toluene		
trans-1,2-Dichloroethene		
trans-1,3-Dichloropropene		
Trichloroethene		
Vinyl Chloride		
Vinyl Acetate		
Xylenes, Total		

Table 3.0C

RCRA Wells Not Sampled During 1991

Well Number	Quarters Not Sampled	Reason
1004	1, 2, 3, 4	Dry
1028	1, 2, 3, 4	Dry
1030	1, 2, 3, 4	Dry
1072	1, 2, 3, 4	Dry
3051	1, 2, 3, 4	Pump Stuck in Well

The FEMP notified the OEPA of this change in the Groundwater Quality Assessment Program Plan, Revision 2, and Letter No. DOE 1303-91, May 1991.

The FEMP is monitoring its purge water to determine the presence of RCRA constituents. Purge water suspected of containing RCRA constituents is containerized. If RCRA constituents are present, the purge water disposal is in accordance with RCRA regulations. If no RCRA constituents are detected, the purge water is sent through the wastewater processing facility at the FEMP (the General Sump). Based on historical analytical data, purge water from Monitoring Well 1031 contains RCRA regulated constituents. A satellite accumulation area was established for storage of the purge water from Monitoring Well 1031. Monitoring Well 2649 has also indicated RCRA regulated constituents as found in Monitoring Well 1031. The purge water from Monitoring Well 2649 is also being containerized in a satellite accumulation area.

Analytical and field results of the RCRA sampling program are screened to determine any large variations in groundwater quality from previous sample events. Data from water elevation measurements, field measurements, and analytical results is entered into a database, verified, and organized for assessment purposes. The RCRA assessment uses the database to generate water elevation maps in the aquifer, compare water elevation measurements in the glacial overburden, and perform a groundwater quality analysis. The groundwater quality analysis uses groundwater data collected for the RCRA program from 1988 through the present. A statistical analysis is performed on this data to determine downgradient changes in groundwater quality.

The statistical assessment analyzes analytical results for the 1000-series, 2000-series, and 3000-/4000-series monitoring wells separately. Upgradient monitoring wells (2043, 2066, 3043, and 3066) and background monitoring wells (1024 and 1052) are analyzed to determine background and upgradient groundwater quality. The compliance or downgradient analytical results are then compared to the background or upgradient results through a statistical procedure. The statistical procedure uses Test of Proportions, Student's t Tests, non-parametric tests, and non-detectable result percentages to assess groundwater quality for 59 site-specific parameters. A detailed discussion of the statistical assessment process and its results can be found in Appendix C.

The RCRA program investigated lithologies and saturated zones around Waste Pit 4 to further characterize the potential pathways through the vadose zone. Characterization efforts in the sand and gravel aquifer were focused on determining vertical gradients and investigating the extent of contamination through the installation of new monitoring wells.

The RCRA program was an integral part of the groundwater program integration at the FEMP in 1991. A groundwater program review was held in October 1991 to initiate integration of all of the groundwater activities at the site. The program review was conducted to identify possible weaknesses in the FEMP groundwater program and to establish better communications between groundwater activities. As a result of this, the RCRA program assessment began to utilize the RI/FS characterization information for the glacial overburden and results of the RI/FS groundwater modeling effort. Progress in the characterization of the glacial overburden was possible through the use of RI/FS data in the Waste Pit Area. RI/FS modeling studies and results

have been incorporated into the RCRA program to help aid the determination of rate and extent of migration. This integration effort will continue through 1992 to enhance the RCRA assessment.

4.0 1991 RCRA PROGRAM ASSESSMENT RESULTS

The RCRA Groundwater Monitoring Program is responsible for; 1) site characterization efforts, 2) locating monitoring wells appropriately for detection monitoring, 3) sampling monitoring wells quarterly for water elevation and site-specific constituents, 4) determining the presence of contamination, 5) determining the extent of contamination, and 6) determining the rate of migration of contaminants.

Groundwater elevation data was collected monthly from all of the monitoring wells at the FEMP. Water level data collected from monitoring wells included in this RCRA assessment program is tabulated in Appendix A. Measurements were taken from a reference point at either the top of the well casing or the top of the protective casing. Water level elevations were calculated by subtracting the measured level from the reference point elevation.

Field measurements (pH, specific conductivity, temperature, and dissolved oxygen) are tabulated in Appendix B. Field measurements were made in the field during sampling. Measurements were collected and recorded at the start of purging, the start of sampling, and the end of sampling.

Analytical results of water samples collected from wells included in this assessment are tabulated in Appendix F. The data is sorted by constituent, well number, and the date that the sample was collected. Analytical results for duplicate samples, trip blanks, field blanks, method blanks, and rinsates are also provided.

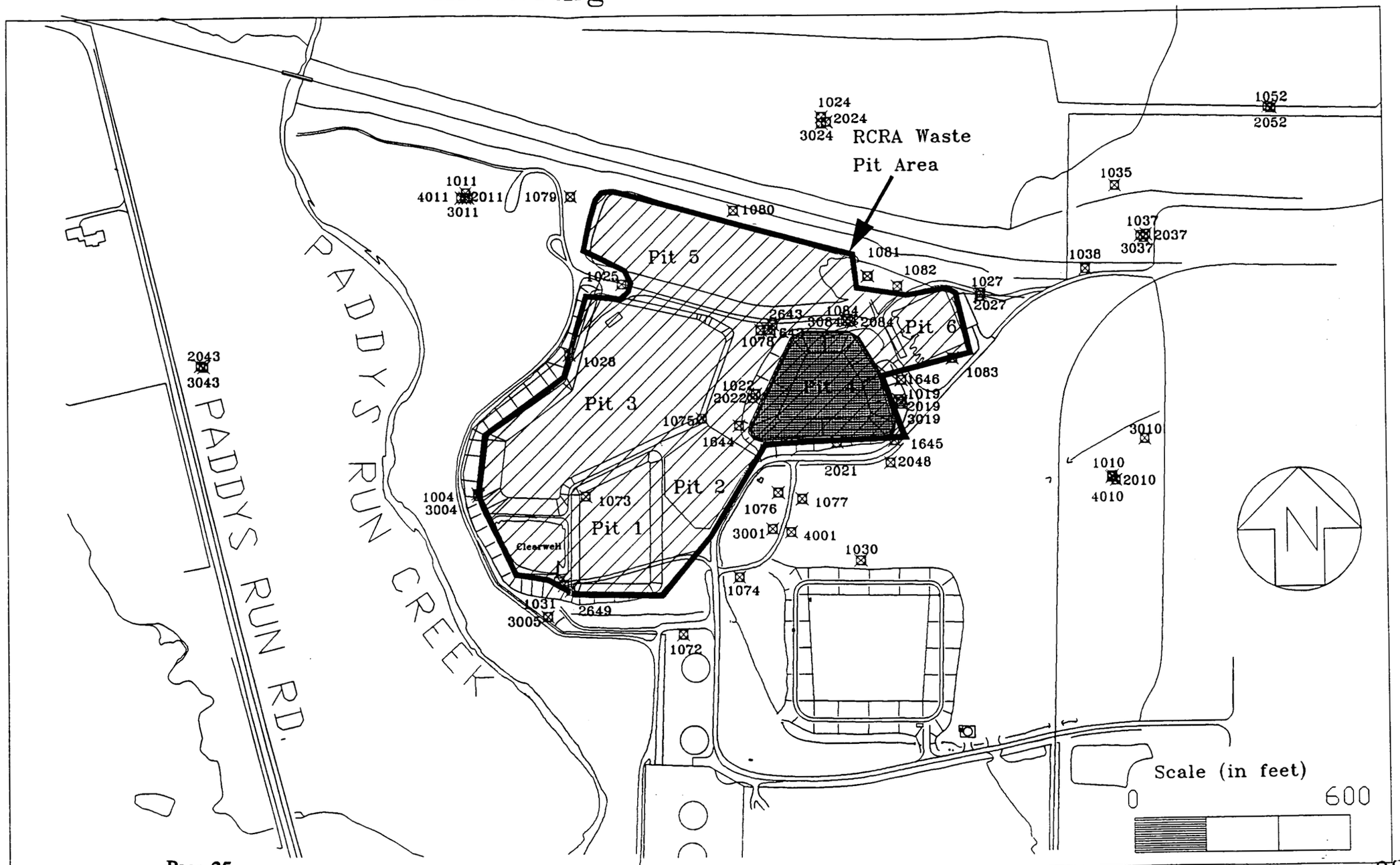
4.1 Identifying Groundwater and Potential Contaminant Pathways

The Hazardous Waste Management Unit (HWMU) of concern is Waste Pit 4, which is part of a number of closely-spaced waste pits (Figure 4.1). The hydrogeologic framework under the Waste Pit Area includes a 50 to 60 foot vadose zone overlying a 150 to 170 foot sand and gravel aquifer. The vadose zone consists of approximately 40 feet of glacial overburden and 20 feet of unsaturated sand and gravel. Glacial overburden is a term used at the FEMP to refer to mixed glacial till, glaciofluvial, lacustrine, and loess deposits.

Conceptually, the potential migration pathway for contaminants would be through the vadose zone vertically to the unconfined sand and gravel aquifer or saturated perched zones in the glacial overburden. Saturated perched zones have been documented near the Waste Pit Area through 1000-series water elevation measurements. These perched groundwater zones are considered potential pathways for contamination. The bottom elevation of Waste Pit 4 is approximately 12 to 15 feet above the interface between the glacial overburden and the sand and gravel deposits. Potential releases from the bottom liner of this unit could encounter perched groundwater in the glacial overburden. Releases from the side liners of all of the Waste Pits could potentially

Figure 4.1

RCRA Waste Pit Area Including Waste Pit 4



encounter perched groundwater zones in the glacial overburden. The RCRA program is characterizing and monitoring both the perched groundwater and the sand and gravel aquifer because they are both potential contamination pathways to the environment.

4.2 Glacial Overburden Evaluation

The glacial overburden exists over most of the FEMP and is the lithology in which all of the waste units are installed. The overall area monitored in the glacial overburden by the RCRA program covers an approximately 5400 foot boundary next to the Waste Pit Area. Vertically, the RCRA monitoring program addresses saturated zones identified in the glacial overburden. Vertical seepage or preferential flow paths between zones of saturation are the primary mode of transport for contamination in the glacial overburden. Upgradient and downgradient cannot be determined in the glacial overburden using general water elevations because the zones of saturation may not be connected. The entire boundary of the Waste Pit Area is monitored in the glacial overburden because a downgradient boundary cannot be determined.

The logs from all monitoring wells installed in the Waste Pit Area (as illustrated in Figure 4.2A) were evaluated to provide lithologic characterization of the glacial overburden. The well logs are provided in Appendix G. Many of these monitoring wells are not in the RCRA quarterly monitoring program, but boring log and water elevation data were useful in the glacial overburden evaluation.

The lithologic logs from monitoring wells installed between the waste pits and immediately adjacent to the pits identify a lithology that differs from the materials identified in well logs outside the pit area. A list of the monitoring wells that are installed in the backfill material is provided in Table 4.2. Waste Pit construction diagrams contained in Appendix G indicate that the area between the waste pits was disturbed by pit excavation and berm construction. The lithologic logs from monitoring wells between and immediately adjacent to the waste pit support the indication that the Waste Pit Area is comprised of backfill material. These boring logs identify clay soils with unpatterned coloring and random intermixing of sands, silts, and gravels. These boring logs identify very little coarser grained materials.

The logs of monitoring wells installed outside the pit area identify a more defined pattern of coloration and intermixing. Generally, a layer of yellow-brown/brown silty clay overlies an olive-grey/grey silty gravelly clay. Two discrete intervals occur in boring logs outside the Waste Pit Area to the north and east, one consisting of yellow-brown silt and another of grey gravelly sand to clayey gravel. The yellow brown/brown silt is approximately 1 - 4 feet thick and has a bottom elevation at approximately 568 feet amsl. Figure 4.2A shows the area where boring logs identify this unit. The grey silty gravel/gravelly sand is approximately 1 - 10 feet thick and has a bottom elevation at approximately 558 feet amsl. The area where boring logs indicate this unit is shown in Figure 4.2B.

A fence diagram was constructed for the area immediately adjacent to Waste Pit 4 (Plate A in envelope of Volume 1). As can be seen in the fence diagram, brown and grey clays comprise most of the glacial overburden. The dark line through some of the fences indicates the

Table 4.2

Borings in the Waste Pit Area
That are Completed in Disturbed and Natural Lithologies

DISTURBED	NATURAL
004	034
022	001
028	011
031	019
073	021
075	030
078	032
080	033
081	035
082	038
084	039
643	052
644	072
943	074
944	076
646	077
649	079
	645
	008
	010
	027
	648
	037

Figure 4.2B

Area Where Boring Logs Identify Grey Sand & Gravel In the Glacial Overburden

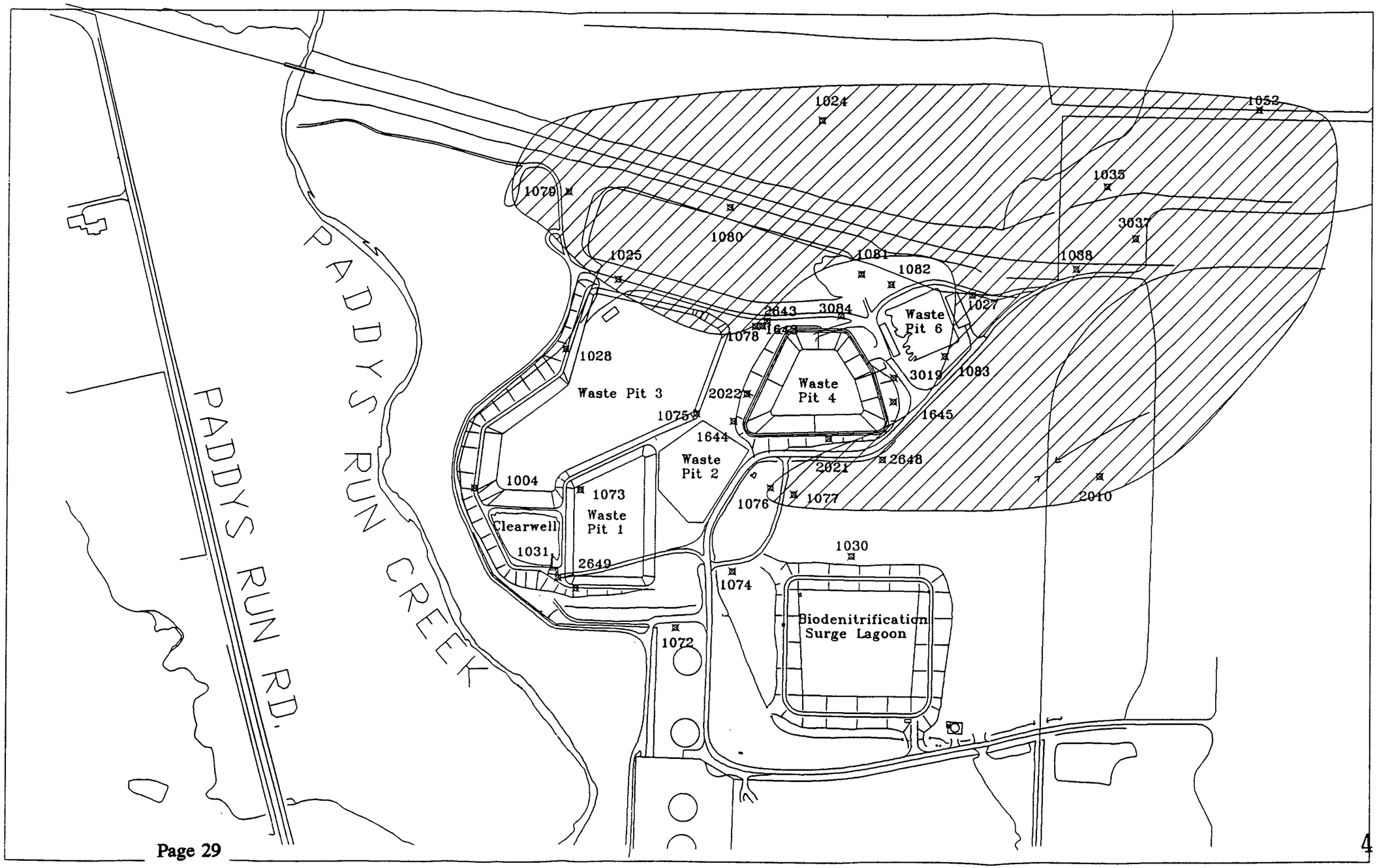
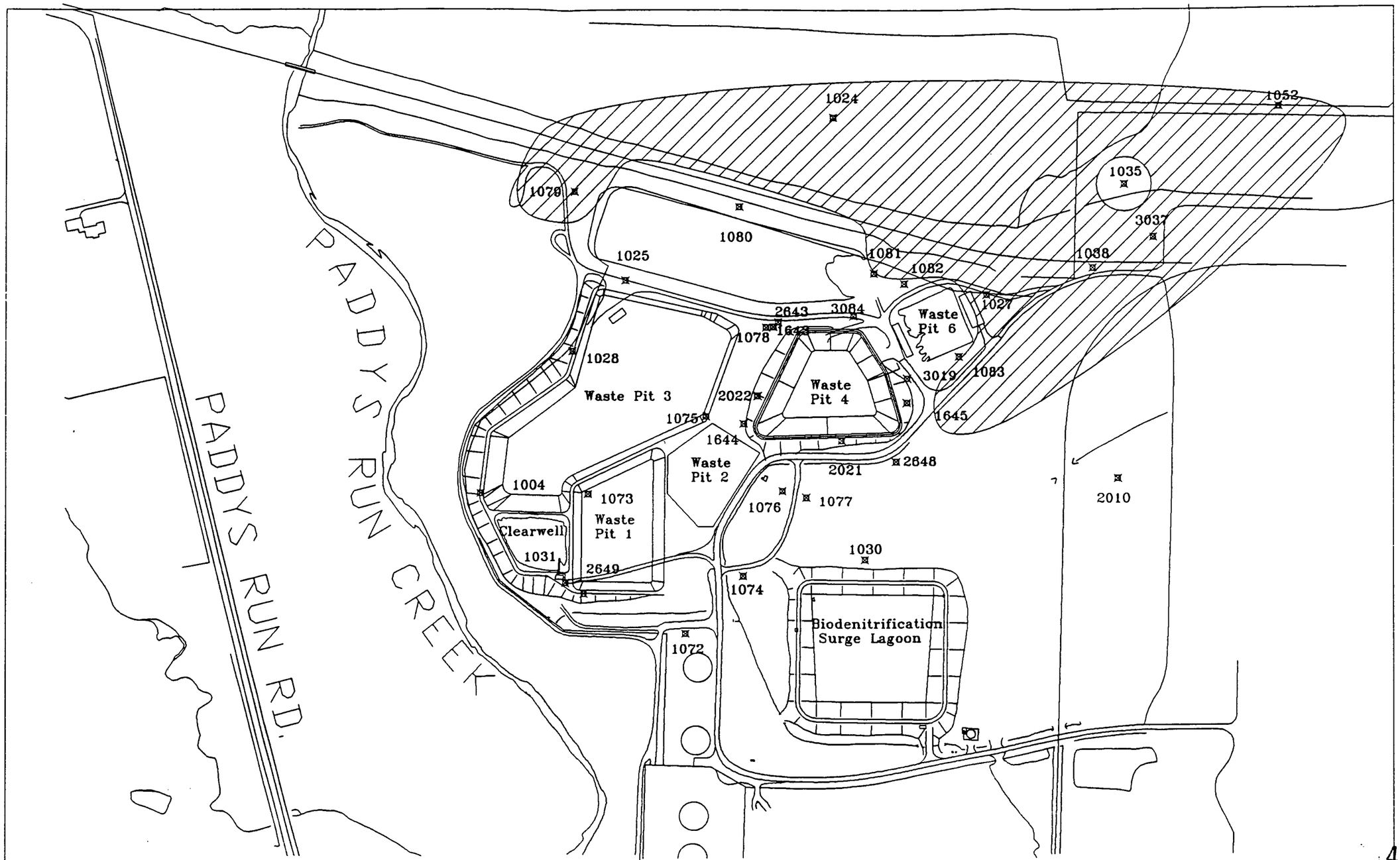


Figure 4.2A

Area Where Boring Logs Identify Yellow-Brown Silt In The Glacial Overburden



approximate contact between backfill from construction activities and the undisturbed stratigraphy.

The yellow-brown silt is not evident in borings used to construct the fence diagram (borings 1646, 3019, 3084, 2022, 1644, 2643, 1643, and 1078). These borings were drilled into the clayey backfill material between and immediately adjacent to the waste pits. The yellow-brown silt appears to have been truncated by the backfill. The grey gravel is evident in the northwest and south-east of pit 4 as identified in the fence diagram, but appears to grade to a grey gravelly silty clay beneath the Waste Pit 4.

Localized deposits of silt, sand, and gravel have been identified in the boring logs used for the fence diagram, but these could not been correlated to other boring logs. These units are interpreted to be of limited extent.

4.2.1 Assessment of Perched Groundwater

There is approximately 25 feet of unsaturated sand and gravel beneath the glacial overburden under the Waste Pit Area. Perched groundwater is found primarily in soft gravely or sandy clays and silt, sand, or gravel lenses. The connectivity and extent of each of these lenses is significant when determining the potential for contaminant migration. The connection of perched zones to waste unit boundaries is also significant in determining the potential for contamination. Initial assessments to determine the location, extent, and flow direction of perched groundwater have been focused on Waste Pit 4.

Groundwater is present in monitoring wells north, east, and southeast of Waste Pit Area. West of the pits the natural glacial overburden does not exist. Monitoring wells west of the pits are completed in clay backfill material. These wells purge dry and often do not yield sufficient water for groundwater samples. Groundwater elevation data and boring log information indicates that groundwater exists in all soil types in the glacial overburden. All of the sand and gravel lenses near the Waste Pit Area are saturated. Monitoring wells screened in clay have indicated consistent levels of groundwater as well (e.g., Monitoring Wells 1084, 1022, 1074, 1025, 1073, and 1075).

Water elevations vary as much as 35 feet across the Waste Pit Area in the glacial overburden (e.g., Monitoring Wells 1078 and 1643, about 20 feet apart and both screened at approximately the same elevation with a 12 foot difference in water elevation; Monitoring Wells 1073 and 1004, 250 feet apart with a 25 foot difference in water elevation). Table 4.2.1 lists the construction information and the average water elevation for 1000-series monitoring wells in the Waste Pit Area. Hydrographs completed for the 1000-series monitoring wells in the Waste Pit Area (see Appendix A) indicate the groundwater elevation fluctuations in monitoring wells do not follow any pattern. Some monitoring wells maintain a consistent water elevation (e.g., Monitoring Wells 1031, 1078, 1644, 1081, and 1027) while others have water elevations that vary over five feet (e.g., Monitoring Wells 1643, 1645, 1646, 1024, 1025, 1030, 1074, 1079, 1082, 1083, and 1052). The monitoring well groups with either consistent or varying water elevations do not

Table 4.2.1

Construction Information and Average Water Elevation for
1000-series Wells in Waste Pit Area

Well Number	Ground Elevation	Bottom Elevation	Top of Screen	Bottom of Screen	Average Water Elevation
1004	579.0	548	560	550	549.040
1010	582.6	555.6	569.6	558.6	576.124
1011	582.70	546.2	559.3	549.3	556.200
1019	582.90	573	577	574	578.420
1021	584.00	573	577	574	579.247
1022	586.70	576	581	576	580.529
1024	580.2	553.2	562.7	555.7	574.224
1025	581.30	558.3	570.3	560.3	570.267
1027	583.0	551.5	564.6	554.6	575.661
1028	586.60	555.6	567.6	557.6	557.808
1030	575.9	545.9	557.9	547.9	549.023
1031	576.30	546.3	560.3	550.3	552.891
1037	588.6	547.1	560.6	549.6	551.412
1038	582.40	553.9	566.4	556.4	568.983
1052	584.8	554.8	568.3	558.3	576.580
1072	575.9	544.9	556.9	546.9	544.790
1073	583.2	554.2	568.2	557.2	574.941
1074	578.1	554.1	568.1	557.1	571.830
1075	581.5	553.5	561.5	556.5	579.743
1076	582.5	532.5	564.5	553.5	578.377
1077	583.2	550.2	565.2	554.2	576.109
1078	581.90	547.3	559.9	549.9	568.030
1079	582.60	543.6	559	554	559.329

Well Number	Ground Elevation	Bottom Elevation	Top of Screen	Bottom of Screen	Average Water Elevation
1080	581.7	530.2	563.4	553.4	567.448
1081	590.7	557.7	570.3	560.3	575.360
1082	583.9	559.9	573.5	563.5	575.225
1083	583.40	560.9	574.4	564.4	579.146
1084	583.20	550.2	562.8	552.8	561.313
1643	582.68	552.68	568.68	552.68	577.087
1644	581.78	551.78	566.78	551.78	580.092
1645	582.2	556.7	576.2	556.7	576.201
1646	583.5	558	578.5	558	567.208

follow any spatial pattern. This indicates that saturated zones are not uniformly connected and/or the hydrologic parameters vary by orders of magnitude between monitoring wells.

The fence diagram of soils around Waste Pit 4 and average water elevations for 1000-series monitoring wells near the pit were evaluated to determine those lithologies that were saturated and possible connections between the saturated zones. From this evaluation it appears that there is limited connection between monitoring wells screened in the disturbed soil (Monitoring Wells 1084, 1643, 1078, 1022, 1644, 1646, and 1019). Water elevations differ in these monitoring wells by as much as 16 feet. The lithologies vary between these monitoring wells from solid silty clays (Monitoring Well 1084) to multiple sand and silt stringers of less than one foot thickness (Monitoring Well 2645).

The monitoring wells screened in the undisturbed glacial overburden indicate a more consistent water elevation pattern. Monitoring Wells 1021, 1077, and 1076 have average water elevations within three feet of each other. Boring log 2021 identifies a 15 foot deposit of silty gravel that is also identified at lesser thicknesses in Monitoring Wells 1077 and 1076. Monitoring Well 1021 is screened in silt above the silty gravel lens; Monitoring Wells 1077 and 1076 are screened through the silty gravel. Monitoring Wells 1019, 1645, and 1083 indicate similar average water elevations with about a two foot difference, although there are no similarities between screened lithologies in these monitoring wells. Monitoring Wells 1022, 1075, and 1644 indicate average water elevations within one foot of each other; they are all screened in silty clay.

4.2.1.1 Perched Groundwater Flow Direction And Velocity

Results of groundwater elevation measurements indicate that all but two monitoring wells in the Waste Pit Area have groundwater levels (Monitoring Wells 1004 and 1072). Monitoring Well 1004 is on the western side of the Waste Pit Area and monitors the backfill material in an area close to Paddy's Run. Monitoring Well 1072 is south of the Waste Pit Area near another deep drainage feature. Some monitoring wells in the Waste Pit Area do not yield enough water to sample regularly. These monitoring wells (1028 and 1030) are located in the western and southern portions of the Waste Pit Area.

The groundwater flow in the glacial overburden near the Waste Pit Area is influenced by the surface topography. The original overburden material was eroded west of the waste pit area by Paddy's Run Creek. During pit construction, clay materials were added to form the berm of the waste pits; this berm forms an escarpment adjacent to Paddy's Run. South of the Waste Pit Area a drainage ditch dissects the glacial overburden south of the Clearwell and Waste Pit 1. The drainage ditch does not cut through the entire thickness of the glacial overburden to the southeast; however, the migration of shallow groundwater in the glacial overburden will be prevented by the drainage ditch.

From water elevation data, groundwater flow in the glacial overburden within the silty gravel lens identified in borings 1021, 1077, and 1076 is radial from the side of the pit. Groundwater flow within the silty clay identified in borings 1022, 1075, and 1644 is also radial from Waste Pit 4. Groundwater flow directions, determined by water elevation data, in the mixed soils

through which Monitoring Wells 1019, 1083, and 1645 would not be accurate because of the difference in the soils through which the monitoring wells are screened.

The speed of groundwater flow is greatly dependent on the hydraulic head and the hydraulic conductivity, both of which vary significantly in the glacial overburden. Hydraulic conductivity has been estimated for the glacial overburden at three of the Waste Pit Area monitoring wells. Monitoring Well 1025 is screened in clay material and was tested using a slug test. The results of the slug test indicated that the area screened in Monitoring Well 1025 had a hydraulic conductivity of roughly 0.01 ft/day or 2.5×10^{-6} cm/s.

Monitoring Well 1035 is screened through a silty gravelly clay with a two foot gravel lens and was tested using the same slug test method as in Monitoring Well 1025. It was determined through this slug test that the area screened in the monitoring well had a hydraulic conductivity of roughly 0.07 ft/day (2.5×10^{-5} cm/s). This is an estimated hydraulic conductivity over the whole screen that is located in mostly silty gravely clay. The two-foot grey sandy gravel lens will have a higher hydraulic conductivity than the value determined for the monitoring well. Monitoring Well 1079 is screened in a grey silt material similar to many of the silts found in the boring logs around the Waste Pit Area. Monitoring Well 1079 was tested using the above-mentioned slug test and the results indicated a hydraulic conductivity of 0.05 ft/day (1.8×10^{-5} m/s).

A rough hydraulic gradient has been calculated in the silty gravel lens between Monitoring Wells 1077 and 1021. Monitoring Well 1077 had a water elevation of 575.0 feet amsl in October 1991. Monitoring Well 1021 is 178.6 feet away from Monitoring Well 1077 and had a water elevation of 578.4 feet amsl in October 1991. The hydraulic gradient between these monitoring wells is 3.4 ft/178.6 ft (0.019 ft/ft). The following equation calculates the horizontal component of the average linear velocity (EPA/530-SW-89-026, p 3-1).

Equation 4.2.1.2

$$V_h = (K_h \times i) / N_e$$

V_h = Horizontal Component Of Average Linear Velocity

K_h = Horizontal Component Of Hydraulic Conductivity

i = Hydraulic Gradient

N_e = Effective Porosity

Using a rough calculated gradient for the perched water between Monitoring Wells 1021 and 1077 (0.019 ft/ft); a hydraulic conductivity of 0.07 ft/day (value measured in Monitoring Well 1035, which is also screened in sandy gravel); and an effective porosity of 0.25 for gravely sand; then the average linear velocity is calculated to be 5.33×10^{-3} feet per day. This calculated flow

rate is a rough estimate of the average linear velocity of groundwater in the silty gravel lens south of Waste Pit 4.

A rough hydraulic gradient has been calculated in the silty clay material between Monitoring Wells 1644 and 1075. In November 1991, Monitoring Well 1644 had a water elevation of 579.68 feet amsl; Monitoring Well 1075, 103.3 feet away from Monitoring Well 1644, had a water elevation of 579.13 feet amsl. The hydraulic gradient between these monitoring wells is 0.55 ft/103.3 ft (0.00532 ft/ft).

Using the rough hydraulic gradient, the hydraulic conductivity calculated for clay in Monitoring Well 1025, and a porosity of 0.55 for clay (midpoint of a range identified in Freeze & Cherry 1979, p.37) in Equation 4.2.1.2, an estimate of the horizontal flow velocity can be determined. The calculated flow velocity in the silty clay between Monitoring Wells 1644 and 1075 is 9.673×10^{-5} ft/day.

4.2.2 Perched Groundwater Quality

Groundwater quality in the glacial overburden is determined through the statistical analysis of two background wells (Monitoring Wells 1024 and 1052). The statistical analysis (as described in Appendix C) determines a background average for each monitoring well and the group of background wells. The statistics also determine the standard deviation of the background population and its variance.

Background groundwater quality is then statistically compared to monitoring well results to determine differences in groundwater quality. The statistical methods used are described in Appendix C of this report. The results of this statistical comparison indicate which monitoring wells have statistically significant differences in groundwater quality compared to background results.

To determine changes in groundwater quality over time, the results of the 1991 statistical assessment were compared to the results of 1989 and 1990 statistical assessments. This comparison determined whether or not groundwater quality was degrading over time and identified the presence of new contaminants in the groundwater.

4.2.2.1 1991 Statistical Assessment

A statistical assessment was performed to determine concentrations in monitoring wells that are not consistent with background or upgradient concentrations. The methods used to complete the statistical assessment are discussed in detail in Appendix C. The term statistically significant used in the following section represents any observations that were determined to be inconsistent with background or upgradient by the statistics in Appendix C. Statistical significance does not represent a specific magnitude of contamination or a concentration above a standard, it represents a deviation from background or upgradient and can be of any magnitude. The statistical analysis of 1991 data was only performed on data obtained from fourteen locations; two background wells and 12 compliance wells. Six locations were not included in the statistics; two were consistently

dry in 1991 and four newly-installed wells lacked sufficient data upon which to perform statistics. Statistical work done in 1989 and 1990 involved 26 water quality indicators. The number of water quality indicators increased by 33 in 1991 to total 59 parameters. The 26 parameters statistically assessed in 1989 and 1990 are listed in Table 4.2.2.1A Column A. Nine additional parameters (Table 4.2.2.1A Column B) and the dissolved metal components of 24 site-specific parameters (Table 4.2.2.1A Column C) were added to the 1991 statistical assessment.

Indicators of water quality at all 12 compliance locations during 1991 differed from water quality at the background locations. Table 4.2.2.1B identifies the parameters and the well locations where the parameters differ from background water quality. The greatest differences in water quality are located: 1) northwest of the Waste Pit Area (Compliance Wells 1025 and 1028); 2) along the southern boundary of the Waste Pit Area (Compliance Wells 1031 and 1074); 3) at the northern boundary of the Waste Pit Area (Compliance Well 1081); and 4) northeast of the Waste Pit Area (Compliance Well 1038).

In addition to the 59 site-specific parameters analyzed in the 1991 statistical assessment, the volatile organic results for the glacial overburden were evaluated. Since volatile organics are not expected to be in natural groundwater, any detection of volatile organics was considered to be of concern. A list of the volatile organic detections in the glacial overburden is provided in Table 4.2.2.1C.

Although a detection of volatile organics is of concern, the monitoring well with the detection is not considered to have significant concentrations of the parameter unless confirmatory samples indicate that the volatile organic detection was not a lab or field error. A list of the volatile organic detections and their confirmatory sample results is provided in Table 4.2.2.1C. Individual detections of volatile organics are also indicated in Table 4.2.2.1C, but more recent sample events have not confirmed the detections.

Table 4.2.2.1C indicates that the confirmed volatile organic detections in the glacial overburden occur in Monitoring Well 1031. The volatile organics confirmed in Monitoring Well 1031 are; 1,1-Dichloroethane, 1,2-Dichloroethane (Total), Tetrachloroethene, Trichloroethene, and trans-1,2-Dichloroethene. Monitoring Well 1031 has indicated concentrations of vinyl chloride in consecutive sampling rounds (February and May 1991) but more recent sampling events have not confirmed these detections.

Monitoring Well 1031 has indicated concentrations of volatile organics since 1988. An investigation is currently assessing the extent of the volatile organic parameters around Monitoring Well 1031. Monitoring Well 2649 was installed as part of this investigation. The 1991 analytical results from Monitoring Well 2649 indicate that the volatile organic parameters found in Monitoring Well 1031 have migrated to the sand and gravel aquifer.

The source of the volatile organic compounds (VOCs) appears to be separate from the source of the inorganic constituent plume originating in the vicinity of Monitoring Well 2084. This conclusion is supported by the absence of organic compounds in the inorganic constituent plume,

Table 4.2.2.1A

Column A Site Specific Parameters with Previous Statistical Assessment Data	Column B Additional Parameters Statistically Assessed in 1991	Column C Dissolved Metal Data Statistically Assessed in 1991
Aluminum	Antimony	Aluminum, Dissolved
Arsenic	Cadmium	Antimony, Dissolved
Barium	Cyanide, Total	Arsenic, Dissolved
Beryllium	Mercury	Barium, Dissolved
Calcium	Molybdenum	Beryllium, Dissolved
Chloride	Phosphorus	Cadmium, Dissolved
Chromium	Potassium	Calcium, Dissolved
Cobalt	Selenium	Chromium, Dissolved
Conductivity	Thallium	Cobalt, Dissolved
Copper		Copper, Dissolved
Fluoride		Iron, Dissolved
Iron		Lead, Dissolved
Lead		Magnesium, Dissolved
Magnesium		Manganese, Dissolved
Manganese		Mercury, Dissolved
Nickel		Molybdenum, Dissolved
Nitrate		Nickel, Dissolved
pH		Potassium, Dissolved
Phenols		Selenium, Dissolved
Silver		Silver, Dissolved
Sodium		Sodium, Dissolved
Sulfate		Thallium, Dissolved
TOC		Vanadium, Dissolved
TOX		Zinc, Dissolved
Vanadium		
Zinc		

Table 4.2.2.1B

Site-Specific Constituents and Monitoring Wells Found to have Statistically Significant Concentrations in 1991 in the Glacial Overburden

Parameter	Monitoring Wells											
	1025	1027	1028	1030	1031	1038	1074	1079	1080	1081	1082	1083
Aluminum						X						
Arsenic						X						
Barium	X											
Barium, (Dissd.)	X											
Calcium	X				X	X		X		X	X	X
Calcium, (Dissd.)	X				X	X		X	X	X	X	X
Chloride	X				X	X	X			X	X	X
Chromium					X		X					
Chromium, (Dissd.)				X								
Conductivity	X		X				X	X	X	X	X	
Fluoride					X		X					
Iron						X						
Lead			X									
Magnesium	X					X	X		X	X	X	
Magnesium, (Dissd.)	X					X	X	X	X	X	X	X
Manganese	X					X						
Manganese, (Dissd.)	X					X						

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Table 4.2.2.1B

Site-Specific Constituents and Monitoring Wells Found to have Statistically Significant Concentrations in 1991 in the Glacial Overburden

Parameter	Monitoring Wells											
	1025	1027	1028	1030	1031	1038	1074	1079	1080	1081	1082	1083
Molybdenum			X		X		X					
Molybdenum, (Dissd.)					X							
Nickel	X		X		X	X	X					
Nickel, (Dissd.)	X		X	X	X	X	X					
Nitrate	X				X					X		X
pH	X		X		X	X				X		
Potassium	X				X	X						
Potassium, (Dissd.)	X	X			X							
Sodium	X				X							
Sodium, (Dissd.)	X				X							
Sulfate	X				X	X		X	X	X	X	X
Total Organic Halides					X							
Vanadium						X						
Zinc						X						

Table 4.2.2.1C

Detections and Subsequent Sampling for RCRA Organic Constituents in the Glacial Overburden

Constituent	Well	Date Collected	Result (as μg/L)
1,1,1-Trichloroethane			
	1031	05-28-91	2.20
		07-30-91	< 5.00
1,1-Dichloroethane			
	1031	02-12-91	22.80
		05-28-91	20.70
		07-30-91	21.60
		10-23-91	19.90
1,1-Dichloroethene			
	1031	05-28-91	4.10
		07-30-91	< 5.00
1,2-Dichloroethene (Total)			
	1031	02-12-91	57.10
		05-28-91	53.40
		07-30-91	42.80
		10-23-91	40.30
	1644	10-23-91	1.10
Acetone			
	1644	07-23-91	2.00
		10-23-91	< 2.00
Benzene			
	1031	05-28-91	2.30
		07-30-91	< 5.00
	1644	10-23-91	4.60

" < " indicates that the constituent was not detected at this numerical value

Table 4.2.2.1C

Detections and Subsequent Sampling for RCRA Organic Constituents in the Glacial Overburden

Constituent	Well	Date Collected	Result (as μg/L)
Carbon disulfide			
	1024	05-24-91	1.40
		07-15-91	< 1.00
Chloroform			
	1031	05-28-91	1.80
		07-30-91	< 5.00
Methylene chloride			
	1031	05-28-91	3.10
		07-30-91	< 5.00
Tetrachloroethene			
	1031	02-12-91	182.00
		05-28-91	173.00
		07-30-91	203.00
		10-23-91	189.00
Toluene			
	1024	05-24-91	1.30
		07-15-91	< 1.00
	1031	05-28-91	1.10
		07-30-91	< 5.00
	1038	07-17-91	1.30
		10-08-91	< 1.00
	1083	07-09-91	1.50
		10-22-91	< 1.00

" < " indicates that the constituent was not detected at this numerical value

Table 4.2.2.1C

Detections and Subsequent Sampling for RCRA Organic Constituents in the Glacial Overburden

Constituent	Well	Date Collected	Result (as μg/L)
Trichloroethene			
	1031	02-12-91	344.00
		05-28-91	240.00
		07-30-91	326.00
		10-23-91	272.00
Vinyl chloride			
	1031	02-12-91	6.50
		05-28-91	7.00
		07-30-91	< 5.00
Xylenes, Total			
	1644	10-23-91	2.50
trans-1,2-Dichloroethene			
	1031	02-12-91	11.20
		05-28-91	9.20
		07-30-91	6.90
		10-23-91	6.00

" < " indicates that the constituent was not detected at this numerical value

and the fact that the two wells (1031 and 2649) in which the organic compounds were detected are located upgradient and over 1000 feet away from the inorganic constituent plume.

4.2.2.2 Changes in Quality from Previous Assessments

The RCRA statistical assessment has been completed for three consecutive years starting with 1989 analytical results. It is useful to continue to assess background well to compliance well groundwater quality from a functional standpoint because larger sample populations produce more accurate statistics.

Table 4.2.2.2A identifies the 14 of 26 site-specific parameters that were determined to be significant in either 1989, 1990, or 1991 and indicates which years the parameter was found to be statistically significant in each monitoring well. From this table, it can be seen that the majority of statistically significant determinations from 1989 are confirmed by more recent assessments. There is an important fraction of statistical determinations, however, that have changed from previous assessments.

A straight comparison of statistical determinations from 1989 to 1991, using the 26 site-specific parameters assessed in 1989, indicates that no new parameters have become significant. In 1989, water quality was assessed using 26 site-specific parameters. Statistics showed that 13 of the parameters differed significantly from background. In 1990, water quality was again assessed using the same 26 site-specific parameters. Statistics showed that the same 13 parameters and one additional (TOC) differed significantly from background. In 1991, an assessment of water quality using the same 26 parameters resulted in the same 13 parameters from 1989 being statistically significant compared to background water quality. In 1991, 33 additional parameters were included in the assessment to better define the water quality. This resulted in 18 additional parameters being included to the list of water quality concerns.

Although the site-specific parameters affecting groundwater quality in the glacial overburden are not changing, concentrations of these parameters are increasing with time. The statistically significant concentrations of the 26 site-specific parameters were totaled over all 12 compliance wells (by summing all the X's listed in Tables 4.2.2.2B for 1989, Table 2.2C for 1990, and Table 4.2.2.1B for 1991). In 1989, the total number of statistically significant determinations was 53. In 1990, the total had increased to 57 statistically significant determinations. In 1991, the total increased again to 59 statistically significant concentrations in the 12 compliance wells. This indicates that the 13 statistically significant parameters are becoming significant in a larger number of monitoring wells each year.

Changes in site-specific parameter concentrations over time were also estimated by creating time versus concentration plots for those parameters that were found to be statistically significant when compared to background. Only dissolved metals were plotted with respect to time since, in most cases, total metals and dissolved metals responded similarly. The time versus concentration plots for the glacial overburden can be found in Appendix E.

A total of 62 parameter results were plotted for glacial overburden monitoring wells. Of the 62 plots, 38 indicated decreasing or level concentrations with time. This indicates that 41% of the

Table 4.2.2.2A
Statistically Significant Determinations for
1989, 1990, and 1991

Parameter	Monitoring Wells										
	1025	1027	1028	1031	1038	1074	1079	1080	1081	1082	1083
Calcium	1989 1990 1991			1989 1990 1991	1989 1990 1991	1989 1990	1989 1990 1991	1989 1990 1991	1989 1990 1991	1989 1990 1991	1989 1990 1991
Chloride	1989 1990 1991			1989 1990 1991	1989 1990 1991	1989 1990 1991			1989 1990 1991	1989 1990 1991	1989 1990 1991
Conductivity	1989 1990 1991		1989 1990 1991	1989 1990		1989 1990 1991	1991	1991	1989 1990 1991	1989 1990 1991	
Magnesium	1989 1990 1991				1989 1990 1991	1989 1990 1991	1989 1990 1991	1989 1990 1991	1989 1990 1991	1989 1990 1991	1989 1990 1991
Manganese	1989 1990 1991				1989 1991						
Nitrate	1989 1990 1991		1989	1989 1990 1991					1989 1990 1991		1989 1990 1991
pH	1989 1990 1991		1989 1990 1991	1989 1990 1991	1989 1990 1991				1991		
Sodium	1989 1990 1991			1989 1990 1991				1989			

Table 4.2.2.2A
Statistically Significant Determinations for
1989, 1990, and 1991

Parameter	Monitoring Wells										
	1025	1027	1028	1031	1038	1074	1079	1080	1081	1082	1083
Sulfate	1989 1990 1991	1990		1989 1990 1991	1990 1991		1990 1991	1990 1991	1989 1990 1991	1989 1990 1991	1991
Nickel	1990 1991		1989 1990 1991	1990 1991	1991	1989 1990 1991					
Fluoride				1989 1990 1991		1990 1991					
TOX				1989 1990 1991							
Copper				1989 1990							
TOC				1990							

Table 4.2.2.2B

Site-Specific Constituents and Monitoring Wells Found to Have Statistically Significant Concentrations in 1989 in the Glacial Overburden

Parameter	Monitoring Wells										
	1025	1028	1030	1031	1038	1074	1079	1080	1081	1082	1083
1,1-Dichloroethane				X							
Calcium	X	X	X	X	X	X	X	X	X	X	X
Chloride	X	X		X	X	X			X	X	X
Conductivity	X	X	X	X		X			X	X	
Copper				X							
Fluoride				X							
Iron											
Magnesium	X	X	X		X	X	X	X	X	X	X
Manganese	X				X						
Nickel		X				X					
Nitrate	X	X	X	X					X		X
pH	X	X		X	X						
Sodium	X			X				X			
Sulfate	X	X		X					X	X	
Tetrachloroethane				X							
Total Organic Carbon											
Total Organic Halides				X							
Trichloroethene				X							

measurements taken over the last three years in the glacial overburden monitoring network exhibit an increasing trend in contaminant concentrations.

The time versus concentration plots that indicated increasing trends were found in 12 of the 16 parameters plotted, and were distributed between all 12 compliance monitoring wells. Table 4.2.2.2C lists the monitoring well, its location, and the site-specific parameters that were increasing in concentration.

4.2.3 Rate and Extent of Contamination in the Glacial Overburden

The extent of contamination in the perched groundwater, both vertically and horizontally, is being determined through the characterization of saturated zones and analytical results. All of the glacial overburden compliance wells indicate at least some variation from background groundwater quality. The relationship between saturated zones has not been fully determined, but some horizontal migration of site-specific parameters is occurring.

The rate of migration for contaminants in the glacial overburden is being predicted using vadose zone modeling techniques. A summary of the modeling methods and initial results is provided below. The conceptual source-pathway relationship for contamination originating from the Waste Storage Area is shown in Figure 4.2.3 (IT, 1990, Figure 22-1). This relationship is based on the concept that the Great Miami Aquifer is the primary pathway by which contaminants released from a source in the Waste Storage Area would be transported to a receptor. The local presence of perched groundwater in the vadose zone serves as intermediate collection points pending future release to the regional aquifer. Perched groundwater is found primarily in sandy and silty lenses. Underneath some areas of the FEMP, bodies of perched groundwater appear to be significant (i.e., Plant 2/3 and Plant 6), but they still represent intermediate collection points pending future releases to the regional aquifer.

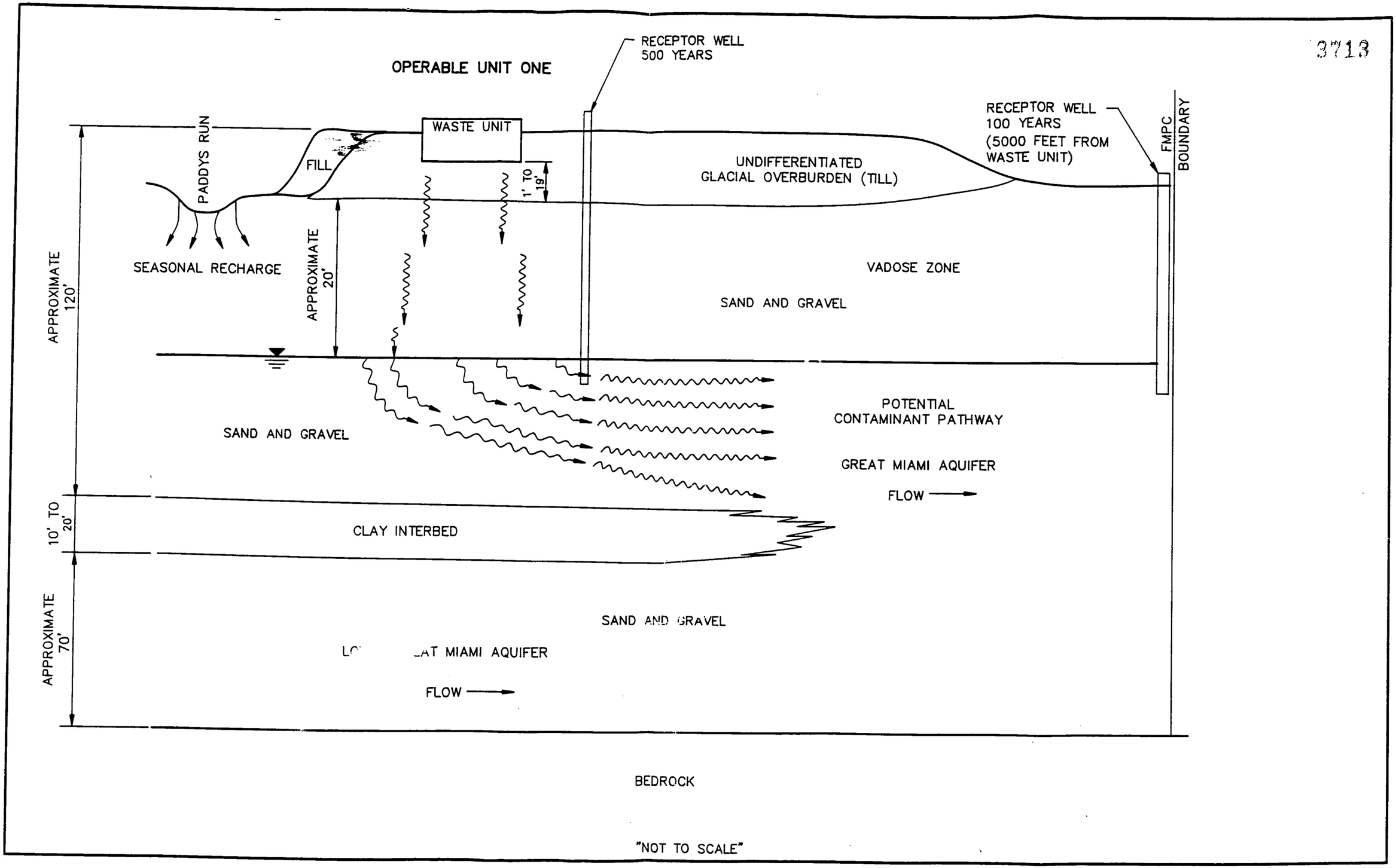
Conceptually, contaminant leachates originating from a waste storage unit would move downward through the vadose zone, which consists of glacial overburden (Vadose Zone 1) and unsaturated sand and gravel buried channel sediments (Vadose Zone 2). Vadose Zone 2 consists of approximately 25 feet of unsaturated sand and gravel. As leachate migrates downward, it will undergo geochemical reactions that will change its composition. Most of the chemical constituents in the leachate will be retarded, causing delayed arrival to the water table of the regional aquifer. After reaching the water table, contaminants will migrate eastward (in the direction of the flow) while undergoing dilution, dispersion, decay, and additional geochemical reactions.

Movement of constituents through the vadose zone has been predicted using ST1D and ODAST analytical computer codes. Constituents of concern for the modeling project were determined through waste inventories. ST1D was used to eliminate all of the constituents which would not reach the Great Miami Aquifer within 500 years. ODAST was used to account for retardation, source changes, and decay while the constituents were moving down through 19 feet of glacial overburden material in the vadose zone. Results showed that the only organic constituents which

Table 4.2.2.2C

Monitoring Wells with Parameters
Showing Increasing Concentrations

WELLS	LOCATIONS	PARAMETERS
1025	Northwest Corner of Waste Pit Area	Barium, (Dissd.) Nitrate Potassium, (Dissd.) Sodium, (Dissd.) Sulfate
1027	Northeast Corner of Waste Pit Area	Potassium
1028	Northwest Corner of Waste Pit Area	Conductivity pH
1030	South of Waste Pit Area	Nickel, (Dissd.)
1031	Southwest Corner of Waste Pit Area	Fluoride Molybdenum, (Dissd.) pH TOX
1038	Northeast Corner of Waste Pit Area	pH Sulfate
1074	South of Waste Pit Area	Nickel, (Dissd.)
1079	Northwest Corner of Waste Pit Area	Conductivity Sulfate
1080	North of Waste Pit Area	Conductivity Sulfate
1081	Northeast Corner of Waste Pit Area	Conductivity Sulfate
1082	Northeast Corner of Waste Pit Area	Conductivity



303317-B897 (GW) (PGH)

FIGURE 22-1

OPERABLE UNIT 1
CONCEPTUAL GROUNDWATER FLOW
PATHWAY

would reach the aquifer in less than 500 years were; toluene, acetone, 2-butanone, chloroform, and methylene chloride (ASI/IT, 1990, Table 22-5).

4.2.3.1 Flow and Transport (Vadose Zone)

Fate and Transport modeling, part of the Remedial Investigation, looks at flow and transport of contamination through the entire aquifer system (unsaturated and saturated). Information presented below, for flow and transport through the vadose zone, comes from that study (ASI/IT, 1990, Section 22).

Analytical modeling using ST1D and ODAST has been used to determine movement of constituents through the vadose zone. ST1D is a one-dimensional analytical computer code which has been used to predict and eliminate the chemical constituents that, if released, would not reach the Great Miami Aquifer within 500 years. ODAST is a one-dimensional analytical solution that was used to account for retardation of contaminants, source changes, and decay of the constituents that would reach the aquifer within 500 years. Both computer codes calculate the normalized concentrations of a given constituent in a uniform flow field from a source having a constant or varying concentration in the initial layer.

Each layer (Vadose Zone 1 and 2) in the conceptual flow system was analyzed separately with the concentrations from the upper layers acting as the input concentrations to the lower layers. The depletion of the waste source over time and radioactive decay were taken into account for modeling done for the vadose zone.

4.2.3.2 Constituents of Concern

Constituents of concern used for the modeling were identified from waste inventories. For the Waste Storage Area, these inventories are tabulated in Tables 4.2.3.2A, 4.2.3.2B, and 4.2.3.2C (IT, 1990, Tables 4-2, 4-3, and 4-4).

4.2.3.3 Vadose Zone Modeling Parameters

Parameters used to model flow within the vadose zone are listed in Table 4.2.3.3A (IT, 1990, Table 22-2). The primary parameters affecting flow in the vadose zone are moisture content, hydraulic conductivity, specific yield, and porosity.

Moisture content was estimated using two techniques; Clapp and Hormberger, 1978 (as reported by IT, 1990), and equating porosity to the sum of the specific yield and the specific retention.

Hydraulic conductivities for the vadose zone were estimated using hydraulic conductivities measured in water-bearing zones. The use of saturated hydraulic conductivities will tend to overestimate the movement of fluids through the vadose zone. A series of slug tests were performed in the water-bearing zones of the till. Hydraulic conductivity measured in wells closest to Waste Pit 1 was 0.147 feet/day (5×10^{-5} cm/s). Vertical hydraulic conductivities were calculated by dividing the horizontal hydraulic conductivity by 20. These estimates are not

Table 4.2.3.2A

MAJOR INORGANIC CONSTITUENTS OF THE WASTE PITS*
(Concentration in ppm)

	Pit No. 1					Average Background	Pit No. 2			
	BH1*	BH2	BH3	BH4	BH5		BH1	BH2	BH3	BH4
Al	3463.0	6263	20223	1703	16649	57000	7242	14195	21920	22421
Ba	365.0	116.5	279	355	159	420	208	97	115	130
Ca	6243	192498	94368	4756	32348	6300	34414	65445	80154	35478
Fe	1833	4038	19688	2048	12200	25000	13265	21366	22326	24037
Mg	26458	26862	36957	7614	28774	4600	8885	26343	26676	14127

	Pit No. 3						Pit No. 4			
	BH1	BH2	BH3	BH4	BH5	BH6	BH1	BH2	BH3	BH4
Al	15025	64100	20975	18873	15029	10366	10121	3646	10326	4259
Ba	251	8654	14355	474	2187	2072	2065	457	444	6669
Ca	53183	127426	120652	178241	59268	66921	49272	61253	52221	14253
Fe	10730	26919	24311	15463	15211	15491	10448	3046	16128	6104
F	NA*	NA	NA	NA	NA	NA	47812	124576	118243	NA
Mg	27782	35761	25156	51570	25641	25320	11424	23657	15890	24251

	Pit No. 5						Pit No. 6			
	BH1	BH2	BH3	BH4	BH5	BH6	BH1	BH2	BH3	BH4
Al	6374	12346	15400	12500	9170	4760	NA	NA	NA	4730
Ba	36939	30431	15800	16400	18900	16800	NA	NA	NA	95
Ca	206144	167319	116000	143000	200000	206000	NA	NA	NA	22190
Fe	10979	14261	14500	17900	16400	14700	NA	NA	NA	2750
Mg	25202	45492	57100	63200	52000	46100	NA	NA	NA	32101

	Bum Pit						Clearwell		
	BH1	BH2	BH3	BH4	BH5	BH6	BH1	BH2	BH3
Al	8459	11936	7308	2912	4378	5823	18827	23771	12939
Ba	NA	56	106	7097	211	165	733	6913	2391
Ca	116322	10114	62547	12946	14599	20964	129305	156585	183078
Fe	11214	14601	17445	5210	3747	5238	19805	21067	19618
Mg	57079	5169	12905	18040	3859	8294	16785	44629	34106

* Summarized from the CIS Volume 2 (Weston 1987b).
* BH1 - Borehole number/sampling location
* Not analyzed

Table 4.2.3.2B

MINOR INORGANIC CONSTITUENTS OF THE WASTE PITS*
(Concentration Ranges in ppm)

	Pit 1	Pit 2	Pit 3	Pit 4	Pit 5	Pit 6	Burn Pit	Clearwell
Arsenic	14 - 15	3 - 40	15 - 3,049	5	139 - 2,800	8	4 - 21	9 - 18
Beryllium	2 - 2	2 - 9	5 - 24	13	3 - 18	2 - 6	1 - 16	9
Cadmium	1 - 3	3 - 10	3 - 13	2 - 29	4 - 17	0.6 - 6	1 - 35	5 - 7
Chromium	6 - 46	17 - 91	20 - 152	8 - 94	26 - 223	5 - 30	8 - 88	41 - 76
Cobalt	28	14 - 450	--	84	16 - 44	26	22 - 104	18
Copper	20 - 161	38 - 329	80 - 2,333	23 - 188	672 - 3,370	13 - 222	12 - 167	195 - 1,119
Lead	5 - 90	25 - 190	52 - 613	24 - 63	60 - 236	5 - 60	7 - 53	32 - 83
Manganese	145 - 2,915	529 - 917	518 - 10,571	1,752 - 3,596	346 - 4,740	35	119 - 1,717	761 - 1,660
Mercury	0.26 - 0.4	0.2 - 0.7	0.5 - 4.0	0.2 - 0.6	0.4 - 1.8	0.03 - 0.07	0.1 - 0.2	0.4 - 4.0
Nickle	9 - 65	36 - 609	29 - 504	21 - 50	53 - 202	8 - 51	9 - 60	47 - 67
Potassium	165 - 2,564	796 - 4,319	810 - 2,894	892 - 1,920	611 - 1,490	913	486 - 1,452	1,690 - 2,707
Selenium	--	2 - 10	3 - 90	--	3 - 7	--	--	4
Silver	2.25 - 33.0	11 - 23	7 - 8	4 - 444	8 - 9	158	7 - 506	3
Sodium	386 - 3,639	480 - 2,303	1,291 - 7,640	255 - 1,238	1,426 - 9,980	600	356 - 1,265	1,293 - 2,810
Thallium	--	--	6 - 12	--	3	--	--	--
Vanadium	14 - 67	36 - 106	50 - 9,696	24 - 235	792 - 5,380	110	16 - 290	148 - 2,596
Zinc	10 - 58	54 - 3,247	45 - 311	14 - 84	117 - 212	5 - 51	15 - 75	82 - 194

* Summarized from the CIS Volume 2 (Weston 1987).

Table 4.2.3.2C

ORGANIC CHEMICAL RESULTS FOR THE WASTE PITS*
(Concentration Ranges in ppb)

Organic Constituents Volatiles	Pit 1	Pit 2	Pit 3	Pit 4	Pit 5	Pit 6	Burn Pit	Clearwell
Acetone	58 -340	230 - 2700	91 - 468	130 - 676	470 - 630	760 - 3200	170 - 380	1800
2-butanone	1900 - 3800	2600 - 2700	4320	100	--	530 - 1400	70	--
Ethyl Benzene	40 - 73	48	--	--	--	--	270	--
Methylene Chloride	140 - 186.2	200 - 850	504	170 - 299	42 - 420	280 - 700	100 - 140	380 - 640
1,1,1-Trichloroethane	159.6	150	--	120	--	--	--	--
1,1,2,2-Tetrachloroethane	--	--	--	--	--	29,000	--	--
Vinyl Chloride	--	670	--	--	--	--	--	--
Toluene	40 - 96	--	--	60 - 87	--	440	50	--
Total Xylenes	--	1300	--	--	--	460	890	--
Tetrachloroethene	75	--	--	530 - 30,000	--	--	170 - 260	--
Trichloroethene	--	--	--	300	--	170	--	--

Semi-Volatiles	Pit 1	Pit 2	Pit 3	Pit 4	Pit 5	Pit 6	Burn Pit	Clearwell
Acenaphthene	--	80	--	87-221	--	--	61 - 170	--
Anthracene	74	58 - 310	--	260 - 663	--	--	--	--
Benzo(A)Anthracene	84 - 180	55 - 860	72	52 - 975	--	--	--	140
Benzo(A)Pyrene	140	110 - 700	--	320 - 715	--	--	160	--
Benzo(K)Fluoranthene	140	180 - 600	--	330 - 728	--	--	--	--
Benzo(B)Fluoranthene	55 - 300	100 - 760	132	250 - 663	--	--	69 - 170	--
Benzo(G,H,I)Perylene	--	290	--	130 - 221	--	--	85	--
Chrysene	64 - 510	74 - 920	90	70 - 988	--	--	73 - 83	74 - 150
Dibenzo(A,H)Anthracene	--	0	--	221	--	--	--	--
Fluoranthene	110 - 430	160 - 2300	276	170	--	--	74 - 420	--
Fluorene	--	150	--	160 - 403	--	--	--	--
Indeno (1,2,3-CD)Pyrene	--	340	--	150 - 234	--	--	78	--
2-Methyl Naphthalene	250	0	--	--	--	--	50	--
Naphthalene	54	90 - 80,000	--	62 - 143	--	--	--	--
Phenanthrene	97 - 2300	98 - 1700	144	110 - 2730	--	--	49 - 290	68 - 240
Pyrene	72 - 360	88 - 1600	228	93 - 1820	--	--	79 - 250	290

Table 4.2.3.2C (Cont.)

Semi-Volatiles	Pit 1	Pit 2	Pit 3	Pit 4	Pit 5	Pit 6	Burn Pit	Clearwell
Phenol	--	1650	--	--	200	--	140 - 650	--
4-Chlorophenyl-Phenyl-ether	10	--	--	--	--	--	--	--
2,3-Dimethyl Phenol	--	750	--	--	--	--	--	--
4-Methylphenol	--	1750						
Bis(2-ethylhexyl) Phthalate	330 - 1700	1650	110 - 1320	140 - 351	84 - 2300	410 - 910	340 - 2000	200 - 270
Di-N-Butyl Phthalate	68 - 113	--	84 - 140	60 - 651	56 - 250	--	54 - 210	120
Di-N-Octyl Phthalate	150 - 830	--	--	--	--	--	67 - 130	--
Dibenzofuran	--	--	--	--	--	--	--	--
Pentachlorophenol	--	--	630 - 1534	--	--	--	1200 - 2600	--

Pesticides	Pit 1	Pit 2	Pit 3	Pit 4	Pit 5	Pit 6	Burn Pit	Clearwell
Aroclor-1016	--	--	--	--	--	--	290	--
Aroclor-1242	--	--	--	--	--	--	70 - 290	--
Aroclor-1248	3500	321	--	99 - 1344	330 - 550	--	200	308
Aroclor-1254	720 - 10,000	323	74 - 577	460 - 1110	470 - 630	81	77 - 2700	132 - 737
Aroclor-1260	7000	740 - 1800	--	296 - 1310	--	--	--	--
4,4-D.D.T.	1,600	16 - 1400	--	--	--	--	--	--

* Summarized from the CIS Volume 2 (Weston 1987b).

Table 4.2.3.3A

TABLE 22-2

LONG-TERM FATE AND TRANSPORT MODEL
INPUT DATA

Parameter	Till	Unsaturated Sand and Gravel
Hydraulic Conductivity		
Horizontal (ft/day)	0.147	450
Vertical (ft/day)	0.00735	45
Thickness (feet)	5	20
Porosity (%)	34	39
Specific Yield (%)	0.06	0.25
Bulk Density (g/cc)	1.78	1.60
Field Capacity (%)	28	14
Dispersivity (ft/sq./day)	0.0012	0.00187
Organic Content (%)	4	4
Fines passing less than 200 mesh (%)	70	16

unique, though. A unique value for hydraulic conductivity in an unsaturated zone cannot be determined (Everett et al. 1984, as reported by IT, 1990). In unsaturated materials, the hydraulic conductivity is dependent upon the water content and degree of matrix suction. The degree of saturation changes constantly over the length of the flow path; therefore, the unsaturated hydraulic conductivity also changes.

Specific yield was derived from published tables found in Morris and Johnson, 1967; and van der Leeden et al., 1990 (as reported in IT, 1990, pg. 22-10).

The primary parameters affecting contaminant transport are dispersivity, bulk density, and the partition coefficient. Dispersivity and bulk density values used to model the vadose zone are given in Table 4.2.3.3A (IT, 1990, Table 22-2). The partitioning coefficients and retardation factors for organic compounds from Waste Storage Area inventories are tabulated in Table 4.2.3.3B (IT, 1990, Table 22-4).

For analysis of transport through the vadose zone, only longitudinal dispersivity was calculated, using the techniques outlined in Mills et al., 1985 (as reported in IT, 1990). Estimates of bulk density were taken from ASI/IT, 1989; and Morris and Johnson, 1967 (as reported in IT, 1990). Partition coefficients were estimated using two techniques: 1) analysis and selection of published values; and 2) by relating the octanol-water partitioning coefficient to the octanol-carbon partitioning coefficient using empirical formulas described by Mills et al., 1985 (as reported in IT, 1990).

4.2.3.4 Vadose Zone Modeling Results for the Waste Storage Area

The results of the vadose zone modeling are tabulated in Tables 4.2.3.4A and 4.2.3.4B (IT, 1990, Tables 22-1 and 22-5). Table 4.2.3.4B lists the time predicted for a contaminant to reach the aquifer. RCRA sampling results do not correspond with some initial model results. The reason for these specific inconsistencies is related to a lack of site-specific field data for input into the model and the thickness of the glacial overburden programmed into the model for the area beneath the waste pits.

4.3 1991 Sand and Gravel Aquifer Assessment

The quality of water beneath and downgradient of the Waste Pit Area is monitored routinely in accordance with RCRA regulations. Flow direction and average linear velocity are re-calculated yearly using the latest water level measurements. Flow direction, velocity, and time-of-travel calculations have been previously determined through several different studies and modeling projects (Geotrans, 1985; Dames and Moore 1985; IT, 1988 & 1990).

The Waste Pit Area occupies approximately 40 acres and has a downgradient boundary that is approximately 3000 linear feet long. There are six identifiable waste pits, a burn pit, and the Clearwell within the areal boundaries of the Waste Pit Area (Figure 4.1). Waste Pit 4 was the only RCRA regulated unit in 1991. Waste inventories indicate that all of the waste pits contain similar waste products (Tables 4.2.3.2A, 4.2.3.2B, and 4.2.3.2C) (OU-1 RI/FS Report Table

Table 4.2.3.3B
PARTITIONING COEFFICIENTS AND RETARDATION FACTOR FOR ORGANIC COMPOUNDS

Constituent	Kow	Koc	Kd Vadose 1	Kd Vadose 2	Rd Vadose 1	Rd Vadose 2
Anthracene	2.80E+04	1.76E+04	5.36E+02	2.31E+02	3.41E+03	2.65E+03
Benzo(a)anthracene	4.00E+05	2.52E+05	7.66E+03	3.31E+03	4.87E+04	3.78E+04
Benzo(b)fluoranthene	4.00E+06	2.52E+06	7.66E+04	3.31E+04	4.87E+05	3.78E+05
Benzo(k)fluoranthene	7.00E+06	4.41E+06	1.34E+05	5.79E+04	8.52E+05	6.61E+05
Benzo(a)pyrene	1.00E+06	6.30E+05	1.92E+04	8.27E+03	1.22E+05	9.45E+04
Chrysene	4.00E+05	2.52E+05	7.66E+03	3.31E+03	4.87E+04	3.78E+04
Ethylbenzene	1.40E+03	8.82E+02	2.68E+01	1.16E+01	1.71E+02	1.33E+02
Fluoranthene	3.40E+05	2.14E+05	6.51E+03	2.81E+03	4.14E+04	3.21E+04
2-Methylnaphthalene	7.24E+03	4.56E+03	1.39E+02	5.98E+01	8.82E+02	6.85E+02
Naphthalene	2.30E+03	1.45E+03	4.40E+01	1.90E+01	2.81E+02	2.18E+02
Phenanthrene	2.90E+04	1.83E+04	5.55E+02	2.40E+02	3.53E+03	2.74E+03
Pyrene	2.00E+05	1.26E+05	3.83E+03	1.65E+03	2.44E+04	1.89E+04
Toluene	4.90E+02	3.09E+02	9.38E+00	4.05E+00	6.07E+01	4.73E+01
Acetone	5.70E-01	3.59E-01	1.09E-02	4.71E-03	1.07E+00	1.05E+00
2-Butanone	1.81E+00	1.14E+00	3.47E-02	1.50E-02	1.22E+00	1.17E+00
Aroclor-1248	1.00E+06	6.30E+05	1.92E+04	8.27E+03	1.22E+05	9.45E+04
Aroclor-1254	1.00E+06	6.30E+05	1.92E+04	8.27E+03	1.22E+05	9.45E+04
Aroclor-1260	1.88E+04	1.18E+04	3.60E+02	1.55E+02	2.29E+03	1.78E+03
DDT	1.00E+04	6.30E+03	1.92E+02	8.27E+01	1.22E+03	9.46E+02
Bis(2-Ethylhexyl)phthalate	2.00E+05	1.26E+05	3.83E+03	1.65E+03	2.44E+04	1.89E+04
Di-n-butyl Phthalate	1.58E+05	9.95E+04	3.03E+03	1.31E+03	1.92E+04	1.49E+04
Di-n-octyl Phthalate	1.58E+05	9.95E+04	3.03E+03	1.31E+03	1.92E+04	1.49E+04
Chloroform	9.33E+01	5.88E+01	1.79E+00	7.71E-01	1.24E+01	9.81E+00
Methylene Chloride	1.78E+01	1.12E+01	3.41E-01	1.47E-01	3.17E+00	2.68E+00
Tetrachloroethene	7.60E+02	4.79E+02	1.46E+01	6.28E+00	9.35E+01	7.28E+01
1,1,1-Trichloroethane	2.95E+02	1.86E+02	5.65E+00	2.44E+00	3.69E+01	2.89E+01

Table 4.2.3.4A

TABLE 22-1

CONSTITUENT AND LEACHATE CONCENTRATION

Constituent	Concentration (mg/kg)	mg Available	Leachate (mg/L) (SOL)	Leach Rate (mg/Day)	Depletion In Years
U-234	9.75E-02	5.23E+06	1.26E-08	8.07E-05	1.78E+08
U-235	2.80E+01	1.50E+09	3.62E-06	2.32E-02	1.77E+08
U-238	6.32E+03	3.39E+11	8.18E-04	5.24E+00	1.77E+08
Th-228	1.33E-08	7.13E-01	7.28E-19	4.66E-15	4.19E+11
Th-230	4.26E-02	2.28E+06	7.31E-13	4.68E-09	1.33E+12
Th-232	1.07E+02	5.74E+09	1.84E-09	1.18E-05	1.33E+12
Tc-99	9.65E-04	5.17E+04	8.74E-05	5.60E-01	2.53E+02
Cs-137	1.27E-08	6.81E-01	9.96E-11	6.38E-07	2.93E+03
Ra-226	3.35E-05	1.79E+03	1.03E-06	6.60E-03	7.44E+02
Magnesium	2.72E+04	1.46E+12	1.41E+01	9.03E+04	4.43E+04
Silver	8.90E+00	4.77E+08	2.38E-04	1.52E+00	8.57E+05
Anthracene	2.28E-02	1.22E+06	7.21E-05	4.62E-01	7.24E+03
Benzo(a)anthracene	5.88E-02	3.15E+06	1.30E-05	8.34E-02	1.04E+05
Benzo(b)fluoranthene	1.46E-01	7.82E+06	3.23E-06	2.07E-02	1.04E+06
Benzo(k)fluoranthene	3.60E-02	1.93E+06	4.56E-07	2.92E-03	1.81E+06
Benzo(a)pyrene	3.60E-02	1.93E+06	3.19E-06	2.04E-02	2.59E+05
Chrysene	2.01E-01	1.08E+07	4.45E-05	2.85E-01	1.04E+05
Ethylbenzene	2.56E-02	1.37E+06	1.62E-03	1.04E+01	3.62E+02
Fluoranthene	2.49E-01	1.34E+07	6.49E-05	4.16E-01	8.83E+04
2-Methylnaphthalene	5.20E-02	2.79E+06	6.36E-04	4.07E+00	1.88E+03
Naphthalene	1.88E-02	1.01E+06	7.24E-04	4.64E+00	5.97E+02
Phenanthrene	7.23E-01	3.88E+07	2.21E-03	1.41E+01	7.51E+03
Pyrene	1.71E-01	9.18E+06	7.58E-05	4.86E-01	5.18E+04
Toluene	3.86E-02	2.07E+06	6.98E-03	4.47E+01	1.27E+02
Acetone	2.50E-01	1.34E+07	3.88E+01	2.48E+05	1.48E-01
2-Butanone	2.62E+00	1.40E+08	1.28E+02	8.21E+05	4.67E-01
Aroclor-1248	7.04E-02	3.77E+06	6.24E-06	3.99E-02	2.59E+05
Aroclor-1254	4.70E+00	2.52E+08	4.16E-04	2.67E+00	2.59E+05
Aroclor-1260	1.40E+00	7.51E+07	6.60E-03	4.23E+01	4.87E+03
DDT	3.20E-01	1.72E+07	2.84E-03	1.82E+01	2.60E+03
Bis(2-Ethylhexyl)phthalate	4.12E-01	2.21E+07	1.82E-04	1.17E+00	5.18E+04
Di-n-butyl Phthalate	7.42E-02	3.98E+06	4.16E-05	2.66E-01	4.09E+04
Di-n-octyl Phthalate	3.07E-01	1.64E+07	1.72E-04	1.10E+00	4.08E+04
Chloroform	9.18E-02	4.92E+06	8.72E-02	5.58E+02	2.42E+01
Methylene Chloride	1.32E-01	7.09E+06	6.58E-01	4.21E+03	4.61E+00
Tetrachloroethene	1.90E-02	1.02E+06	2.21E-03	1.42E+01	1.97E+02
1,1,1-Trichloroethane	3.59E-02	1.92E+06	1.08E-02	6.90E+01	7.62E+01

Table 4.2.3.4B

TABLE 22-5

COMPLETED CONCENTRATIONS
AT RECEPTOR LOCATIONS

Constituent	Years To Reach Aquifer	Receptor Concentration Maximum 0 - 100 Years	Receptor Concentration Maximum 100 - 500 Years
U-234	Approx. 75	1.54E-11	3.95E-09
U-235	Approx. 75	4.81E-09	1.28E-06
U-238	Approx. 75	1.09E-06	2.95E-04
Th-228	Over 500	NA	NA
Th-230	Over 500	NA	NA
Th-232	Over 500	NA	NA
Tc-99	Approx. 20	1.10E-07	1.45E-05
Cs-137	Over 500	NA	NA
Ra-226	Over 500	NA	NA
Magnesium	Over 500	NA	NA
Silver	Over 500	NA	NA
Anthracene	Over 500	NA	NA
Benzo(a)anthracene	Over 500	NA	NA
Benzo(b)fluoranthene	Over 500	NA	NA
Benzo(k)fluoranthene	Over 500	NA	NA
Benzo(a)pyrene	Over 500	NA	NA
Chrysene	Over 500	NA	NA
Ethylbenzene	Over 500	NA	NA
Fluoranthene	Over 500	NA	NA
2-Methylnaphthalene	Over 500	NA	NA
Naphthalene	Over 500	NA	NA
Phenanthrene	Over 500	NA	NA
Pyrene	Over 500	NA	NA
Toluene	Approx. 150	NA	4.80E-04
Acetone	Approx. 10	8.29E-05	2.12E-03
2-Butanone	Approx. 15	8.76E-04	2.24E-02
Aroclor-1248	Over 500	NA	NA
Aroclor-1254	Over 500	NA	NA
Aroclor-1260	Over 500	NA	NA
DDT	Over 500	NA	NA
Bis(2-Ethylhexyl)phthalate	Over 500	NA	NA
Di-n-butyl Phthalate	Over 500	NA	NA
Di-n-octyl Phthalate	Over 500	NA	NA
Chloroform	Approx. 75	1.89E-05	2.03E-03
Methylene Chloride	Approx. 25	4.42E-05	1.13E-03
Tetrachloroethene	Over 500	NA	NA
1,1,1-Trichloroethane	Over 500	1.40E-06	8.63E-11

4-2, 4-3, and 4-4). Determining if a specific waste unit is affecting the water quality is not readily discernable. This is due to; 1) the similarity of waste in the various waste units, and 2) the close relative proximity of the waste units to each other.

Some waste pits lie upgradient to Waste Pit 4. Isolating groundwater quality downgradient of Waste Pit 4 from the effects of upgradient waste units cannot be easily achieved. Contamination currently being tracked through the assessment program can be related to a general location within the Waste Pit Area, but not to Waste Pit 4 specifically.

The RCRA Assessment Program continues to assess the presence, rate, and extent of migration for site-specific parameters in groundwater affected by Waste Pit 4. Water quality is currently being monitored in the Great Miami buried valley aquifer at three depths within the saturated regional flow system. Upgradient to downgradient statistical comparisons, according to a detection monitoring format, are being continued through assessment monitoring because some monitoring wells at the downgradient boundary do not indicate significant contamination and are monitored for detection purposes.

4.3.1 Aquifer Water Elevations and Flow Direction

Each year, flow direction and average liner velocity is redetermined for the Great Miami Aquifer beneath the Waste Pit Area from water level measurements. Results for 1991 confirm earlier results (Geotrans, 1985; Dames and Moore, 1985; and IT, 1988 and 1990) that groundwater in the Great Miami Aquifer is flowing to the east beneath the Waste Pit Area. Calculations made in 1991 indicate that the average linear velocity ranges from 1.44 ft/day to 2.52 ft/day depending upon the depth and time of year. These velocities fall well within the range of previously reported velocities of 0.64 ft/day (IT, 1990) to 9.3 ft/day (Dames and Moore, 1985).

Water elevation measurements were collected monthly at approximately 200 monitoring wells. All of the wells being monitored for RCRA compliance are included in the monthly program. Data presented in this report has been taken from these monthly measurements and is tabulated in Appendix A. Water elevation contour maps have been prepared for February, May, July, and October of 1991 (Appendix A).

The direction of flow in the water table zone of the sand and gravel aquifer has been determined using water elevation contour maps. Figure A-1 indicates that the groundwater is flowing generally northeast under Waste Pit 4; Figure A-2 also indicates the same northeasterly direction. Figures A-3 and A-4 represent a more easterly flow during the dryer portions of the year. Water elevation contour maps of the 3000-series and 4000-series monitoring wells (Figures A-5 and A-6) were completed for October data to determine any differences in flow direction with depth. Both maps indicated that groundwater is flowing in the same general direction with depth.

The water table gradient represented in Figure A-1 for February 1991 calculated 0.0009 ft/ft (0.9 ft/1000 ft) between Monitoring Wells 2649 and 2037. The water table gradient represented on Figure A-2 for May 1991, estimated between Monitoring Wells 2649 and 2037, is 0.00083 ft/ft (0.83 ft/1000 ft). The water table gradient represented on Figure A-3 for July 1991, calculated

between Monitoring Wells 2084 and 2010, is 0.0011 ft/ft (1.1 ft/1000 ft). The water table gradient represented on Figure A-4 for October 1991, calculated between Monitoring Wells 2084 and 2010, is 0.0016 ft/ft (1.6 ft/1000 ft).

The calculated gradient using data collected from 3000-series monitoring wells from Figure A-5, calculated between Monitoring Wells 3011 and 3010, is 0.001 ft/ft (1 ft/1000 ft). The horizontal gradient in the lower aquifer (4000-series monitoring well depth) from Figure A-6, calculated between Monitoring Wells 4011 and 4010, is 0.00099 ft/ft (0.99 ft/1000 ft).

4.3.1.1 Vertical Flow Patterns in the Aquifer

In order to establish vertical gradients in the aquifer, the monthly water elevation readings for cluster wells were compared to determine the difference in groundwater elevation between the 2000- and 3000-series wells. Appendix A contains a table of water elevations and the calculated difference between the 2000-/3000-series cluster near the FEMP (Table A-2). Figures A-7 through A-14 in Appendix A illustrate the measured difference in the water table between 2000- and 3000-series wells for 1990 and 1991. Negative values (represented by shaded areas in Figures A-7 through A-14) indicate regions where downflow is occurring in the aquifer; positive values indicate regions where upflow is occurring.

The evaluation of vertical differences in monitoring well clusters indicates that vertical flow is occurring. In all of the maps, a downward flow pattern was identified east of the Waste Pit Area. This corresponds to the concentration contours discussed in Section 4.3.3.1, which indicate that parameter plumes are migrating to the 3000-series and then east across the Production Area.

4.3.1.2 Hydrologic Properties

Extensive studies have been completed on the Great Miami Valley Aquifer, of which the New Haven Trough is a tributary. The estimation of aquifer properties has been developed by the CERCLA RI/FS at the FEMP. The reported values below are taken from previous studies of the aquifer; model values refer to the RI/FS flow models described in Section 4.3.2.4.

Spieker (1968a) mapped 11 units in the Great Miami Aquifer with distinctive physical and hydraulic properties. He reported that transmissivity values generally ranged from 300,000 to 500,000 gpd/ft (40,000 to 67,000 ft^2/day) and that individual wells can yield as much as 3,000 gallons per minute (gpm). Geotrans (1985) summarized hydraulic properties for the Great Miami Aquifer near Hamilton, Ohio, approximately 10 miles north of the FEMP. Transmissivities ranging from 30,000 to 700,000 gpd/ft (4,000 to 94,000 ft^2/day) were reported for a site in the northern part of the city of Hamilton. Most values are reported in the range of 100,000 to 300,000 gpd/ft (approximately 13,000 to 40,000 ft^2/day). The aquifer at the site is approximately 180 feet thick (Ward et al., 1987).

Consequently, hydraulic conductivities range from 20 to 520 ft/day (7.05×10^{-3} to 0.18 cm/s) with most values being in the range of 75 to 225 ft/day (0.026 to 0.079 cm/s). The highest

hydraulic conductivity reported for the aquifer near Hamilton was 774 ft/day (0.27 cm/s). Ward et al. (1987) stated that slug tests showed hydraulic conductivity increases with depth in the Great Miami Aquifer at Hamilton, Ohio. Hydraulic conductivities derived from pumping tests of the collector wells have ranged from 318 to 391 ft/day (0.11 to 0.14 cm/s) (Geotrans, 1985).

The pumping tests of the Great Miami Aquifer at the FEMP are described by Spieker and Norris (1962). They performed tests that utilized the FEMP water supply wells, which were screened below the clay interbed. They used the leaky aquifer method of analysis and obtained a hydraulic conductivity of 270 ft/day (0.095 cm/s). Two separate pumping tests were performed and estimates of the vertical hydraulic conductivity of the clay interbed, 0.43 ft/day (1.5×10^{-4} cm/s) and 0.33 ft/day (1.16×10^{-4} cm/s) were obtained.

It is unlikely that the various analyses of the pumping tests reported for the Great Miami Aquifer adequately allowed for the combined effects of partial penetration and vertical anisotropy of the aquifer. Consequently, the transmissivities and hydraulic conductivities reported are probably lower than the true values for these parameters.

The calibrated RI/FS three-dimensional flow model values are 450 ft/day (0.16 cm/s) for the upper part of the aquifer and 600 ft/day (0.21 cm/s) for the lower part. These values fall within the range of reported values. They are slightly higher than most of the values reported; however, the model-calibrated values are consistent with the observation that the reported values probably tend to be lower than true values. The hydraulic conductivities in the various model layers increase downward, which is a condition that has been observed near Hamilton, Ohio.

No estimates of porosity in the Great Miami Aquifer were found in the literature. However, some estimates of specific yield have been made, and porosity of such deposits tends to be only slightly greater than specific yield. Spieker (1968a) stated that the aquifer may be classified with a specific yield of about 0.2. A three-day pumping test reported by Geotrans (1965) provided a specific yield of 0.23. The average specific yield for aquifers composed of gravelly sand was reported to be 0.25 by Johnson (1967). A value of 0.25 was used for porosity in the present aquifer model. It is slightly higher than the single measurement of specific yield (0.23) and falls within the range of reported values in the literature.

Spieker (1968a) estimated recharge to the Great Miami Aquifer throughout the study area at six to 21 inches per year (in/yr), and used a recharge value of 15.2 in/yr in his electric analog model calibration (Spieker 1968b). Walton and Schaefer (1956) estimated that recharge in the area of the Southwestern Ohio Water Company (SOWC) wells was 8.5 in/yr at the time of their study, which was a year of near-average precipitation. Smith (1962) estimated a recharge maximum of 21 in/yr in the Fairfield area northeast of Ross.

Geotrans (1985) produced a preliminary three-dimensional, finite-difference flow model with a recharge of 15 in/yr where the Great Miami Aquifer is exposed at the ground surface and six in/yr where glacial overburden covers the aquifer. The RI/FS modeling effort uses initial values of 14 in/yr where the aquifer is exposed at the surface and six in/yr where the overburden is present. These recharge values are consistent with the earlier estimates for recharge in the area.

A recharge value of 6 in/yr implies a vertical hydraulic conductivity of 1.4 x 10^{-3} ft/day (4.9 x 10^{-7} cm/s) using a hydraulic gradient of 1, which is in the middle of the range for hydraulic conductivities given for glacial till (Freeze and Cherry, Table 2.2).

A main surface water feature at the FEMP is Paddy's Run, which flows along the western edge of the site. This is an intermittent stream that gains and loses flow along its course to the Great Miami River. A major tributary of Paddy's Run is the Storm Sewer Outfall Ditch, which is a natural gully that has eroded through the glacial overburden in the southern portion of the FEMP. Surface water infiltrates through the sandy and gravelly beds of Paddy's Run and the Storm Sewer Outfall Ditch, providing recharge to the Great Miami Aquifer.

Leakage from Paddy's Run to the Great Miami Aquifer occurs along the reach of the stream bed south of the Clearwell to a point about 2000 feet to the south of the FEMP. Leakage from the Storm Sewer Outfall Ditch to the Great Miami Aquifer occurs along the stream channel south of the storm water retention basins to its confluence with Paddy's Run. The actual amount of leakage is variable, depending on the magnitude and duration of flow and the lithology of the bottom sediments in each of these channels.

For the RI/FS groundwater flow model, infiltration leakage was set at 14 in/yr, which is the same value used for areas not covered with glacial overburden. Leakage rates were set at 32 in/yr in the solute transport model because the surface areas of the cells had to be substantially reduced for numerical stability and were not reflective of actual stream widths.

4.3.1.3 Flow Rates

The flow rate in the sand and gravel aquifer can be calculated using the known hydraulic gradient, hydraulic conductivity, and porosity. Solving Equation 4.2.1.2 by inserting the minimum gradient for the water table zone of the sand and gravel aquifer from Section 4.3.1 above (0.0008 ft/ft); using a hydraulic conductivity of 450 ft/day (value used by the RI/FS in flow modeling); and an effective porosity of 0.25 (Section 4.3.1.2), the average linear velocity is calculated to be 1.44 feet per day. Using the maximum gradient (0.0014 ft/ft), the average linear velocity is 2.52 feet per day.

The average linear velocity can be calculated for the middle aquifer by taking the horizontal gradient calculated from Section 4.3.1 (0.001 ft/ft), the hydraulic conductivity of 450 ft/day (value used by the RI/FS in flow modeling), and an effective porosity of 0.25 (Section 4.3.1.2). When inserted into Equation 4.2.1.2, these values produce an average horizontal velocity of 1.8 ft/day.

The average linear velocity can be calculated for the lower aquifer by taking the horizontal gradient calculated from Section 4.3.1 (0.00099 ft/ft); the hydraulic conductivity of 600 ft/day (value used by the RI/FS in flow modeling); and an effective porosity of 0.25 (Section 4.3.1.2). When inserted into Equation 4.2.1.2, these values produce an average horizontal velocity of 2.38 ft/day.

4.3.2 Sand and Gravel Aquifer Modeling

Groundwater flow in the Great Miami Aquifer beneath the Waste Storage Area is to the east (Geotrans, 1985; Dames and Moore, 1985; and IT, 1988 & 1990). Groundwater velocity in the Great Miami Aquifer has been reported to be as low as 0.64 ft/day (IT, 1990) and as high as 9.3 ft/day (Dames & Moore, 1985). It is predicted that it would take anywhere from 26.7 years (Geotrans, 1985) to 35 years (IT, 1990) for a particle to travel from the Waste Storage Area to the Great Miami River. It has also been predicted that a particle released into the aquifer would sink to a depth of 85 feet and travel just above the blue clay layer (Geotrans, 1985).

Much work has been done to model the Great Miami Aquifer to simulate how the aquifer behaves. Results of projects conducted at the FEMP have been previously published but never presented in a RCRA report. The following historical summary is added this year to provide better documentation of what is known to date concerning the aquifer.

4.3.2.1 Geotrans Study in 1985

In 1985, Geotrans modeled groundwater flow in the sand and gravel using the SWIFT II numerical code and conducted particle tracking using the STYLINE numerical code. (Geotrans, 1985).

The conceptual model used for the study consisted of five units. In descending order, they were; 1) surficial till, 2) shallow unconsolidated sand and gravel aquifer, 3) semi-confining clay (leaky aquitard), 4) deep unconsolidated sand and gravel aquifer, and 5) base of the aquifer and bedrock, Figure 4.3.2.1A (Geotrans, 1985, Figure 4.8). The surficial till was defined as a semipermeable cap that restricted recharge and the migration of contaminants. The bedrock valley walls were considered to be contributing negligible amounts of leakage to the unconsolidated materials.

It was concluded by Geotrans that the groundwater flow directions within the sand and gravel were generally consistent with those of Spieker (1968a) and Sedam (1985). Groundwater beneath the Waste Pit Area flows to the east toward the Great Miami River (Geotrans, 1985, pg. 63). Groundwater velocity, calculated using Darcy's law, was reported as 2.2 ft/day (Geotrans, 1985, pg. 13). Figure 4.3.2.1A also identifies the aquifer properties which were used in the calibrated flow model. The SWIFT II code was run in a steady-state condition for three dimensions. The porosity for the entire aquifer was defined as 0.20, which was reported to be representative of other similar aquifer systems, but no confirmatory testing of this value was conducted. The model was calibrated using 24 wells; 10 in layer 1 and 14 in layer 4. An acceptable calibration called for a difference of 2.5 feet between observed and calculated water levels.

A STYLINE particle tracking program was used to determine particle migration paths and time of travel. Figure 4.3.2.1B illustrates that particles released from the Waste Pit Area would travel to the east and reach the Great Miami River in approximately 26.7 years (Geotrans, 1985, Figure 5.1). Elsewhere in the report, it is stated that the time of travel from the FMPC waste pit lagoons to the Southwestern Ohio Water Company Collector Well No. 2 is estimated to be 10

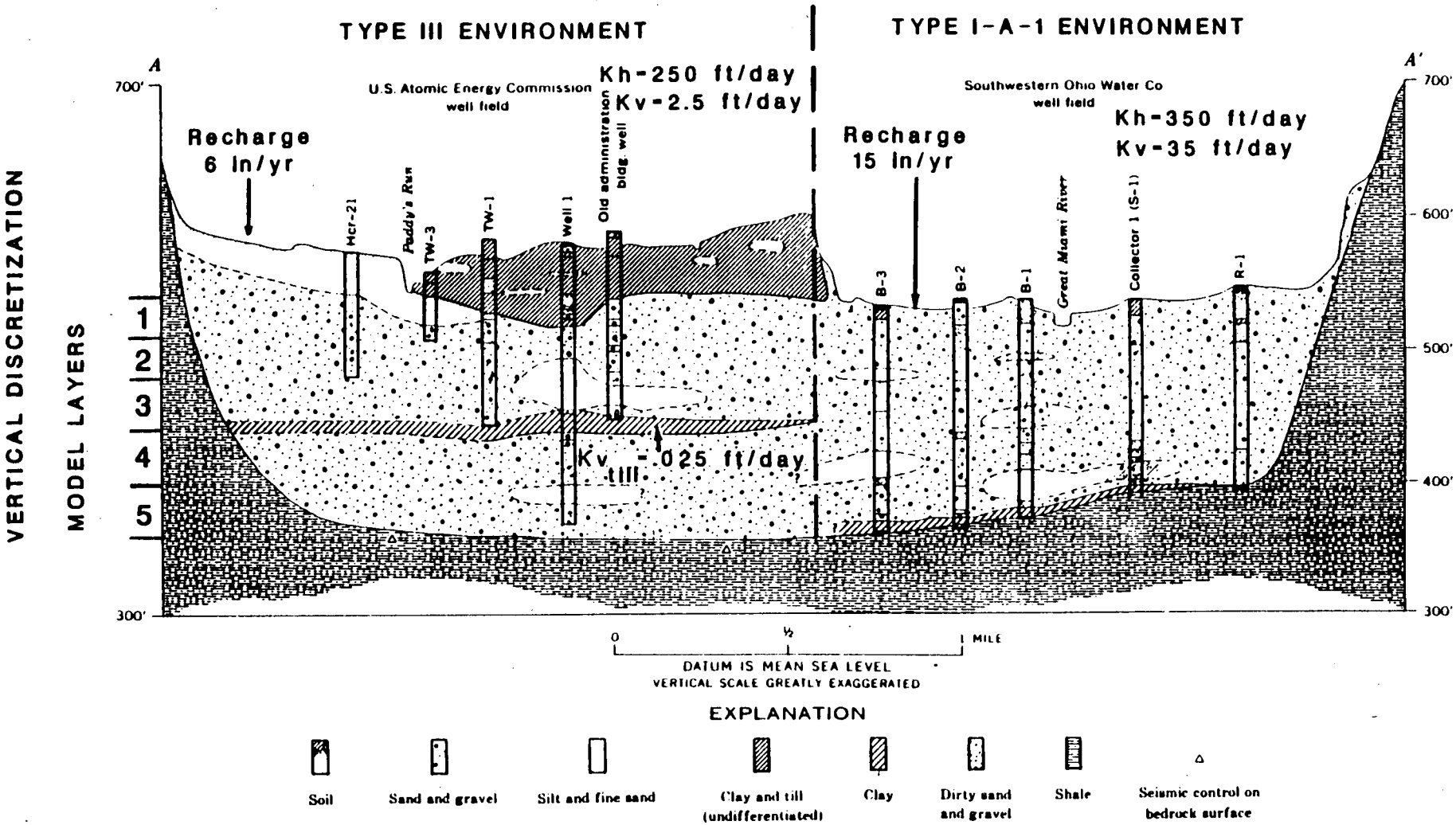
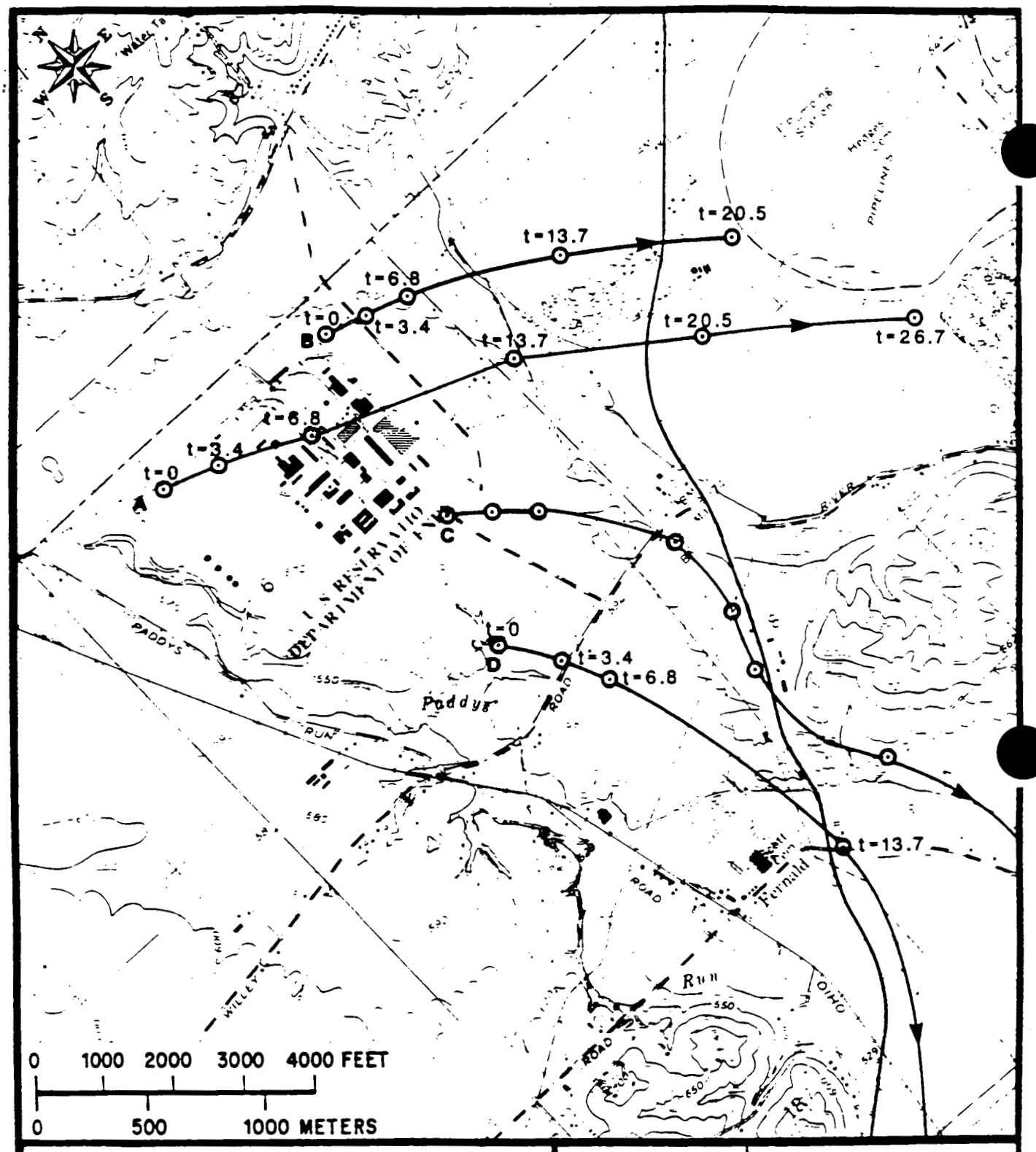


FIGURE 4.3.2.1A Summary of the conceptual model utilized to guide model application (modified after Spieker, 1968b).



EXPLANATION

⊙ PARTICLE LOCATION, TIME, t, IN YEARS

GeoTrans
Ground Water Specialists

GEOTRANS, INC.
209 ELDEN STREET, SUITE 301
HERNDON, VIRGINIA 22070

FIGURE 4.3.2.1B

PARTICLE TRACES FOR CALIBRATED MODEL VELOCITY FIELD

INTERPRETATION BY:	DRAWN BY:	DATE	PLATE

years, (Geotrans, 1985, pg. 13). It is also predicted that a particle released in the Waste Pit Area would migrate to a depth of 85 feet below the water table. This corresponds to the saturated portion of the aquifer located just above the blue clay layer (Geotrans, 1985, pg. 68).

4.3.2.2 Dames and Moore Study in 1985

In 1985, Dames and Moore modeled groundwater flow using the TARGET-2DH (Transient Analyzer of Reactive Groundwater Effluent Transport) finite-difference computer code (Dames and Moore, 1985).

The conceptual model used for the study consisted of four units. In descending order, they were: 1) a glacial till layer (50 feet thick) containing numerous water-bearing pockets and layers of sand and gravel; 2) a shallow sand and gravel unit which occurs 60 to 90 feet below the land surface; 3) a layer of blue clay approximately 10-15 feet thick; and 4) a deep sand and gravel aquifer 140 feet below the land surface, Figure 4.3.2.2 (Dames and Moore, 1985, Section 3).

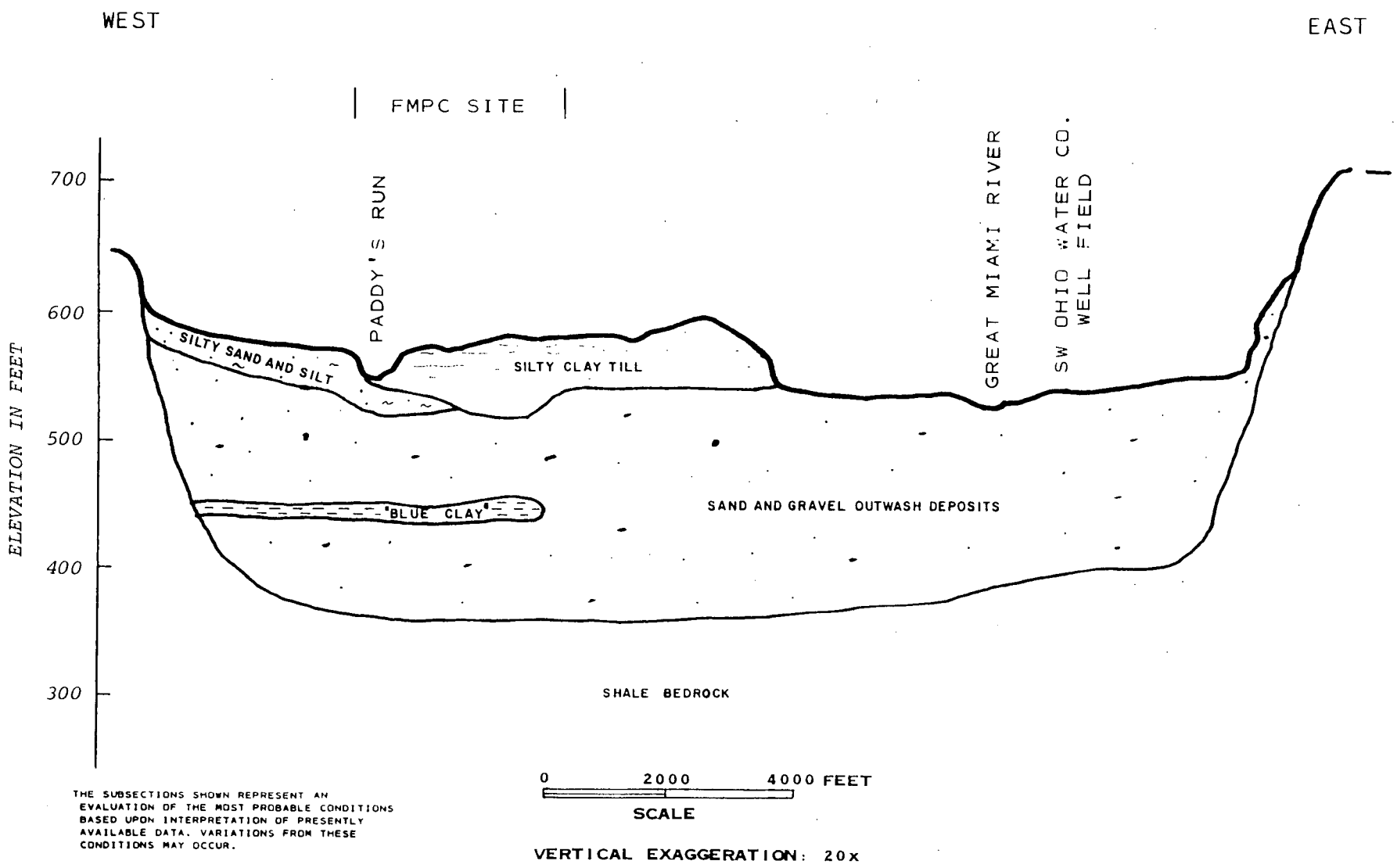
Groundwater flow velocity or flow direction was not reported for the surficial till layer. It was also determined that the blue clay layer is not sufficiently extensive to act as an aquitard and that no significant head differences exist between wells completed in the sand and gravel above or below the clay (Dames and Moore, 1985, pg. 3-4). Water level measurements made by the USGS in August 1982 (Sedam, 1984) were used to calculate a range for hydraulic gradient being 0.001 ft/ft to 0.005 ft/ft. Using this gradient range, horizontal groundwater velocity was calculated to range from 1.1 ft/day to 9.3 ft/day. Flow direction beneath the Waste Pit Area was reported as being to the east.

The TARGET-2DH code was run in a steady-state mode. It was assumed that the aquifer was homogenous throughout its saturated thickness. Input to the model consisted of hydraulic conductivity, depth to bedrock, recharge, and effective porosity. A hydraulic conductivity ranging from 0.06 feet/day to 300 feet/day and an effective porosity ranging from 0.15 to 0.25 was used.

4.3.2.3 Zone of Influence Study in 1988

International Technology modeled groundwater flow in the saturated sand and gravel by developing a two-dimensional model of the flow system using the GEOFLOW finite-element, groundwater flow and solute transport numerical computer code (IT, 1988) and transferring input values from the two-dimensional GEOFLOW model into a three-dimensional SWIFT III (Sandia Waste-Isolation Flow and Transport for Fractured Media) finite-difference numerical computer code (IT, 1990).

The conceptual model used to set up the two-dimensional GEOFLOW model is shown in Figure 4.3.2.3 (IT, 1988, Figure 3.2-2). The model did not account for vertical non-homogenities, but considered conditions and flow properties to be uniform throughout the entire thickness of the aquifer. The sand and gravel aquifer was modeled as unconfined. The study area was divided into two hydrogeologic units or areas, depending on the presence or absence of a layer of glacial

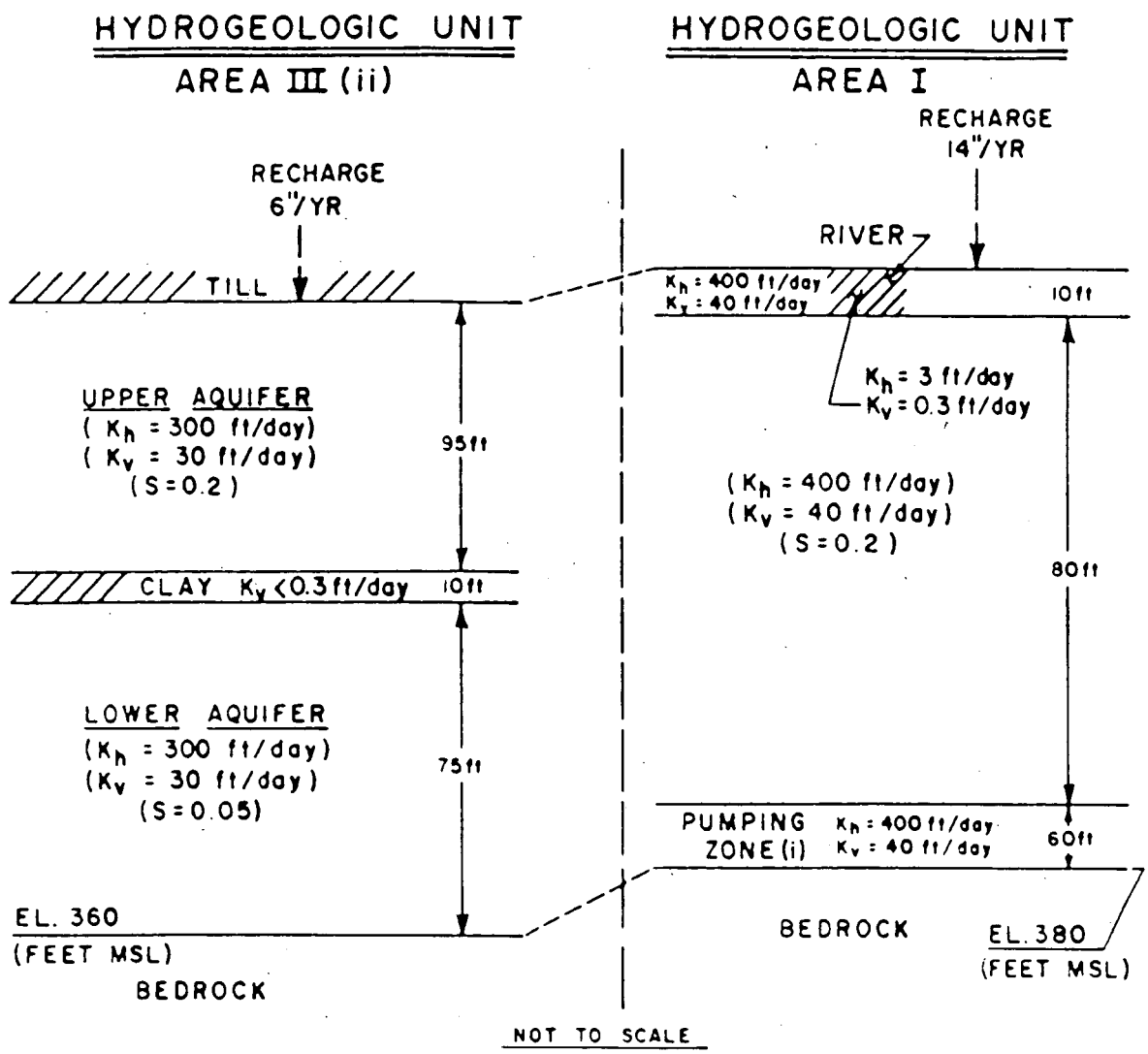


THE SUBSECTIONS SHOWN REPRESENT AN EVALUATION OF THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

FIGURE 4.3.2.2

GENERALIZED GEOLOGIC CROSS SECTION OF NEW HAVEN TROUGH

DAMES & MOORE



1. THIS DESIGN REPRESENTS A FIRST APPROXIMATION FOR TYPICAL MODEL INPUT PARAMETERS.
2. (i) COLLECTOR WELLS 1 & 2 PUMP WATER BETWEEN ELEV'S 409 & 433 FT.
3. (ii) HYDROGEOLOGIC UNITS ARE DEFINED IN TEXT.
4. K_h = HORIZONTAL HYDRAULIC CONDUCTIVITY
   K_v = VERTICAL HYDRAULIC CONDUCTIVITY

FIGURE 4.3.2.3

CONCEPTUAL DESIGN FOR "ZONE OF INFLUENCE" GROUNDWATER MODEL

PREPARED FOR

FERNALD RI/FS
U.S. DEPARTMENT OF ENERGY
OAK RIDGE OPERATIONS

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IT ... Creating a Safer Tomorrow

till on the surface and a blue clay layer at depth. Recharge from bedrock was assumed to be negligible. Recharge from precipitation ranged from three to twenty inches per year and recharge from stream infiltration was calculated for each stage of the Great Miami River by determining river bed leakage. River bed leakage and, to a lesser extent, aquifer hydraulic conductivity were determined to be the most critical factors affecting the flow model calibration (IT, 1988, pg. A-6). The sensitivity analysis focused on two parameters; river bed leakage and precipitation recharge. River bed leakage was determined to be the most uncertain parameter (IT, 1988, pg. A-7).

The objective of the study reported in 1988 was to determine the relationships between the Great Miami River, the aquifers in the region, and major pumping centers (IT, 1988, pg. 3-24). The GEOFLOW numerical computer code was used to depict flow conditions in two dimensions under steady-state conditions. The model was later expanded into three dimensions using the SWIFT III code for the CERCLA Remedial Investigation and Feasibility Study (RI/FS) study to account for vertical non-homogenities.

4.3.2.4 Remedial Investigation 1988 to Present

A Remedial Investigation and Feasibility Study has been ongoing at the Fernald site since 1988. This study has involved extensive groundwater flow modeling including:

* Flow modeling of the saturated sand and gravel aquifer using the Swift III finite-difference computer code;

* Flow modeling through the unsaturated glacial overburden and unsaturated sand and gravel aquifer using the ST1D and ODAST one-dimensional analytical codes;

* Particle tracking in the saturated sand and gravel aquifer using the STYLINE computer code.

The modeling program is summarized in draft form in Part IV of the Groundwater Report (IT, 1990).

4.3.2.4.1 Two-Dimensional Flow Modeling

SWIFT III is a transient (with steady-state options) three-dimensional, finite-difference code which solves the coupled equations for flow and transport in geologic media. By running the SWIFT III code in two dimensions and under steady-state conditions, it was determined that groundwater flow in the sand and gravel beneath the Waste Pit Area is to the east (IT, 1990, pg. 20-14).

The conceptual model for this work only considered flow in the saturated regional sand and gravel aquifer. The glacial overburden was conceptualized as containing only localized flow systems that provide limited recharge to the Great Miami Aquifer by downward percolating

water. The effects of the low permeability glacial overburden were factored into the sand and gravel flow model by using low values for recharge in areas where the till is present.

The two-dimensional flow model was developed by refining the two-dimensional, finite-element model (GEOFLOW) that was used in the Zone of Influence Study (IT, 1988). All of the input data used for the Zone of Influence Study was slightly modified except for the grid and the stream stages applied to the Great Miami River. A more refined calibration was also performed which involved successive trial adjustment of hydraulic conductivity, recharge rates, river leakage factors, and boundary heads. The model was calibrated to April 1986 water table elevations and independently checked against May 1988 water table elevations. A sensitivity analysis was also performed. More details of the modeling work can be found in IT, 1990, Section 20.

4.3.2.4.2 Three-Dimensional Flow Modeling

Modeling flow in three dimensions using SWIFT III showed that much of the water from beneath the Waste Storage Area moves to the east toward the Great Miami River but downstream from the Southwest Ohio Collector Wells located along the bank of the Great Miami River. This is different from the two-dimensional model which showed practically all of the water from beneath the Waste Storage Area moving more to the east towards the collector wells (IT, 1990, pg. 20-44). Three-dimensional modeling also shows that groundwater flow directions above and below the blue clay layer are different. Direction of the horizontal component of flow beneath the Waste Storage Area above and below the blue clay layer differs by about 60 degrees, Figures 4.3.2.4.2A and 4.3.2.4.2B (IT, 1990 Figures 20-19 and 20-22).

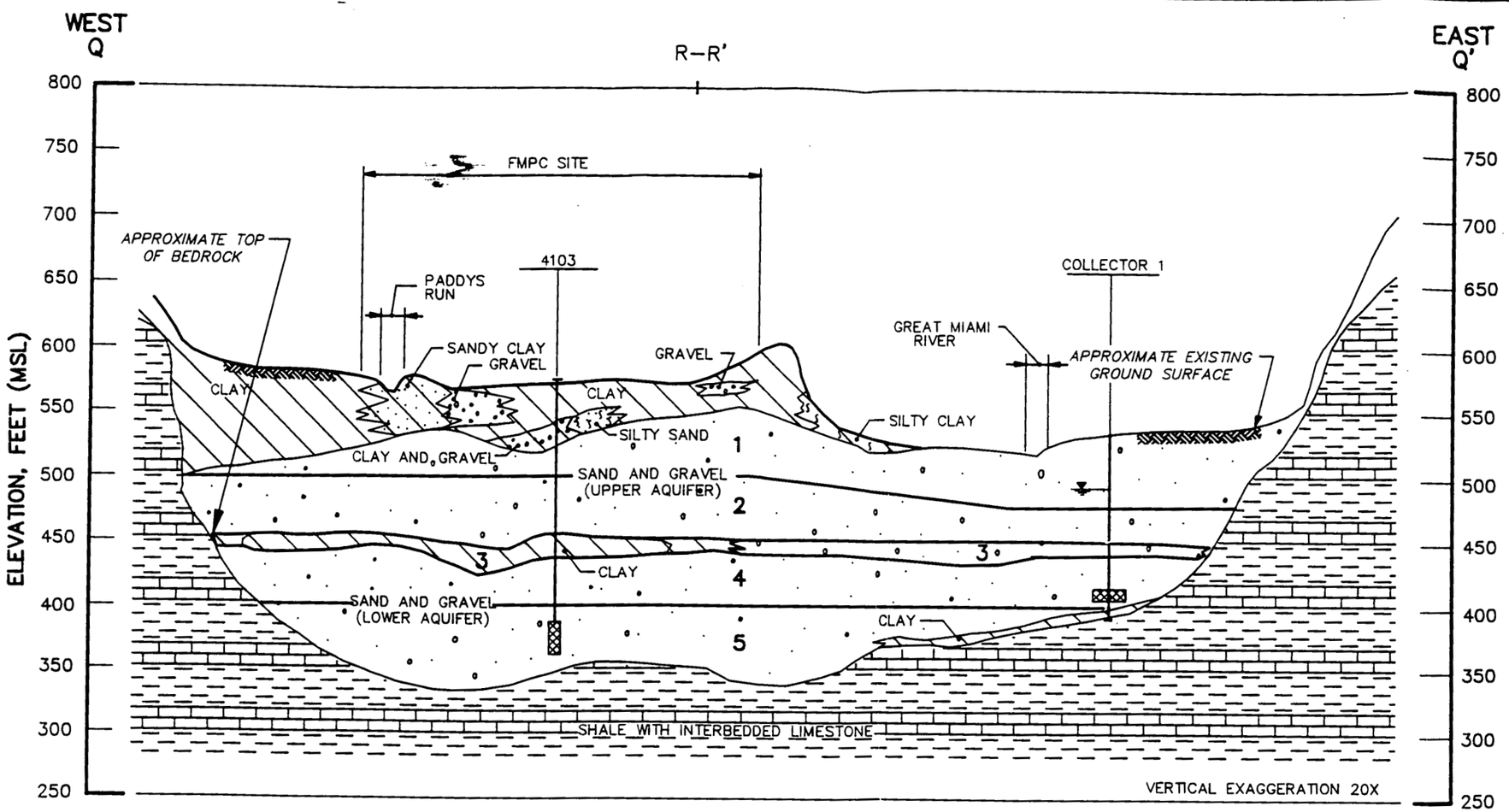
The three-dimensional flow model was developed by using results from the two-dimensional model and separating the vertical dimension of the conceptual model into five layers, Figure 4.3.2.4.2C (IT, 1990, Figure 20-8). The five subsurface layers were interpreted from 12 intersecting cross-sections.

Initial values for horizontal hydraulic conductivity, recharge rates, and river leakage factor were derived from the two-dimensional model. The hydraulic conductivity and recharge rates were subsequently changed as necessary during calibration of the three-dimensional model. Horizontal hydraulic conductivity for the clay interbed was estimated from published information to be 0.0003 feet/day. The ratio of horizontal to vertical hydraulic conductivity was assumed to be 1 to 10. Therefore, the vertical hydraulic conductivity was assigned a value of 0.00003 feet/day.

4.3.2.4.3 Particle Tracking

Three-dimensional particle tracking indicates that the time of travel for groundwater to travel from the Waste Pit Area to the Southwest Ohio Collector Wells located along the bank of the Great Miami River, is about 35 years (IT, 1990, pg. 20-52).

Particle tracking was performed using the STYLINE computer code. The modeling was done under steady-state conditions using average linear velocities and results of the SWIFT III flow model.



THE BORING LOGS AND RELATED INFORMATION DEPICT SUBSURFACE CONDITIONS ONLY AT THE SPECIFIC LOCATIONS AND DATES INDICATED. SOIL CONDITIONS AND WATER LEVELS AT OTHER LOCATIONS MAY DIFFER FROM CONDITIONS OCCURRING AT THESE BORING LOCATIONS. ALSO THE PASSAGE OF TIME MAY RESULT IN A CHANGE IN THE CONDITIONS AT THESE BORING LOCATIONS.

THE DEPTH AND THICKNESS OF THE SUBSURFACE STRATA INDICATED ON THE SECTIONS WERE GENERALIZED FROM AND INTERPOLATED BETWEEN THE TEST BORINGS. INFORMATION ON ACTUAL SUBSURFACE CONDITIONS EXISTS ONLY AT THE LOCATION OF THE TEST BORINGS AND IT IS POSSIBLE THAT SUBSURFACE CONDITIONS BETWEEN THE TEST BORINGS MAY VARY FROM THOSE INDICATED.

VERTICAL SCALE

0 100 200 FEET

HORIZONTAL SCALE

0 2000 4000 FEET

LEGEND:

- WATER LEVELS (MEASURED 3/27/86 THROUGH 4/11/86)
- 2 — HYDROGEOLOGIC LAYER USED IN SWIFT III MODELS
- OPEN OR SCREENED INTERVAL

NOTE:

FOR LOCATION OF CROSS SECTION Q–Q', SEE FIGURE 20–7

REFERENCES:

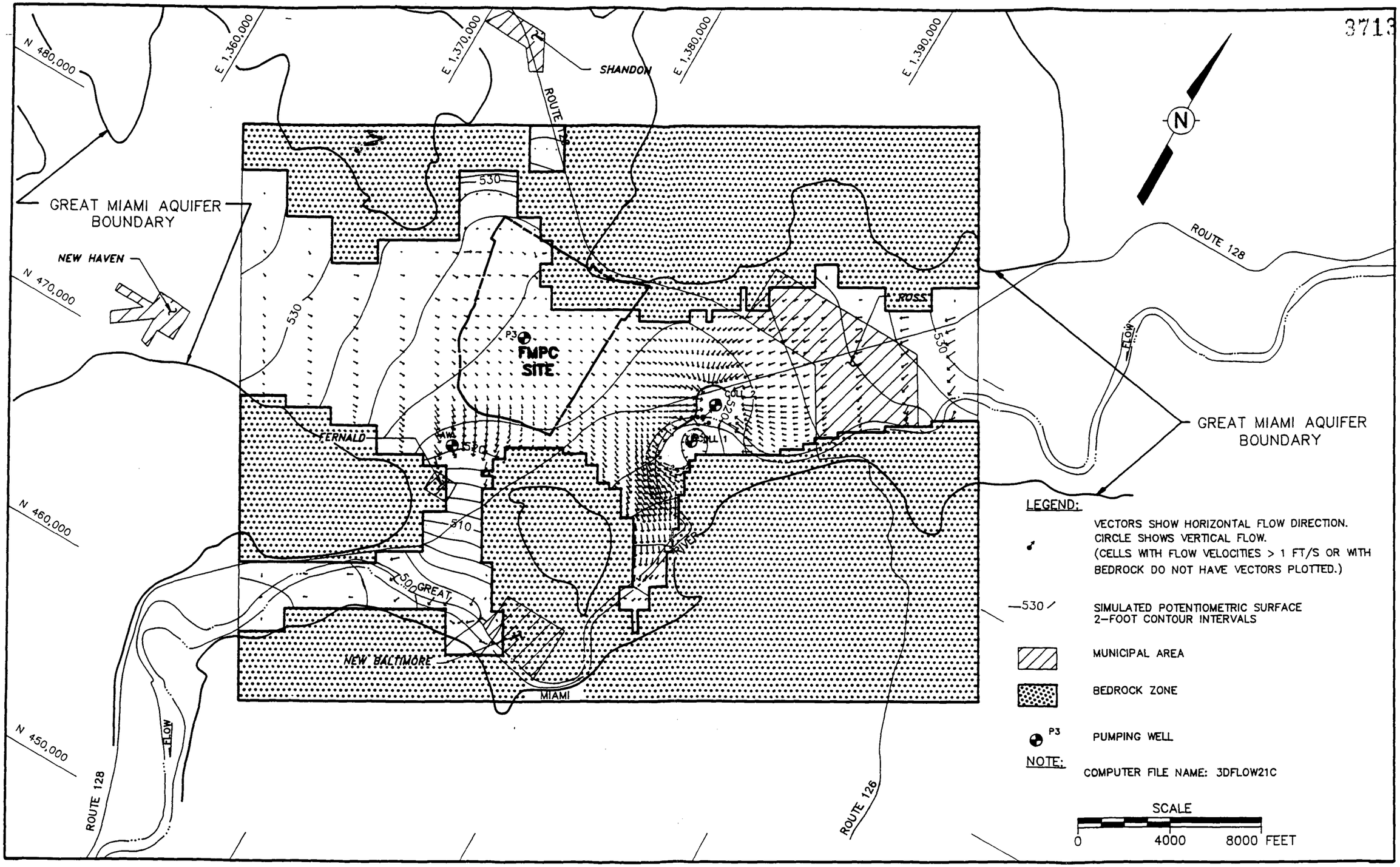
MODIFIED FROM U.S.G.S. PROFESSIONAL PAPER NO. 605–A USING AVAILABLE OHIO STATE WATER WELL RECORDS, SOWC WATER WELL DATA, DAMES & MOORE'S "FEED MATERIALS PRODUCTION CENTER GROUNDWATER STUDY, TASK C REPORT" FOR THE DOE (1985), AND IT (1986) RI/FS BORING LOGS.

CROSS SECTION Q–Q'

(LOOKING NORTH)

303317–B544 (GW) (PGH)

Figure 4.3.2.4.2C
GEOLOGIC CROSS SECTION Q–Q'
SHOWING MODEL LAYERS



303317-B692 (GW) /01 (PGH)

Figure 4.3.2.4.2B
3-DIMENSIONAL FLOW MODEL
CALIBRATED RUN, LAYER 4
FLOW VECTORS AND POTENTIOMETRIC SURFACE

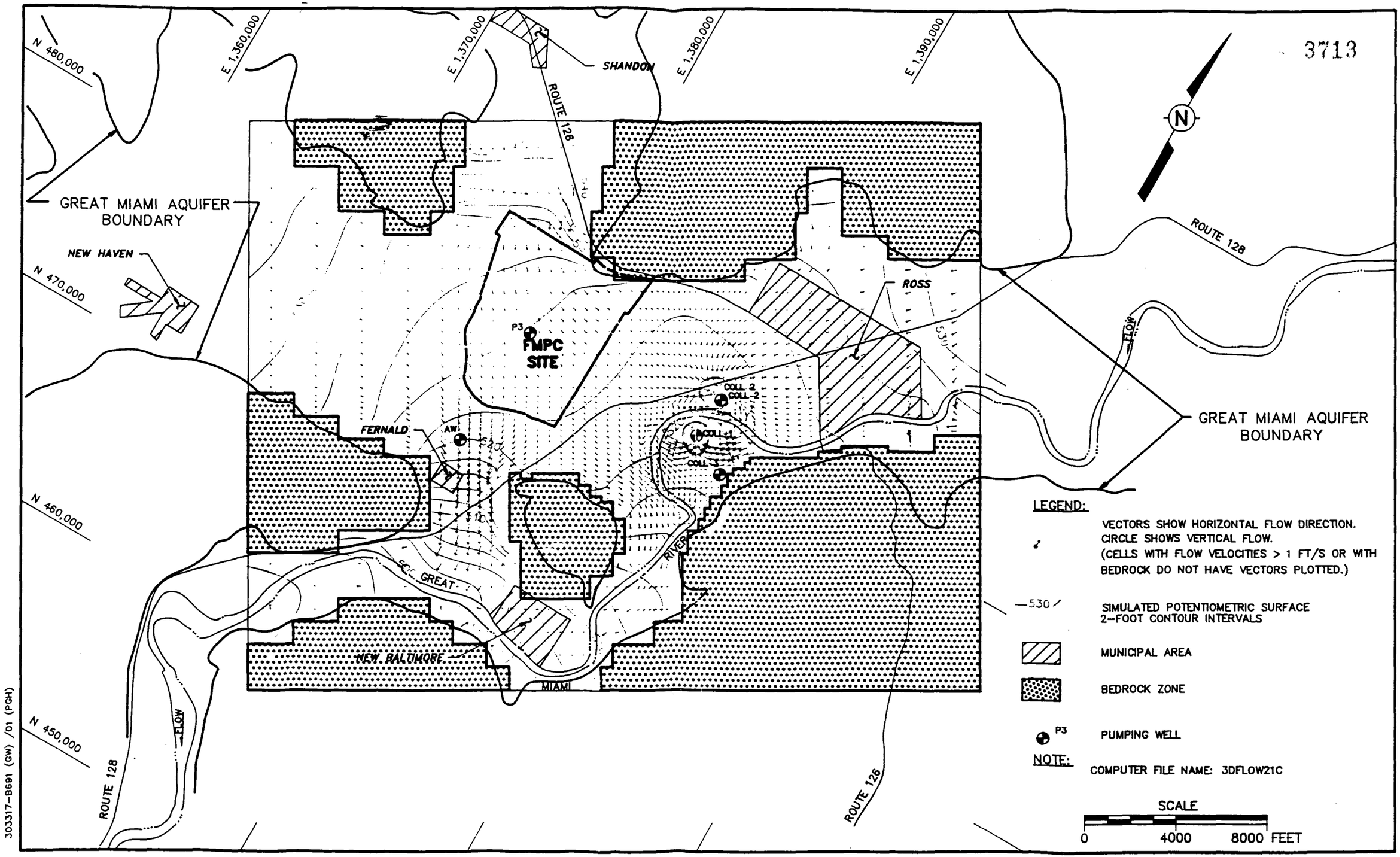


Figure 4.3.2.4.2A
3-DIMENSIONAL FLOW MODEL
CALIBRAED RUN, LAYER 1
FLOW VECTORS AND POTENTIOMETRIC SURFACE

Figure 4.3.2.4.3A is a map showing the horizontal traces of particles in five-year increments (IT, 1990, Figure 20-25). Particles leaving the extreme northwest corner of the Waste Pit Area (O and P) would either move very slowly to the east or move to the southeast and travel toward the Great Miami River, intersecting the river downstream of the collector wells in about 35 years. Vertical movement is illustrated on the map by changing the path symbol when the particle enters a new layer of the model. Figure 4.3.2.4.3B is a vertical profile along section S-S' that shows that particles would be drawn down into deeper portions of the aquifer if influenced by the collector wells (IT, 1990, Figure 20-26).

4.3.3 Aquifer Groundwater Quality

Groundwater quality upgradient of the Waste Pit Area in the sand and gravel aquifer is determined through the statistical analysis of four upgradient wells (Monitoring Wells 2043, 2066, 3043, 3066); two in the water table zone and two in the deeper aquifer above the blue clay layer. The statistical analysis determines an upgradient average for each well and each group of two wells by zone. The statistics also determine the standard deviation of the populations and their variance.

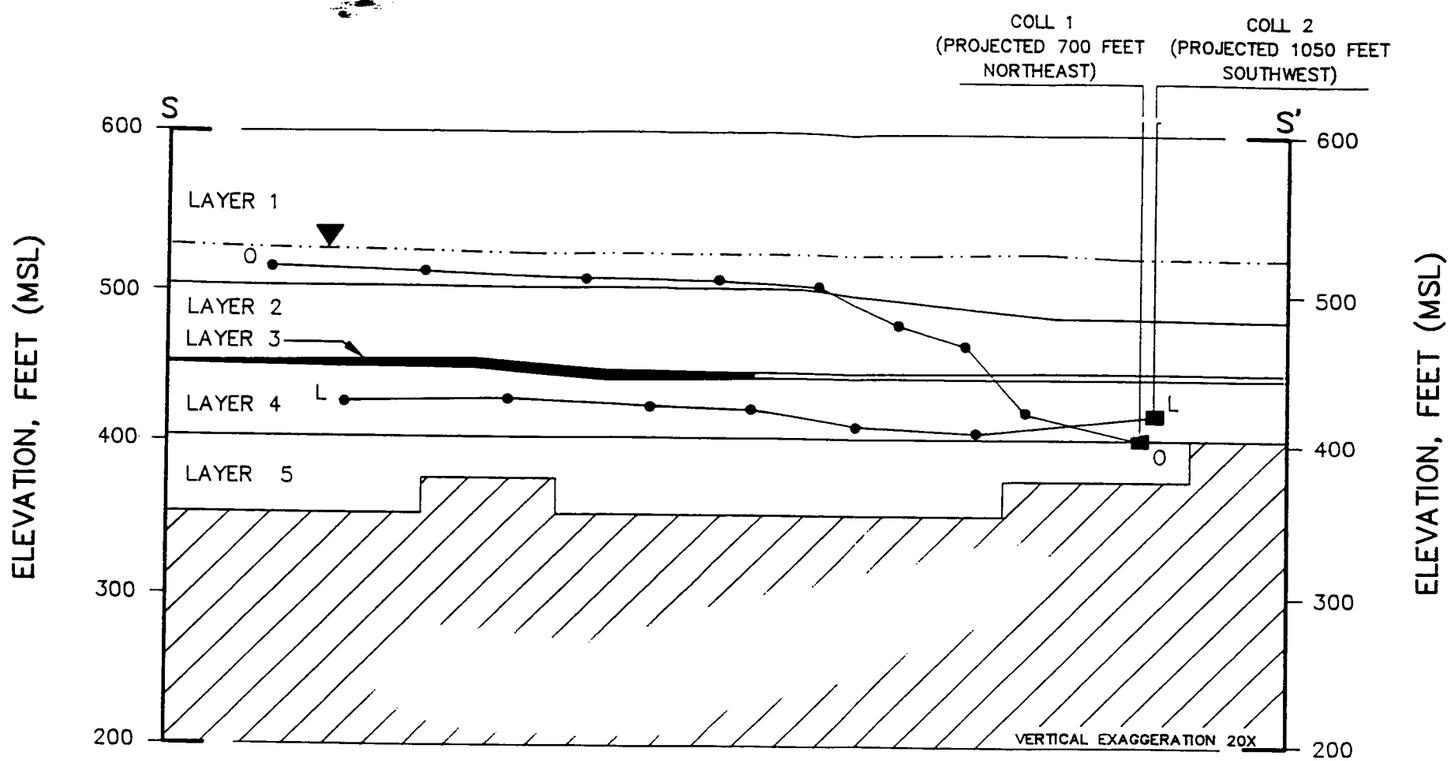
Upgradient groundwater quality is then statistically compared to downgradient monitoring well results to determine differences in groundwater quality. The statistical methods used are described in Appendix C of this report. The results of this statistical comparison indicate which monitoring wells have statistically significant differences in groundwater quality compared to upgradient results.

To determine changes in groundwater quality over time, the results of the 1991 statistical assessment are compared to the results of 1990 and 1989 statistical assessments. This comparison determines whether or not groundwater quality is degenerating over time and identifies the presence of new contaminants in the groundwater.

4.3.3.1 Statistical Assessment

A statistical assessment was performed to determine concentrations in monitoring wells that are not consistent with background or upgradient concentrations. The methods used to complete the statistical assessment are discussed in detail in Appendix C. The term statistically significant used in the following section represents any observations that were determined to be inconsistent with background or upgradient by the statistics in Appendix C. Statistical significance does not represent a specific magnitude of contamination or a concentration above a standard, it represents a deviation from background or upgradient and can be of any magnitude.

The saturated sand and gravel monitoring network, as defined in Rev. 2 of the GQAPP, is comprised of 34 monitoring wells and monitors three different depths. Twenty-seven of these wells were included in the statistical assessment for 1991. Seven wells were added to the network in 1991. Not enough data has been collected from the newly-installed monitoring wells to complete a statistical assessment. One of the new wells (Monitoring Well 4011) was installed as an upgradient 4000-series well. Therefore, upgradient to downgradient statistics were



CROSS SECTION S–S'

(LOOKING NORTHEAST)

LEGEND:

- BEDROCK
- SIMULATED POTENTIOMETRIC SURFACE
- O PARTICLE STARTING AND ENDING LOCATION WITH PARTICLE IDENTIFIER
- PARTICLE LOCATION (5–YEAR INCREMENTS)
- OPEN INTERVAL
- PARTICLE PATH

NOTE:

PARTICLE TRACKS HAVE BEEN PROJECTED INTO SECTION AND ARE PLOTTED AT FIVE–YEAR INCREMENTS

FOR LOCATION OF CROSS SECTION S–S', SEE FIGURE 20–25

VERTICAL SCALE

0 100 200 FEET

HORIZONTAL SCALE

0 2000 4000 FEET

303317–B541 (GW) (PGH)

Figure 4.3.2.4.3B
3–DIMENSIONAL FLOW MODEL
CROSS SECTION S–S'
PARTICLE TRACKING

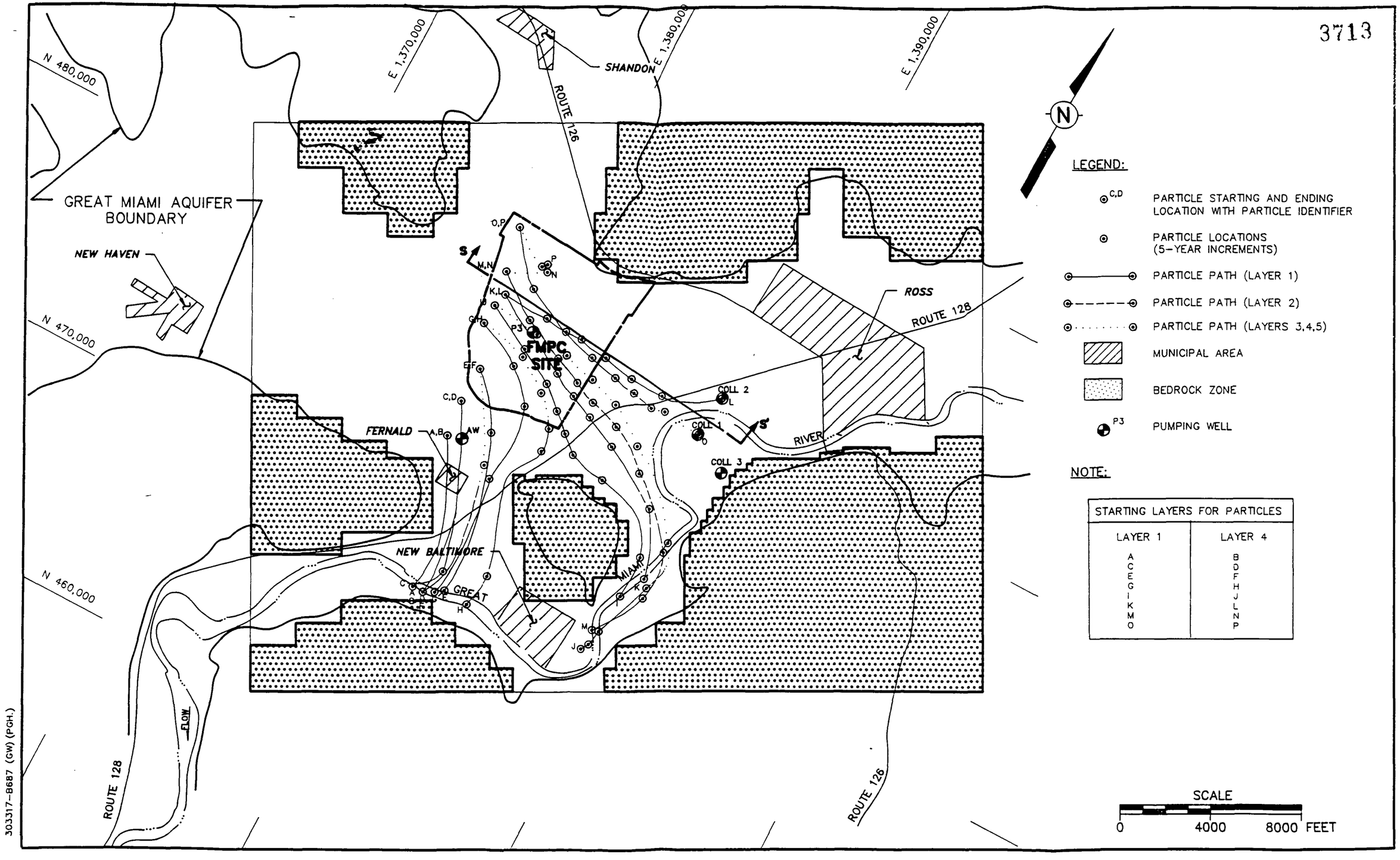


Figure 4.3.2.4.3A
3-DIMENSIONAL FLOW MODEL PARTICLE TRACKING

performed for this depth by using 3000-series background results. Next year, the sample size will be large enough to perform these statistics against 4000-series background results.

The 1991 statistical assessment determined that 20 of 59 site-specific parameters were found in statistically significant concentrations in the aquifer and that 22 of 23 downgradient monitoring wells had at least one significant parameter. The 20 site-specific parameters found in statistically significant quantities in the sand and gravel aquifer and the monitoring wells they were determined to be significant in are listed in Table 4.2.2.1C.

Nine monitoring wells were included in the statistical comparison of upgradient to downgradient at the 2000-series depth (water table zone). The assessment involved the same 59 site-specific parameters used to assess the quality of perched groundwater in the vadose zone. Statistics indicate that 17 of the 59 parameters have statistically significant concentrations, and that water quality downgradient of the Waste Pit Area is different than the water quality upgradient. Eight of the nine 2000-series monitoring well locations downgradient of the Waste Pit Area indicated at least one significant determination.

The lower sand and gravel aquifer is monitored by the 3000- and 4000-series monitoring wells. Fifteen of the 59 site-specific parameters analyzed in the 1991 statistical assessment had at least one statistically significant determination in a 3000-series monitoring well. All ten of the 3000-series downgradient monitoring wells had at least one significant determination; six had more than three significant determinations.

Nine of the 59 site-specific parameters were determined to have statistically significant concentrations in at least one of the four 4000-series downgradient monitoring wells. Each of the four downgradient 4000-series monitoring wells had at least one statistically significant parameter. Monitoring Well 4013 had five site-specific parameters with statistically significant concentrations and its water quality was significantly different from the other three 4000-series monitoring wells.

The 1991 statistical assessment indicates that the groundwater quality downgradient of the Waste Pit Area has been affected over a large area. To more clearly identify the area where groundwater quality has been affected, concentration contour maps were generated for the sand and gravel aquifer. Contour maps were generated for October 1991 data and included seven site-specific parameters (sulfate; nitrate; calcium, (dissolved); iron, (dissolved); magnesium, (dissolved); manganese, (dissolved); and potassium, (dissolved)). These parameters were chosen because they are representative of the statistically significant parameters found in the sand and gravel aquifer (most widespread and mobile parameters). The contour maps for the sand and gravel aquifer can be found in Appendix D.

All of the contour maps for the water table zone of the sand and gravel aquifer indicate a plume at the northern boundary of Waste Pit 4 and stretching northeast past Monitoring Well 2027. Manganese, (dissolved) also indicates an area of contamination around Monitoring Well 2010. The highest concentrations of nitrate and potassium in October 1991 were found in Monitoring Well 2649. Monitoring Wells 2019, 2021, and 2648 also indicate high levels of nitrate and

potassium. Because of these monitoring well observations, the nitrate and potassium plumes extend under Waste Pit 4, Waste Pit 1, and the Clearwell.

The concentrations in Monitoring Wells 2051, 2013, 2055, 2010, 2019, 2021, and 2037, although statistically significant, are not at consistently high levels. Monitoring Wells 2051, 2013, 2055, and 2010 are some distance away from the Waste Pit Area and are close to other potential sources. Also, as discussed in Section 4.3.3.2, time versus concentration plots indicate that concentrations of statistically significant parameters are decreasing in many of the above-listed monitoring wells.

The 3000-series contour plots indicate a plume stretching east under the entire Production Area at its largest extent. Contour plots for calcium, manganese, potassium, magnesium, and nitrate also indicate a northeasterly component of plume migration. The plume under the Production Area is being influenced by the potential sources within the Production Area (see Figure D-11 for calcium and Figure D-14 for potassium in Appendix D). The influence of the sources in the Production Area on concentrations in the 3000-series plume have not been fully determined. The 4000-series contour plots indicate a plume around Monitoring Well 4013 for six of the seven parameters contoured. The higher manganese concentrations are focused around Monitoring Wells 4001 and 4008.

Vertical gradients in the sand and gravel aquifer were identified in Section 4.3.1.1. A vertical contour of the aquifer using sulfate data in the 2000-, 3000-, and 4000-series monitoring wells from five clusters was developed to determine the effect of vertical gradients on contaminant migration. Figures D-24 through D-26 in Appendix D clearly identify a downward migration of sulfate into the lower aquifer. This determination was a confirmation of Figure 3.121 from the 1990 RCRA Annual Report that also indicated a downward migration of sulfate in 1990.

The contour plots represented a best interpretation of the extent of migration from the Waste Pit Area in 1991. Statistically significant concentrations of site-specific parameters found in monitoring wells outside of the contour lines may still be significant but have not been attributed to any definable plume extending downgradient from the Waste Pit Area, based on October 1991 data.

The source of this plume is considered to be located close to Monitoring Well 2084 because groundwater samples collected from this well contain the highest measured concentrations of the plume indicator parameters. Monitoring Well 2084 is located northeast of Waste Pit 4. This location is cross-gradient from Waste Pits 1, 2, 4, and 5; downgradient from Waste Pit 3; and could potentially be impacted by releases from any of these impoundments. Monitoring Well 2643 has been installed on the northwest corner of Waste Pit 4, about 250 feet west of Monitoring Well 2084. Some concentrations from this monitoring well are greater than those identified in Monitoring Well 2084. This indicates that Monitoring Well 2643 is closer to the source of some contamination. Monitoring Well 2643 is less likely to be impacted by Waste Pit 4 because it lies further upgradient than Monitoring Well 2084. Initial indications are that the source of contamination for the plume is upgradient of Monitoring Well 2643 and is most likely the Burn Pit or Waste Pit 3.

In addition to the 59 site-specific parameters analyzed in the 1991 statistical assessment, the volatile organic results for the sand and gravel aquifer were evaluated. A list of the volatile organic detections in the sand and gravel aquifer is provided in Table 4.3.3.1A. Although a detection of volatile organics is of concern, the monitoring well with the detection is not considered to have significant concentrations of the parameter unless confirmatory samples indicate that the volatile organic detection was not a laboratory or field error. A list of the volatile organic detections and their confirmatory sample results are provided in Table 4.3.3.1A. One-time detections of volatile organics are also indicated in Table 4.3.3.1A, but more recent sample events have not confirmed the detections.

Table 4.3.3.1A indicates that the confirmed volatile organic detections in the sand and gravel aquifer occur in Monitoring Well 2649. The volatile organics confirmed in Monitoring Well 2649 are; 1,1,1-Trichloroethane, 1,1-Dichloroethane, 1,2-Dichloroethene (Total), and Trichloroethene. Monitoring Well 2649 was installed to determine the extent of volatile organic concentrations. The results in Table 4.3.3.1A for Monitoring Well 2649 indicate that the volatile organic contamination has reached the sand and gravel aquifer. An investigation is currently assessing the extent of the volatile organic parameters downgradient of and directly beneath Monitoring Well 2649.

Two consecutive detections of 1,1-Dichloroethane were reported in Monitoring Well 2643 in February and May 1991. These detections were not confirmed in July or October 1991. The concentrations of 1,1-Dichloroethane were not large, but historical documentation indicates that Monitoring Well 2643 is installed close to the Burn Pit where ignitable organics, organic soaked rags, and other materials were burned.

Two consecutive detections of carbon disulfide were reported in Monitoring Well 3066 in May and July 1991. These detections were not confirmed in October 1991. The concentrations of carbon disulfide were not large and Monitoring Well 3066 lies upgradient of the Waste Pit Area. It would not be possible for Monitoring Well 3066 to be contaminated from the Waste Pit Area.

4.3.3.2 Changes in Quality from Previous Assessments

A straight comparison of statistical determinations from 1989 to 1991, using the same parameters, indicates that the types of site-specific parameters affecting downgradient groundwater quality has remained consistent. The statistics indicate that downgradient water quality is improving and approaching upgradient water quality. In 1989, water quality was assessed using 26 site-specific parameters. Statistics showed that ten of the parameters differed significantly from background. In 1990, water quality was again assessed using the same 26 site-specific parameters. Statistics showed that the same ten parameters differed significantly from background. In 1991, an assessment of water quality using the same 26 parameters resulted in the same ten parameters as in previous years with an additional three parameters being statistically significant compared to background water quality.

The additional three parameters determined to be statistically significant in 1991 are probably due to the fact that the statistical assessment separated total metals from dissolved metals, creating 24

Table 4.3.3.1A

Detections and Subsequent Sampling for RCRA Organic Constituents in the Sand and Gravel Aquifer

Constituent	Well	Date Collected	Result (as μg/L)
1,1,1-Trichloroethane			
	2649	02-14-91	13.70
		07-30-91	16.00
		10-23-91	13.80
1,1-Dichloroethane			
	2021	02-20-91	1.90
		05-29-91	< 1.00
	2643	02-27-91	4.20
		06-03-91	2.60
		07-18-91	< 1.00
	2649	02-14-91	7.60
		07-30-91	10.70
		10-23-91	7.00
1,2-Dichloroethene (Total)			
	2643	06-03-91	2.70
		07-18-91	< 1.00
	2649	07-30-91	8.30
		10-23-91	5.30
4-Methyl-2-pentanone			
	3008	10-14-91	2.70
Acetone			
	2066	10-02-91	10.70
	3024	05-28-91	4.00
		07-15-91	< 2.00
	3084	02-27-91	37.20
		05-13-91	< 2.00
	4001	05-21-91	5.10
		07-30-91	< 2.00
	4010	02-25-91	17.00
		05-29-91	< 2.00

" < " indicates that the constituent was not detected at this numerical value

Table 4.3.3.1A

Detections and Subsequent Sampling for RCRA Organic Constituents in the Sand and Gravel Aquifer

Constituent	Well	Date Collected	Result (as μg/L)
Acetone			
	4011	02-21-91	38.90
		06-19-91	< 2.00
Benzene			
	2643	02-27-91	1.80
		06-03-91	< 1.00
Carbon disulfide			
	2043	07-16-91	3.90
		10-01-91	< 1.00
	2055	05-22-91	2.00
		07-01-91	< 1.00
	3008	07-25-91	2.30
		10-14-91	< 1.00
	3043	05-30-91	15.70
		07-16-91	< 1.00
	3066	05-29-91	7.90
		07-17-91	11.10
		10-02-91	< 1.00
Chloroform			
	2649	02-14-91	2.10
		07-30-91	< 5.00
		10-23-91	2.60
	3001	10-15-91	2.10
	3019	10-15-91	21.70
Methylene chloride			
	2043	05-30-91	1.30
		07-16-91	< 1.00
	3001	07-09-91	2.40
		10-15-91	< 1.00

" < " indicates that the constituent was not detected at this numerical value

Table 4.3.3.1A

Detections and Subsequent Sampling for RCRA Organic Constituents in the Sand and Gravel Aquifer

Constituent	Well	Date Collected	Result (as μg/L)
Tetrachloroethene			
	2649	02-14-91	1.30
		07-30-91	< 5.00
Toluene			
	3008	07-25-91	2.50
		10-14-91	< 1.00
	3066	07-17-91	2.60
		10-02-91	< 1.00
Trichloroethene			
	2649	02-14-91	181.00
		07-30-91	243.00
		10-23-91	185.00
Xylenes, Total			
	3008	07-25-91	1.10
		10-14-91	< 1.00
trans-1,2-Dichloroethene			
	2649	02-14-91	1.50
		07-30-91	< 5.00

" < " indicates that the constituent was not detected at this numerical value

additional site-specific parameters that were statistically assessed. The complete 1991 statistical assessment determined a total of 20 site-specific parameters out of 59 to be statistically significant in at least one downgradient monitoring well.

Of the 26 site-specific parameters analyzed since 1989, no new parameters have been determined to have significant concentrations in the sand and gravel aquifer. The statistical assessments have also identified a decrease in parameter concentrations since 1989. The decreasing parameter concentrations were identified by totalling the statistically significant concentrations of the 26 site-specific parameters over all 27 downgradient sand and gravel monitoring wells (by summing all the X's listed in Table 4.3.3.2A for 1989, Table 4.3.3.2B for 1990, and Table 4.3.3.1A for 1991). In 1989, this total number of statistically significant determinations was 75. In 1990, the total had decreased to 66 statistically significant determinations. In 1991, the total decreased again to 55 statistically significant concentrations of the original 26 site-specific parameters in the 27 downgradient monitoring wells. This indicates that the number of monitoring wells with statistically significant concentrations of the 26 site-specific parameters is decreasing each year.

The observed decrease in parameter concentrations is supported by time versus concentration plots that were generated for all of the site-specific parameters (excluding total metals) that were determined to be statistically significant. The time versus concentration plots can be found in Appendix E. A total of 82 parameter results from downgradient monitoring wells were plotted; of those, 68 indicated decreasing or level trends. Only 14 of the 82 plots (four site-specific parameters) indicated increasing concentrations. Table 4.3.3.2C lists the monitoring well, its location, and the site-specific parameter(s) found to be increasing. The time versus concentration plots show that 83% of the results collected for the RCRA program indicate a return to background groundwater quality. This result is not unexpected. The Waste Pit Area has been inactive since 1985. Waste Pit 4 was interim closed in 1988 with a surface cap. Storm water runoff has been controlled more closely since 1989. All of these efforts have been completed to reduce the source to the sand and gravel aquifer.

The determinations of increasing concentrations help to focus the assessment on those areas where concentrations are adversely affecting groundwater quality. Six of the 14 concentrations that were determined to be increasing with time occurred in the 2000-series. All of these, except manganese in Monitoring Well 2010, were located within or at the northeast boundary of the Waste Pit Area. Sulfate is increasing in Monitoring Well 2084, but it is also increasing in upgradient Monitoring Well 2043. Manganese concentrations are increasing in Monitoring Wells 2037, 2084, and 2010. Manganese concentrations are also increasing in upgradient Monitoring Well 2043. Potassium concentrations are increasing in Monitoring Wells 2019 and 2027.

Five of the 14 concentrations that were determined to be increasing with time occurred in the 3000-series. The pH measurements in Monitoring Wells 3008 and 3019 have been increasing with time. Monitoring Well 3008 is located southeast of the Waste Pit Area near other potential sources of contamination. Potassium concentrations are increasing in Monitoring Well 3037. Sulfate concentrations are increasing in Monitoring Wells 3037 and 3055.

Table 4.3.3.2A

Site-Specific Constituents and Monitoring Wells Found to Have Statistically Significant Concentrations in 1989 in the Sand and Gravel Aquifer

Parameter	Monitoring Wells								
	2010	2013	2019	2021	2027	2037	2051	2055	2084
1,1-Dichloroethane									
Calcium	X		X	X	X	X	X		X
Chloride					X				X
Conductivity	X		X	X	X	X	X		X
Copper									
Fluoride									
Iron					X	X	X		X
Magnesium					X		X		X
Manganese	X				X	X	X		X
Nickel									
Nitrate			X	X					X
pH									
Sodium				X					X
Sulfate	X	X	X	X	X	X	X	X	X
Tetrachloroethane									
Total Organic Carbon									
Total Organic Halides									
Trichloroethene									

Table 4.3.3.2A

Parameter	Monitoring Wells												
	3001	3008	3010	3013	3019	3024	3037	3051	3055	3084	4001	4008	4013
1,1-Dichloroethane													
Calcium			X		X		X			X			X
Chloride													
Conductivity		X											
Copper													
Fluoride													
Iron													
Magnesium							X			X			X
Manganese	X	X	X	X	X		X		X	X	X	X	X
Nickel													
Nitrate			X		X	X	X			X			
pH					X					X			
Sodium													
Sulfate	X		X	X	X	X	X	X	X	X			X
Tetrachloroethane													
Total Organic Carbon													
Total Organic Halides													
Trichloroethene													

Table 4.3.3.2B

Site-Specific Constituents and Monitoring Wells Found to Have Statistically Significant Concentrations in 1991 in the Sand and Gravel Aquifer

Parameter	Monitoring Wells								
	2010	2013	2019	2021	2027	2037	2051	2055	2084
Arsenic					X				
Calcium					X				X
Calcium, (Dissd.)	X		X	X	X	X	X		X
Chloride					X				X
Conductivity					X				X
Iron					X				
Iron, (Dissd.)					X	X	X		
Magnesium									X
Magnesium, (Dissd.)					X				X
Manganese	X				X				X
Manganese, (Dissd.)	X				X	X	X		X
Nitrate			X	X					X
pH					X				X
Potassium	X		X	X	X			X	X
Potassium, (Dissd.)	X		X	X	X			X	X
Sodium, (Dissd.)									X
Sulfate	X				X	X	X		X

Table 4.3.3.2B (Cont.)

Parameter	Monitoring Wells												
	3001	3008	3010	3013	3019	3024	3037	3051	3055	3084	4001	4008	4013
Calcium			X				X			X			X
Calcium, (Dissd.)			X		X		X		X	X			X
Conductivity	X	X											
Fluoride						X							
Lead		X										X	
Magnesium							X			X			X
Magnesium, (Dissd.)							X			X			X
Manganese			X		X					X		X	
Manganese, (Dissd.)	X	X	X		X		X		X	X	X	X	
Molybdenum													X
Nitrate					X					X			
pH			X		X		X		X		X		
Potassium			X			X	X		X	X			
Potassium, (Dissd.)			X	X	X		X		X	X			
Sulfate			X	X	X	X	X	X	X	X		X	X

Table 4.3.3.2C

Monitoring Wells with Parameters
Indicating Increasing Concentrations

WELLS	LOCATIONS	PARAMETERS
2010	East of Waste Pit Area	Manganese, (Dissd.)
2021	East of Waste Pit Area	Potassium, (Dissd.)
2027	Northeast Corner of Waste Pit Area	Potassium, (Dissd.)
2037	Northeast Corner of Waste Pit Area	Manganese, (Dissd.)
2084	Northeast Corner of Waste Pit Area	Manganese, (Dissd.) Sodium, (Dissd.) Sulfate
3008	Southeast Corner of Waste Pit Area	pH
3019	East of Waste Pit Area	pH
3037	Northeast Corner of Waste Pit Area East of Waste Pit Area	Potassium, (Dissd.) Sulfate
3055	East of Waste Pit Area	Sulfate
4001	East of Waste Pit Area	pH
4008	Southeast Corner of Waste Pit Area	Manganese, (Dissd.)
4013	East of Waste Pit Area	Sulfate

The remaining three of 14 concentrations that were determined to be increasing with time occurred in the 4000-series. Manganese concentrations are increasing in Monitoring Well 4008. The pH measurements in Monitoring Well 4001 are increasing with time. Monitoring Well 4001 is located at the eastern boundary of the Waste Pit Area downgradient of Waste Pit 1, 2, 3, and the Clearwell. Sulfate concentrations in Monitoring Well 4010 are increasing with time.

4.3.3.3 Rate and Extent of Migration

The extent of contamination was determined through the use of contour maps for each zone of the sand and gravel aquifer. Data from the last sampling round in 1991 was used to provide the most recent determination of the extent of contamination. Contour lines were constructed such that the minimum contour corresponded closely to the upgradient monitoring well concentrations.

The maximum extent of contamination for the 2000-series monitoring wells can be identified in the contour map for manganese (Figure D-7) and is approximately 1000 feet northeast of Monitoring Well 2027, which marks the downgradient boundary of the Waste Pit Area. This compares with a 1500 foot maximum extent for sulfate in the 2000-series identified in the 1990 RCRA Annual Report (Figure D-27 in Appendix D). The 1991 contour for sulfate could represent a maximum extent of contamination, but upgradient Monitoring Well 2043 had sulfate concentrations in October 1991 that were twice as high as the average concentration for that monitoring well. The high upgradient concentration affected the minimum contour for Figure D-4, making the plume contours smaller. A comparison of 2000-series concentration contour plots for 1991 to 1990 indicates that the identified plumes have remained similar in concentration and extent. Sulfate concentrations have increased uniformly from 1990 to 1991, but this increase is found in upgradient Monitoring Well 2043 as well. Calcium concentrations decreased from 1990 to 1991. Nitrate concentrations increased from 1990 to 1991. Although the nitrate plume appears larger in comparing Figure D-29 (1990) to Figure D-10 (1991), this is a result of samples being available from Monitoring Wells 2643, 2648, and 2649 in October 1991 for contouring.

The 1991 contour plots for metals indicated smaller plumes than the 1990 contour plots, but this may be a result of separating dissolved metal results from total metal results in 1991.

The maximum extent of contamination for the 3000-series monitoring wells can be identified in the contour map for sulfate (Figure D-17) and is approximately 3000 feet east of Monitoring Well 2027, which marks the downgradient boundary of the Waste Pit Area. This compares with a 4000 foot maximum extent for sulfate in the 3000-series identified in the 1990 RCRA Annual Report (Figure D-28 in Appendix D). The 3000-series monitoring well concentration contour plot comparisons between 1990 and 1991 indicate that the extent of migration of sulfate has decreased. This indication is supported by the time versus concentration plots discussed in Section 4.3.3.2 that show decreasing sulfate concentrations in many 3000-series monitoring wells. The reason for this decrease in contaminant concentrations appears to be due to a decrease of contaminant source to the aquifer and a dilution of the contaminants in the aquifer. Calcium concentrations in October 1991 are slightly higher than the concentrations in October 1990.

Figure D-11 (1991) shows a larger plume contour than Figure D-30 from 1990. The extent of the calcium plume is not as large as the extent of the sulfate plume.

The maximum extent of contamination for the 4000-series monitoring wells can be identified in the contour map for sulfate (Figure D-18) and is approximately 1000 feet east of Monitoring Well 4013, which marks the beginning of contamination monitored in the 4000-series. Monitoring Well 4013 lies about 2700 feet downgradient of the boundary of the Waste Pit Area.

The 4000-series contour plots were not constructed in 1990, but a comparison would not have made significant determinations because there are no existing 4000-series monitoring wells downgradient of Monitoring Well 4013, which has the largest concentrations of any 4000-series monitoring wells.

The rate of migration was recorded as the maximum average linear velocity of the groundwater in the 1990 RCRA Annual Report. These values corresponded to 1.56 ft/day in the 2000-series and 2.079 ft/day in the 4000-series. A mathematical assessment of monitoring well concentrations performed in the 1990 RCRA Annual Report indicated that migration rates could be much smaller than groundwater flow rates for some parameters. The average linear velocity calculated for 1991 was 2.52 ft/day in the 2000-series, 1.8 ft/day in the 3000-series, and 2.38 ft/day in the 4000-series. This indicates that the contamination in the 2000-series would migrate the farthest, 868.7 feet per year.

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APPENDIX A

1991 RCRA Annual Report
Water Elevation Table

WELL #	DATE MEASURED	TOP OF WELL	TOP OF CASING	REF POINT	WATER LEVEL MEASURED	WATER LEVEL (AMSL)
1004	06/05/91	581.09	581.62	1	32.85	548.24
1024	01/16/91	582.54	582.82	1	2.33	580.21
1024	02/19/91	582.54	582.82	1	2.10	580.44
1024	03/18/91	582.54	582.82	1	2.01	580.53
1024	05/30/91	582.54	582.82	1	9.92	572.62
1024	07/25/91	582.54	582.82	1	11.29	571.25
1024	08/21/91	582.54	582.82	1	11.62	570.92
1024	09/06/91	582.54	582.82	1	11.64	570.90
1024	11/06/91	582.54	582.82	1	12.23	570.31
1024	10/07/91	582.54	582.82	1	11.99	570.55
1024	12/02/91	582.54	582.82	1	12.41	570.13
1025	01/19/91	582.99	583.51	1	11.62	571.37
1025	02/21/91	582.99	583.51	1	16.22	566.77
1025	06/05/91	582.99	583.51	1	12.49	570.50
1025	07/28/91	582.99	583.51	1	11.41	571.58
1025	08/29/91	582.99	583.51	1	11.10	571.89
1025	11/03/91	582.99	583.51	1	10.80	572.19
1025	10/05/91	582.99	583.51	1	10.88	572.11
1025	12/15/91	582.99	583.51	1	11.40	571.59
1027	01/19/91	585.02	585.57	1	8.05	576.97
1027	02/22/91	585.02	585.57	1	8.10	576.92
1027	06/04/91	585.02	585.57	1	9.68	575.34
1027	07/30/91	585.02	585.57	1	10.82	574.20
1027	08/29/91	585.02	585.57	1	10.36	574.66
1027	09/19/91	585.02	585.57	1	10.50	574.52
1027	11/02/91	585.02	585.57	1	11.14	573.88
1027	10/06/91	585.02	585.57	1	10.96	574.06
1027	12/14/91	585.02	585.57	1	8.93	576.09
1028	01/19/91	588.41	589.01	1	29.76	558.65
1028	02/21/91	588.41	589.01	1	29.52	558.89
1028	06/05/91	588.41	589.01	1	30.39	558.02
1028	07/28/91	588.41	589.01	1	30.78	557.63
1028	08/29/91	588.41	589.01	1	30.78	557.63
1028	11/03/91	588.41	589.01	1	30.71	557.70
1028	10/05/91	588.41	589.01	1	30.61	557.80
1028	12/15/91	588.41	589.01	1	30.48	557.93
1030	01/19/91	577.99	578.52	1	27.11	550.88
1030	02/21/91	577.99	578.52	1	29.41	548.58
1030	06/04/91	577.99	578.52	1	29.17	548.82
1030	07/30/91	577.99	578.52	1	28.90	549.09
1030	08/29/91	577.99	578.52	1	26.75	551.24
1030	09/19/91	577.99	578.52	1	25.36	552.63

Reference point 1 is Top Of Well; 2 is Top Of Casing

WELL #	DATE MEASURED	TOP OF WELL	TOP OF CASING	REF POINT	WATER LEVEL MEASURED	WATER LEVEL (AMSL)
1030	11/02/91	577.99	578.52	1	29.06	548.93
1030	10/06/91	577.99	578.52	1	24.34	553.65
1030	12/15/91	577.99	578.52	1	27.25	550.74
1031	01/19/91	577.75	578.37	1	24.37	553.38
1031	02/21/91	577.75	578.37	1	24.56	553.19
1031	06/05/91	577.75	578.37	1	24.49	553.26
1031	07/30/91	577.75	578.37	1	24.26	553.49
1031	11/03/91	577.75	578.37	1	23.52	554.23
1031	10/05/91	577.75	578.37	1	24.32	553.43
1031	12/15/91	577.75	578.37	1	24.60	553.15
1038	01/19/91	584.09	584.61	1	13.56	570.53
1038	02/22/91	584.09	584.61	1	14.22	569.87
1038	06/04/91	584.09	584.61	1	13.90	570.19
1038	07/30/91	584.09	584.61	1	14.06	570.03
1038	08/29/91	584.09	584.61	1	13.70	570.39
1038	09/19/91	584.09	584.61	1	13.72	570.37
1038	11/02/91	584.09	584.61	1	13.99	570.10
1038	10/06/91	584.09	584.61	1	13.58	570.51
1038	12/14/91	584.09	584.61	1	13.74	570.35
1052	01/17/91	586.92	587.43	1	2.92	584.00
1052	02/26/91	586.92	587.43	1	13.69	573.23
1052	03/18/91	586.92	587.43	1	2.26	584.66
1052	06/13/91	586.92	587.43	1	7.33	579.59
1052	07/25/91	586.92	587.43	1	11.18	575.74
1052	08/22/91	586.92	587.43	1	11.84	575.08
1052	09/07/91	586.92	587.43	1	12.64	574.28
1052	11/05/91	586.92	587.43	1	14.43	572.49
1052	10/07/91	586.92	587.43	1	16.09	570.83
1052	12/05/91	586.92	587.43	2	14.00	573.43
1072	06/04/91	577.72	578.18	1	32.94	544.78
1072	09/19/91	577.72	578.18	1	32.92	544.80
1074	01/19/91	580.21	580.68	1	7.24	572.97
1074	02/21/91	580.21	580.68	1	6.99	573.22
1074	06/05/91	580.21	580.68	1	7.51	572.70
1074	07/30/91	580.21	580.68	1	8.68	571.53
1074	08/29/91	580.21	580.68	1	10.02	570.19
1074	09/19/91	580.21	580.68	1	10.20	570.01
1074	11/02/91	580.21	580.68	1	11.89	568.32
1074	10/05/91	580.21	580.68	1	10.62	569.59
1074	12/15/91	580.21	580.68	1	12.48	567.73
1079	01/16/91	583.98	584.48	1	22.78	561.20
1079	02/19/91	583.98	584.48	1	22.63	561.35
1079	02/28/91	583.98	584.48	1	22.41	561.57
1079	03/18/91	583.98	584.48	1	25.05	558.93
1079	05/30/91	583.98	584.48	1	26.94	557.04
1079	06/15/91	583.98	584.48	1	27.21	556.77
1079	07/25/91	583.98	584.48	1	27.42	556.56

Reference point 1 is Top Of Well; 2 is Top Of Casing

WELL #	DATE MEASURED	TOP OF WELL	TOP OF CASING	REF POINT	WATER LEVEL MEASURED	WATER LEVEL (AMSL)
1079	08/01/91	583.98	584.48	1	26.58	557.40
1079	08/21/91	583.98	584.48	1	24.81	559.17
1079	09/06/91	583.98	584.48	1	23.83	560.15
1079	11/06/91	583.98	584.48	1	24.04	559.94
1079	10/07/91	583.98	584.48	1	27.14	556.84
1079	12/02/91	583.98	584.48	1	23.02	560.96
1080	01/19/91	583.60	584.07	1	14.39	569.21
1080	02/22/91	583.60	584.07	1	14.69	568.91
1080	06/04/91	583.60	584.07	1	17.90	565.70
1080	07/30/91	583.60	584.07	1	19.38	564.22
1080	11/02/91	583.60	584.07	1	16.75	566.85
1080	10/06/91	583.60	584.07	1	15.57	568.03
1080	12/14/91	583.60	584.07	1	15.20	568.40
1081	06/05/91	592.15	592.71	1	15.61	576.54
1081	11/03/91	592.15	592.71	1	16.52	575.63
1081	10/05/91	592.15	592.71	1	15.95	576.20
1081	12/15/91	592.15	592.71	1	15.96	576.19
1082	06/05/91	585.59	586.14	1	7.36	578.23
1082	11/03/91	585.59	586.14	1	8.02	577.57
1082	10/05/91	585.59	586.14	1	7.20	578.39
1082	12/15/91	585.59	586.14	1	6.57	579.02
1083	01/19/91	585.04	585.60	1	3.46	581.58
1083	02/22/91	585.04	585.60	1	3.47	581.57
1083	06/04/91	585.04	585.60	1	5.99	579.05
1083	07/30/91	585.04	585.60	1	7.70	577.34
1083	08/29/91	585.04	585.60	1	7.46	577.58
1083	09/19/91	585.04	585.60	1	7.62	577.42
1083	11/02/91	585.04	585.60	1	8.46	576.58
1083	10/06/91	585.04	585.60	1	8.12	576.92
1083	12/14/91	585.04	585.60	1	5.17	579.87
1643	01/19/91	583.66	584.48	1	7.65	576.01
1643	02/21/91	583.66	584.48	1	5.42	578.24
1643	06/05/91	583.66	584.48	1	4.39	579.27
1643	07/28/91	583.66	584.48	1	11.66	572.00
1643	08/29/91	583.66	584.48	1	5.14	578.52
1643	11/03/91	583.66	584.48	1	8.62	575.04
1643	10/05/91	583.66	584.48	1	5.23	578.43
1643	12/15/91	583.66	584.48	1	6.35	577.31
1644	01/19/91	583.39	583.94	1	3.22	580.17
1644	02/21/91	583.39	583.94	1	3.46	579.93
1644	06/05/91	583.39	583.94	1	2.42	580.97
1644	07/30/91	583.39	583.94	1	2.86	580.53
1644	08/29/91	583.39	583.94	1	2.81	580.58
1644	09/20/91	583.39	583.94	1	3.20	580.19
1644	11/03/91	583.39	583.94	1	3.71	579.68
1644	10/05/91	583.39	583.94	1	3.36	580.03
1644	12/15/91	583.39	583.94	1	4.08	579.31

Reference point 1 is Top Of Well; 2 is Top Of Casing

WELL #	DATE MEASURED	TOP OF WELL	TOP OF CASING	REF POINT	WATER LEVEL MEASURED	WATER LEVEL (AMSL)
1645	01/19/91	583.94	584.63	1	3.69	580.25
1645	02/21/91	583.94	584.63	1	3.60	580.34
1645	06/04/91	583.94	584.63	1	5.32	578.62
1645	07/30/91	583.94	584.63	1	8.20	575.74
1645	08/29/91	583.94	584.63	1	7.20	576.74
1645	09/20/91	583.94	584.63	1	6.56	577.38
1645	11/02/91	583.94	584.63	1	8.04	575.90
1645	10/05/91	583.94	584.63	1	16.01	567.93
1645	12/14/91	583.94	584.63	1	4.90	579.04
1646	11/02/91	585.34	585.85	1	23.05	562.29
1646	12/14/91	585.34	585.85	1	17.81	567.53
2010	01/19/91	584.09	584.62	1	59.74	524.35
2010	02/22/91	584.09	584.62	1	59.38	524.71
2010	06/04/91	584.09	584.62	1	59.38	524.71
2010	07/30/91	584.09	584.62	1	61.08	523.01
2010	08/29/91	584.09	584.62	1	61.78	522.31
2010	09/20/91	584.09	584.62	1	62.60	521.49
2010	11/02/91	584.09	584.62	1	63.90	520.19
2010	10/06/91	584.09	584.62	1	63.09	521.00
2010	12/14/91	584.09	584.62	1	64.72	519.37
2013	01/20/91	589.77	590.45	2	66.21	524.24
2013	02/22/91	589.77	590.45	2	66.42	524.03
2013	03/20/91	589.77	590.45	2	66.61	523.84
2013	05/30/91	589.77	590.45	2	66.69	523.76
2013	07/27/91	589.77	590.45	2	69.03	521.42
2013	08/29/91	589.77	590.45	2	70.13	520.32
2013	11/07/91	589.77	590.45	2	72.34	518.11
2013	10/02/91	589.77	590.45	2	71.09	519.36
2013	12/09/91	589.77	590.45	2	72.99	517.46
2019	01/19/91	584.81	585.37	2	60.78	524.59
2019	02/21/91	584.81	585.37	2	60.42	524.95
2019	06/04/91	584.81	585.37	2	60.11	525.26
2019	07/30/91	584.81	585.37	2	61.60	523.77
2021	01/19/91	584.86	585.92	2	61.25	524.67
2021	02/21/91	584.86	585.92	2	60.90	525.02
2021	06/05/91	584.86	585.92	2	60.66	525.26
2021	07/30/91	584.86	585.92	2	62.02	523.90
2021	08/29/91	584.86	585.92	2	62.81	523.11
2021	09/20/91	584.86	585.92	2	63.64	522.28
2021	11/02/91	584.86	585.92	2	64.94	520.98
2021	10/05/91	584.86	585.92	2	64.04	521.88
2021	12/15/91	584.86	585.92	2	65.74	520.18
2027	01/19/91	585.55	585.56	1	61.19	524.36
2027	02/22/91	585.55	585.56	1	60.78	524.77
2027	06/04/91	585.55	585.56	1	60.57	524.98
2027	07/30/91	585.55	585.56	1	62.00	523.55

Reference point 1 is Top Of Well; 2 is Top Of Casing

WELL #	DATE MEASURED	TOP OF WELL	TOP OF CASING	REF POINT	WATER LEVEL MEASURED	WATER LEVEL (AMSL)
2027	08/29/91	585.55	585.56	1	62.83	522.72
2027	09/19/91	585.55	585.56	1	63.68	521.87
2027	11/02/91	585.55	586.09	1	64.94	520.61
2027	10/06/91	585.55	586.09	1	64.16	521.39
2027	12/14/91	585.55	586.09	1	65.80	519.75
2037	01/19/91	590.54	591	1	66.49	524.05
2037	02/22/91	590.54	591	1	66.06	524.48
2037	06/04/91	590.54	591	1	66.50	524.04
2037	08/29/91	590.54	591	1	68.36	522.18
2037	09/20/91	590.54	591	1	69.25	521.29
2037	11/02/91	590.54	591	1	70.57	519.97
2037	10/06/91	590.54	591	1	69.72	520.82
2037	12/14/91	590.54	591	1	71.38	519.16
2043	01/18/91	579.73	580.06	1	54.71	525.02
2043	02/26/91	579.73	580.06	1	54.00	525.73
2043	03/27/91	579.73	580.06	1	53.90	525.83
2043	06/01/91	579.73	580.06	1	53.42	526.31
2043	07/26/91	579.73	580.06	1	54.68	525.05
2043	08/23/91	579.73	580.06	1	55.21	524.52
2043	09/07/91	579.73	580.06	1	55.54	524.19
2043	11/04/91	579.73	580.06	1	57.02	522.71
2043	10/07/91	579.73	580.06	1	56.40	523.33
2043	12/02/91	579.73	580.06	2	57.81	522.25
2051	01/17/91	609.38	609.96	1	86.27	523.11
2051	02/26/91	609.38	609.96	1	86.32	523.06
2051	03/18/91	609.38	609.96	1	86.07	523.31
2051	06/14/91	609.38	609.96	1	87.20	522.18
2051	07/25/91	609.38	609.96	1	88.91	520.47
2051	08/22/91	609.38	609.96	1	90.00	519.38
2051	09/07/91	609.38	609.96	1	90.41	518.97
2051	11/05/91	609.38	609.96	1	92.27	517.11
2051	10/07/91	609.38	609.96	1	91.59	517.79
2051	12/05/91	609.38	609.96	2	93.70	516.26
2055	01/20/91	588.22	588.74	1	63.96	524.26
2055	02/22/91	588.22	588.74	1	63.84	524.38
2055	03/20/91	588.22	588.74	1	63.91	524.31
2055	06/05/91	588.22	588.74	1	64.24	523.98
2055	07/27/91	588.22	588.74	1	65.84	522.38
2055	08/28/91	588.22	588.74	1	66.84	521.38
2055	09/12/91	588.22	588.74	1	67.31	520.91
2055	11/07/91	588.22	588.74	1	68.98	519.24
2055	10/03/91	588.22	588.74	1	67.90	520.32
2055	12/09/91	588.22	588.74	1	69.68	518.54
2066	01/18/91	579.88	580.38	1	40.91	538.97
2066	02/26/91	579.88	580.38	1	40.71	539.17
2066	03/27/91	579.88	580.38	1	40.77	539.11
2066	06/01/91	579.88	580.38	1	40.71	539.17
2066	07/26/91	579.88	580.38	1	40.90	538.98

Reference point 1 is Top Of Well; 2 is Top Of Casing

WELL #	DATE MEASURED	TOP OF WELL	TOP OF CASING	REF POINT	WATER LEVEL MEASURED	WATER LEVEL (AMSL)
2066	08/23/91	579.88	580.38	1	40.18	539.70
2066	09/07/91	579.88	580.38	1	40.90	538.98
2066	11/04/91	579.88	580.38	1	40.96	538.92
2066	10/07/91	579.88	580.38	1	40.96	538.92
2066	12/02/91	579.88	580.38	2	41.26	539.12
2084	01/19/91	585.10	585.49	1	60.58	524.52
2084	02/21/91	585.10	585.49	1	60.22	524.88
2084	06/05/91	585.10	585.49	1	59.95	525.15
2084	07/28/91	585.10	585.49	1	61.13	523.97
2084	08/29/91	585.10	585.49	1	62.02	523.08
2084	11/03/91	585.10	585.49	1	64.10	521.00
2084	10/05/91	585.10	585.49	1	63.09	522.01
2084	12/15/91	585.10	585.49	1	64.94	520.16
2643	01/19/91	583.81	584.27	1	58.95	524.86
2643	02/21/91	583.81	584.27	1	58.62	525.19
2643	06/05/91	583.81	584.27	1	58.26	525.55
2643	07/28/91	583.81	584.27	1	59.41	524.40
2643	08/29/91	583.81	584.27	1	60.30	523.51
2643	11/03/91	583.81	584.27	1	61.99	521.82
2643	10/05/91	583.81	584.27	1	61.40	522.41
2643	12/15/91	583.81	584.27	1	63.20	520.61
2648	01/19/91	583.43	584.03	1	58.59	524.84
2648	02/21/91	583.43	584.03	1	58.25	525.18
2648	06/04/91	583.43	584.03	1	57.94	525.49
2648	07/30/91	583.43	584.03	1	59.45	523.98
2648	08/29/91	583.43	584.03	1	60.25	523.18
2648	09/19/91	583.43	584.03	1	61.09	522.34
2648	11/02/91	583.43	584.03	1	62.31	521.12
2648	10/05/91	583.43	584.03	1	61.49	521.94
2648	12/15/91	583.43	584.03	1	63.24	520.19
2649	01/19/91	577.77	578.25	1	51.85	525.92
2649	02/21/91	577.77	578.25	1	51.52	526.25
2649	06/05/91	577.77	578.25	1	51.43	526.34
2649	07/30/91	577.77	578.25	1	52.89	524.88
2649	11/03/91	577.77	578.25	1	55.39	522.38
2649	10/05/91	577.77	578.25	1	54.64	523.13
2649	12/15/91	577.77	578.25	1	56.15	521.62
3001	01/19/91	585.67	586.01	2	61.01	525.00
3001	02/21/91	585.67	586.01	2	60.63	525.38
3001	06/05/91	585.67	586.01	2	64.80	521.21
3001	07/30/91	585.67	586.01	2	62.05	523.96
3001	08/29/91	585.67	586.01	2	62.65	523.36
3001	09/19/91	585.67	586.01	2	63.41	522.60
3001	11/02/91	585.67	586.01	2	64.66	521.35
3001	10/05/91	585.67	586.01	2	63.84	522.17
3001	12/15/91	585.67	586.01	2	65.55	520.46
3008	01/19/91	576.76	577.76	2	53.11	524.65

Reference point 1 is Top Of Well; 2 is Top Of Casing

WELL #	DATE MEASURED	TOP OF WELL	TOP OF CASING	REF POINT	WATER LEVEL MEASURED	WATER LEVEL (AMSL)
3008	02/22/91	576.76	577.76	2	52.57	525.19
3008	06/05/91	576.76	577.76	2	52.48	525.28
3008	08/29/91	576.76	577.76	2	54.91	522.85
3008	09/19/91	576.76	577.76	2	55.51	522.25
3008	11/02/91	576.76	577.76	2	56.71	521.05
3008	10/05/91	576.76	577.76	2	55.88	521.88
3008	12/14/91	576.76	577.76	2	57.68	520.08
3010	01/19/91	587.84	587.94	2	63.80	524.14
3010	02/22/91	587.84	587.94	2	63.43	524.51
3010	06/04/91	587.84	587.94	2	62.92	525.02
3010	07/30/91	587.84	587.94	2	64.98	522.96
3010	08/29/91	587.84	587.94	2	65.86	522.08
3010	09/20/91	587.84	587.94	2	66.71	521.23
3010	11/02/91	587.84	587.94	2	68.00	519.94
3010	10/06/91	587.84	587.94	2	67.17	520.77
3010	12/14/91	587.84	587.94	2	68.00	519.94
3011	01/16/91	584.15	584.33	1	59.24	524.91
3011	02/19/91	584.15	584.33	1	59.01	525.14
3011	02/28/91	584.15	584.33	1	58.98	525.17
3011	03/18/91	584.15	584.33	1	59.00	525.15
3011	05/30/91	584.15	584.33	1	58.19	525.96
3011	06/15/91	584.15	584.33	1	58.21	525.94
3011	07/25/91	584.15	584.33	1	59.63	524.52
3011	08/01/91	584.15	584.33	1	59.80	524.35
3011	08/21/91	584.15	584.33	1	60.36	523.79
3011	09/06/91	584.15	584.33	1	60.62	523.53
3011	11/06/91	584.15	584.33	1	62.08	522.07
3011	10/07/91	584.15	584.33	1	61.52	522.63
3011	12/02/91	584.15	584.33	2	62.91	521.42
3013	01/20/91	589.71	590.52	2	66.23	524.29
3013	02/22/91	589.71	590.52	2	66.44	524.08
3013	03/20/91	589.71	590.52	2	66.62	523.90
3013	05/30/91	589.71	590.52	2	66.74	523.78
3013	07/27/91	589.71	590.52	2	69.03	521.49
3013	08/29/91	589.71	590.52	2	70.14	520.38
3013	09/09/91	589.71	590.52	2	70.50	520.02
3013	11/07/91	589.71	590.52	2	72.37	518.15
3013	10/02/91	589.71	590.52	2	71.11	519.41
3013	12/09/91	589.71	590.52	2	73.02	517.50
3019	01/19/91	584.96	585.21	2	60.59	524.62
3019	02/21/91	584.96	585.21	2	60.28	524.93
3019	06/04/91	584.96	585.21	2	59.97	525.24
3019	07/30/91	584.96	585.21	2	61.42	523.79
3019	08/29/91	584.96	585.21	2	62.24	522.97
3019	09/20/91	584.96	585.21	2	63.07	522.14
3019	11/02/91	584.96	585.21	2	64.32	520.89
3019	10/06/91	584.96	585.21	2	63.55	521.66
3019	12/14/91	584.96	585.21	2	65.19	520.02

Reference point 1 is Top Of Well; 2 is Top Of Casing

WELL #	DATE MEASURED	TOP OF WELL	TOP OF CASING	REF POINT	WATER LEVEL MEASURED	WATER LEVEL (AMSL)
3024	01/16/91	581.83	582.09	1	57.27	524.56
3024	02/19/91	581.83	582.09	1	57.21	524.62
3024	03/18/91	581.83	582.09	1	56.36	525.47
3024	05/30/91	581.83	582.09	1	56.10	525.73
3024	07/25/91	581.83	582.09	1	57.70	524.13
3024	08/21/91	581.83	582.09	1	58.50	523.33
3024	09/06/91	581.83	582.09	1	58.76	523.07
3024	11/06/91	581.83	582.09	1	60.31	521.52
3024	10/07/91	581.83	582.09	1	59.79	522.04
3024	12/02/91	581.83	582.09	2	61.20	520.89
3037	01/19/91	590.27	590.75	1	66.20	524.07
3037	02/22/91	590.27	590.75	1	65.78	524.49
3037	06/04/91	590.27	590.75	1	65.78	524.49
3037	08/29/91	590.27	590.75	1	68.10	522.17
3037	09/20/91	590.27	590.75	1	68.96	521.31
3037	11/02/91	590.27	590.75	1	70.22	520.05
3037	10/06/91	590.27	590.75	1	69.43	520.84
3037	12/14/91	590.27	590.75	1	71.09	519.18
3043	01/18/91	580.18	580.40	1	55.07	525.11
3043	02/26/91	580.18	580.40	1	54.33	525.85
3043	03/27/91	580.18	580.40	1	54.22	525.96
3043	06/01/91	580.18	580.40	1	53.72	526.46
3043	07/26/91	580.18	580.40	1	55.02	525.16
3043	08/23/91	580.18	580.40	1	55.59	524.59
3043	09/07/91	580.18	580.40	1	55.93	524.25
3043	11/04/91	580.18	580.40	1	57.43	522.75
3043	10/07/91	580.18	580.40	1	56.77	523.41
3043	12/02/91	580.18	580.40	2	58.23	522.17
3055	01/20/91	589.01	589.37	1	64.94	524.07
3055	02/22/91	589.01	589.37	2	64.83	524.54
3055	03/20/91	589.01	589.37	2	64.89	524.48
3055	06/05/91	589.01	589.37	2	65.22	524.15
3055	07/27/91	589.01	589.37	2	66.78	522.59
3055	08/28/91	589.01	589.37	2	67.82	521.55
3055	09/12/91	589.01	589.37	2	68.28	521.09
3055	11/07/91	589.01	589.37	2	70.00	519.37
3055	10/03/91	589.01	589.37	2	68.88	520.49
3055	12/09/91	589.01	589.37	2	70.54	518.83
3066	02/26/91	579.85	580.36	1	54.34	525.51
3066	06/01/91	579.85	580.36	1	53.74	526.11
3066	07/26/91	579.85	580.36	1	54.90	524.95
3066	08/23/91	579.85	580.36	1	55.52	524.33
3066	09/07/91	579.85	580.36	1	55.90	523.95
3066	11/04/91	579.85	580.36	1	57.32	522.53
3084	01/19/91	584.99	585.47	1	60.48	524.51
3084	02/21/91	584.99	585.47	1	60.10	524.89
3084	06/05/91	584.99	585.47	1	59.84	525.15

Reference point 1 is Top Of Well; 2 is Top Of Casing

WELL #	DATE MEASURED	TOP OF WELL	TOP OF CASING	REF POINT	WATER LEVEL MEASURED	WATER LEVEL (AMSL)
3084	07/28/91	584.99	585.47	1	61.02	523.97
3084	08/29/91	584.99	585.47	1	61.84	523.15
3084	11/03/91	584.99	585.47	1	63.98	521.01
3084	10/05/91	584.99	585.47	1	62.97	522.02
3084	12/15/91	584.99	585.47	1	64.81	520.18
4001	01/19/91	585.50	586.50	2	61.85	524.65
4001	02/21/91	585.50	586.50	2	61.61	524.89
4001	06/05/91	585.50	586.50	2	61.49	525.01
4001	07/30/91	585.50	586.50	2	63.00	523.50
4001	08/29/91	585.50	586.50	2	64.56	521.94
4001	09/19/91	585.50	586.50	2	65.50	521.00
4001	11/02/91	585.50	586.50	2	65.70	520.80
4001	10/05/91	585.50	586.50	2	64.70	521.80
4001	12/15/91	585.50	586.50	2	66.44	520.06
4008	01/19/91	576.83	577.85	2	53.26	524.59
4008	02/22/91	576.83	577.85	2	53.46	524.39
4008	06/05/91	576.83	577.85	2	53.46	524.39
4008	08/29/91	576.83	577.85	2	55.82	522.03
4008	09/19/91	576.83	577.85	2	56.41	521.44
4008	11/02/91	576.83	577.85	2	57.75	520.10
4008	10/05/91	576.83	577.85	2	56.73	521.12
4008	12/14/91	576.83	577.85	2	58.54	519.31
4010	01/19/91	583.97	584.53	1	59.63	524.34
4010	02/22/91	583.97	584.53	1	59.42	524.55
4010	06/04/91	583.97	584.53	1	59.50	524.47
4010	07/30/91	583.97	584.53	1	61.06	522.91
4010	08/29/91	583.97	584.53	1	61.98	521.99
4010	09/20/91	583.97	584.53	1	62.74	521.23
4010	11/02/91	583.97	584.53	1	63.99	519.98
4010	10/06/91	583.97	584.53	2	63.53	521.00
4010	12/14/91	583.97	584.53	1	64.82	519.15
4011	01/16/91	584.87	585.09	1	59.88	524.99
4011	02/19/91	584.87	585.09	1	59.64	525.23
4011	02/28/91	584.87	585.09	1	59.60	525.27
4011	03/18/91	584.87	585.09	1	59.21	525.66
4011	05/30/91	584.87	585.09	1	58.78	526.09
4011	06/15/91	584.87	585.09	1	58.88	525.99
4011	07/25/91	584.87	585.09	1	60.29	524.58
4011	08/01/91	584.87	585.09	1	60.41	524.46
4011	08/21/91	584.87	585.09	1	61.00	523.87
4011	09/06/91	584.87	585.09	1	61.27	523.60
4011	11/06/91	584.87	585.09	1	62.71	522.16
4011	10/07/91	584.87	585.09	1	62.20	522.67
4011	12/02/91	584.87	585.09	2	63.62	521.47
4013	01/20/91	590.22	590.43	1	66.22	524.00
4013	02/22/91	590.22	590.43	1	66.46	523.76
4013	03/20/91	590.22	590.43	1	66.64	523.58
4013	05/30/91	590.22	590.43	1	66.74	523.48

Reference point 1 is Top Of Well; 2 is Top Of Casing

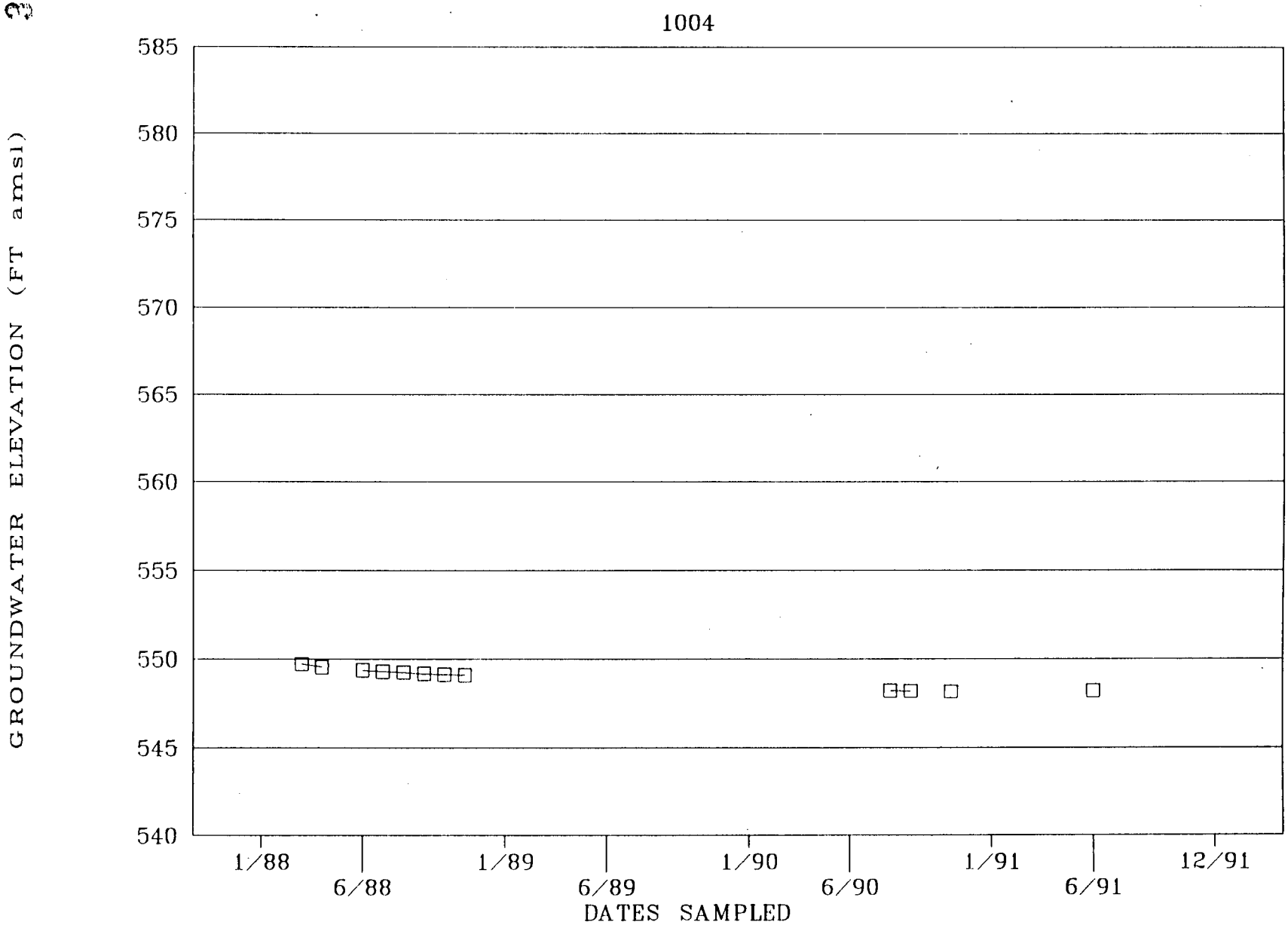
WELL #	DATE MEASURED	TOP OF WELL	TOP OF CASING	REF POINT	WATER LEVEL MEASURED	WATER LEVEL (AMSL)
4013	07/27/91	590.22	590.43	1	69.04	521.18
4013	08/29/91	590.22	590.43	1	70.14	520.08
4013	09/09/91	590.22	590.43	1	70.52	519.70
4013	11/07/91	590.22	590.43	1	72.37	517.85
4013	10/02/91	590.22	590.43	1	71.12	519.10
4013	12/09/91	590.22	590.43	1	73.01	517.21

Reference point 1 is Top Of Well; 2 is Top Of Casing

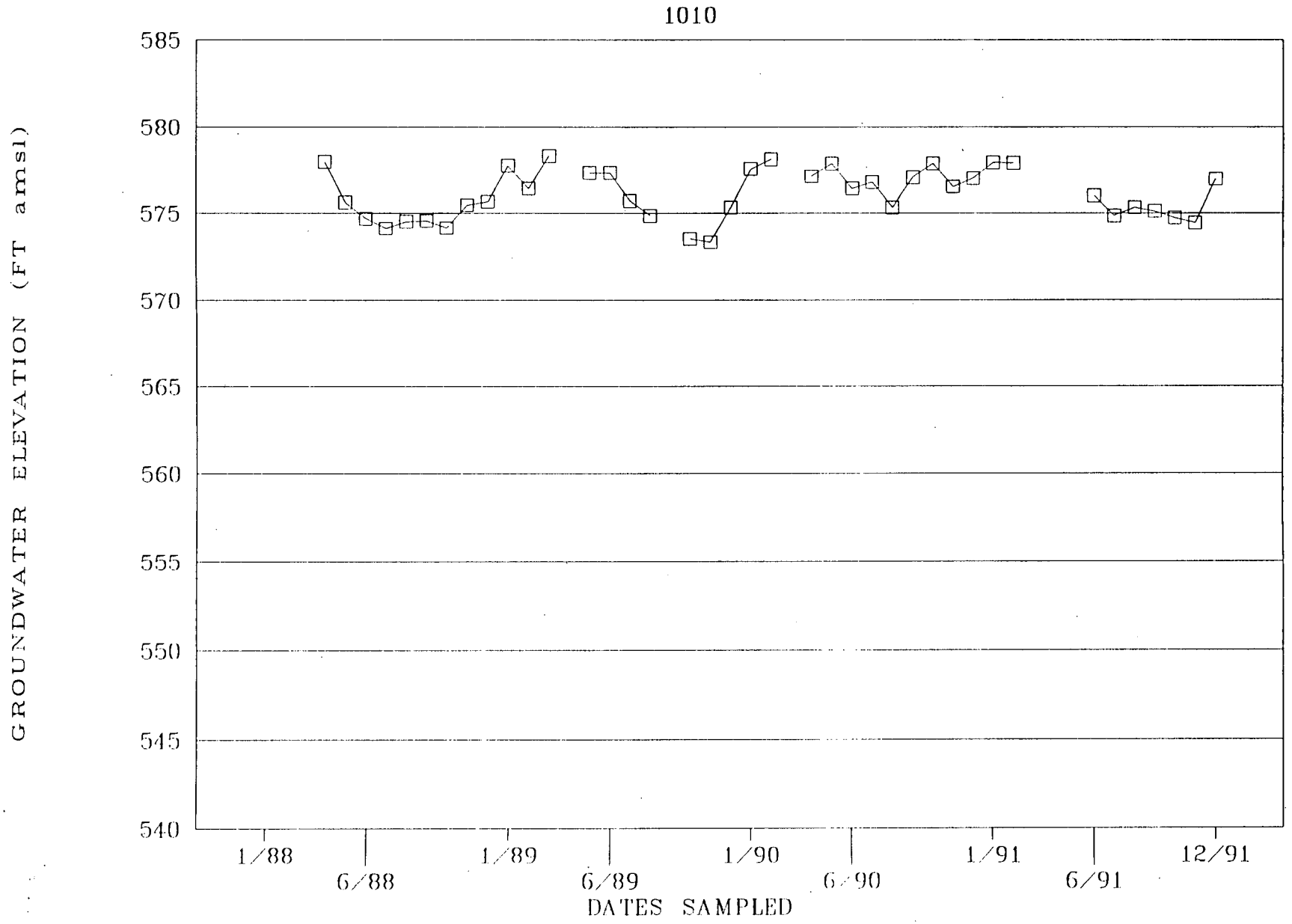
WASTE PIT AREA GLACIAL OVERBURDEN

MONITORING WELL HYDROGRAPHS

HYDROGRAPH FOR MONITORING WELL



HYDROGRAPH FOR MONITORING WELL

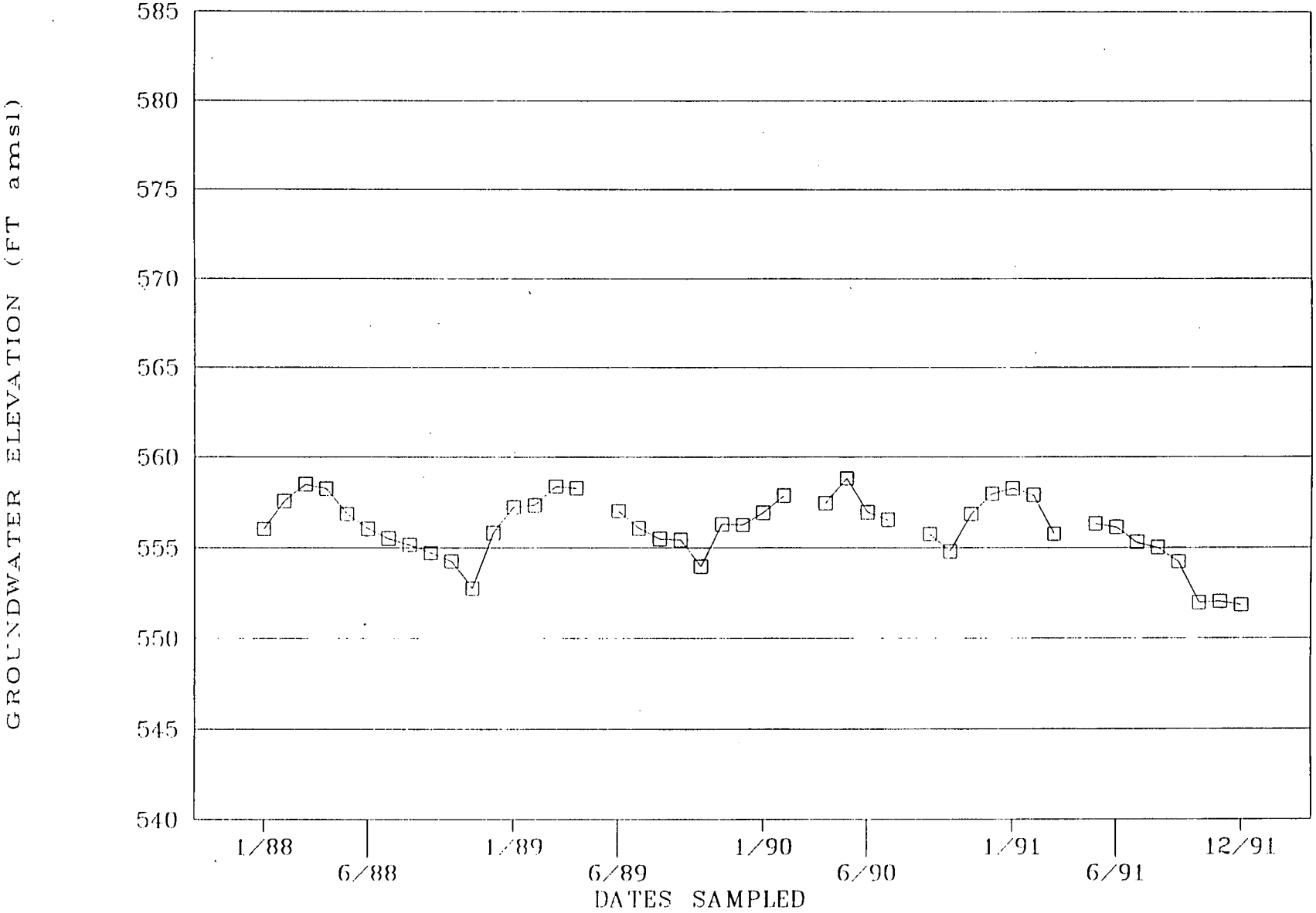


3713

121

HYDROGRAPH FOR MONITORING WELL

1011



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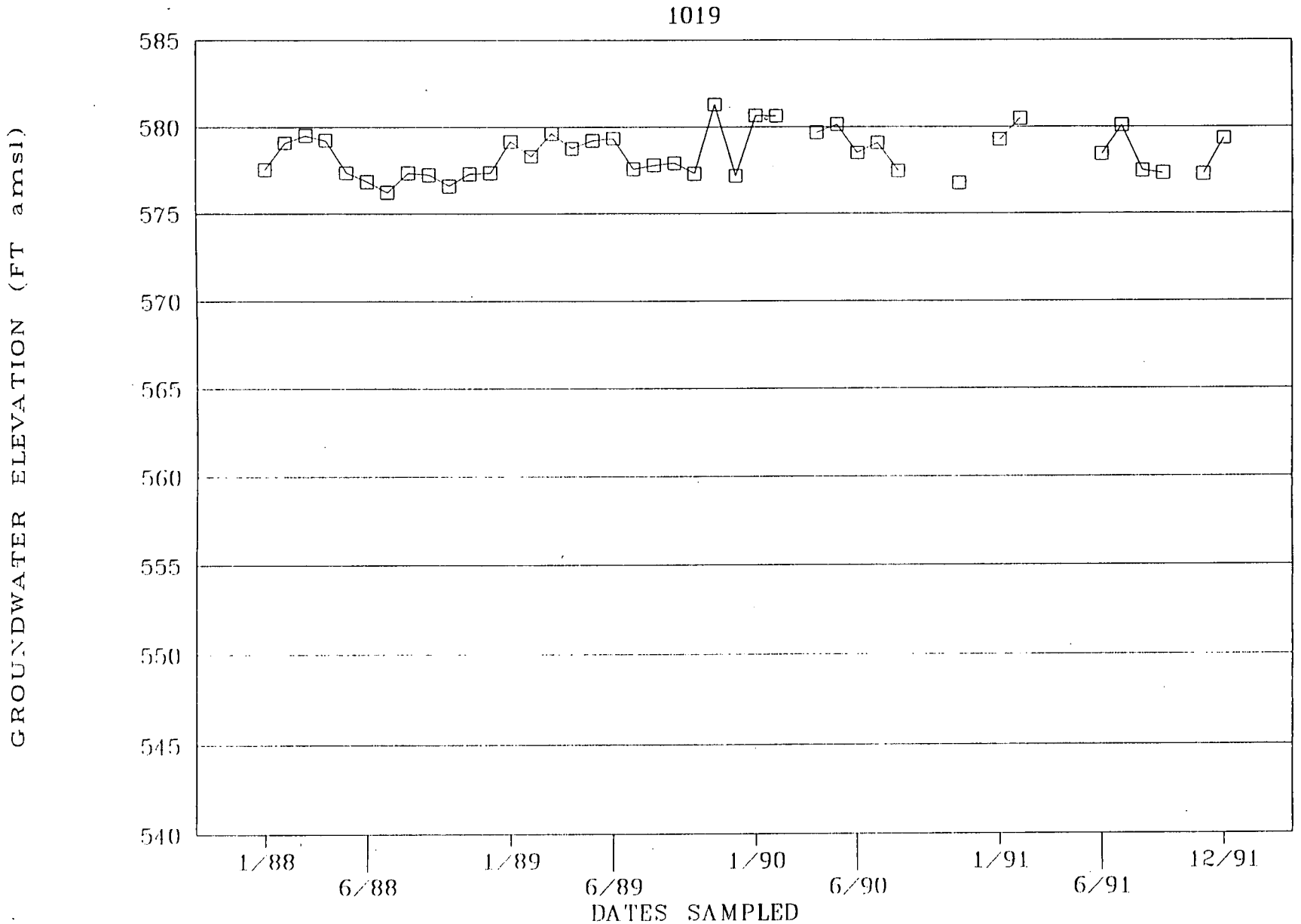

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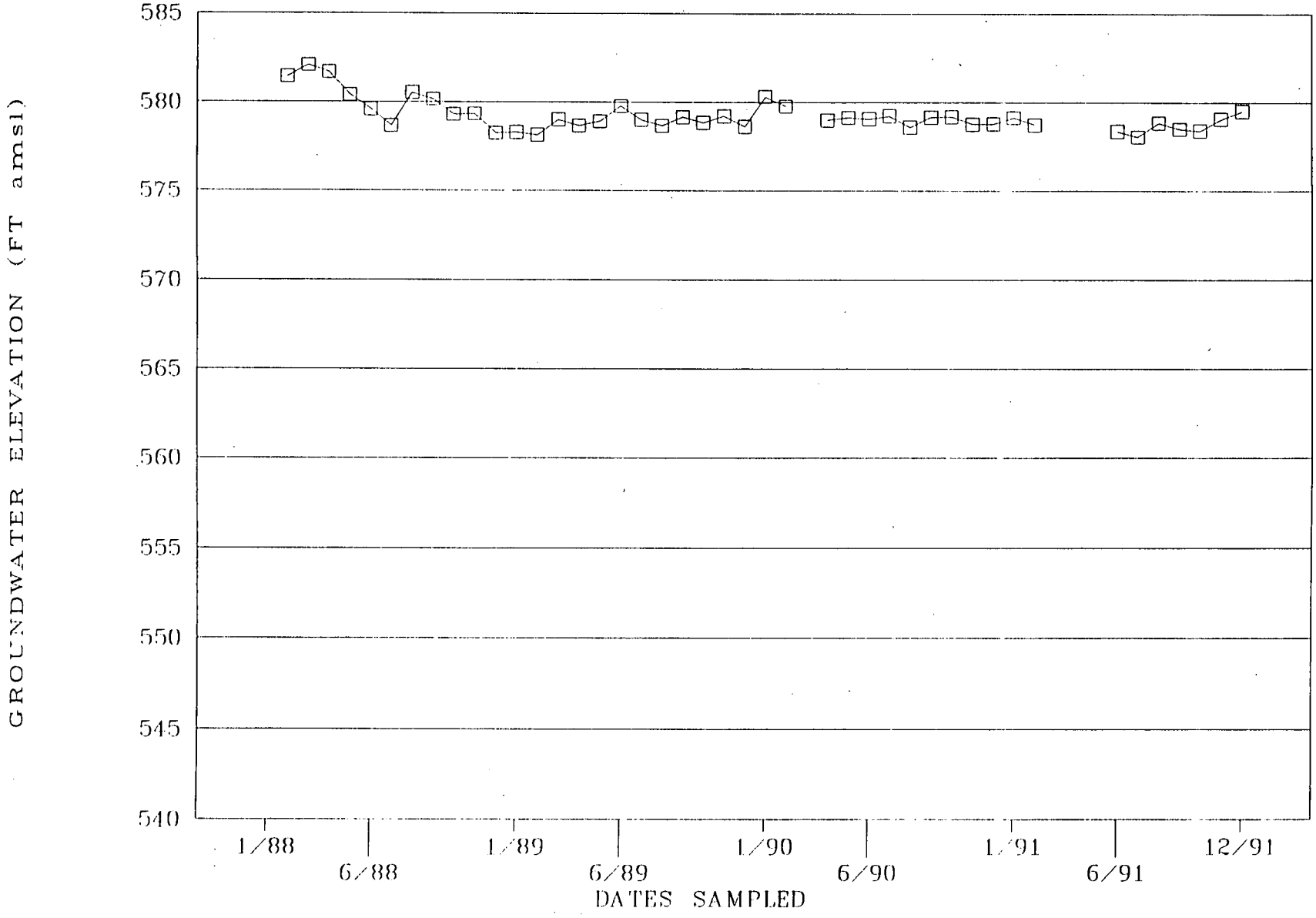
HYDROGRAPH FOR MONITORING WELL

1021



123

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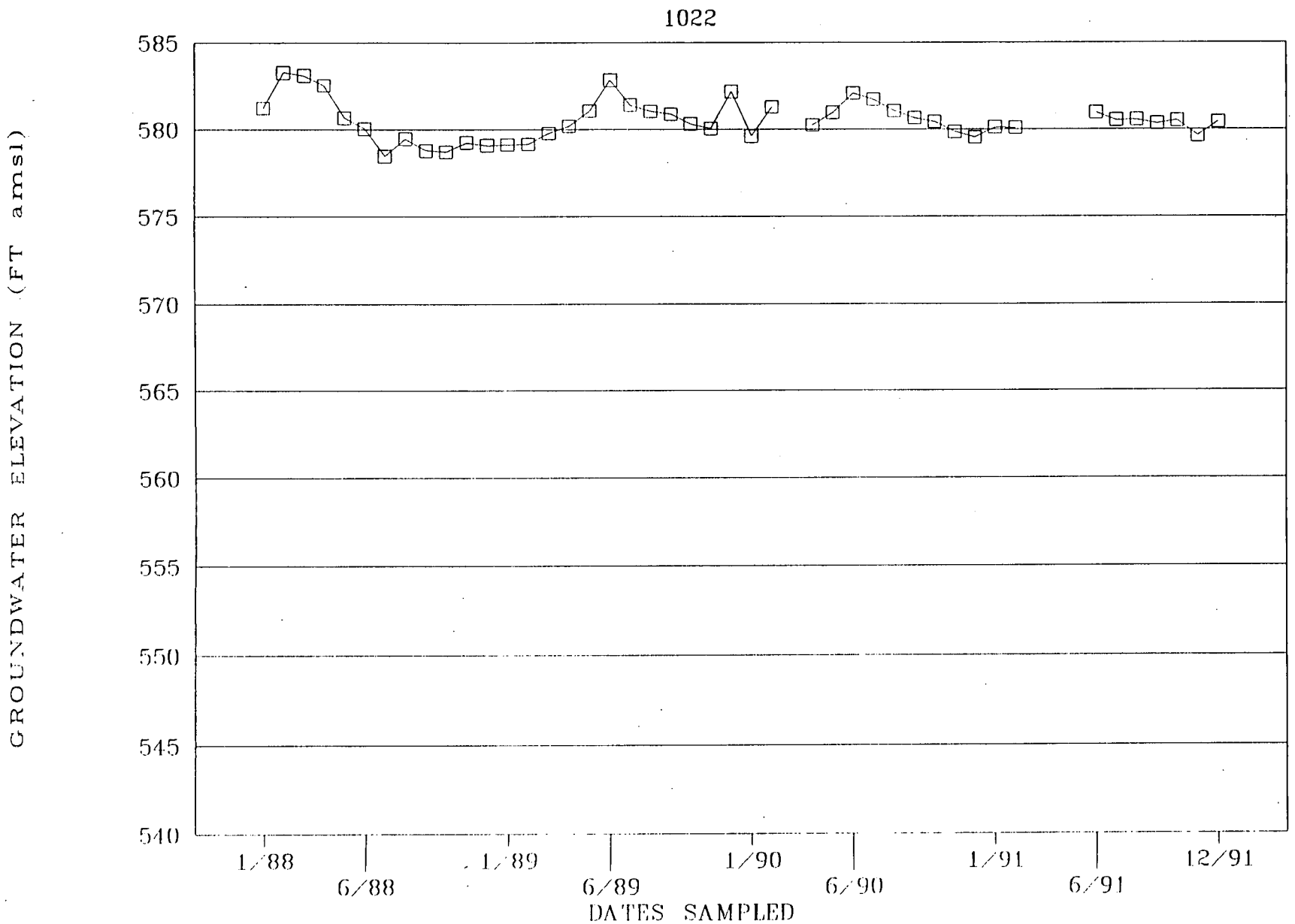

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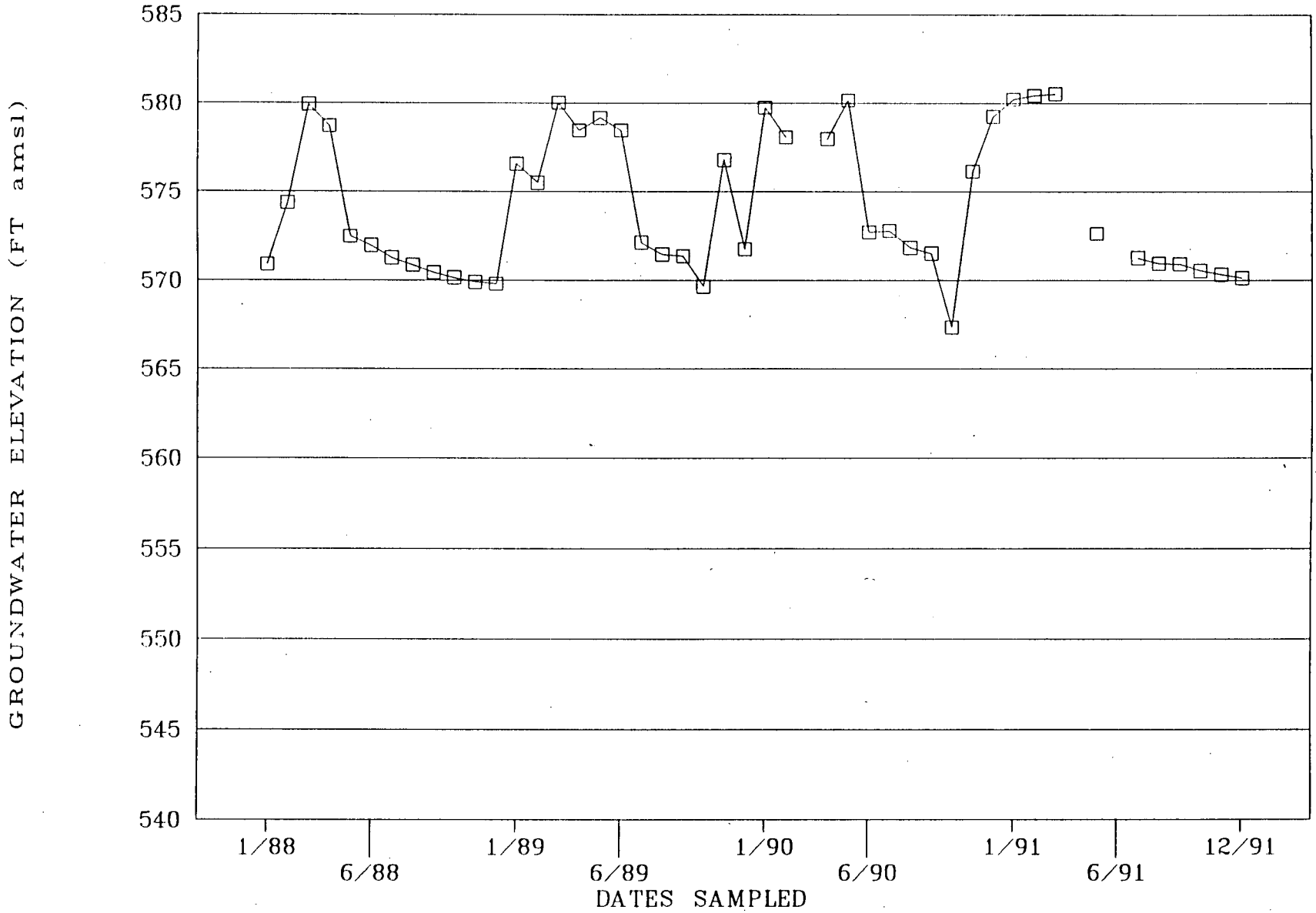
HYDROGRAPH FOR MONITORING WELL

1024



125

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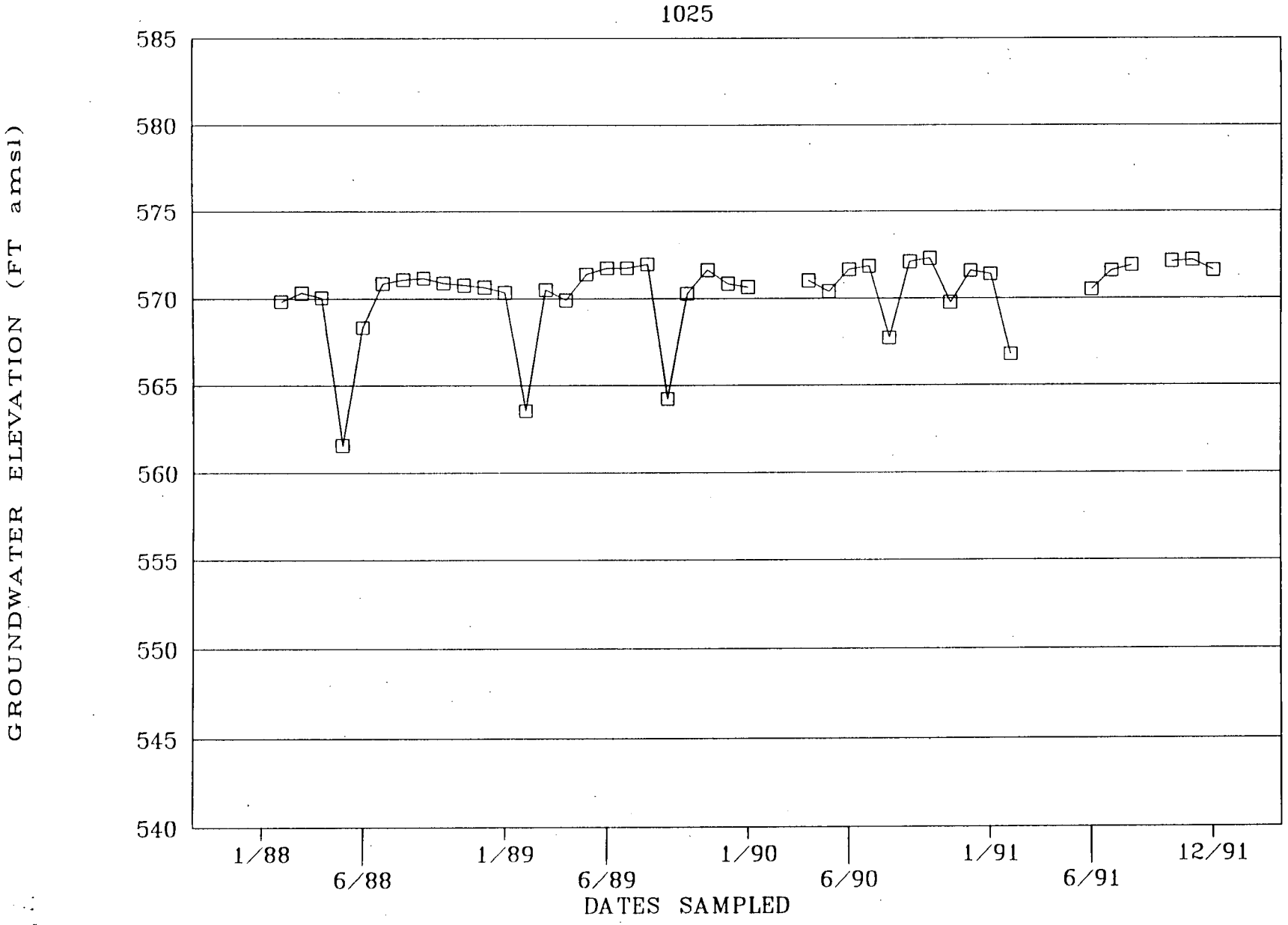

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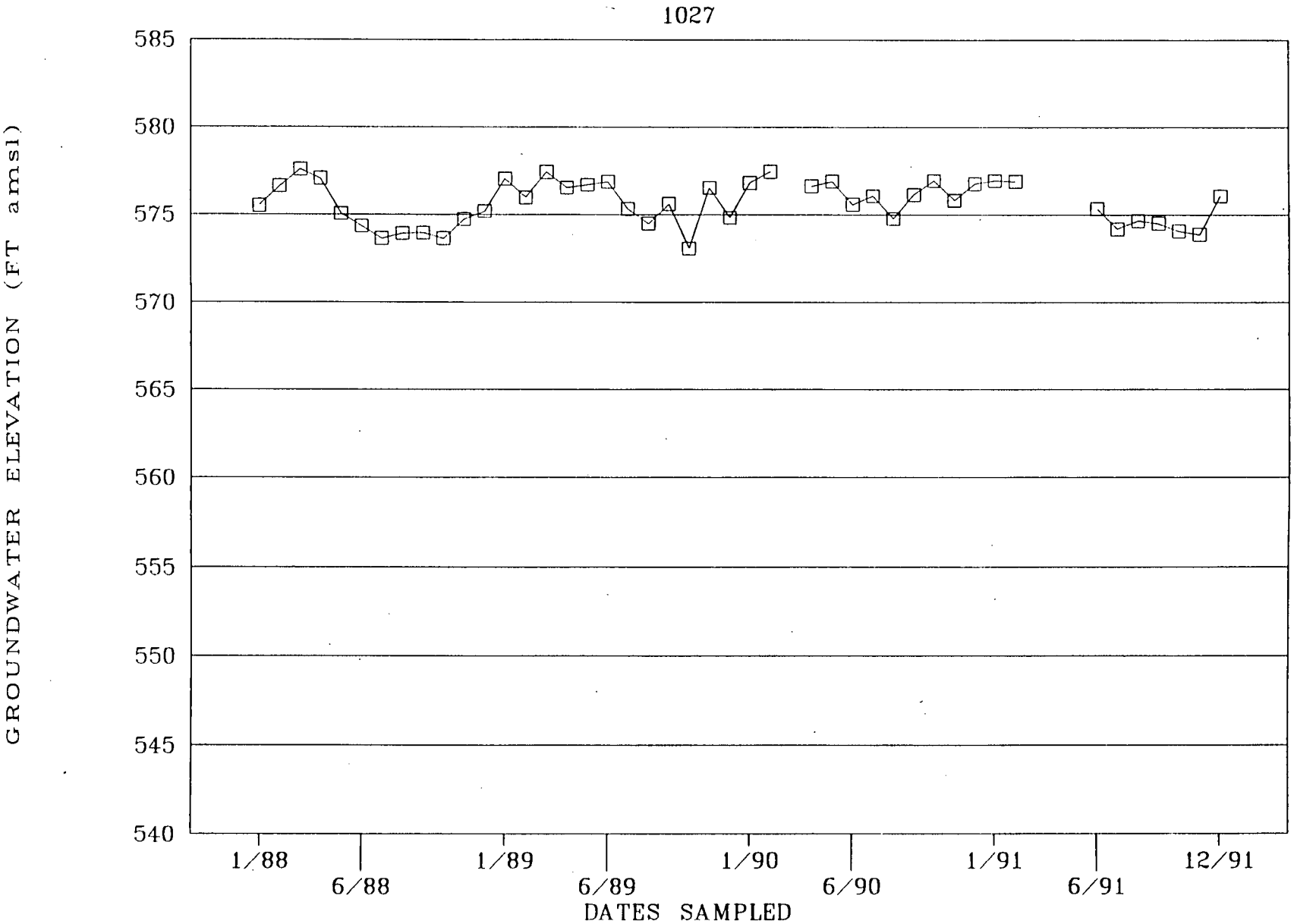
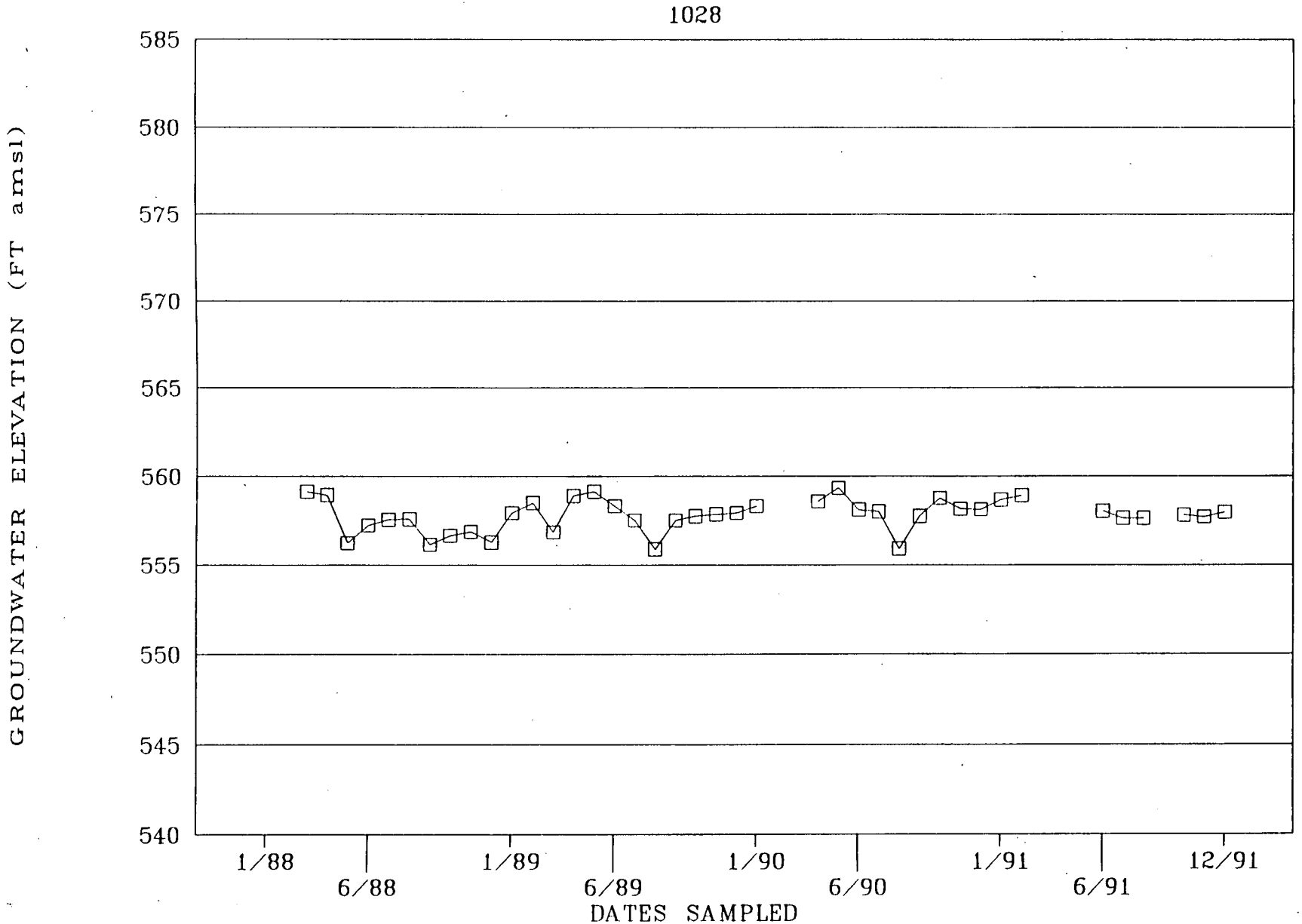


127

HYDROGRAPH FOR MONITORING WELL



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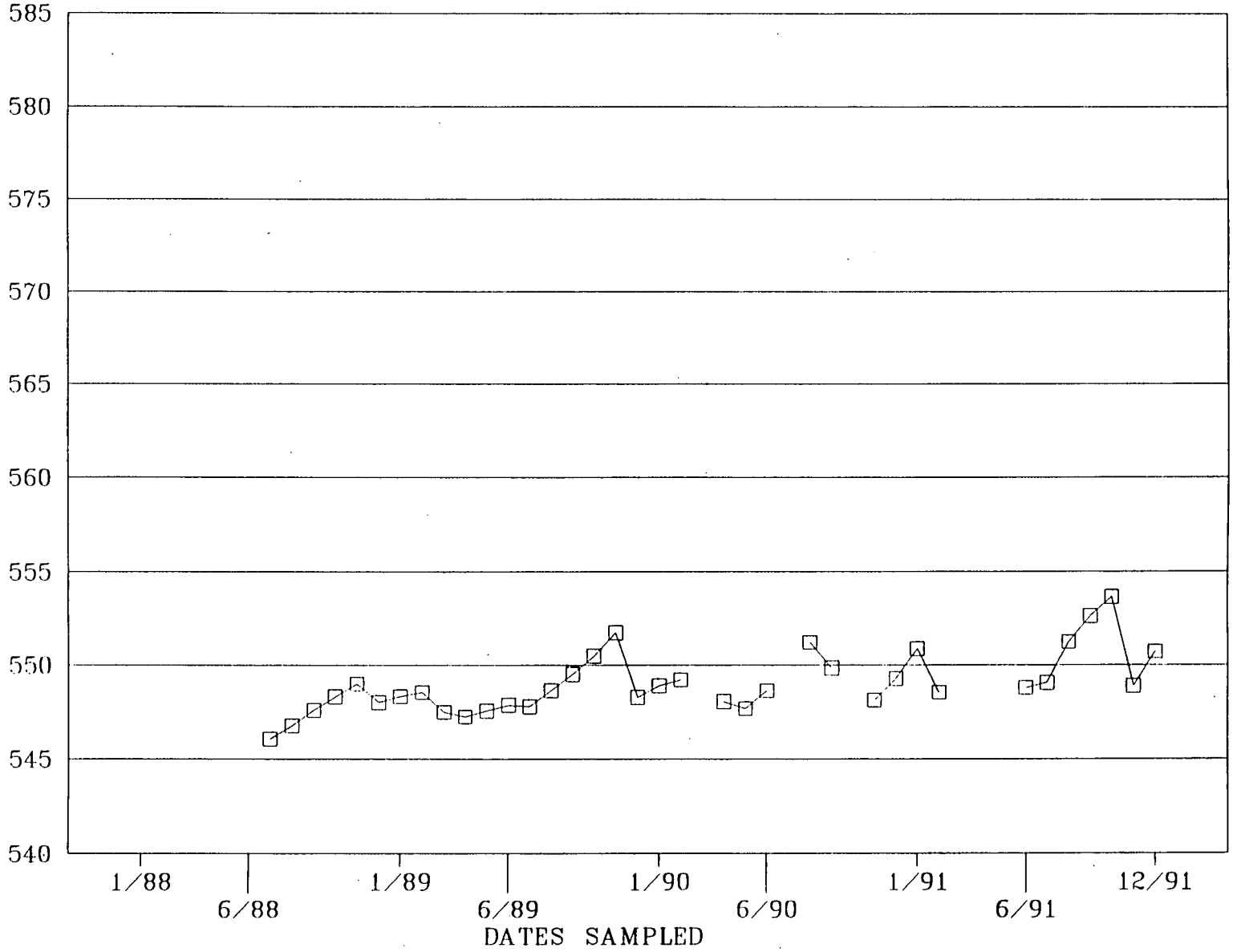
HYDROGRAPH FOR MONITORING WELL

1030



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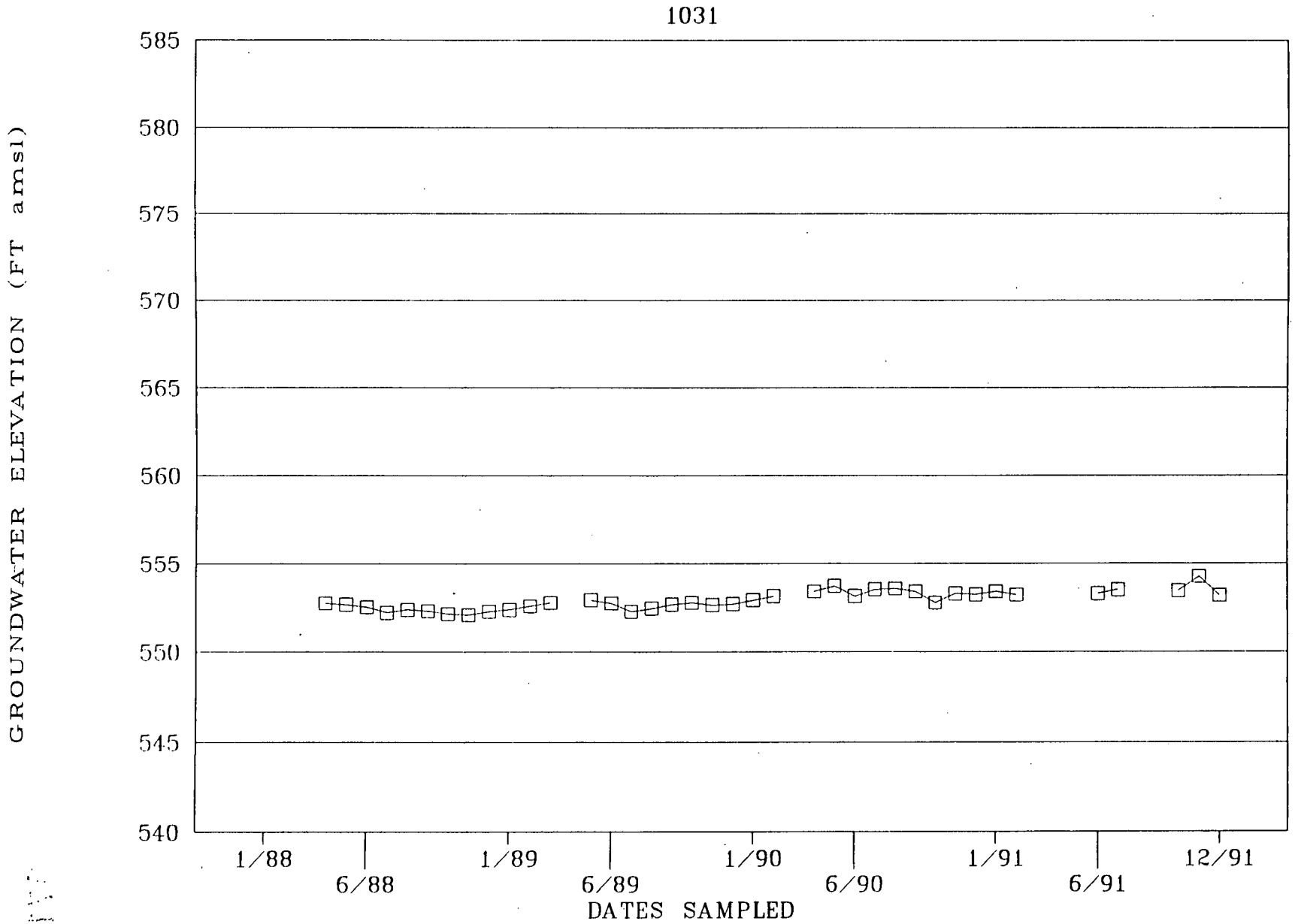
HYDROGRAPH FOR MONITORING WELL



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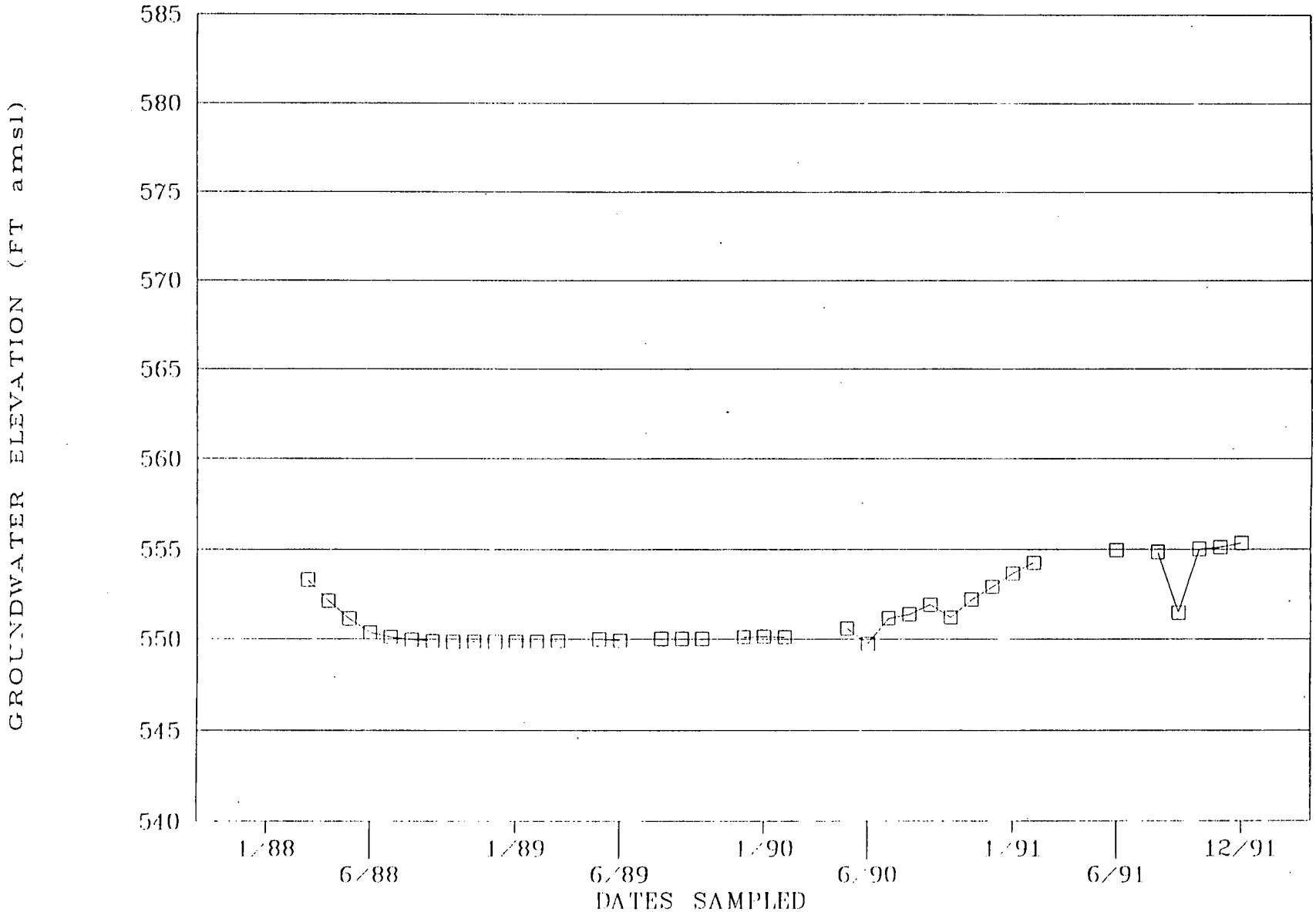
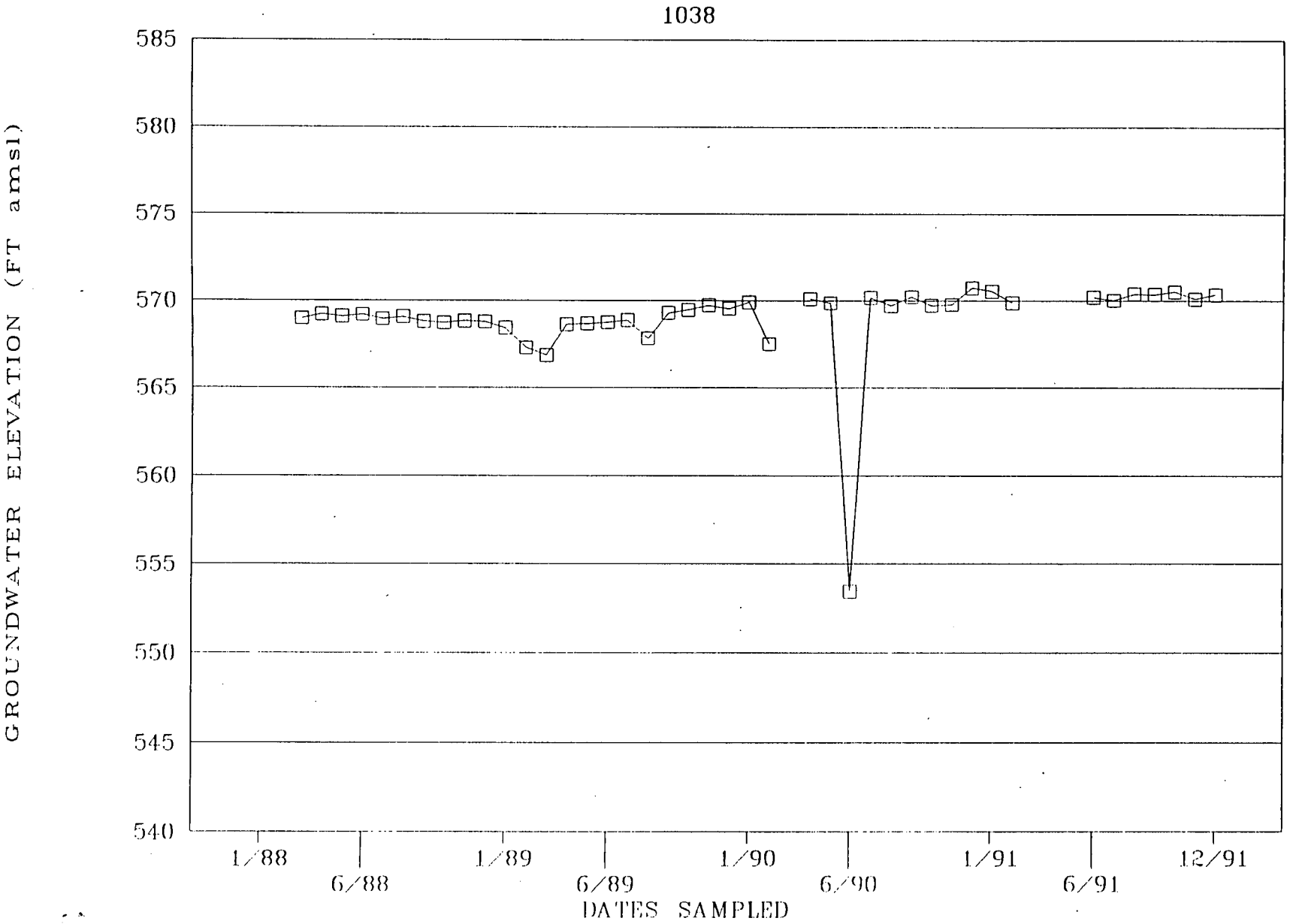
131

HYDROGRAPH FOR MONITORING WELL

1037



HYDROGRAPH FOR MONITORING WELL



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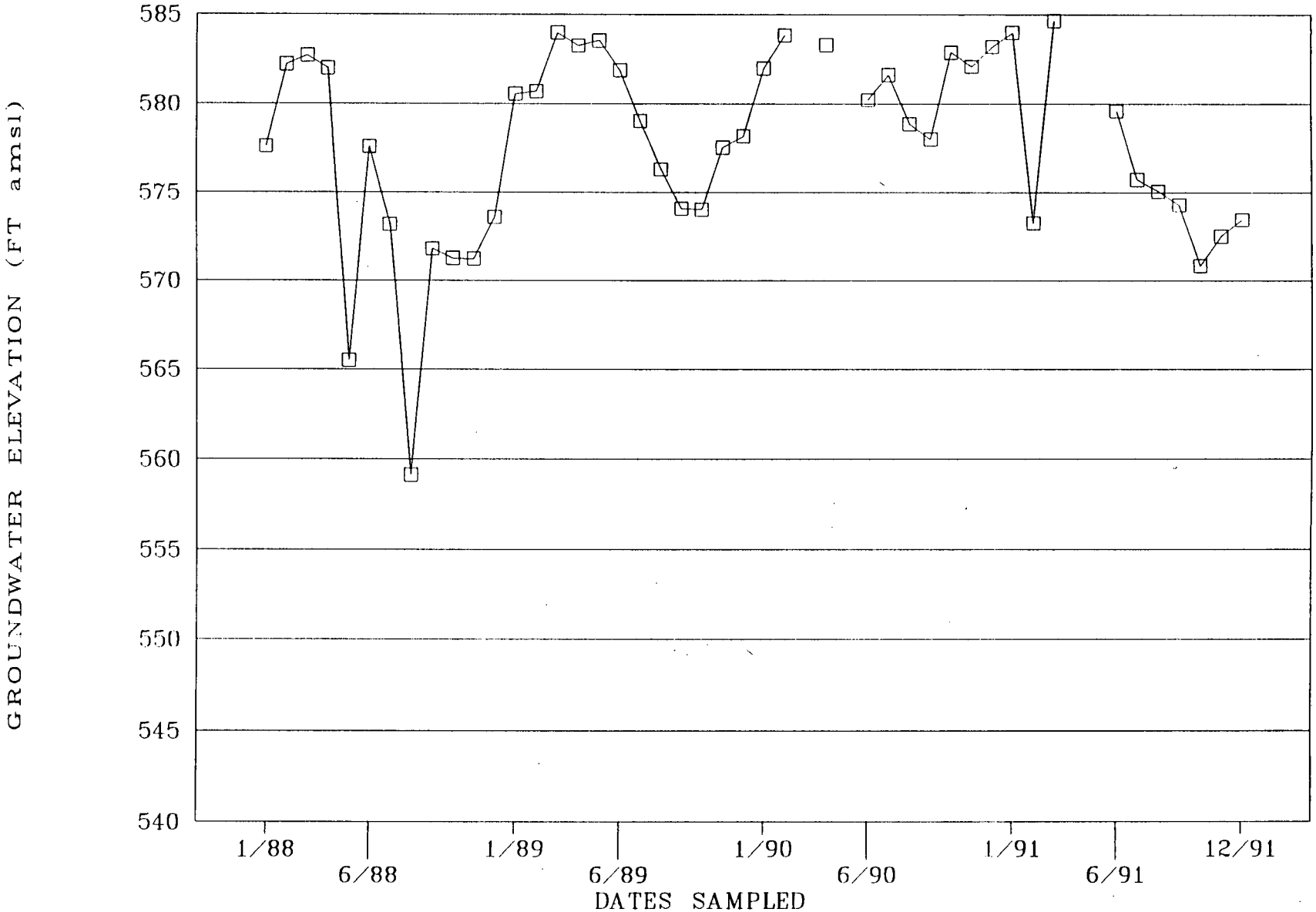
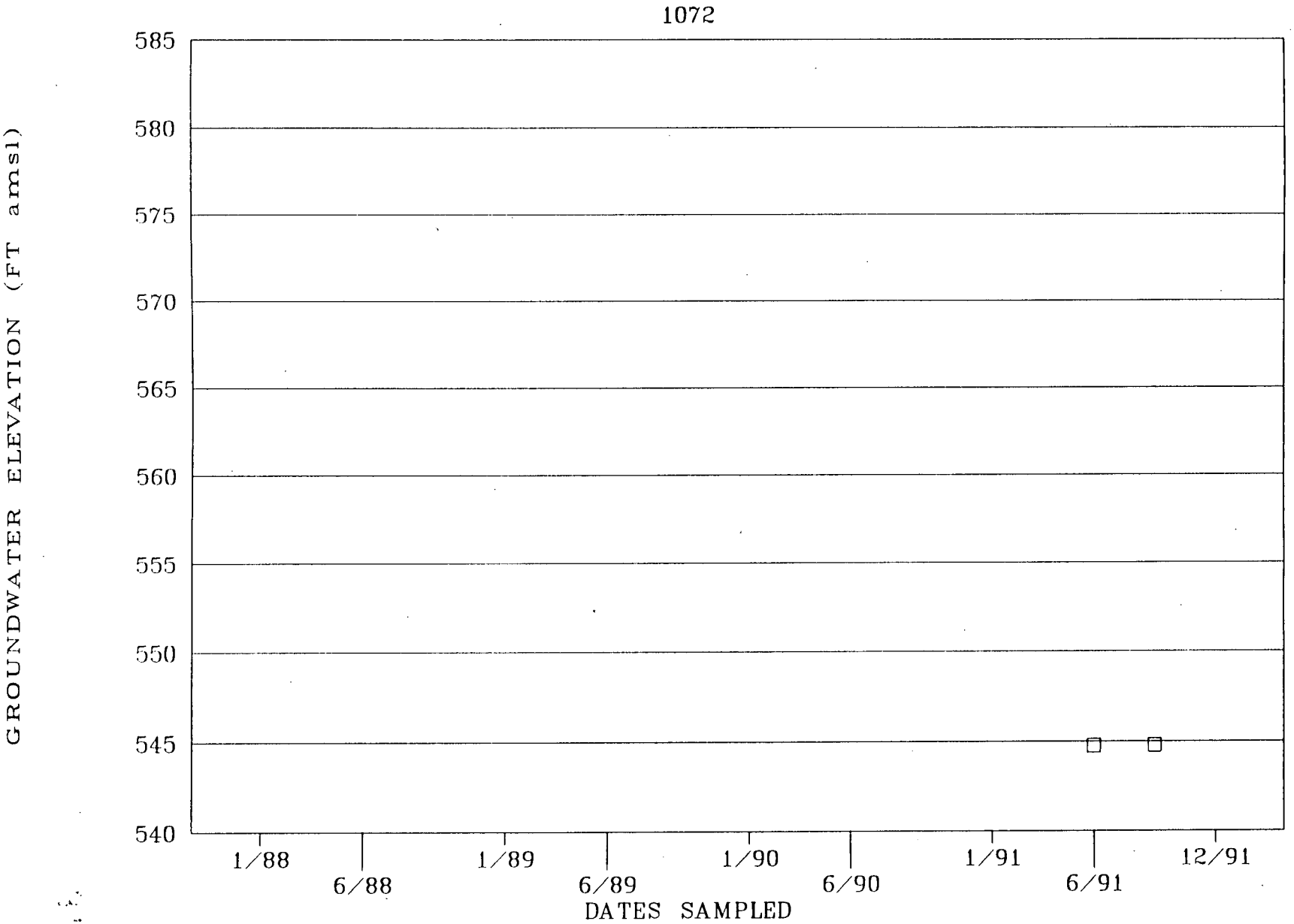
HYDROGRAPH FOR MONITORING WELL

1052



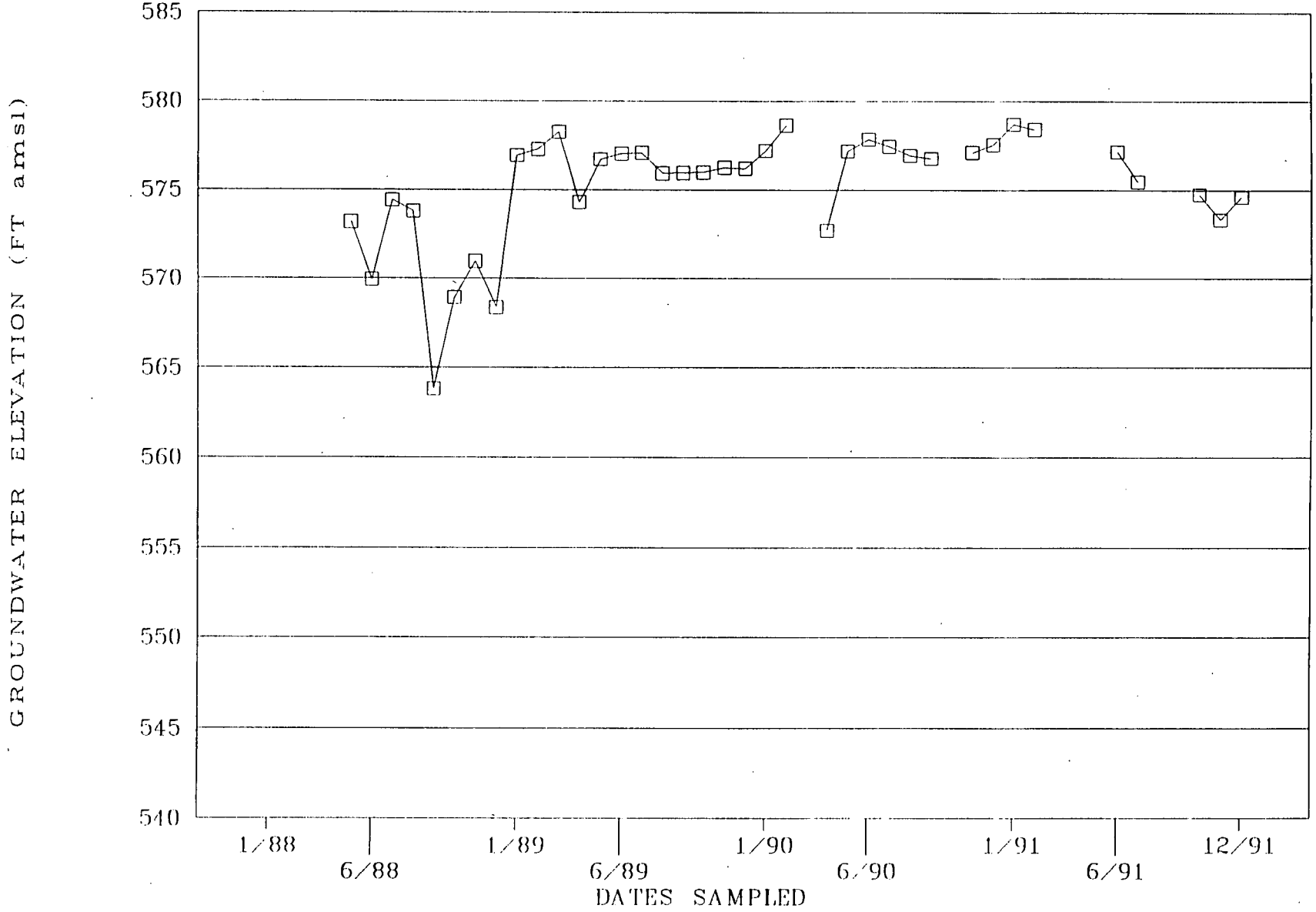
133

HYDROGRAPH FOR MONITORING WELL



HYDROGRAPH FOR MONITORING WELL

1073



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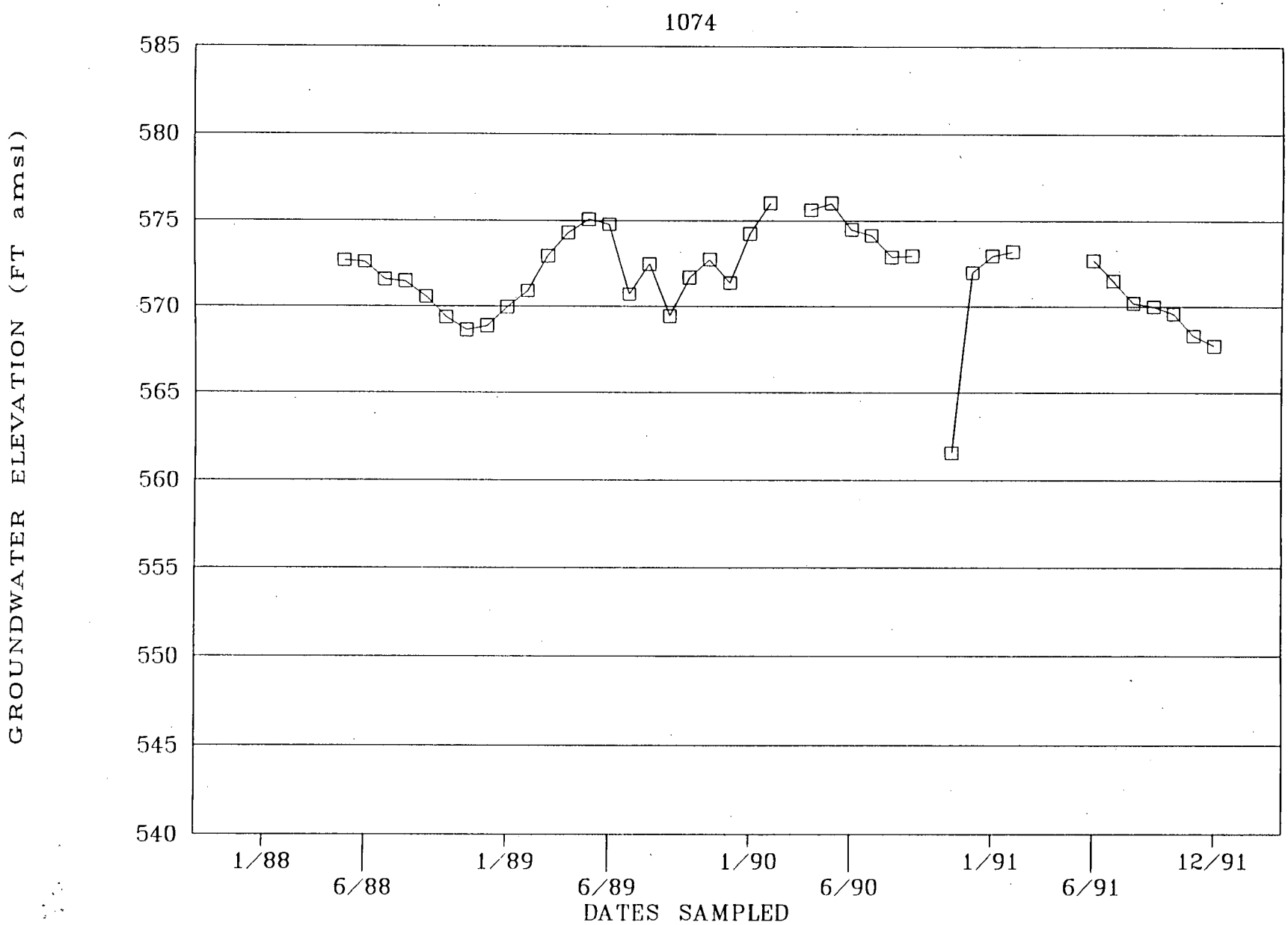

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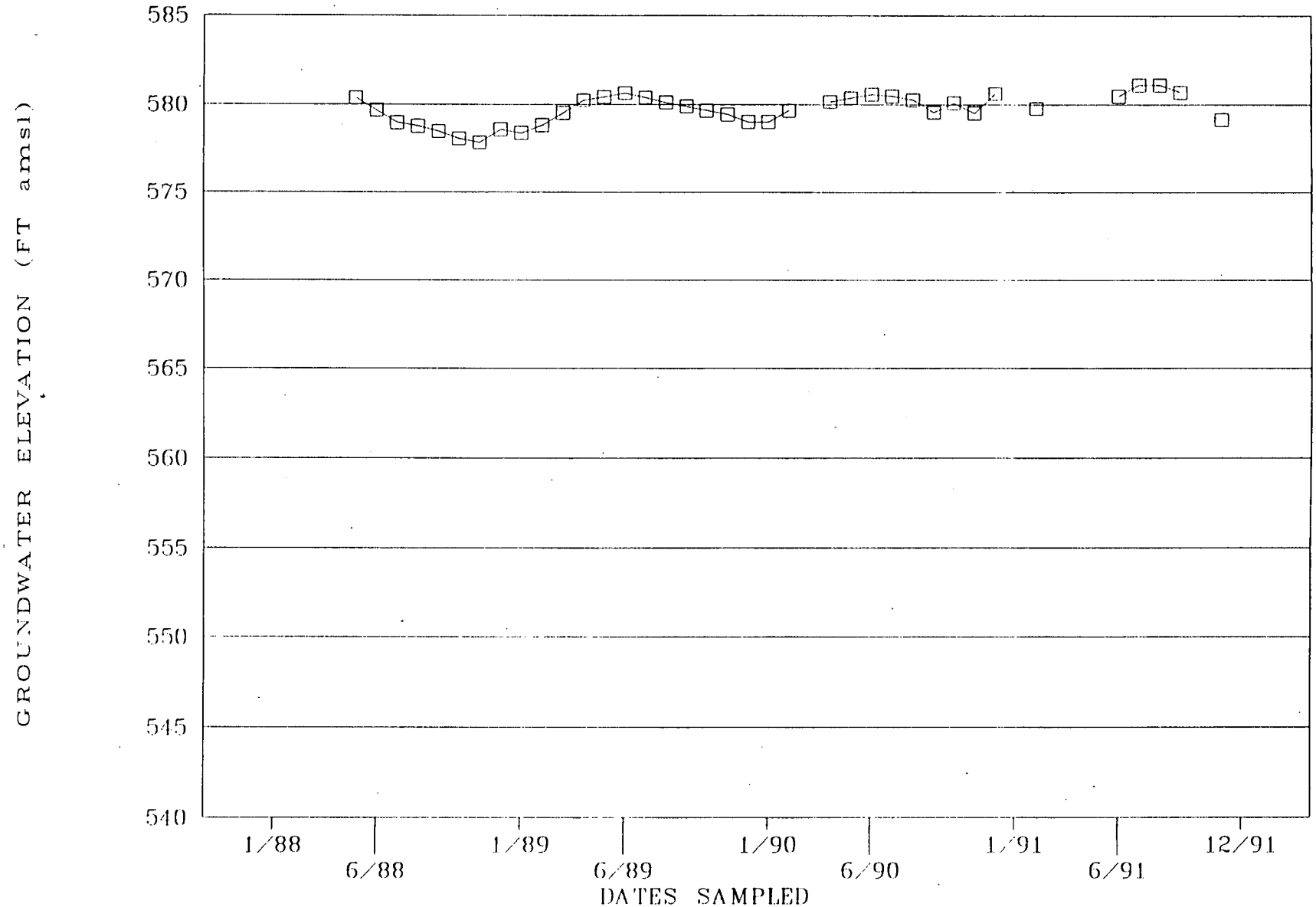
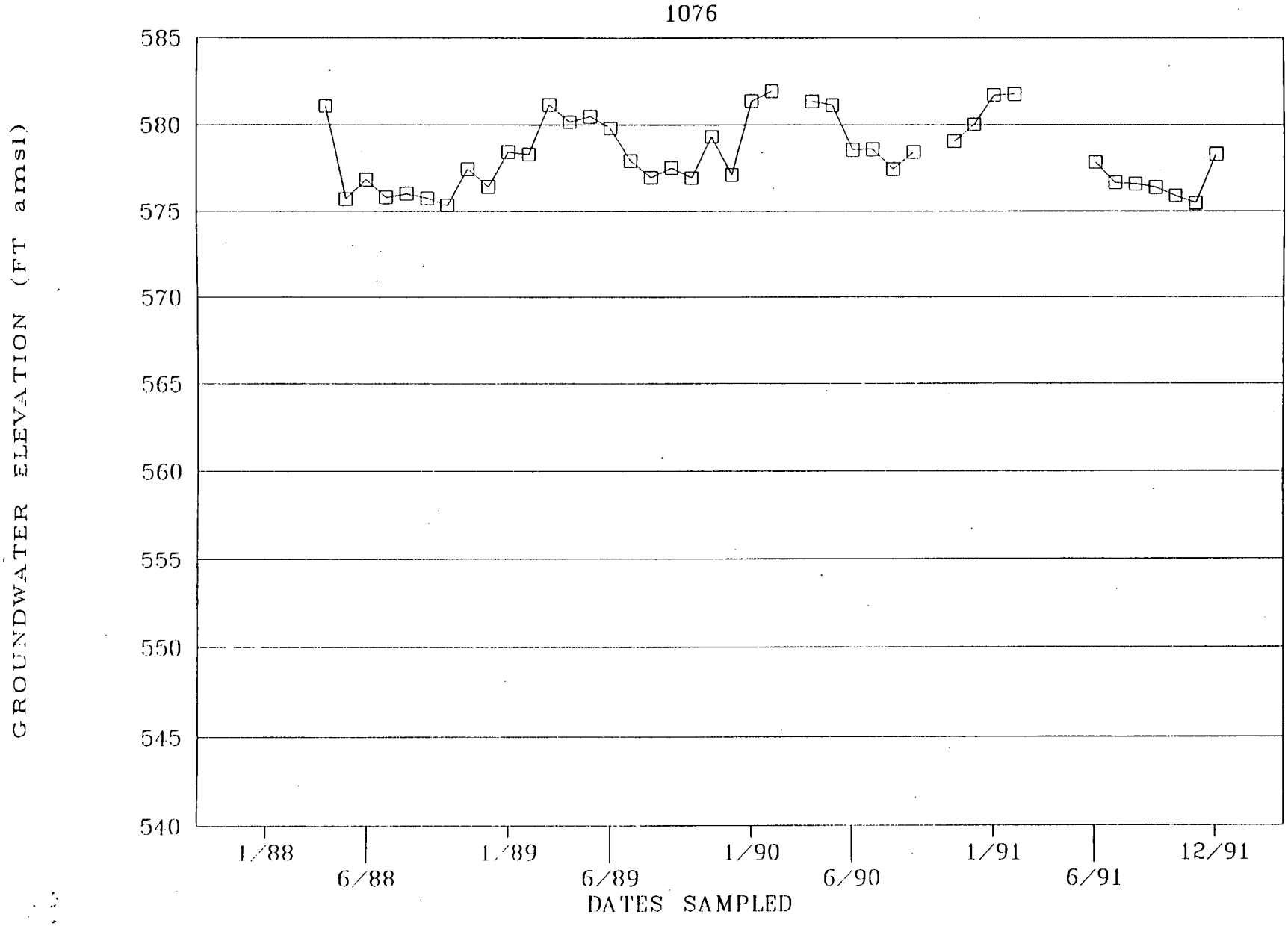
HYDROGRAPH FOR MONITORING WELL

1075



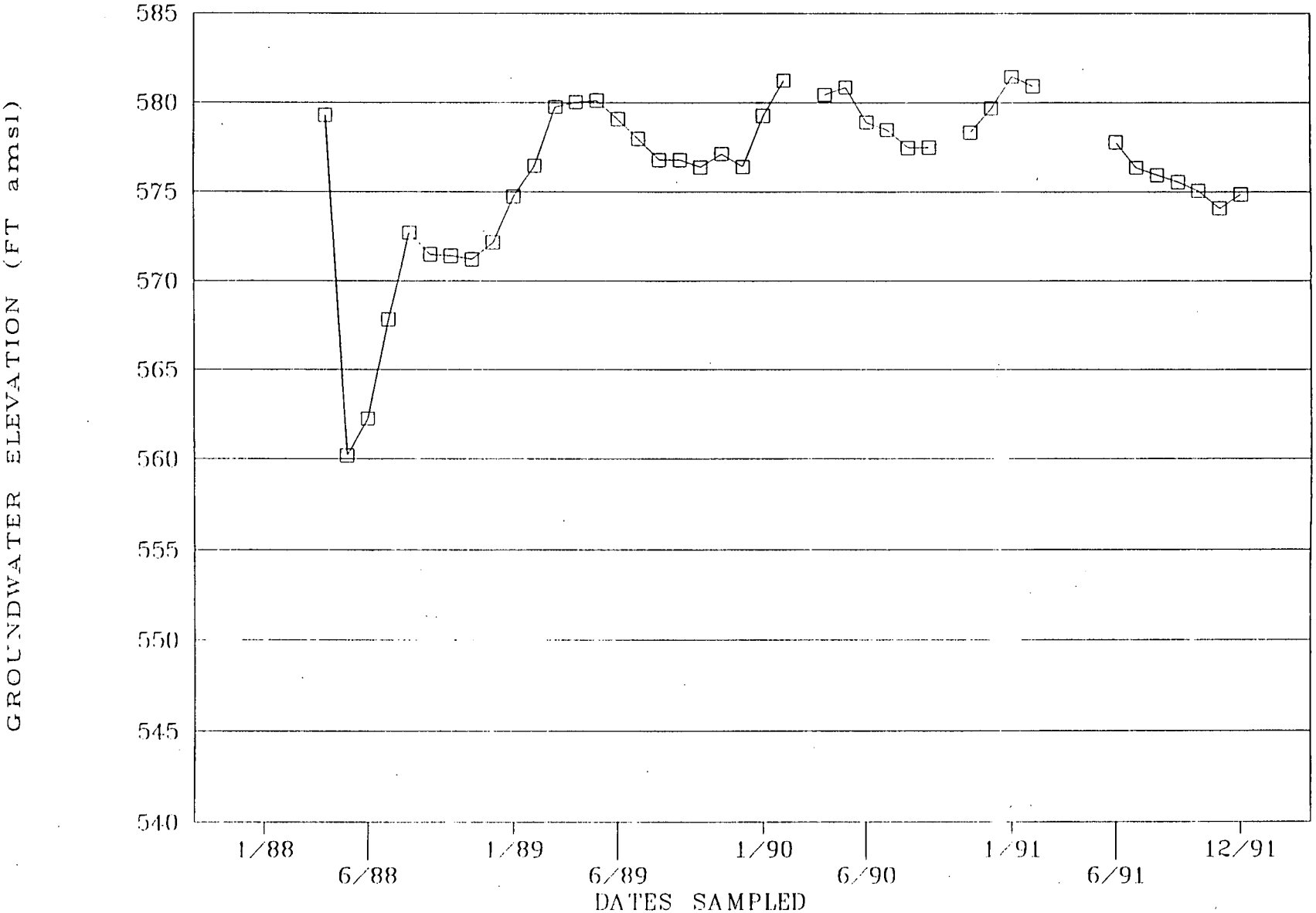
137

HYDROGRAPH FOR MONITORING WELL



HYDROGRAPH FOR MONITORING WELL

1077



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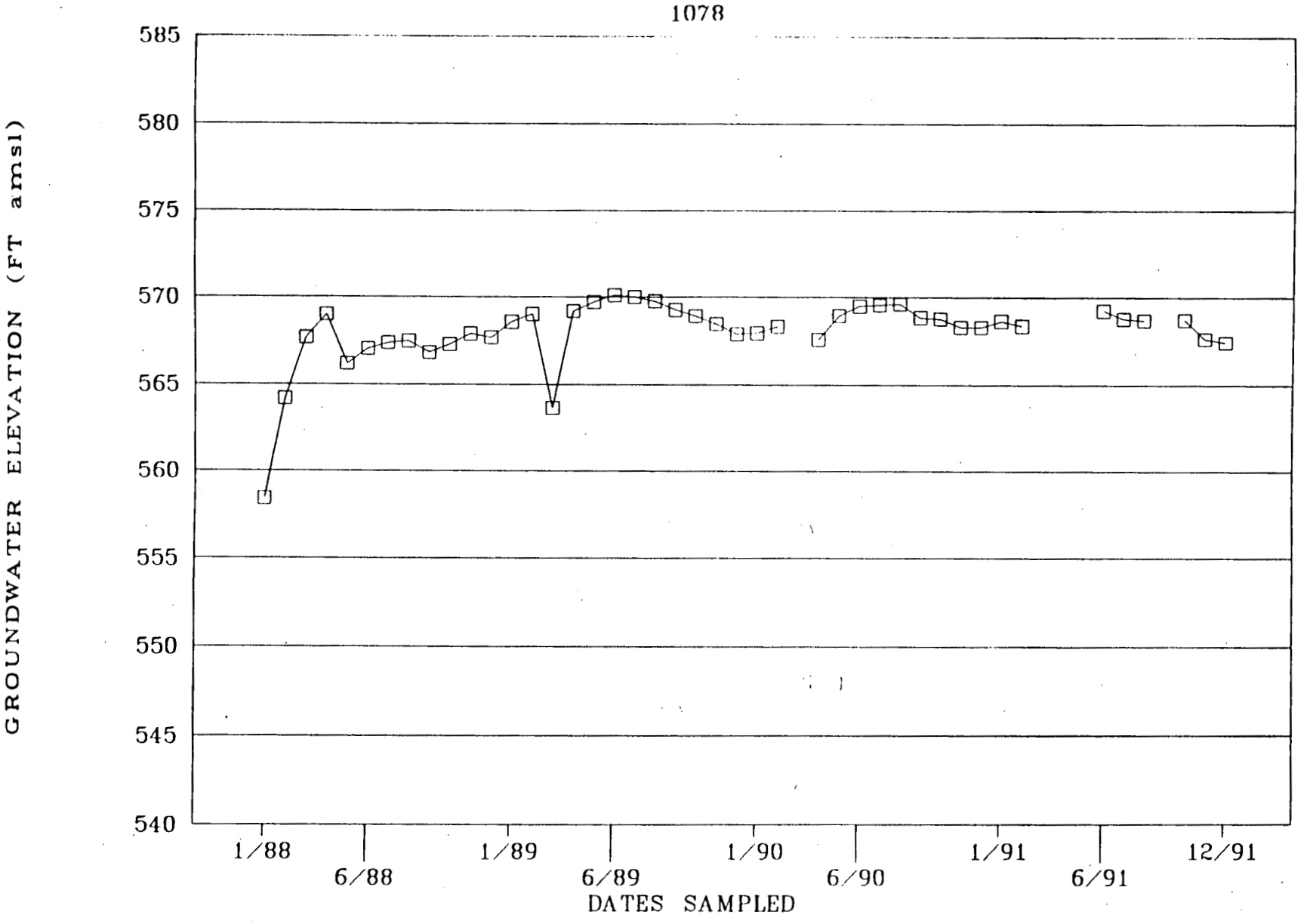

3718

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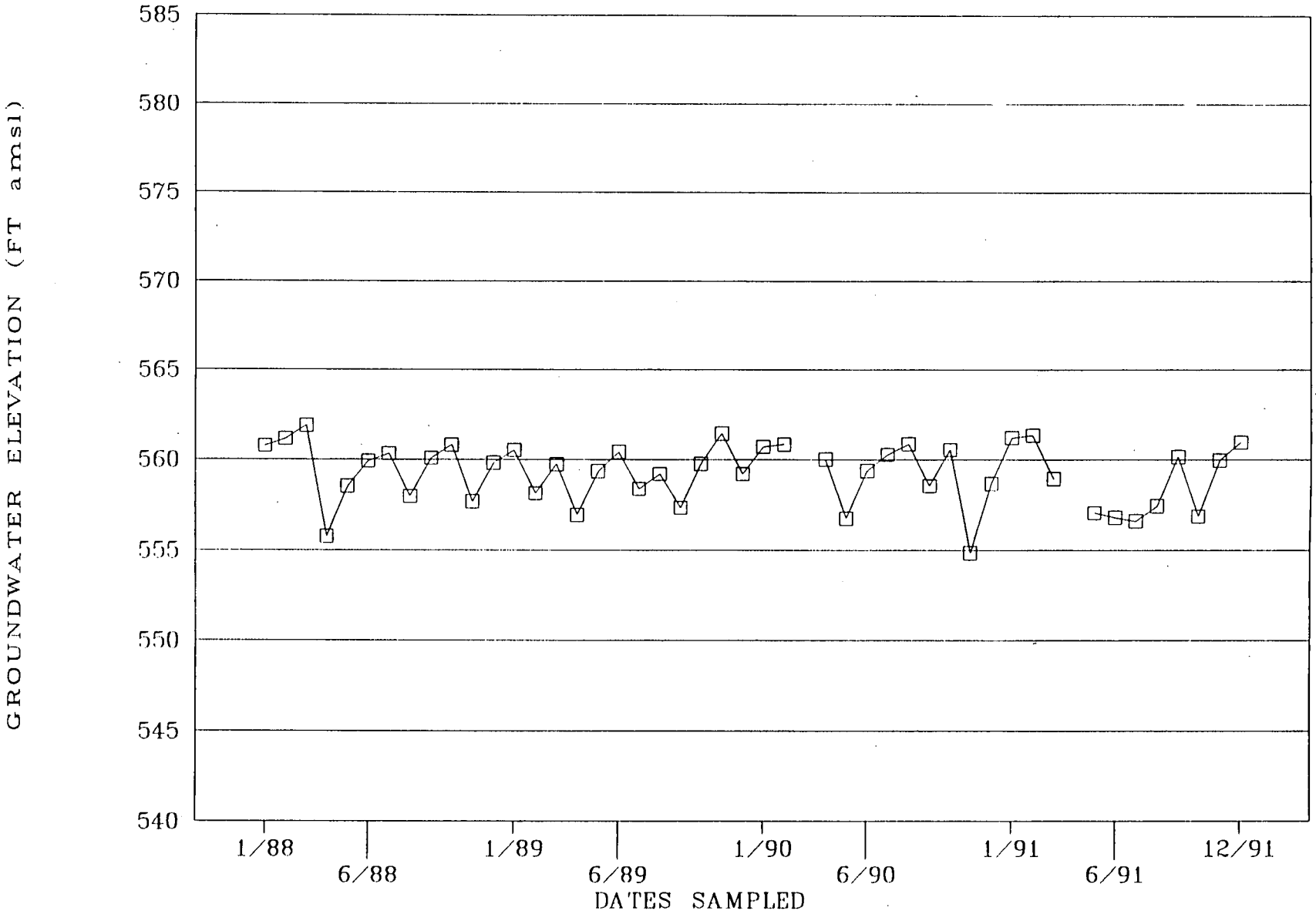
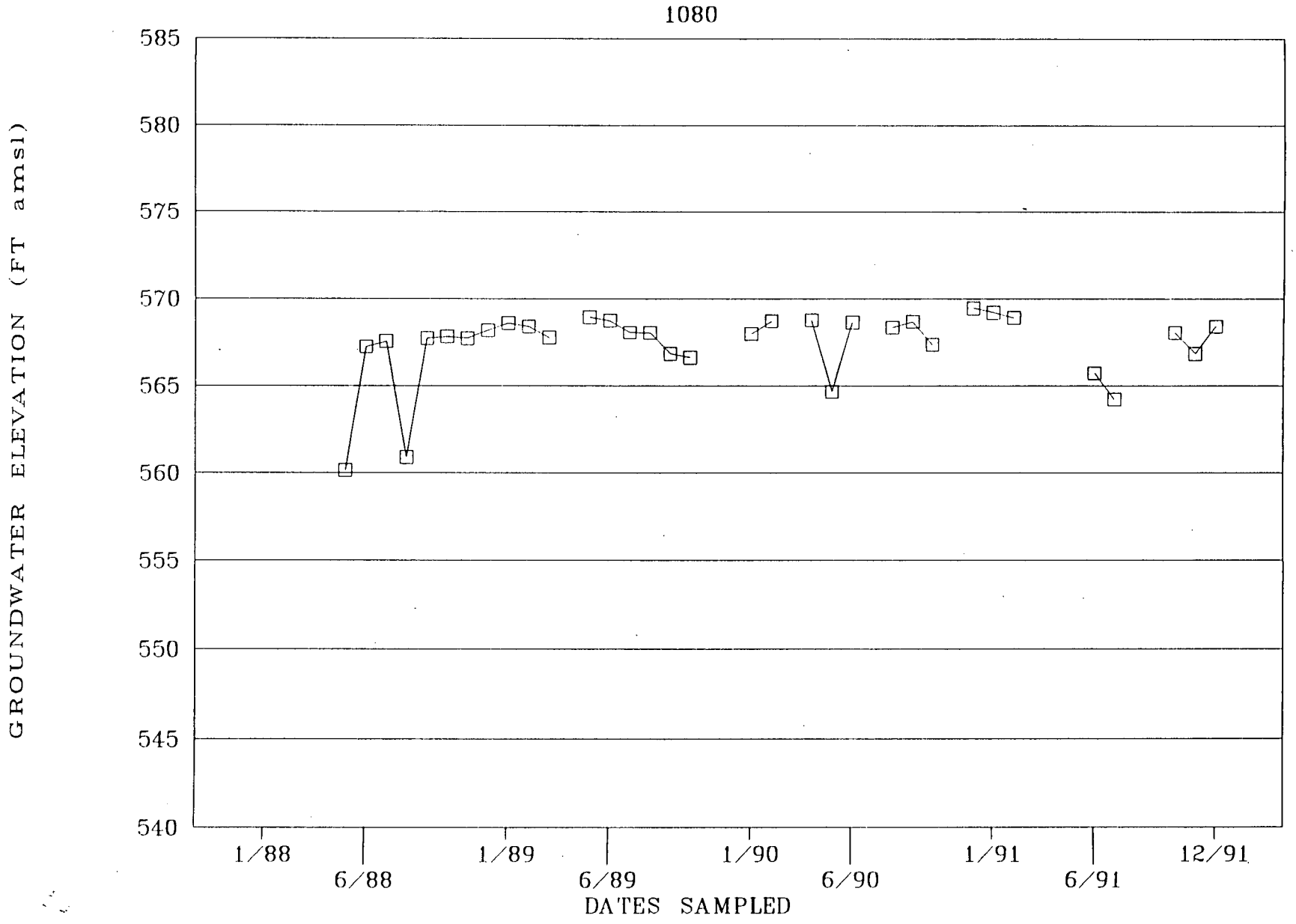
HYDROGRAPH FOR MONITORING WELL

1079

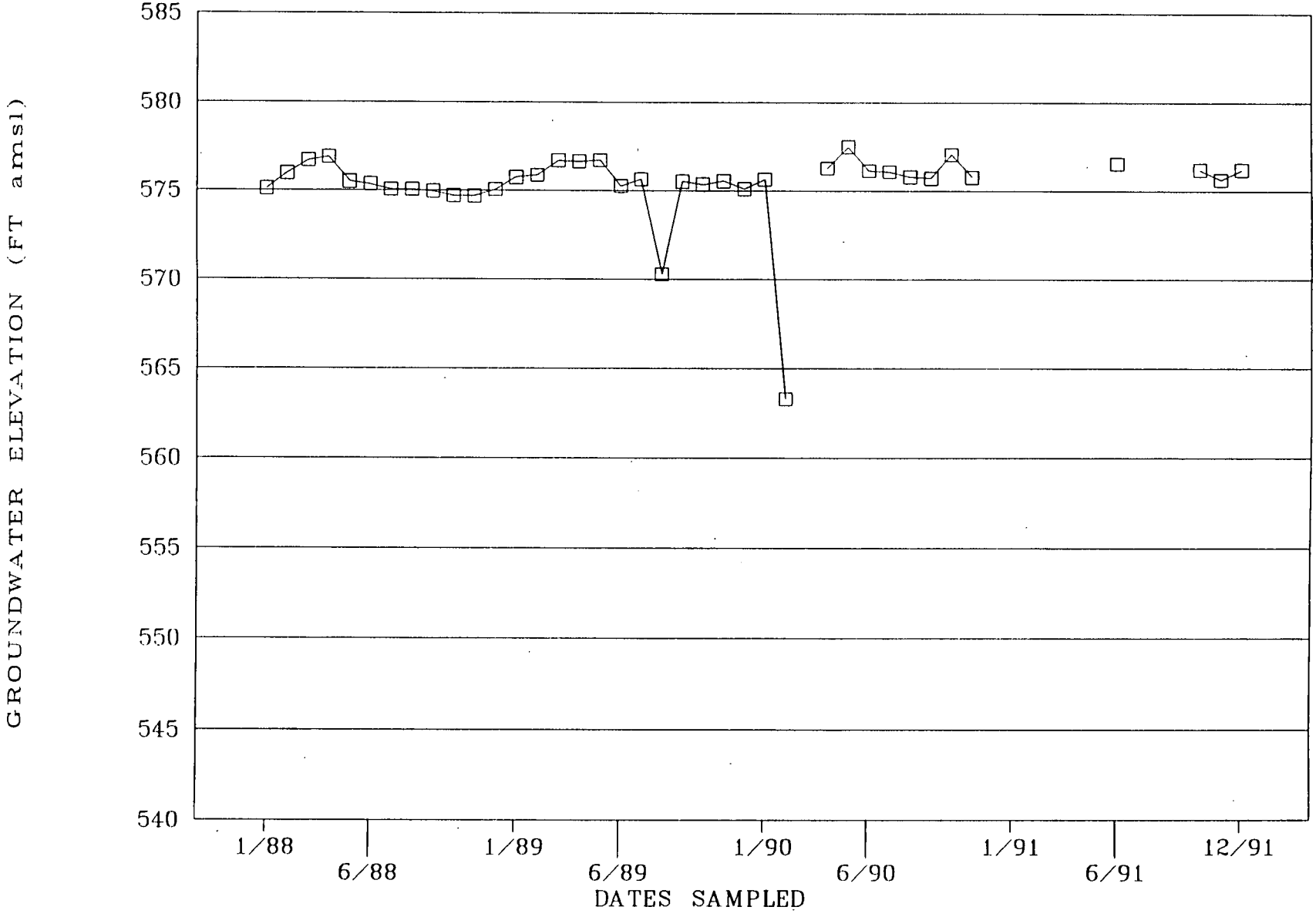


HYDROGRAPH FOR MONITORING WELL



HYDROGRAPH FOR MONITORING WELL

1081



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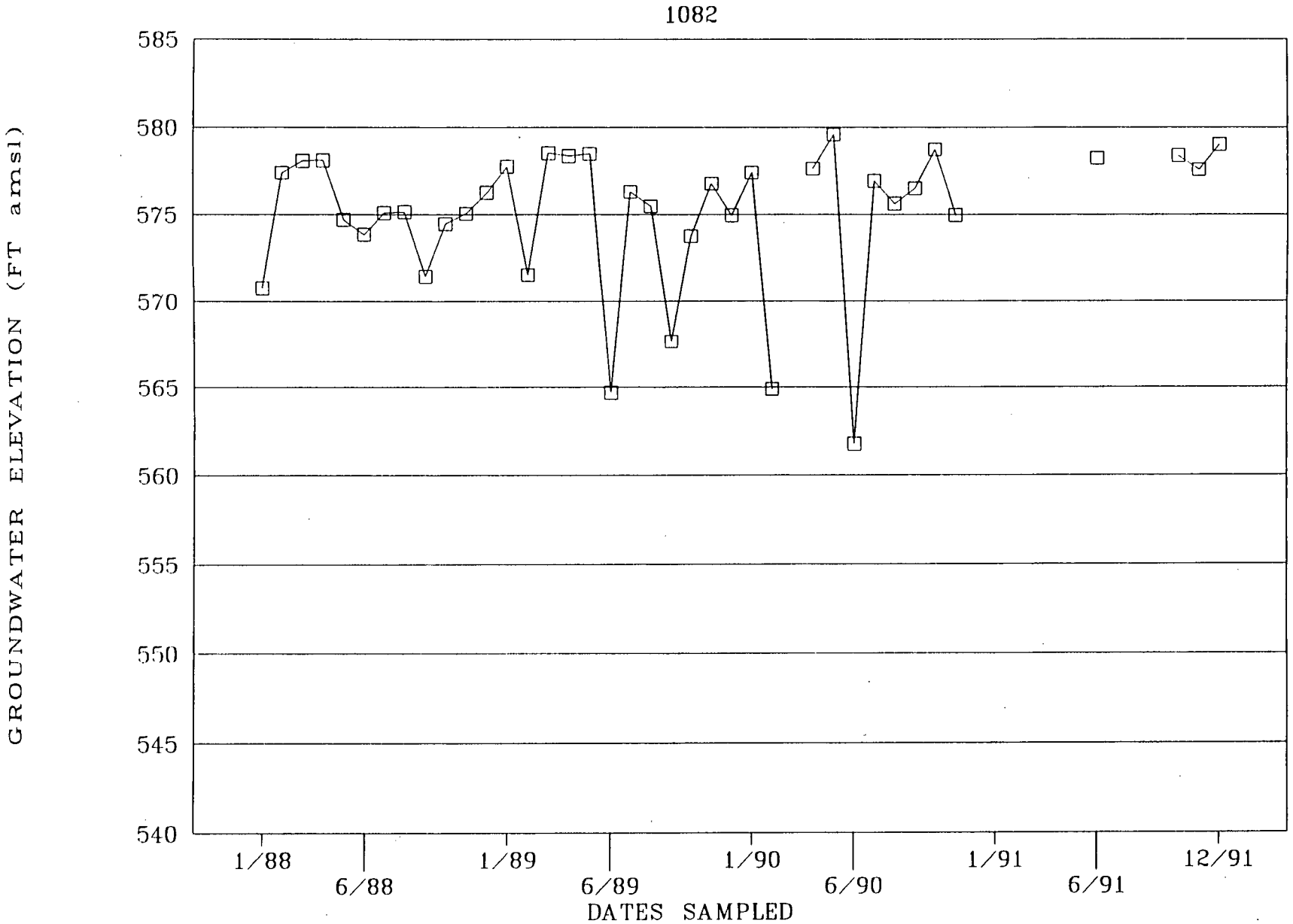
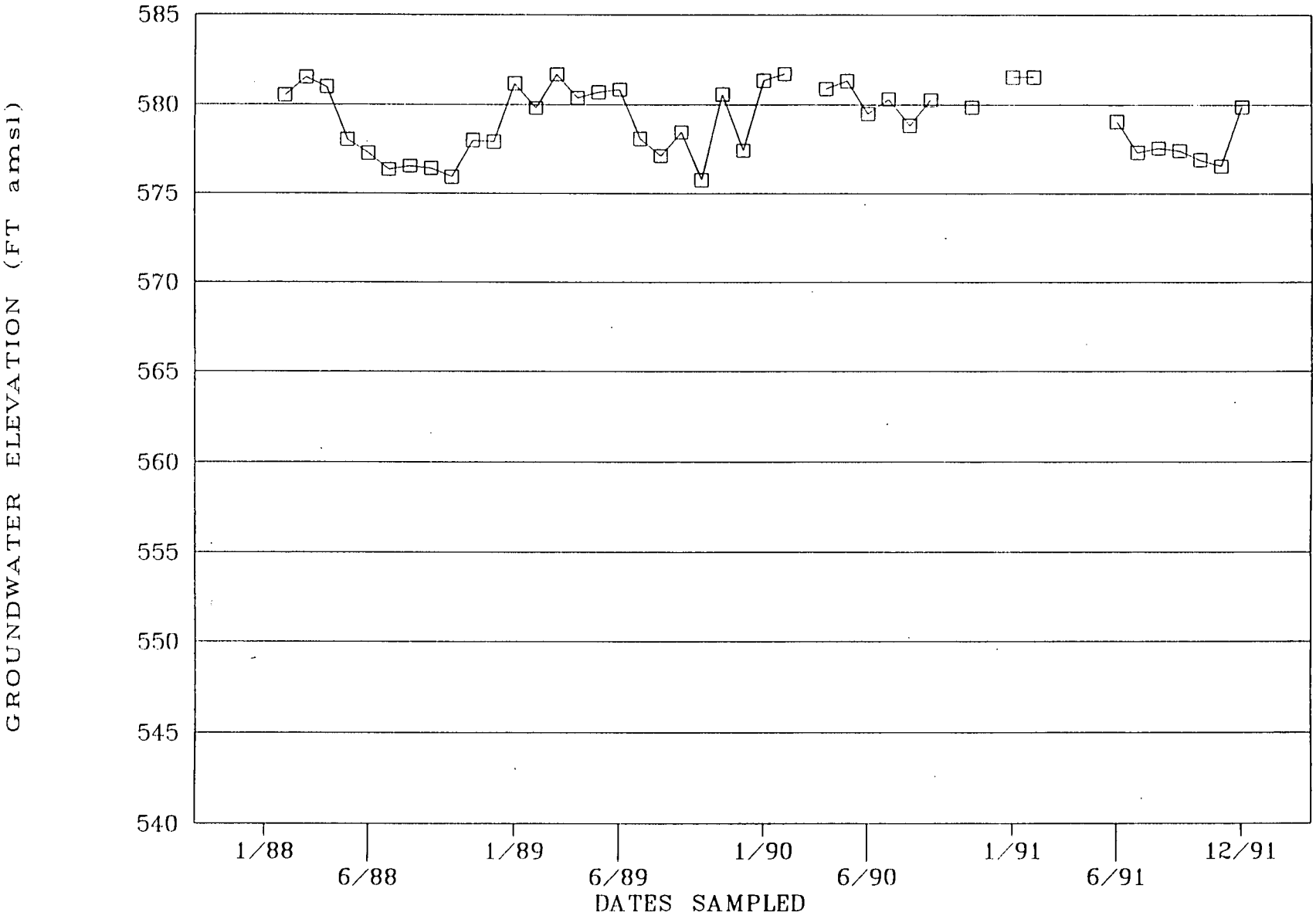


HYDROGRAPH FOR MONITORING WELL

1083



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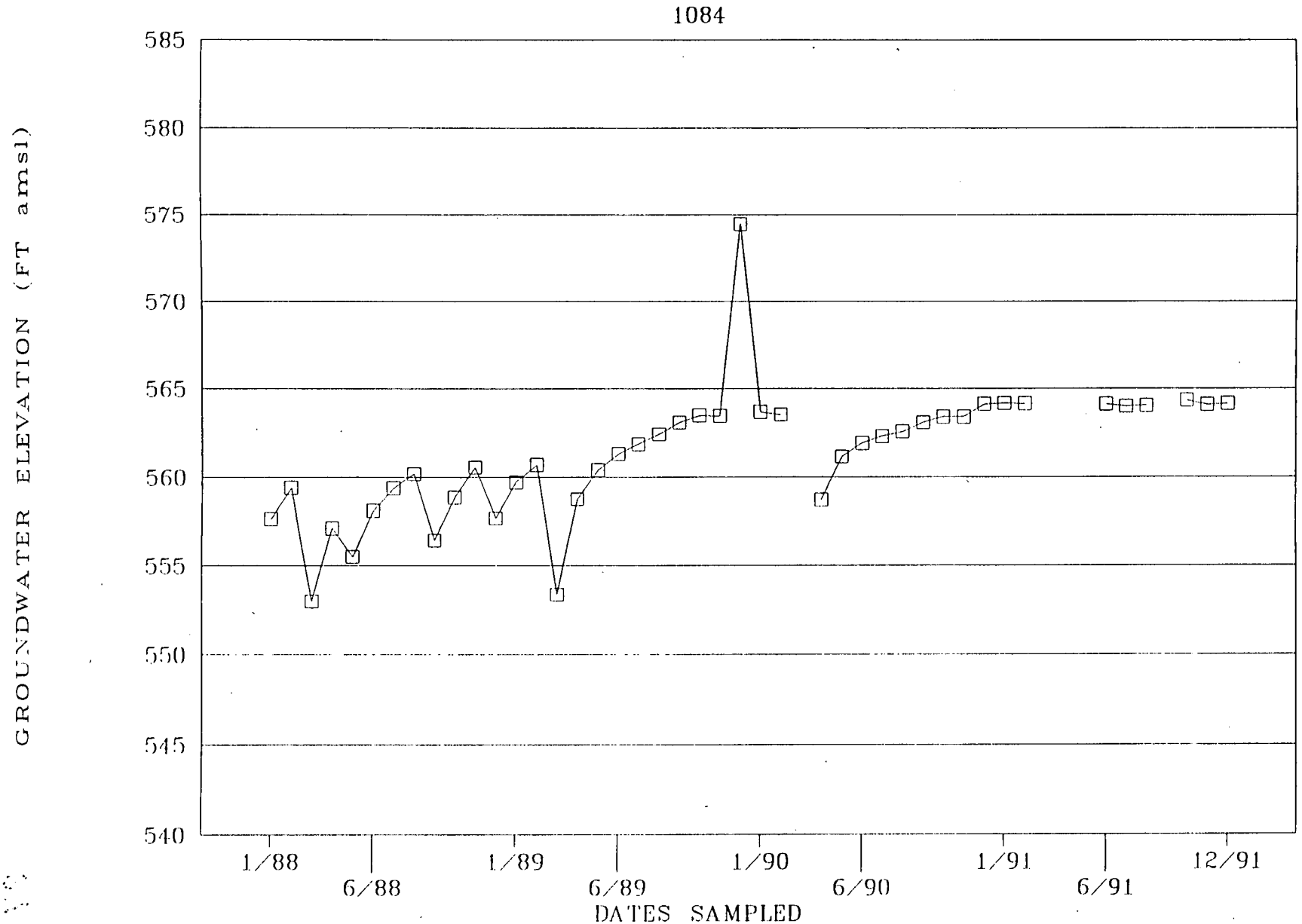

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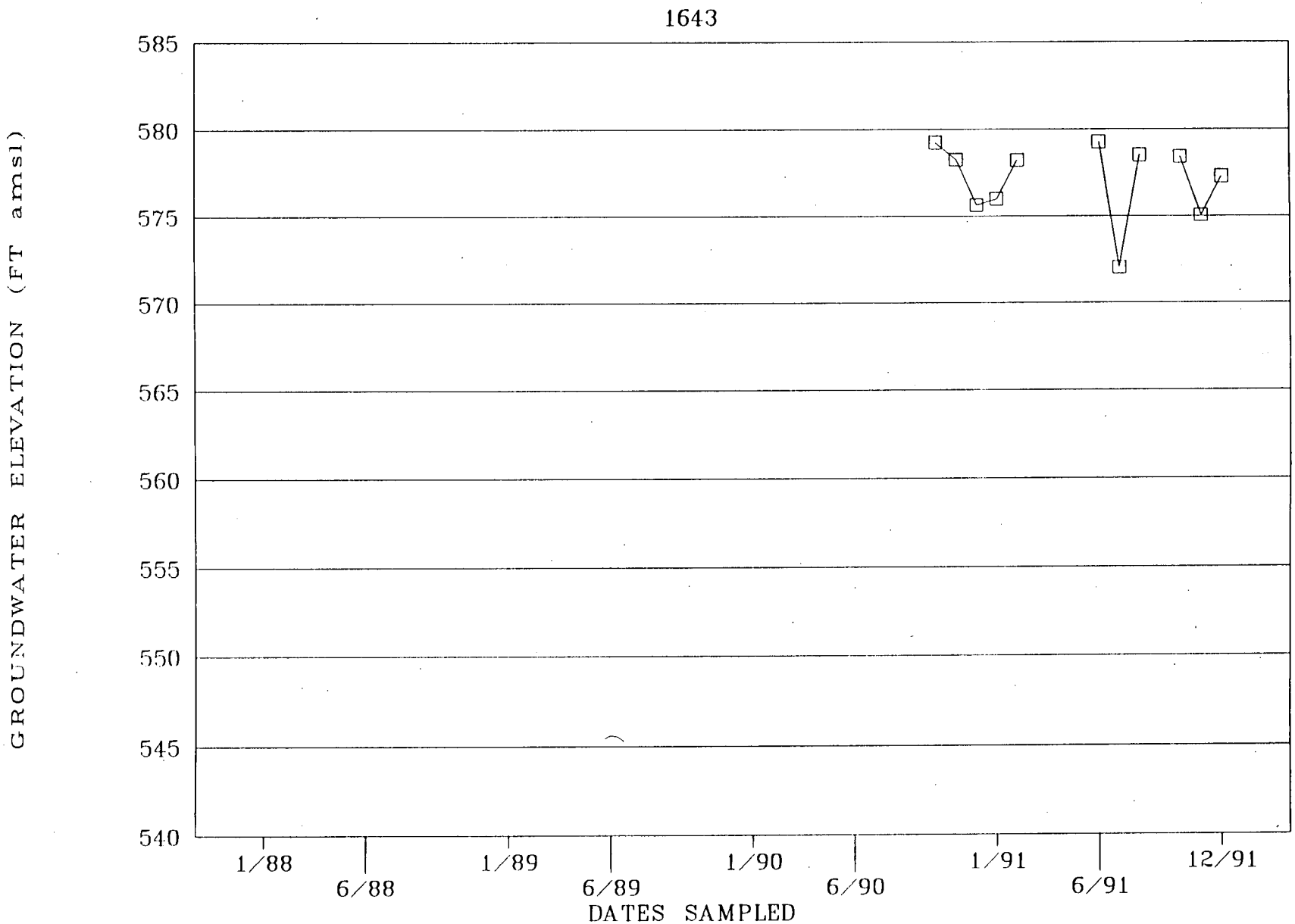

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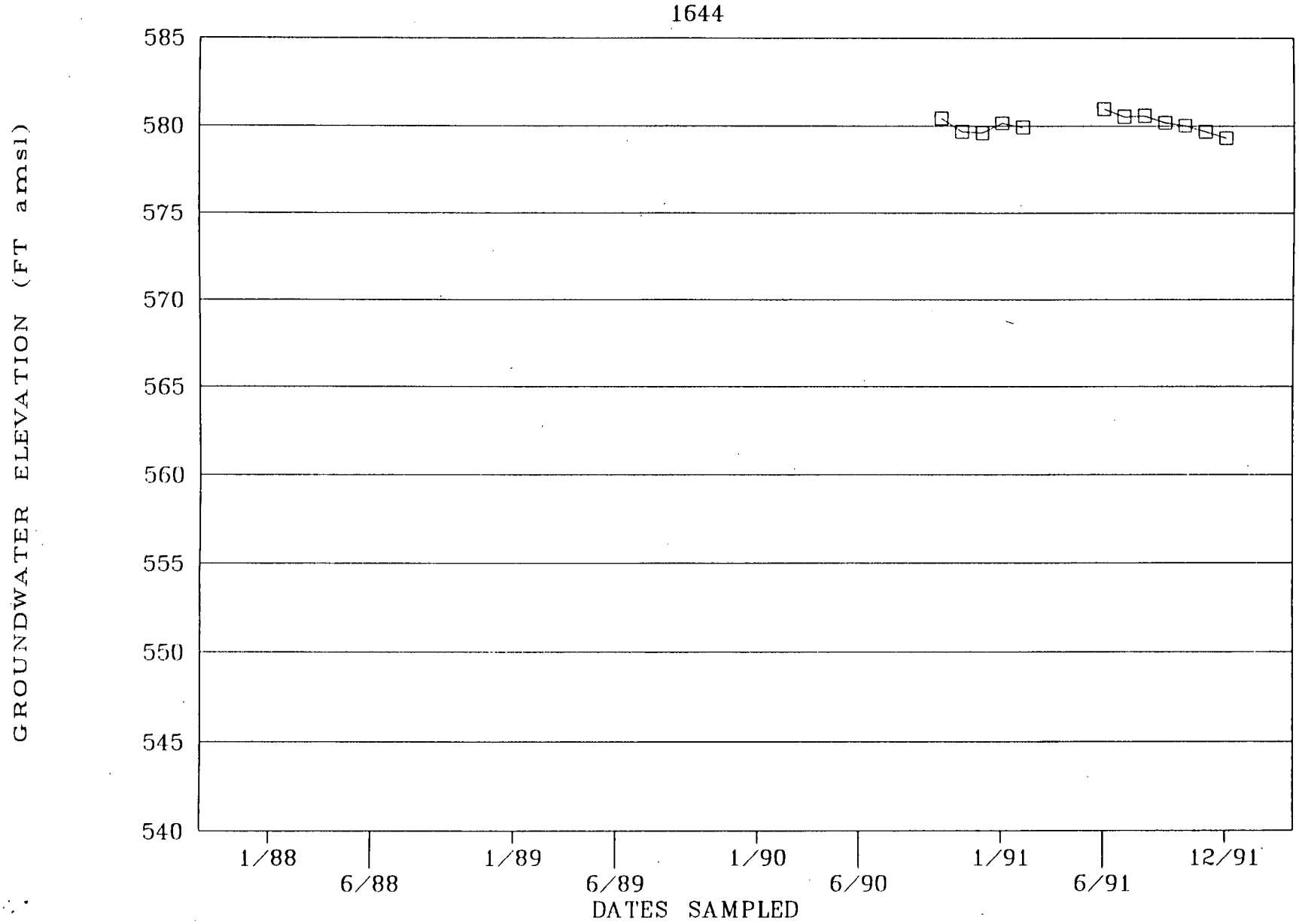
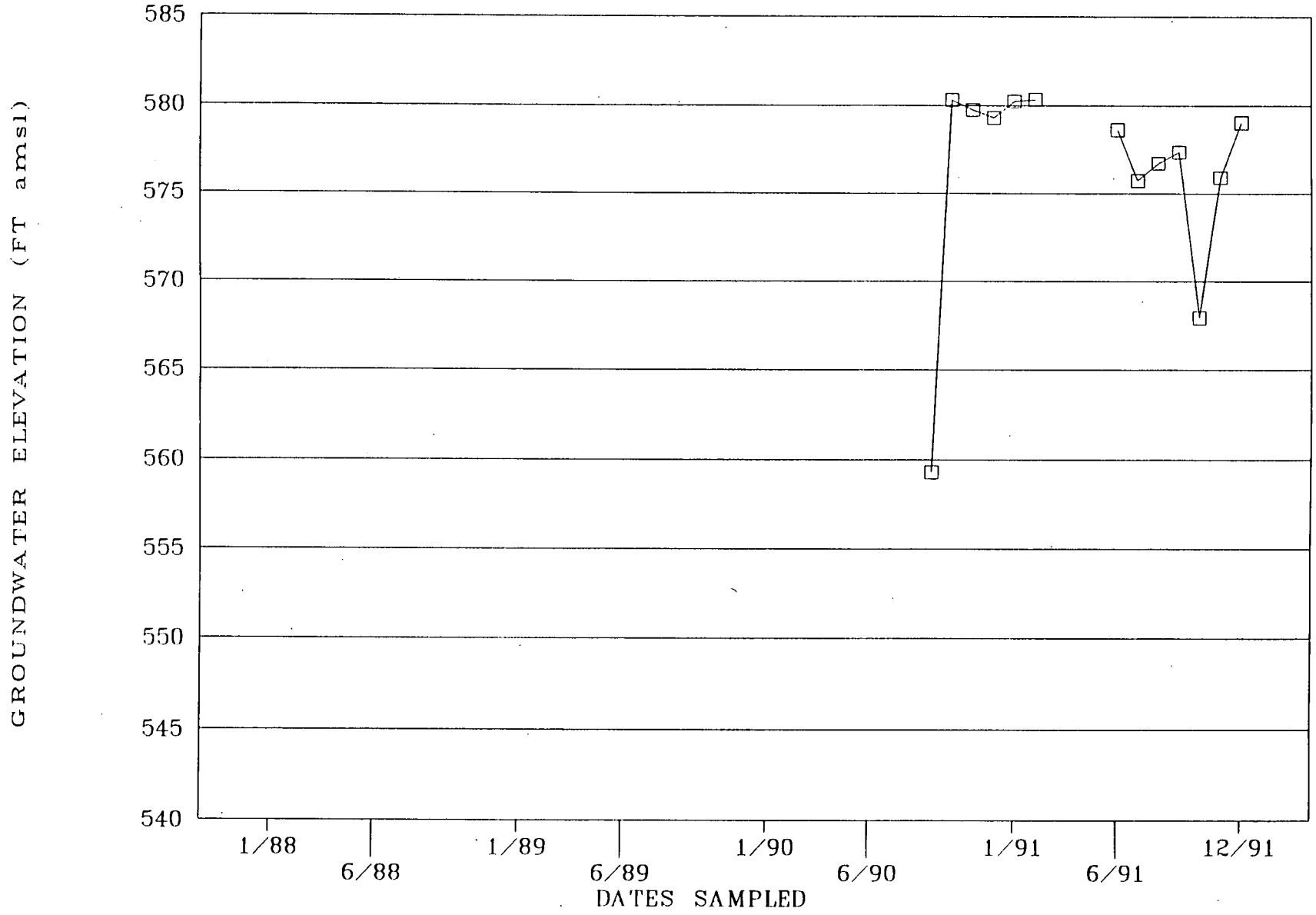


3713

HYDROGRAPH FOR MONITORING WELL

1645



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HYDROGRAPH FOR MONITORING WELL

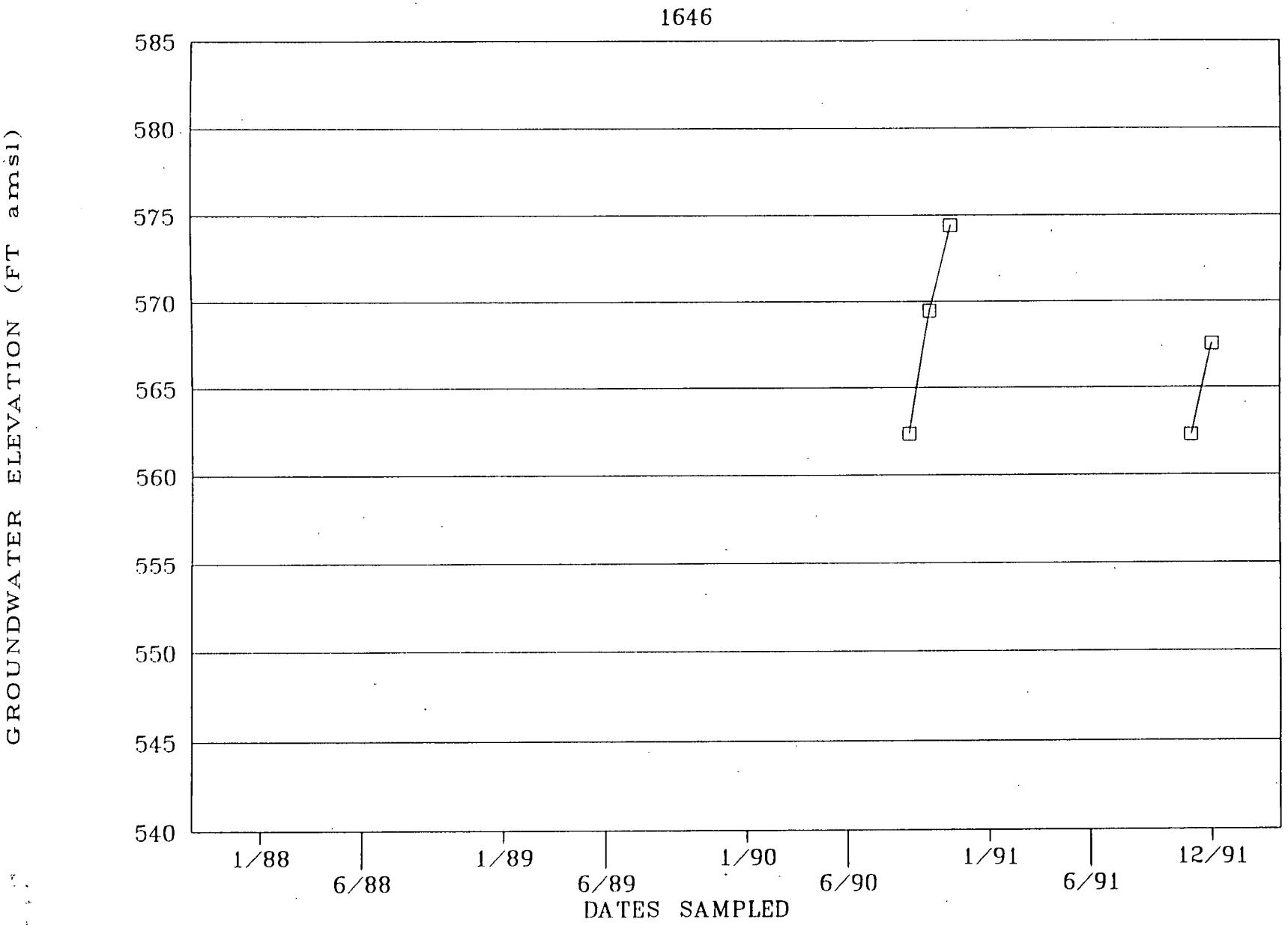

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
004	06/08/88	522.90	522.08	-0.82
004	07/09/88	521.40	521.18	-0.22
004	08/07/88	520.86	520.68	-0.18
004	09/09/88	519.78	520.13	0.35
004	10/08/88	519.84	519.62	-0.22
004	11/09/88	519.85	519.46	-0.39
004	12/13/88	519.91	519.68	-0.23
004	01/10/89	520.22	519.70	-0.52
004	02/10/89	520.93	520.35	-0.58
004	03/11/89	521.63	521.06	-0.57
004	04/15/89	520.72	522.37	1.65
004	05/14/89	524.10	523.38	-0.72
004	06/14/89	525.25	524.31	-0.94
004	07/14/89	524.84	524.25	-0.59
004	08/16/89	523.80	523.51	-0.29
004	09/12/89	523.74	523.39	-0.35
004	10/11/89	523.00	521.25	-1.75
004	11/17/89	523.36	522.88	-0.48
004	12/19/89	523.01	522.62	-0.39
004	01/22/90	524.27	522.92	-1.35
004	02/16/90	524.36	523.58	-0.78
004	04/24/90	525.11	524.53	-0.58
004	05/19/90	526.47	525.77	-0.70
004	07/24/90	526.05	525.60	-0.45
004	08/14/90	525.27	525.00	-0.27
004	09/24/90	525.04	524.63	-0.41
004	12/13/90	525.50	525.13	-0.37
004	01/19/91	526.09	525.69	-0.40
004	02/21/91	526.40	525.93	-0.47
004	06/05/91	526.81	526.41	-0.40
008	04/11/88	521.82	522.41	0.59
008	05/10/88	521.98	521.49	-0.49
008	06/08/88	521.47	521.09	-0.38
008	07/09/88	520.64	520.20	-0.44
008	08/07/88	520.02	519.58	-0.44
008	09/10/88	519.31	518.88	-0.43
008	10/08/88	518.99	518.56	-0.43
008	11/09/88	518.51	518.00	-0.51
008	12/13/88	518.61	518.10	-0.51
008	01/10/89	517.37	518.05	0.68
008	02/10/89	519.51	518.92	-0.59
008	03/11/89	520.33	519.70	-0.63
008	04/15/89	522.08	521.19	-0.89
008	05/14/89	523.21	522.62	-0.59
008	06/14/89	524.37	523.78	-0.59
008	07/14/89	524.08	523.76	-0.32
008	09/12/89	522.75	522.64	-0.11
008	11/17/89	522.10	521.48	-0.62
008	12/19/89	521.93	521.44	-0.49
008	01/22/90	522.14	521.51	-0.63
008	02/16/90	522.69	522.08	-0.61
008	04/03/90	523.71	523.19	-0.52

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
008	04/24/90	524.01	523.04	-0.97
008	06/21/90	525.67	525.12	-0.55
008	07/24/90	524.93	524.42	-0.51
008	08/14/90	524.36	524.01	-0.35
008	09/24/90	524.77	522.32	-2.45
008	10/23/90	523.89	523.31	-0.58
008	12/13/90	524.02	523.46	-0.56
008	01/19/91	525.17	524.65	-0.52
008	08/29/91	523.15	522.85	-0.30
008	09/19/91	522.43	522.25	-0.18
008	10/05/91	522.10	521.88	-0.22
008	11/02/91	522.19	521.05	-1.14
008	12/14/91	520.41	520.08	-0.33
009	01/09/88	521.33	521.08	-0.25
009	02/10/88	522.46	522.21	-0.25
009	03/09/88	523.25	523.01	-0.24
009	04/11/88	523.85	523.66	-0.19
009	05/10/88	523.53	522.21	-1.32
009	06/08/88	522.12	520.78	-1.34
009	07/08/88	521.33	520.01	-1.32
009	08/06/88	520.83	520.78	-0.05
009	09/09/88	520.24	518.93	-1.31
009	09/10/88	520.22	518.91	-1.31
009	10/09/88	519.74	519.69	-0.05
009	11/08/88	519.58	519.53	-0.05
009	12/12/88	519.48	519.43	-0.05
009	01/09/89	520.85	520.79	-0.06
009	02/09/89	521.67	521.59	-0.08
009	03/10/89	522.59	522.51	-0.08
009	04/16/89	524.74	524.70	-0.04
009	05/13/89	525.49	524.18	-1.31
009	06/15/89	526.16	526.06	-0.10
009	07/13/89	524.68	524.67	-0.01
009	08/15/89	523.68	523.59	-0.09
009	09/11/89	523.41	523.37	-0.04
009	10/11/89	522.84	522.80	-0.04
009	11/16/89	523.13	521.72	-1.41
009	12/15/89	522.06	523.69	1.63
009	01/21/90	524.51	524.46	-0.05
009	02/14/90	525.50	525.46	-0.04
009	04/02/90	525.88	525.81	-0.07
009	04/21/90	525.87	525.82	-0.05
009	05/18/90	527.36	527.11	-0.25
009	06/18/90	527.18	527.15	-0.03
009	07/17/90	526.10	526.06	-0.04
009	08/08/90	525.26	525.19	-0.07
009	09/18/90	524.54	524.51	-0.03
009	10/19/90	525.46	525.38	-0.08
009	11/15/90	525.53	525.49	-0.04
009	12/14/90	525.53	525.46	-0.07
009	01/16/91	526.61	526.56	-0.05
009	02/26/91	527.01	526.97	-0.04
009	03/19/91	527.14	527.10	-0.04

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
009	05/31/91	527.09	527.00	-0.09
009	07/25/91	524.95	524.94	-0.01
009	08/22/91	524.26	524.24	-0.02
009	09/05/91	523.87	523.84	-0.03
009	10/15/91	522.87	522.83	-0.04
009	11/05/91	522.30	522.28	-0.02
009	12/18/91	521.56	521.51	-0.05
010	04/11/88	520.60	520.04	-0.56
010	05/10/88	521.09	520.84	-0.25
010	06/08/88	520.84	520.62	-0.22
010	07/09/88	520.04	519.79	-0.25
010	08/07/88	519.35	519.14	-0.21
010	09/10/88	518.56	518.39	-0.17
010	10/08/88	518.36	518.14	-0.22
010	11/09/88	517.72	517.53	-0.19
010	12/13/88	517.75	517.52	-0.23
010	01/10/89	516.51	517.25	0.74
010	02/10/89	518.15	517.88	-0.27
010	03/11/89	519.08	518.81	-0.27
010	05/14/89	516.94	521.71	4.77
010	06/14/89	523.39	523.06	-0.33
010	07/14/89	523.41	523.17	-0.24
010	08/16/89	522.86	522.63	-0.23
010	10/11/89	520.15	519.97	-0.18
010	11/17/89	521.03	520.84	-0.19
010	12/19/89	521.14	520.91	-0.23
010	01/22/90	520.81	520.55	-0.26
010	02/16/90	521.21	520.92	-0.29
010	04/04/90	520.84	522.62	1.78
010	04/24/90	522.95	522.74	-0.21
010	05/19/90	523.44	523.19	-0.25
010	06/21/90	524.37	524.13	-0.24
010	07/24/90	523.87	523.70	-0.17
010	08/14/90	523.68	523.41	-0.27
010	09/24/90	522.94	522.72	-0.22
010	10/23/90	522.68	523.01	0.33
010	11/17/90	522.83	521.60	-1.23
010	12/13/90	522.75	522.49	-0.26
010	01/19/91	524.35	524.14	-0.21
010	02/22/91	524.71	524.51	-0.20
010	06/04/91	524.71	525.02	0.31
010	07/30/91	523.01	522.96	-0.05
010	08/29/91	522.31	522.08	-0.23
010	09/20/91	521.49	521.23	-0.26
010	10/06/91	521.00	520.77	-0.23
010	11/02/91	520.19	519.94	-0.25
010	12/14/91	519.37	519.94	0.57
011	03/09/88	521.60	520.87	-0.73
011	04/11/88	521.95	521.62	-0.33
011	05/10/88	523.36	521.68	-1.68
011	06/08/88	523.26	521.60	-1.66
011	06/09/88	522.75	521.35	-1.40

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
011	07/08/88	522.33	520.90	-1.43
011	07/09/88	522.41	521.01	-1.40
011	08/06/88	521.83	520.45	-1.38
011	09/10/88	520.89	519.73	-1.16
011	10/08/88	520.50	519.40	-1.10
011	10/09/88	520.58	519.49	-1.09
011	11/08/88	519.84	518.18	-1.66
011	11/09/88	520.12	518.92	-1.20
011	12/12/88	519.84	518.69	-1.15
011	12/13/88	520.04	518.94	-1.10
011	01/09/89	519.46	518.38	-1.08
011	01/10/89	519.80	518.69	-1.11
011	02/09/89	519.99	518.88	-1.11
011	02/10/89	520.44	519.33	-1.11
011	03/10/89	520.72	519.62	-1.10
011	03/11/89	520.73	519.62	-1.11
011	04/15/89	522.16	521.07	-1.09
011	05/13/89	523.68	522.30	-1.38
011	06/15/89	524.46	523.35	-1.11
011	07/14/89	524.82	519.75	-5.07
011	08/15/89	524.48	523.36	-1.12
011	08/17/89	524.02	523.18	-0.84
011	09/11/89	523.98	522.81	-1.17
011	10/11/89	521.94	520.86	-1.08
011	11/16/89	523.31	522.23	-1.08
011	12/15/89	523.13	522.04	-1.09
011	01/21/90	523.06	521.96	-1.10
011	02/14/90	523.13	522.03	-1.10
011	04/02/90	524.37	523.27	-1.10
011	04/21/90	524.66	523.56	-1.10
011	05/18/90	525.02	523.91	-1.11
011	06/18/90	526.08	525.00	-1.08
011	07/18/90	525.79	524.69	-1.10
011	09/18/90	524.89	523.79	-1.10
011	09/26/90	525.65	523.96	-1.69
011	10/18/90	525.42	523.54	-1.88
011	11/14/90	525.01	523.91	-1.10
011	12/07/90	524.96	523.89	-1.07
011	12/19/90	525.41	523.91	-1.50
011	01/16/91	525.99	524.91	-1.08
011	02/19/91	526.21	525.14	-1.07
011	02/28/91	526.26	525.17	-1.09
011	03/18/91	526.64	525.15	-1.49
011	05/30/91	527.04	525.96	-1.08
011	06/15/91	526.97	525.94	-1.03
011	07/25/91	525.45	524.52	-0.93
011	08/01/91	525.26	524.35	-0.91
011	08/21/91	524.86	523.79	-1.07
011	09/06/91	524.62	523.53	-1.09
011	10/07/91	523.68	522.63	-1.05
011	11/06/91	523.16	522.07	-1.09
011	12/02/91	522.48	521.42	-1.06
013	01/10/88	517.37	517.44	0.07

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
013	02/11/88	517.79	517.86	0.07
013	03/09/88	518.69	518.75	0.06
013	04/11/88	519.54	519.59	0.05
013	05/10/88	519.77	519.80	0.03
013	06/08/88	519.27	519.32	0.05
013	06/09/88	519.27	519.32	0.05
013	07/09/88	517.95	518.68	0.73
013	08/07/88	517.92	517.97	0.05
013	09/10/88	517.07	517.12	0.05
013	10/08/88	516.94	516.99	0.05
013	11/09/88	516.15	516.22	0.07
013	12/13/88	516.07	516.11	0.04
013	01/10/89	515.94	515.99	0.05
013	02/10/89	516.72	516.78	0.06
013	03/11/89	517.67	517.74	0.07
013	04/15/89	519.81	519.87	0.06
013	05/14/89	521.76	521.81	0.05
013	06/14/89	523.31	523.38	0.07
013	07/14/89	522.83	522.85	0.02
013	08/16/89	521.93	523.00	1.07
013	09/12/89	521.14	521.18	0.04
013	10/11/89	519.12	519.17	0.05
013	11/17/89	519.96	520.00	0.04
013	12/18/89	519.58	518.84	-0.74
013	01/22/90	519.28	519.33	0.05
013	02/16/90	519.79	519.84	0.05
013	04/04/90	521.91	522.00	0.09
013	04/23/90	522.10	522.17	0.07
013	05/18/90	522.41	522.47	0.06
013	06/21/90	523.35	523.41	0.06
013	07/19/90	522.73	522.99	0.26
013	08/10/90	522.65	522.71	0.06
013	09/21/90	521.65	521.73	0.08
013	10/21/90	521.32	521.38	0.06
013	11/18/90	521.45	521.51	0.06
013	12/14/90	521.35	521.42	0.07
013	01/20/91	524.24	524.29	0.05
013	02/22/91	524.03	524.08	0.05
013	03/20/91	523.84	523.90	0.06
013	05/30/91	523.76	523.78	0.02
013	07/27/91	521.42	521.49	0.07
013	08/29/91	520.32	520.38	0.06
013	10/02/91	519.36	519.41	0.05
013	11/07/91	518.11	518.15	0.04
013	12/09/91	517.46	517.50	0.04
014	03/09/88	521.56	521.55	-0.01
014	04/12/88	521.89	521.88	-0.01
014	06/08/88	520.20	520.18	-0.02
014	08/06/88	519.04	519.02	-0.02
014	09/09/88	518.49	518.49	0.00
014	10/09/88	518.06	518.04	-0.02
014	11/08/88	517.69	517.69	0.00
014	12/12/88	517.49	517.47	-0.02

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
014	01/09/89	519.02	518.98	-0.04
014	02/09/89	519.06	519.05	-0.01
014	03/10/89	521.02	520.96	-0.06
014	04/16/89	522.90	522.85	-0.05
014	05/13/89	523.84	523.80	-0.04
014	06/15/89	524.30	524.26	-0.04
014	07/13/89	522.94	522.89	-0.05
014	08/15/89	521.95	521.97	0.02
014	09/11/89	521.53	521.54	0.01
014	10/10/89	519.51	519.51	0.00
014	11/17/89	521.16	521.34	0.18
014	12/15/89	520.24	520.40	0.16
014	01/21/90	521.27	521.23	-0.04
014	02/14/90	522.50	522.45	-0.05
014	03/31/90	523.72	523.67	-0.05
014	04/21/90	523.96	523.90	-0.06
014	05/17/90	525.44	525.38	-0.06
014	06/16/90	524.41	524.41	0.00
014	07/16/90	524.02	523.98	-0.04
014	07/27/90	523.13	523.15	0.02
014	08/07/90	522.87	522.89	0.02
014	09/18/90	522.13	522.13	0.00
014	10/18/90	523.34	523.55	0.21
014	11/14/90	523.07	523.06	-0.01
014	12/12/90	523.31	523.31	0.00
014	01/16/91	525.06	525.01	-0.05
014	02/19/91	525.11	525.06	-0.05
014	03/19/91	525.02	524.96	-0.06
014	05/31/91	524.27	524.17	-0.10
014	07/25/91	522.41	522.37	-0.04
014	08/21/91	521.76	521.73	-0.03
014	10/15/91	520.39	520.40	0.01
014	11/05/91	519.92	519.92	0.00
014	12/10/91	519.33	519.35	0.02
015	05/10/88	520.28	520.27	-0.01
015	11/08/88	517.09	517.05	-0.04
015	12/12/88	516.93	516.91	-0.02
015	01/09/89	517.86	517.80	-0.06
015	02/09/89	518.30	518.27	-0.03
015	03/10/89	519.69	519.65	-0.04
015	04/16/89	521.71	521.67	-0.04
015	05/13/89	522.76	522.73	-0.03
015	06/15/89	523.30	523.29	-0.01
015	07/13/89	522.33	522.31	-0.02
015	08/15/89	521.43	521.40	-0.03
015	09/11/89	520.93	520.91	-0.02
015	10/10/89	518.91	518.88	-0.03
015	10/25/89	518.65	518.61	-0.04
015	11/15/89	520.17	520.14	-0.03
015	12/14/89	519.79	519.75	-0.04
015	01/21/90	520.11	520.05	-0.06
015	02/16/90	521.50	521.44	-0.06
015	04/01/90	522.40	522.35	-0.05

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Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
015	04/23/90	522.69	522.63	-0.06
015	05/17/90	523.50	523.46	-0.04
015	06/17/90	523.47	523.41	-0.06
015	07/16/90	523.03	522.94	-0.09
015	08/09/90	522.26	522.21	-0.05
015	09/19/90	521.68	521.49	-0.19
015	10/20/90	522.21	522.12	-0.09
015	11/16/90	522.02	521.97	-0.05
015	12/11/90	522.20	522.14	-0.06
015	02/27/91	523.92	523.87	-0.05
015	03/28/91	524.17	524.10	-0.07
015	06/01/91	523.30	523.23	-0.07
015	07/26/91	521.71	521.61	-0.10
015	08/24/91	520.95	520.89	-0.06
015	09/08/91	520.73	520.56	-0.17
015	10/09/91	519.84	519.77	-0.07
015	11/04/91	519.20	519.15	-0.05
015	12/05/91	518.85	518.74	-0.11
016	01/09/88	519.70	519.67	-0.03
016	02/10/88	520.83	520.78	-0.05
016	03/09/88	521.79	521.75	-0.04
016	04/12/88	522.35	522.33	-0.02
016	05/10/88	521.44	521.43	-0.01
016	06/08/88	520.61	520.61	0.00
016	07/09/88	519.95	519.95	0.00
016	08/06/88	519.44	519.45	0.01
016	09/09/88	518.89	518.85	-0.04
016	10/09/88	518.41	518.40	-0.01
016	11/08/88	518.06	518.03	-0.03
016	12/12/88	517.89	517.90	0.01
016	01/09/89	519.13	519.12	-0.01
016	02/09/89	519.57	519.55	-0.02
016	03/10/89	521.12	521.09	-0.03
016	04/16/89	523.23	523.09	-0.14
016	05/13/89	524.14	524.13	-0.01
016	06/15/89	524.49	525.47	0.98
016	07/13/89	523.28	523.24	-0.04
016	08/15/89	522.40	522.42	0.02
016	09/11/89	522.00	521.98	-0.02
016	10/10/89	519.94	519.93	-0.01
016	11/17/89	521.44	521.43	-0.01
016	12/15/89	520.86	520.85	-0.01
016	01/21/90	521.57	521.55	-0.02
016	02/14/90	523.03	522.99	-0.04
016	02/17/90	523.50	523.45	-0.05
016	03/31/90	524.19	524.15	-0.04
016	04/09/90	524.10	524.07	-0.03
016	04/21/90	524.47	524.43	-0.04
016	04/24/90	524.58	524.55	-0.03
016	05/17/90	525.77	525.72	-0.05
016	06/16/90	525.37	525.34	-0.03
016	08/07/90	523.43	523.32	-0.11
016	09/18/90	522.70	522.70	0.00

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
016	10/18/90	523.54	523.51	-0.03
016	11/14/90	523.75	523.71	-0.04
016	12/12/90	523.94	523.93	-0.01
016	01/16/91	525.37	525.36	-0.01
016	01/24/91	525.21	525.20	-0.01
016	02/19/91	525.59	525.57	-0.02
016	03/18/91	525.60	525.56	-0.04
016	05/31/91	525.13	525.07	-0.06
016	07/25/91	523.00	523.05	0.05
016	08/21/91	522.33	522.33	0.00
016	09/06/91	521.97	521.96	-0.01
016	10/09/91	521.09	521.03	-0.06
016	11/05/91	520.44	520.43	-0.01
016	12/10/91	519.82	519.81	-0.01
017	02/10/88	520.55	520.43	-0.12
017	03/09/88	521.68	521.70	0.02
017	04/12/88	522.05	522.03	-0.02
017	05/10/88	520.90	520.90	0.00
017	06/08/88	520.19	520.20	0.01
017	07/09/88	519.58	519.58	0.00
017	08/06/88	519.14	519.11	-0.03
017	09/09/88	518.61	518.60	-0.01
017	10/09/88	518.15	518.11	-0.04
017	11/08/88	517.82	517.83	0.01
017	12/12/88	517.64	517.58	-0.06
017	01/09/89	519.30	519.22	-0.08
017	02/09/89	519.23	519.27	0.04
017	03/10/89	521.16	521.13	-0.03
017	04/16/89	522.80	522.77	-0.03
017	06/15/89	523.78	524.31	0.53
017	07/13/89	522.75	522.74	-0.01
017	08/15/89	521.80	521.89	0.09
017	09/11/89	521.44	521.43	-0.01
017	10/10/89	519.43	519.42	-0.01
017	11/15/89	521.19	520.75	-0.44
017	12/14/89	520.08	520.88	0.80
017	01/21/90	521.03	520.63	-0.40
017	02/14/90	522.45	522.44	-0.01
017	03/31/90	523.27	523.39	0.12
017	04/23/90	523.66	523.63	-0.03
017	05/17/90	525.14	525.06	-0.08
017	06/17/90	523.95	523.93	-0.02
017	08/09/90	522.67	522.67	0.00
017	09/19/90	522.40	522.39	-0.01
017	10/20/90	523.27	523.25	-0.02
017	11/15/90	522.96	522.96	0.00
017	12/11/90	523.69	523.23	-0.46
017	02/26/91	524.38	524.48	0.10
017	03/28/91	524.88	524.90	0.02
017	06/01/91	523.83	523.87	0.04
017	07/26/91	522.86	522.38	-0.48
017	08/24/91	521.75	521.73	-0.02
017	09/08/91	521.43	521.44	0.01

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
017	10/08/91	520.73	520.72	-0.01
017	11/06/91	520.11	520.11	0.00
017	12/17/91	519.67	519.64	-0.03
018	03/09/88	522.01	530.30	8.29
018	04/11/88	523.09	527.79	4.70
018	05/10/88	522.55	531.12	8.57
018	06/08/88	521.59	522.29	0.70
018	09/09/88	518.27	520.54	2.27
018	11/08/88	518.75	519.35	0.60
018	12/12/88	518.78	520.32	1.54
018	12/13/88	518.78	520.31	1.53
018	01/09/89	519.34	521.49	2.15
018	02/09/89	520.37	522.47	2.10
018	03/10/89	521.22	527.01	5.79
018	04/16/89	523.26	530.57	7.31
018	05/13/89	524.32	532.09	7.77
018	06/15/89	525.16	533.61	8.45
018	07/13/89	524.39	532.38	7.99
018	08/15/89	523.38	537.65	14.27
018	09/11/89	522.97	525.52	2.55
018	10/11/89	520.73	523.99	3.26
018	11/16/89	522.24	525.46	3.22
018	12/15/89	522.19	524.63	2.44
018	01/21/90	522.68	525.10	2.42
018	02/14/90	523.71	532.15	8.44
018	04/02/90	524.60	529.81	5.21
018	04/21/90	524.77	526.80	2.03
018	05/18/90	525.67	533.37	7.70
018	06/18/90	526.37	535.55	9.18
018	08/08/90	524.78	530.23	5.45
018	09/18/90	523.94	525.53	1.59
018	10/19/90	524.28	526.81	2.53
018	11/15/90	524.67	525.62	0.95
018	12/14/90	524.55	526.87	2.32
018	01/16/91	525.68	538.32	12.64
018	02/20/91	526.11	537.19	11.08
018	03/19/91	526.25	532.33	6.08
018	05/31/91	535.42	533.49	-1.93
018	07/25/91	524.31	526.28	1.97
018	08/22/91	523.57	523.95	0.38
018	09/05/91	523.08	525.03	1.95
018	09/20/91	522.84	524.88	2.04
018	10/15/91	522.11	523.62	1.51
018	11/05/91	521.58	523.42	1.84
018	12/10/91	520.80	522.67	1.87
019	05/10/88	521.40	521.30	-0.10
019	06/08/88	521.31	521.29	-0.02
019	07/09/88	520.57	520.54	-0.03
019	09/12/89	522.55	522.52	-0.03
019	10/11/89	522.10	520.53	-1.57
019	10/25/89	521.80	520.24	-1.56
019	11/17/89	521.53	521.55	0.02

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
019	01/22/90	521.42	521.44	0.02
019	02/16/90	521.90	521.89	-0.01
019	04/04/90	523.19	523.15	-0.04
019	04/24/90	523.34	523.36	0.02
019	05/19/90	523.85	523.83	-0.02
019	06/21/90	524.80	524.81	0.01
019	08/14/90	524.11	524.08	-0.03
019	09/24/90	523.48	523.47	-0.01
019	10/24/90	523.45	523.39	-0.06
019	11/17/90	523.41	523.37	-0.04
019	01/19/91	524.59	524.62	0.03
019	02/21/91	524.95	524.93	-0.02
019	06/04/91	525.26	525.24	-0.02
019	07/30/91	523.77	523.79	0.02
020	03/09/88	520.44	520.46	0.02
020	04/11/88	521.17	521.14	-0.03
020	05/10/88	521.18	521.53	0.35
020	06/08/88	520.22	520.55	0.33
020	07/09/88	519.82	519.83	0.01
020	08/06/88	519.21	519.23	0.02
020	09/09/88	518.64	518.63	-0.01
020	10/09/88	518.20	518.18	-0.02
020	11/08/88	517.60	517.60	0.00
020	12/12/88	517.60	517.55	-0.05
020	01/09/89	517.68	517.68	0.00
020	02/09/89	518.59	518.57	-0.02
020	03/10/89	519.52	519.50	-0.02
020	04/16/89	521.50	521.50	0.00
020	05/14/89	522.96	522.94	-0.02
020	06/15/89	524.02	524.97	0.95
020	07/13/89	524.21	522.75	-1.46
020	08/15/89	522.62	522.63	0.01
020	09/11/89	522.04	522.04	0.00
020	10/10/89	520.00	520.01	0.01
020	11/16/89	521.00	521.01	0.01
020	12/15/89	521.02	521.02	0.00
020	01/21/90	520.80	520.80	0.00
020	02/14/90	521.62	521.61	-0.01
020	03/31/90	523.03	523.11	0.08
020	04/22/90	523.40	523.38	-0.02
020	05/18/90	523.92	523.97	0.05
020	06/19/90	524.81	524.81	0.00
020	07/18/90	524.10	524.12	0.02
020	08/08/90	523.67	523.67	0.00
020	09/25/90	522.86	522.89	0.03
020	11/15/90	523.10	523.11	0.01
020	12/12/90	523.28	523.27	-0.01
020	01/17/91	524.49	524.49	0.00
020	02/19/91	524.98	524.97	-0.01
020	03/19/91	525.02	525.01	-0.01
020	06/14/91	524.28	524.21	-0.07
020	07/25/91	523.02	523.02	0.00
020	08/22/91	521.71	522.22	0.51

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
020	09/05/91	521.70	522.17	0.47
020	12/10/91	519.36	518.36	-1.00
024	01/09/88	519.87	519.79	-0.08
024	02/10/88	519.80	519.69	-0.11
024	03/09/88	520.65	520.56	-0.09
024	04/11/88	521.07	521.08	0.01
024	05/10/88	521.42	521.37	-0.05
024	06/08/88	521.40	521.38	-0.02
024	07/08/88	520.72	520.67	-0.05
024	08/06/88	520.19	520.14	-0.05
024	09/10/88	519.46	519.38	-0.08
024	10/09/88	519.20	519.18	-0.02
024	11/08/88	518.37	518.23	-0.14
024	12/12/88	518.35	518.24	-0.11
024	01/10/89	518.29	518.23	-0.06
024	02/09/89	518.88	518.86	-0.02
024	02/10/89	518.88	518.86	-0.02
024	03/10/89	519.42	519.41	-0.01
024	04/15/89	520.67	520.68	0.01
024	05/14/89	522.06	522.02	-0.04
024	06/15/89	523.35	523.35	0.00
024	07/14/89	523.63	523.67	0.04
024	08/15/89	524.32	523.31	-1.01
024	09/11/89	522.78	522.73	-0.05
024	10/11/89	520.68	520.62	-0.06
024	11/16/89	521.92	521.86	-0.06
024	12/15/89	522.20	521.49	-0.71
024	01/21/90	521.50	521.48	-0.02
024	02/14/90	521.70	521.56	-0.14
024	04/03/90	522.96	522.89	-0.07
024	04/21/90	523.37	523.31	-0.06
024	05/18/90	525.63	523.60	-2.03
024	06/18/90	524.87	524.81	-0.06
024	07/18/90	524.53	524.46	-0.07
024	08/08/90	524.39	524.33	-0.06
024	09/18/90	523.54	523.47	-0.07
024	10/18/90	522.84	522.83	-0.01
024	11/14/90	523.61	523.56	-0.05
024	12/07/90	523.54	523.47	-0.07
024	01/16/91	523.62	524.56	0.94
024	02/19/91	524.24	524.62	0.38
024	03/18/91	525.53	525.47	-0.06
024	05/30/91	525.82	525.73	-0.09
024	07/25/91	524.12	524.13	0.01
024	08/21/91	523.40	523.33	-0.07
024	09/06/91	523.16	523.07	-0.09
024	10/07/91	522.15	522.04	-0.11
024	11/06/91	521.61	521.52	-0.09
024	12/02/91	520.95	520.89	-0.06
032	10/19/90	525.58	525.58	0.00
032	11/16/90	525.65	525.66	0.01
032	12/14/90	526.36	525.37	-0.99

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
032	06/04/91	526.96	526.97	0.01
032	10/15/91	522.64	522.69	0.05
032	11/03/91	522.13	522.18	0.05
032	12/14/91	521.40	521.43	0.03
034	04/11/88	522.94	522.52	-0.42
034	05/10/88	522.97	522.93	-0.04
034	06/08/88	521.90	521.88	-0.02
034	07/08/88	521.10	521.08	-0.02
034	08/06/88	520.54	520.53	-0.01
034	09/09/88	519.96	519.94	-0.02
034	09/10/88	519.92	519.89	-0.03
034	10/09/88	519.45	519.43	-0.02
034	11/08/88	519.17	519.13	-0.04
034	12/12/88	519.15	519.13	-0.02
034	01/09/89	519.82	519.77	-0.05
034	02/09/89	520.70	520.65	-0.05
034	03/10/89	521.47	521.43	-0.04
034	04/15/89	524.16	524.09	-0.07
034	05/13/89	524.84	524.78	-0.06
034	06/15/89	525.82	525.73	-0.09
034	07/14/89	524.56	524.53	-0.03
034	08/15/89	523.62	523.59	-0.03
034	09/11/89	523.30	523.29	-0.01
034	10/11/89	521.08	521.05	-0.03
034	12/15/89	522.85	522.80	-0.05
034	01/21/90	523.73	523.67	-0.06
034	02/14/90	524.15	524.09	-0.06
034	04/02/90	524.91	524.86	-0.05
034	04/21/90	525.12	525.08	-0.04
034	05/18/90	526.52	526.43	-0.09
034	06/18/90	527.13	527.10	-0.03
034	07/18/90	525.91	525.89	-0.02
034	08/08/90	525.14	525.12	-0.02
034	09/18/90	524.52	524.48	-0.04
034	10/19/90	525.08	525.05	-0.03
034	11/16/90	525.34	525.32	-0.02
034	12/14/90	525.06	525.03	-0.03
034	01/16/91	526.02	525.98	-0.04
034	06/04/91	526.66	526.63	-0.03
034	10/15/91	522.40	522.49	0.09
034	11/03/91	521.84	521.92	0.08
034	12/14/91	521.04	521.11	0.07
037	03/09/88	519.76	519.48	-0.28
037	05/10/88	520.66	520.64	-0.02
037	06/08/88	520.67	520.69	0.02
037	07/09/88	519.94	519.92	-0.02
037	08/07/88	519.20	519.22	0.02
037	09/10/88	518.42	518.44	0.02
037	10/08/88	518.22	518.24	0.02
037	11/09/88	517.49	517.51	0.02
037	12/13/88	517.66	517.67	0.01
037	01/10/89	517.22	517.25	0.03

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
037	02/10/89	517.84	517.87	0.03
037	03/11/89	518.76	518.78	0.02
037	04/15/89	519.98	520.00	0.02
037	05/14/89	521.59	521.60	0.01
037	06/14/89	522.93	522.92	-0.01
037	07/14/89	523.23	523.27	0.04
037	08/16/89	522.74	522.76	0.02
037	09/12/89	522.01	522.03	0.02
037	10/11/89	521.59	521.60	0.01
037	10/25/89	521.25	521.26	0.01
037	11/17/89	521.16	520.61	-0.55
037	12/19/89	521.00	520.98	-0.02
037	01/22/90	520.58	520.60	0.02
037	02/16/90	521.06	521.07	0.01
037	04/04/90	522.57	522.59	0.02
037	04/24/90	522.70	522.72	0.02
037	05/19/90	523.14	523.13	-0.01
037	06/19/90	524.12	524.13	0.01
037	07/24/90	523.64	523.66	0.02
037	08/14/90	523.49	523.52	0.03
037	09/24/90	522.00	522.73	0.73
037	10/23/90	522.42	522.43	0.01
037	11/17/90	522.57	522.58	0.01
037	12/13/90	522.49	522.50	0.01
037	01/19/91	524.05	524.07	0.02
037	02/22/91	524.48	524.49	0.01
037	06/04/91	524.04	524.49	0.45
037	08/29/91	522.18	522.17	-0.01
037	09/20/91	521.29	521.31	0.02
037	10/06/91	520.82	520.84	0.02
037	11/02/91	519.97	520.05	0.08
037	12/14/91	519.16	519.18	0.02
043	01/09/88	521.10	521.01	-0.09
043	02/10/88	521.25	521.18	-0.07
043	03/09/88	521.98	521.89	-0.09
043	04/12/88	522.20	522.23	0.03
043	05/10/88	522.44	522.45	0.01
043	06/08/88	522.23	522.24	0.01
043	07/08/88	521.53	521.50	-0.03
043	08/06/88	521.03	521.03	0.00
043	09/09/88	520.45	520.45	0.00
043	10/09/88	520.13	520.15	0.02
043	11/08/88	519.45	519.46	0.01
043	12/12/88	520.13	519.80	-0.33
043	01/09/89	519.46	519.47	0.01
043	02/09/89	520.12	520.16	0.04
043	03/10/89	520.68	520.71	0.03
043	04/16/89	521.83	521.88	0.05
043	05/13/89	522.81	522.88	0.07
043	06/15/89	523.78	523.88	0.10
043	07/13/89	524.10	524.12	0.02
043	08/15/89	523.68	523.66	-0.02
043	09/11/89	523.29	523.35	0.06

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
043	10/10/89	521.54	521.58	0.04
043	11/16/89	522.85	522.88	0.03
043	12/14/89	522.60	522.59	-0.01
043	01/21/90	522.66	522.73	0.07
043	02/14/90	522.98	523.04	0.06
043	04/03/90	523.76	523.86	0.10
043	04/22/90	524.09	524.17	0.08
043	05/15/90	524.46	524.54	0.08
043	06/17/90	525.38	525.46	0.08
043	08/07/90	525.09	525.16	0.07
043	09/19/90	524.69	524.75	0.06
043	10/20/90	524.56	524.32	-0.24
043	11/15/90	524.79	524.85	0.06
043	12/11/90	524.95	525.00	0.05
043	01/18/91	525.02	525.11	0.09
043	02/26/91	525.73	525.85	0.12
043	03/27/91	525.83	525.96	0.13
043	06/01/91	526.31	526.46	0.15
043	07/26/91	525.05	525.16	0.11
043	08/23/91	524.52	524.59	0.07
043	09/07/91	524.19	524.25	0.06
043	10/07/91	523.33	523.41	0.08
043	11/04/91	522.71	522.75	0.04
043	12/02/91	522.25	522.17	-0.08
044	04/12/88	522.92	522.90	-0.02
044	05/10/88	522.24	522.22	-0.02
044	06/08/88	521.26	521.24	-0.02
044	07/08/88	520.64	520.60	-0.04
044	08/06/88	520.14	520.10	-0.04
044	09/09/88	519.59	519.55	-0.04
044	10/09/88	519.15	519.11	-0.04
044	11/08/88	518.78	518.76	-0.02
044	12/12/88	518.78	518.74	-0.04
044	01/09/89	519.73	519.73	0.00
044	02/09/89	520.59	520.57	-0.02
044	03/10/89	521.74	521.74	0.00
044	04/16/89	523.63	523.63	0.00
044	05/13/89	524.37	524.38	0.01
044	06/15/89	524.64	524.66	0.02
044	07/13/89	523.53	523.50	-0.03
044	08/15/89	522.82	522.81	-0.01
044	09/11/89	522.52	522.46	-0.06
044	10/10/89	520.47	520.44	-0.03
044	11/15/89	521.92	521.90	-0.02
044	12/14/89	521.53	521.52	-0.01
044	01/21/90	522.32	522.31	-0.01
044	02/14/90	523.74	523.74	0.00
044	03/31/90	527.16	525.30	-1.86
044	04/22/90	525.03	525.01	-0.02
044	05/15/90	525.56	525.56	0.00
044	05/20/90	525.55	525.58	0.03
044	06/17/90	525.88	525.86	-0.02
044	07/16/90	524.84	524.84	0.00

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
044	08/07/90	523.45	524.62	1.17
044	09/19/90	523.44	523.42	-0.02
044	10/20/90	524.24	524.21	-0.03
044	11/15/90	524.48	524.47	-0.01
044	12/11/90	524.66	524.65	-0.01
044	01/18/91	525.54	525.56	0.02
044	02/26/91	525.96	525.97	0.01
044	03/27/91	526.29	526.30	0.01
044	06/01/91	525.90	525.91	0.01
044	07/26/91	523.90	523.87	-0.03
044	08/24/91	523.16	523.17	0.01
044	09/08/91	522.88	522.87	-0.01
044	10/07/91	522.16	522.15	-0.01
044	11/04/91	521.52	521.50	-0.02
044	12/02/91	520.94	520.87	-0.07
045	06/16/90	524.44	524.52	0.08
045	07/16/90	524.26	523.92	-0.34
045	08/07/90	522.92	523.00	0.08
045	09/18/90	522.15	522.22	0.07
045	10/18/90	522.94	523.02	0.08
045	11/14/90	522.92	522.98	0.06
045	12/12/90	523.11	523.19	0.08
045	01/16/91	524.97	525.03	0.06
045	02/19/91	524.98	525.05	0.07
045	03/18/91	524.93	525.01	0.08
045	05/31/91	524.22	524.30	0.08
045	07/25/91	522.35	522.46	0.11
045	08/22/91	521.69	521.76	0.07
045	09/06/91	521.34	521.40	0.06
045	10/15/91	520.32	520.38	0.06
045	11/05/91	519.83	519.88	0.05
045	12/10/91	519.20	519.28	0.08
046	06/18/90	524.86	524.93	0.07
046	07/17/90	524.13	524.19	0.06
046	08/08/90	523.45	523.50	0.05
046	09/18/90	522.57	522.69	0.12
046	10/19/90	523.07	523.12	0.05
046	11/15/90	523.26	523.32	0.06
046	12/14/90	523.69	523.84	0.15
046	01/16/91	524.92	525.02	0.10
046	02/19/91	525.13	525.23	0.10
046	03/19/91	525.18	525.11	-0.07
046	05/31/91	524.90	524.96	0.06
046	07/25/91	522.88	522.98	0.10
046	08/22/91	522.15	522.24	0.09
046	09/05/91	521.72	522.50	0.78
046	10/15/91	520.72	520.80	0.08
046	11/05/91	520.19	520.29	0.10
046	12/10/91	519.49	519.54	0.05
049	12/12/88	517.19	517.21	0.02
049	01/09/89	518.19	518.17	-0.02

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
049	02/09/89	518.52	518.56	0.04
049	03/10/89	520.16	520.14	-0.02
049	04/16/89	522.09	522.11	0.02
049	05/13/89	523.30	523.30	0.00
049	06/15/89	523.92	518.94	-4.98
049	07/13/89	522.80	522.89	0.09
049	08/15/89	521.89	521.94	0.05
049	09/11/89	521.40	521.43	0.03
049	10/10/89	519.36	519.39	0.03
049	11/17/89	520.77	520.78	0.01
049	12/15/89	520.34	520.33	-0.01
049	01/21/90	520.66	520.67	0.01
049	02/14/90	521.71	521.72	0.01
049	03/31/90	523.01	523.02	0.01
049	04/21/90	523.24	523.06	-0.18
049	05/17/90	524.51	524.48	-0.03
049	06/16/90	524.13	524.18	0.05
049	07/16/90	523.61	523.64	0.03
049	08/07/90	522.73	522.12	-0.61
049	09/18/90	521.92	521.98	0.06
049	10/18/90	522.58	522.60	0.02
049	11/14/90	522.58	522.62	0.04
049	12/12/90	522.78	522.82	0.04
049	01/16/91	524.88	524.88	0.00
049	02/19/91	524.58	524.80	0.22
049	03/19/91	524.67	524.70	0.03
049	05/31/91	523.95	523.98	0.03
049	09/07/91	521.00	521.06	0.06
049	10/15/91	520.00	520.07	0.07
049	11/05/91	519.51	519.55	0.04
049	12/10/91	518.89	518.96	0.07
051	01/09/88	516.75	516.70	-0.05
051	02/10/88	516.71	516.65	-0.06
051	03/09/88	517.95	517.89	-0.06
051	04/11/88	518.83	518.84	0.01
051	05/10/88	519.09	519.10	0.01
051	06/08/88	518.79	518.79	0.00
051	07/09/88	517.73	517.74	0.01
051	09/09/88	516.23	516.22	-0.01
051	10/09/88	515.87	515.87	0.00
051	11/08/88	515.18	515.17	-0.01
051	12/12/88	515.16	515.17	0.01
051	01/09/89	514.84	514.84	0.00
051	02/09/89	515.92	515.92	0.00
051	03/10/89	516.78	516.78	0.00
051	04/16/89	519.75	519.76	0.01
051	05/14/89	521.66	521.67	0.01
051	06/15/89	523.13	523.15	0.02
051	07/13/89	522.36	522.37	0.01
051	08/15/89	521.25	521.28	0.03
051	09/11/89	520.37	520.38	0.01
051	10/10/89	518.39	518.41	0.02
051	11/16/89	519.12	519.12	0.00

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
051	12/14/89	518.78	518.81	0.03
051	01/21/90	518.42	518.42	0.00
051	02/16/90	519.06	519.06	0.00
053	03/11/89	518.63	518.77	0.14
053	05/14/89	521.62	522.30	0.68
053	06/14/89	522.89	523.60	0.71
053	07/14/89	522.87	522.99	0.12
053	08/16/89	521.50	522.22	0.72
053	09/12/89	521.48	522.58	1.10
053	10/11/89	519.47	519.76	0.29
053	11/17/89	517.36	520.47	3.11
053	12/18/89	520.14	519.85	-0.29
053	02/18/90	520.73	520.83	0.10
053	04/05/90	522.42	522.54	0.12
053	05/18/90	523.05	523.26	0.21
053	06/19/90	523.82	523.91	0.09
054	12/13/88	516.37	516.63	0.26
054	01/10/89	516.38	516.62	0.24
054	02/10/89	517.12	517.37	0.25
054	03/11/89	518.05	518.30	0.25
054	04/15/89	520.20	520.46	0.26
054	05/14/89	521.96	522.24	0.28
054	06/14/89	523.40	523.69	0.29
054	07/14/89	522.84	523.11	0.27
054	08/16/89	521.95	522.24	0.29
054	09/12/89	521.27	521.52	0.25
054	10/11/89	519.24	519.50	0.26
054	12/18/89	519.77	519.59	-0.18
054	01/22/90	519.53	519.82	0.29
054	02/16/90	520.09	520.34	0.25
054	04/05/90	521.94	522.20	0.26
054	04/23/90	522.32	522.58	0.26
054	05/18/90	522.68	530.92	8.24
054	06/21/90	523.52	523.77	0.25
054	07/19/90	522.71	522.97	0.26
054	08/11/90	522.83	522.77	-0.06
054	09/20/90	521.67	521.90	0.23
054	10/21/90	521.67	521.92	0.25
054	11/18/90	521.72	521.92	0.20
054	12/14/90	521.70	521.97	0.27
054	01/21/91	524.03	524.28	0.25
054	02/22/91	524.10	524.37	0.27
054	03/20/91	524.03	524.29	0.26
054	05/30/91	523.91	524.13	0.22
054	07/30/91	521.61	521.84	0.23
054	08/29/91	520.64	520.87	0.23
054	09/10/91	520.28	520.51	0.23
054	10/03/91	519.56	519.81	0.25
054	11/12/91	518.47	518.69	0.22
054	12/09/91	517.83	518.08	0.25
055	04/15/89	519.98	520.16	0.18

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
055	05/14/89	521.84	522.02	0.18
055	08/16/89	522.42	521.05	-1.37
055	09/12/89	521.68	521.84	0.16
055	10/11/89	521.24	521.44	0.20
055	11/17/89	520.55	520.72	0.17
055	12/18/89	520.28	520.66	0.38
055	01/22/90	520.01	520.20	0.19
055	02/16/90	520.39	520.56	0.17
055	04/05/90	522.19	522.35	0.16
055	04/23/90	522.56	523.71	1.15
055	05/18/90	522.81	522.91	0.10
055	06/21/90	523.78	524.01	0.23
055	07/25/90	523.50	523.47	-0.03
055	08/11/90	523.19	523.36	0.17
055	09/20/90	522.20	522.38	0.18
055	10/23/90	522.17	522.35	0.18
055	11/18/90	522.23	522.63	0.40
055	12/14/90	522.09	522.25	0.16
055	01/20/91	524.26	524.07	-0.19
055	02/22/91	524.38	524.54	0.16
055	03/20/91	524.31	524.48	0.17
055	06/05/91	523.98	524.15	0.17
055	07/27/91	522.38	522.59	0.21
055	08/28/91	521.38	521.55	0.17
055	09/12/91	520.91	521.09	0.18
055	10/03/91	520.32	520.49	0.17
055	11/07/91	519.24	519.37	0.13
055	12/09/91	518.54	518.83	0.29
064	02/10/88	517.58	517.59	0.01
064	03/10/88	518.57	518.56	-0.01
064	05/10/88	519.76	519.77	0.01
064	06/08/88	519.49	519.54	0.05
064	07/09/88	518.60	518.63	0.03
064	08/06/88	517.89	517.89	0.00
064	09/09/88	517.17	517.17	0.00
064	10/09/88	516.84	516.88	0.04
064	11/08/88	516.12	516.09	-0.03
064	12/12/88	516.11	516.13	0.02
064	01/09/89	515.90	515.90	0.00
064	02/09/89	516.71	516.72	0.01
064	03/10/89	517.51	517.53	0.02
064	04/16/89	519.98	519.98	0.00
064	05/14/89	521.87	521.89	0.02
064	06/15/89	523.39	523.43	0.04
064	07/13/89	522.85	522.87	0.02
064	07/14/89	522.85	522.84	-0.01
064	08/17/89	521.64	521.66	0.02
064	09/11/89	521.06	521.09	0.03
064	10/11/89	518.89	520.46	1.57
064	11/17/89	518.97	520.82	1.85
064	12/20/89	519.37	519.38	0.01
064	01/22/90	519.27	519.30	0.03
064	02/17/90	519.70	519.70	0.00

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Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
064	04/03/90	521.68	521.71	0.03
064	04/24/90	522.13	522.14	0.01
064	05/23/90	522.93	521.94	-0.99
064	06/18/90	523.60	523.63	0.03
064	07/18/90	522.90	532.92	10.02
064	08/15/90	522.28	522.32	0.04
064	09/25/90	521.38	521.40	0.02
064	10/20/90	521.20	521.22	0.02
064	11/14/90	521.50	521.52	0.02
064	12/14/90	521.33	521.34	0.01
064	01/17/91	523.90	523.91	0.01
064	02/19/91	523.97	523.99	0.02
064	03/18/91	523.95	523.92	-0.03
064	06/13/91	523.07	523.09	0.02
064	08/01/91	521.19	521.22	0.03
064	08/22/91	530.43	520.40	-10.00
064	10/15/91	518.75	518.76	0.01
064	11/05/91	518.21	518.22	0.01
064	12/05/91	517.51	517.34	-0.17
065	12/12/88	517.43	517.00	-0.43
065	01/09/89	517.75	517.39	-0.36
065	02/09/89	518.44	518.07	-0.37
065	03/10/89	519.59	519.24	-0.35
065	04/16/89	521.81	521.42	-0.39
065	05/13/89	523.23	522.85	-0.38
065	06/15/89	524.17	523.81	-0.36
065	07/13/89	523.34	522.96	-0.38
065	08/15/89	522.45	522.05	-0.40
065	09/11/89	521.84	521.46	-0.38
065	10/10/89	519.78	519.41	-0.37
065	11/16/89	520.93	520.48	-0.45
065	12/15/89	520.71	520.24	-0.47
065	01/21/90	520.72	520.28	-0.44
065	02/14/90	521.10	520.59	-0.51
065	03/31/90	523.14	522.69	-0.45
065	04/21/90	523.33	522.96	-0.37
065	05/18/90	524.33	523.96	-0.37
065	06/16/90	524.55	524.19	-0.36
065	07/16/90	523.86	523.47	-0.39
065	08/07/90	523.17	522.90	-0.27
065	09/18/90	522.45	521.99	-0.46
065	10/19/90	522.15	521.72	-0.43
065	11/14/90	522.82	522.40	-0.42
065	12/12/90	522.90	522.53	-0.37
065	01/16/91	525.09	524.69	-0.40
065	02/19/91	525.01	524.62	-0.39
065	03/19/91	524.92	524.55	-0.37
065	07/25/91	522.62	521.16	-1.46
065	08/22/91	521.77	521.38	-0.39
065	09/07/91	521.35	520.92	-0.43
065	10/09/91	520.42	520.05	-0.37
065	11/05/91	519.75	519.39	-0.36
065	12/10/91	519.17	518.64	-0.53

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
066	01/09/88	538.78	521.22	-17.60
066	02/10/88	538.67	521.11	-17.60
066	03/09/88	539.46	521.52	-17.90
066	04/12/88	539.19	521.77	-17.40
066	05/10/88	538.92	521.94	-17.00
066	06/08/88	533.38	522.15	-11.20
066	06/09/88	538.97	521.88	-17.10
066	07/08/88	539.01	521.48	-17.50
066	08/06/88	538.98	521.05	-17.90
066	09/09/88	538.90	520.48	-18.40
066	10/09/88	539.09	520.18	-18.90
066	11/08/88	538.57	519.41	-19.20
066	12/12/88	538.99	519.52	-19.50
066	01/09/89	538.50	518.98	-19.50
066	02/09/89	538.68	511.46	-27.20
066	03/10/89	538.68	520.06	-18.60
066	04/16/89	539.04	521.17	-17.90
066	05/13/89	532.18	522.31	-9.87
066	06/15/89	539.03	523.36	-15.70
066	07/13/89	538.99	523.94	-15.00
066	08/15/89	539.02	523.70	-15.30
066	09/11/89	538.86	523.30	-15.60
066	10/10/89	537.49	521.63	-15.90
066	11/16/89	539.08	522.84	-16.20
066	12/14/89	538.79	522.37	-16.40
066	12/19/89	538.87	522.45	-16.40
066	01/21/90	539.12	522.58	-16.50
066	02/14/90	538.86	522.56	-16.30
066	03/31/90	539.25	523.63	-15.60
066	04/22/90	539.08	523.81	-15.30
066	05/15/90	539.00	524.07	-14.90
066	06/17/90	538.03	524.87	-13.20
066	07/17/90	538.76	524.82	-13.90
066	08/07/90	538.91	524.78	-14.10
066	02/26/91	539.17	525.51	-13.70
066	06/01/91	539.17	526.11	-13.10
066	07/26/91	538.98	524.95	-14.00
066	08/23/91	539.70	524.33	-15.40
066	09/07/91	538.98	523.95	-15.00
066	11/04/91	538.92	522.53	-16.40
067	02/10/88	517.42	517.43	0.01
067	03/09/88	518.51	518.60	0.09
067	04/11/88	519.45	519.35	-0.10
067	05/10/88	519.60	519.50	-0.10
067	06/08/88	519.19	519.10	-0.09
067	08/06/88	517.54	517.47	-0.07
067	09/09/88	516.80	516.76	-0.04
067	10/09/88	516.44	516.40	-0.04
067	11/08/88	515.84	515.78	-0.06
067	12/12/88	515.78	515.71	-0.07
067	01/09/89	516.02	515.05	-0.97
067	02/09/89	516.58	516.59	0.01

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
067	03/10/89	517.42	517.43	0.01
067	04/16/89	520.41	520.41	0.00
067	05/14/89	522.02	522.03	0.01
067	06/15/89	523.41	523.44	0.03
067	07/13/89	522.52	522.53	0.01
067	08/15/89	521.39	521.49	0.10
067	09/11/89	520.70	520.72	0.02
067	10/10/89	518.32	518.27	-0.05
067	11/16/89	519.55	519.54	-0.01
067	12/14/89	519.17	519.22	0.05
067	01/21/90	518.90	518.88	-0.02
067	02/16/90	519.70	519.68	-0.02
067	04/03/90	521.52	521.48	-0.04
067	04/23/90	521.89	521.89	0.00
067	05/17/90	522.38	522.35	-0.03
067	06/18/90	523.30	523.30	0.00
067	07/17/90	522.48	522.47	-0.01
067	08/08/90	522.14	522.15	0.01
067	09/19/90	521.07	521.08	0.01
067	10/20/90	521.06	520.94	-0.12
067	11/15/90	521.03	521.05	0.02
067	12/12/90	521.05	521.08	0.03
067	01/17/91	524.21	524.18	-0.03
067	02/19/91	523.78	523.77	-0.01
067	03/19/91	523.52	523.50	-0.02
067	06/14/91	522.31	522.44	0.13
067	07/25/91	520.88	520.85	-0.03
067	08/22/91	519.84	519.82	-0.02
067	09/07/91	519.26	519.23	-0.03
067	10/07/91	518.37	518.35	-0.02
067	12/05/91	516.92	516.87	-0.05
068	02/10/88	518.34	518.25	-0.09
068	03/09/88	519.34	519.29	-0.05
068	04/11/88	520.10	520.18	0.08
068	05/10/88	520.17	520.06	-0.11
068	06/08/88	519.75	519.64	-0.11
068	08/06/88	518.17	518.18	0.01
068	09/09/88	517.52	517.53	0.01
068	10/09/88	517.13	517.13	0.00
068	11/08/88	516.50	516.53	0.03
068	12/12/88	516.58	516.58	0.00
068	01/09/89	516.43	516.44	0.01
068	02/09/89	517.38	517.40	0.02
068	03/10/89	518.45	518.20	-0.25
068	04/16/89	520.65	520.66	0.01
068	05/14/89	522.20	522.21	0.01
068	06/15/89	523.52	523.53	0.01
068	07/13/89	522.80	522.81	0.01
068	08/15/89	521.94	521.89	-0.05
068	09/11/89	521.14	521.17	0.03
068	10/10/89	519.17	519.16	-0.01
068	11/16/89	519.98	520.01	0.03
068	12/14/89	519.75	519.74	-0.01

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
068	01/21/90	519.49	519.50	0.01
068	02/16/90	520.14	520.16	0.02
068	04/03/90	522.42	521.59	-0.83
068	04/22/90	522.23	522.27	0.04
068	05/17/90	522.74	522.77	0.03
068	06/18/90	523.68	524.03	0.35
068	07/18/90	523.02	523.07	0.05
068	08/08/90	522.66	523.05	0.39
068	09/25/90	521.59	521.61	0.02
068	12/12/90	521.85	521.86	0.01
068	01/24/91	524.12	524.13	0.01
068	02/19/91	524.08	524.10	0.02
068	03/28/91	524.14	524.06	-0.08
068	06/03/91	523.41	523.53	0.12
068	07/26/91	521.98	521.13	-0.85
068	08/22/91	520.74	520.73	-0.01
068	10/09/91	519.36	519.37	0.01
068	12/10/91	517.85	517.83	-0.02
069	05/10/88	520.38	520.04	-0.34
069	06/08/88	519.82	519.49	-0.33
069	07/09/88	518.94	518.73	-0.21
069	08/06/88	518.40	518.19	-0.21
069	09/09/88	517.81	517.60	-0.21
069	10/09/88	517.38	517.19	-0.19
069	11/08/88	516.96	516.75	-0.21
069	12/12/88	516.85	516.66	-0.19
069	01/09/89	517.41	517.19	-0.22
069	03/10/89	519.20	519.02	-0.18
069	04/16/89	521.44	521.27	-0.17
069	05/13/89	522.65	522.48	-0.17
069	06/15/89	523.50	523.30	-0.20
069	07/13/89	522.46	522.28	-0.18
069	08/15/89	521.55	521.37	-0.18
069	09/11/89	520.98	520.81	-0.17
069	10/10/89	518.95	518.77	-0.18
069	11/15/89	520.03	519.89	-0.14
069	12/14/89	519.77	519.59	-0.18
069	01/21/90	520.06	519.69	-0.37
069	02/16/90	521.09	520.89	-0.20
069	04/01/90	522.21	522.18	-0.03
069	04/23/90	522.54	522.38	-0.16
069	05/17/90	523.21	523.03	-0.18
069	06/17/90	523.70	523.35	-0.35
069	07/18/90	522.88	522.70	-0.18
069	08/09/90	522.32	521.89	-0.43
069	09/25/90	521.61	521.44	-0.17
069	10/20/90	521.92	521.74	-0.18
069	11/16/90	521.90	521.70	-0.20
069	12/11/90	522.03	521.83	-0.20
069	02/27/91	524.02	523.84	-0.18
069	03/28/91	524.16	523.98	-0.18
069	06/14/91	522.87	522.71	-0.16
069	07/27/91	521.56	521.38	-0.18

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
069	09/07/91	520.53	520.28	-0.25
069	10/09/91	519.64	519.46	-0.18
069	11/04/91	519.03	518.81	-0.22
069	12/05/91	518.55	518.36	-0.19
070	04/12/88	519.70	519.55	-0.15
070	05/10/88	519.70	519.57	-0.13
070	06/08/88	519.20	519.05	-0.15
070	07/09/88	518.24	518.24	0.00
070	08/06/88	517.65	517.64	-0.01
070	09/09/88	517.01	517.00	-0.01
070	10/09/88	516.64	516.64	0.00
070	11/08/88	516.09	516.07	-0.02
070	12/12/88	516.15	516.17	0.02
070	01/09/89	516.11	516.16	0.05
070	02/09/89	517.12	517.12	0.00
070	03/10/89	517.95	517.95	0.00
070	04/16/89	520.66	520.66	0.00
070	05/13/89	521.98	521.98	0.00
070	06/15/89	523.16	523.15	-0.01
070	07/13/89	522.15	522.13	-0.02
070	08/15/89	521.16	521.14	-0.02
070	09/11/89	520.52	520.51	-0.01
070	10/10/89	518.47	518.45	-0.02
070	11/16/89	519.40	519.41	0.01
070	12/14/89	519.15	519.18	0.03
070	01/21/90	518.93	518.94	0.01
070	02/16/90	519.78	519.80	0.02
070	04/01/90	521.20	521.47	0.27
070	04/22/90	519.06	521.72	2.66
070	05/18/90	522.29	522.30	0.01
070	06/17/90	523.07	523.07	0.00
070	07/18/90	522.15	522.32	0.17
070	08/09/90	521.83	521.83	0.00
070	09/25/90	520.88	520.88	0.00
070	10/20/90	521.01	521.02	0.01
070	11/15/90	521.11	521.08	-0.03
070	12/12/90	521.62	522.79	1.17
070	01/24/91	523.77	523.74	-0.03
070	02/26/91	523.64	523.63	-0.01
070	03/28/91	523.82	523.41	-0.41
070	06/03/91	522.73	522.70	-0.03
070	07/26/91	520.97	520.83	-0.14
070	10/09/91	518.71	518.71	0.00
070	12/10/91	517.31	517.36	0.05
084	01/10/88	519.56	519.54	-0.02
084	02/11/88	519.92	519.91	-0.01
084	03/09/88	520.50	520.50	0.00
084	04/11/88	520.98	521.00	0.02
084	05/10/88	521.30	521.29	-0.01
084	06/08/88	521.28	521.30	0.02
084	07/09/88	520.45	520.49	0.04
084	08/07/88	519.87	519.84	-0.03

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
084	09/09/88	519.33	519.29	-0.04
084	10/08/88	518.49	518.46	-0.03
084	11/09/88	518.27	518.20	-0.07
084	12/13/88	518.47	518.49	0.02
084	01/10/89	518.05	518.02	-0.03
084	02/10/89	518.69	518.67	-0.02
084	03/11/89	519.44	519.47	0.03
084	04/15/89	520.64	520.65	0.01
084	05/14/89	522.01	521.99	-0.02
084	06/14/89	523.22	523.21	-0.01
084	07/14/89	523.63	523.64	0.01
084	08/16/89	523.15	523.15	0.00
084	09/12/89	522.47	522.42	-0.05
084	10/11/89	522.12	522.13	0.01
084	11/17/89	521.54	521.55	0.01
084	12/19/89	521.68	521.70	0.02
084	01/22/90	521.46	521.47	0.01
084	02/16/90	521.92	521.93	0.01
084	04/04/90	523.12	523.14	0.02
084	04/24/90	523.29	523.30	0.01
084	05/19/90	523.75	523.77	0.02
084	06/21/90	524.69	524.70	0.01
084	07/18/90	524.31	524.33	0.02
084	08/14/90	524.16	524.16	0.00
084	09/24/90	523.48	523.49	0.01
084	10/24/90	523.39	523.38	-0.01
084	11/17/90	523.43	523.43	0.00
084	12/13/90	523.77	523.87	0.10
084	01/19/91	524.52	524.51	-0.01
084	02/21/91	524.88	524.89	0.01
084	06/05/91	525.15	525.15	0.00
084	07/28/91	523.97	523.97	0.00
084	08/29/91	523.08	523.15	0.07
084	10/05/91	522.01	522.02	0.01
084	11/03/91	521.00	521.01	0.01
084	12/15/91	520.16	520.18	0.02
091	07/08/88	517.54	517.47	-0.07
091	08/06/88	517.04	516.99	-0.05
091	09/09/88	516.36	516.34	-0.02
091	11/08/88	515.49	515.44	-0.05
091	12/13/88	515.39	515.35	-0.04
091	01/09/89	515.49	515.42	-0.07
091	02/09/89	516.54	516.51	-0.03
091	03/10/89	517.63	517.61	-0.02
091	04/15/89	521.22	521.19	-0.03
091	04/16/89	521.29	521.18	-0.11
091	05/13/89	522.31	522.27	-0.04
091	06/15/89	523.45	523.39	-0.06
091	07/13/89	521.81	521.79	-0.02
091	08/15/89	520.78	520.70	-0.08
091	09/11/89	520.18	520.14	-0.04
091	09/13/89	520.12	520.09	-0.03
091	10/10/89	518.12	518.07	-0.05

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
091	11/15/89	519.12	519.07	-0.05
091	11/17/89	519.07	519.05	-0.02
091	12/14/89	518.66	518.66	0.00
091	01/21/90	518.45	518.42	-0.03
091	01/22/90	518.46	518.42	-0.04
091	02/14/90	519.81	519.79	-0.02
091	04/03/90	521.22	521.19	-0.03
091	04/23/90	521.49	521.48	-0.01
091	05/17/90	522.93	522.90	-0.03
091	06/17/90	522.67	522.74	0.07
091	07/16/90	522.11	522.06	-0.05
091	09/25/90	520.14	520.14	0.00
091	10/24/90	520.90	520.80	-0.10
091	11/16/90	520.45	520.41	-0.04
091	12/12/90	520.61	520.57	-0.04
091	02/27/91	523.35	523.33	-0.02
091	03/28/91	523.72	523.71	-0.01
091	06/14/91	521.39	521.35	-0.04
091	07/27/91	519.72	519.71	-0.01
091	09/07/91	518.25	518.19	-0.06
091	10/08/91	517.40	517.19	-0.21
091	12/10/91	516.04	515.96	-0.08
092	07/08/88	517.67	517.68	0.01
092	08/06/88	517.20	517.17	-0.03
092	09/09/88	516.53	516.53	0.00
092	10/09/88	516.19	516.21	0.02
092	11/08/88	515.78	515.68	-0.10
092	12/13/88	515.60	515.61	0.01
092	01/09/89	515.65	515.66	0.01
092	02/09/89	516.67	516.67	0.00
092	03/10/89	517.72	517.72	0.00
092	04/15/89	521.15	521.15	0.00
092	04/16/89	521.14	521.15	0.01
092	05/13/89	522.26	522.26	0.00
092	06/15/89	523.36	523.35	-0.01
092	07/13/89	521.80	521.79	-0.01
092	08/15/89	520.61	520.71	0.10
092	09/11/89	520.12	520.13	0.01
092	09/13/89	520.08	520.08	0.00
092	10/10/89	518.07	518.07	0.00
092	11/15/89	519.09	519.09	0.00
092	11/17/89	519.09	519.08	-0.01
092	12/14/89	518.71	518.73	0.02
092	04/03/90	521.52	520.82	-0.70
092	04/23/90	521.47	521.47	0.00
092	05/17/90	522.65	522.67	0.02
092	06/17/90	522.78	522.78	0.00
092	07/16/90	521.94	521.96	0.02
092	08/09/90	521.31	521.31	0.00
092	09/25/90	520.23	520.23	0.00
092	10/24/90	520.85	520.85	0.00
092	11/16/90	520.56	520.55	-0.01
092	12/12/90	520.63	520.65	0.02

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
092	01/22/91	524.07	524.07	0.00
092	02/27/91	523.33	523.34	0.01
092	03/28/91	523.52	523.55	0.03
092	06/14/91	521.50	521.55	0.05
092	09/07/91	518.34	518.43	0.09
092	10/08/91	517.65	517.61	-0.04
092	11/04/91	519.98	516.97	-3.01
092	12/10/91	516.35	516.29	-0.06
093	07/09/88	518.20	518.15	-0.05
093	08/06/88	517.67	517.59	-0.08
093	09/09/88	517.01	516.96	-0.05
093	10/09/88	516.68	516.62	-0.06
093	11/08/88	516.19	516.12	-0.07
093	12/12/88	516.18	516.14	-0.04
093	01/09/89	516.46	516.38	-0.08
093	02/09/89	517.28	517.21	-0.07
093	03/10/89	518.22	518.15	-0.07
093	04/16/89	520.60	520.52	-0.08
093	05/13/89	521.67	521.59	-0.08
093	06/15/89	522.63	522.59	-0.04
093	07/13/89	521.62	521.54	-0.08
093	08/15/89	520.75	521.81	1.06
093	09/11/89	520.13	520.06	-0.07
093	10/12/89	518.06	517.99	-0.07
093	12/14/89	518.92	518.82	-0.10
093	01/23/90	519.12	519.06	-0.06
093	02/17/90	519.70	519.62	-0.08
093	04/03/90	521.21	521.11	-0.10
093	04/26/90	521.51	521.42	-0.09
093	05/18/90	521.95	521.90	-0.05
093	06/18/90	522.53	522.43	-0.10
093	07/18/90	521.82	521.49	-0.33
093	08/09/90	521.54	521.45	-0.09
093	09/25/90	520.68	520.61	-0.07
093	10/24/90	520.82	520.76	-0.06
093	11/16/90	520.78	520.69	-0.09
093	12/11/90	521.00	520.91	-0.09
093	01/22/91	523.38	523.27	-0.11
093	02/27/91	522.98	522.89	-0.09
093	03/28/91	523.05	522.95	-0.10
093	06/15/91	520.72	520.66	-0.06
093	07/26/91	520.69	520.60	-0.09
093	10/09/91	518.73	518.63	-0.10
093	11/06/91	518.10	517.99	-0.11
093	12/05/91	517.59	517.49	-0.10
094	07/09/88	505.06	505.22	0.16
094	08/06/88	503.97	505.16	1.19
094	09/09/88	504.47	504.64	0.17
094	11/08/88	503.79	503.94	0.15
094	12/12/88	504.14	504.30	0.16
094	01/09/89	506.81	506.88	0.07
094	02/09/89	506.54	506.69	0.15

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Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
094	03/10/89	508.27	508.38	0.11
094	04/16/89	509.58	509.74	0.16
094	05/13/89	509.59	509.73	0.14
094	06/15/89	509.06	509.21	0.15
094	07/13/89	508.12	508.30	0.18
094	08/15/89	507.34	507.50	0.16
094	09/11/89	507.03	507.19	0.16
094	10/12/89	504.57	504.77	0.20
094	10/25/89	505.81	506.00	0.19
094	11/15/89	505.90	506.08	0.18
094	12/14/89	505.79	505.97	0.18
094	01/21/90	507.02	507.14	0.12
094	02/14/90	508.32	508.46	0.14
094	03/31/90	508.19	508.32	0.13
094	04/22/90	508.42	508.57	0.15
094	05/17/90	511.55	511.64	0.09
094	06/16/90	508.83	508.99	0.16
094	06/21/90	508.55	508.70	0.15
094	07/16/90	508.75	508.89	0.14
094	08/07/90	507.85	507.34	-0.51
094	09/26/90	507.40	507.54	0.14
094	10/24/90	508.91	509.04	0.13
094	11/16/90	507.84	507.99	0.15
094	12/12/90	508.05	508.22	0.17
094	01/28/91	509.29	509.49	0.20
094	02/20/91	509.78	509.32	-0.46
094	03/28/91	510.39	511.74	1.35
094	04/29/91	509.39	509.58	0.19
094	06/03/91	507.78	507.97	0.19
094	07/27/91	506.84	506.92	0.08
094	08/23/91	506.22	506.41	0.19
094	09/08/91	506.13	506.31	0.18
094	10/07/91	505.94	505.45	-0.49
094	11/04/91	504.74	504.91	0.17
094	12/02/91	504.32	504.51	0.19
095	08/06/88	518.22	518.26	0.04
095	09/10/88	517.72	517.74	0.02
095	10/09/88	517.33	517.34	0.01
095	11/08/88	516.94	516.95	0.01
095	12/12/88	516.78	516.79	0.01
095	01/09/89	518.18	518.23	0.05
095	02/09/89	518.24	518.28	0.04
095	03/10/89	519.77	519.81	0.04
095	04/16/89	521.28	521.33	0.05
095	05/13/89	521.95	521.99	0.04
095	06/15/89	522.23	522.24	0.01
095	07/13/89	521.45	521.49	0.04
095	08/15/89	520.66	520.73	0.07
095	09/11/89	520.30	520.36	0.06
095	10/10/89	518.34	518.37	0.03
095	11/15/89	519.61	519.67	0.06
095	12/14/89	519.27	519.32	0.05
095	01/21/90	519.89	519.94	0.05

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
095	02/14/90	520.76	520.81	0.05
095	03/31/90	521.62	521.69	0.07
095	04/22/90	521.87	521.92	0.05
095	05/17/90	523.22	523.24	0.02
095	06/17/90	522.47	522.17	-0.30
095	07/16/90	522.09	522.13	0.04
095	08/09/90	521.41	521.48	0.07
095	09/19/90	521.04	521.10	0.06
095	10/24/90	521.67	521.77	0.10
095	11/16/90	521.62	521.27	-0.35
095	12/12/90	521.59	521.64	0.05
095	01/22/91	522.85	522.89	0.04
095	01/28/91	523.27	523.27	0.00
095	02/26/91	522.79	522.69	-0.10
095	03/27/91	523.23	523.26	0.03
095	04/29/91	523.35	523.42	0.07
095	06/03/91	522.11	522.19	0.08
095	07/27/91	521.01	521.07	0.06
095	08/23/91	520.53	520.55	0.02
095	09/08/91	520.23	520.28	0.05
095	10/08/91	519.58	519.63	0.05
095	11/04/91	519.05	519.09	0.04
095	12/05/91	518.85	518.80	-0.05
096	09/10/88	520.14	519.89	-0.25
096	10/09/88	519.87	519.85	-0.02
096	11/08/88	519.29	519.29	0.00
096	12/12/88	519.32	519.31	-0.01
096	01/09/89	519.55	519.60	0.05
096	02/09/89	520.11	520.11	0.00
096	03/10/89	520.99	521.02	0.03
096	04/16/89	522.33	522.35	0.02
096	05/13/89	523.00	523.04	0.04
096	06/15/89	523.37	523.42	0.05
096	07/13/89	523.13	523.13	0.00
096	08/15/89	522.83	522.85	0.02
096	09/11/89	522.50	522.51	0.01
096	10/10/89	520.83	520.73	-0.10
096	11/15/89	522.33	522.35	0.02
096	12/14/89	521.76	521.75	-0.01
096	01/21/90	521.95	522.00	0.05
096	02/14/90	522.67	522.71	0.04
096	03/31/90	523.62	523.59	-0.03
096	04/22/90	523.82	524.34	0.52
096	05/15/90	524.08	524.13	0.05
096	05/20/90	524.17	524.21	0.04
096	06/16/90	524.55	524.58	0.03
096	07/16/90	524.13	524.18	0.05
096	08/07/90	523.88	523.90	0.02
096	08/15/90	523.80	523.79	-0.01
096	09/19/90	523.53	523.54	0.01
096	10/24/90	522.83	522.83	0.00
096	11/15/90	523.96	523.99	0.03
096	12/12/90	524.11	524.13	0.02

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
096	01/18/91	524.70	524.74	0.04
096	02/26/91	525.25	525.27	0.02
096	06/01/91	525.36	525.36	0.00
096	07/26/91	524.17	524.21	0.04
096	08/23/91	523.53	523.61	0.08
096	09/08/91	523.41	523.39	-0.02
096	10/07/91	522.87	522.85	-0.02
096	11/04/91	522.21	522.22	0.01
096	12/02/91	521.79	521.80	0.01
097	11/08/88	512.78	512.80	0.02
097	12/13/88	512.19	512.21	0.02
097	01/09/89	513.73	513.77	0.04
097	02/09/89	514.61	514.63	0.02
097	03/10/89	515.78	516.12	0.34
097	04/16/89	520.79	520.82	0.03
097	05/14/89	521.14	521.60	0.46
097	06/15/89	522.62	522.93	0.31
097	07/13/89	520.51	520.52	0.01
097	08/16/89	519.32	519.33	0.01
097	09/11/89	518.94	518.96	0.02
097	10/10/89	517.46	517.21	-0.25
097	11/16/89	517.66	517.68	0.02
097	12/14/89	516.81	516.84	0.03
097	01/22/90	517.85	517.60	-0.25
097	02/14/90	519.58	519.61	0.03
097	04/03/90	520.59	520.69	0.10
097	04/23/90	520.93	520.98	0.05
097	05/18/90	524.37	525.08	0.71
097	06/17/90	521.59	521.64	0.05
097	07/16/90	521.75	521.85	0.10
097	08/09/90	519.44	519.47	0.03
097	09/26/90	518.47	518.65	0.18
097	10/24/90	518.97	519.18	0.21
097	11/16/90	518.82	518.83	0.01
097	12/12/90	519.19	519.21	0.02
097	01/24/91	522.74	522.74	0.00
097	06/14/91	519.53	519.87	0.34
097	10/08/91	513.96	513.97	0.01
097	11/06/91	513.16	513.17	0.01
097	12/05/91	513.04	513.06	0.02
098	10/09/88	515.13	514.76	-0.37
098	11/08/88	514.58	514.22	-0.36
098	12/12/88	514.42	514.05	-0.37
098	01/09/89	514.58	514.23	-0.35
098	02/09/89	516.09	515.72	-0.37
098	03/10/89	517.50	517.12	-0.38
098	04/16/89	521.86	521.47	-0.39
098	05/13/89	523.47	523.09	-0.38
098	06/15/89	524.28	523.91	-0.37
098	07/13/89	522.61	522.24	-0.37
098	08/16/89	521.10	520.72	-0.38
098	09/11/89	520.22	519.83	-0.39

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
098	10/10/89	518.16	517.78	-0.38
098	11/16/89	518.70	518.35	-0.35
098	12/14/89	518.45	518.08	-0.37
098	01/21/90	518.25	517.88	-0.37
098	02/14/90	520.00	519.60	-0.40
098	03/31/90	521.66	521.48	-0.18
098	04/23/90	522.25	521.85	-0.40
098	05/17/90	523.02	522.62	-0.40
098	06/17/90	523.60	523.20	-0.40
098	07/16/90	522.20	521.85	-0.35
098	11/16/90	520.64	520.26	-0.38
098	12/12/90	520.65	520.28	-0.37
098	01/22/91	525.13	524.74	-0.39
098	02/27/91	524.40	524.02	-0.38
098	03/28/91	524.83	524.05	-0.78
098	06/14/91	521.74	521.37	-0.37
098	07/26/91	519.45	519.28	-0.17
098	09/07/91	517.63	517.27	-0.36
098	10/08/91	516.53	516.16	-0.37
098	11/06/91	515.68	515.31	-0.37
098	12/05/91	515.34	514.95	-0.39
106	02/09/89	518.78	518.78	0.00
106	03/10/89	520.45	520.46	0.01
106	04/16/89	522.23	522.30	0.07
106	05/13/89	523.09	523.11	0.02
106	06/15/89	523.43	523.46	0.03
106	07/13/89	522.40	522.44	0.04
106	08/15/89	521.51	520.94	-0.57
106	10/10/89	519.07	519.08	0.01
106	11/15/89	520.35	520.34	-0.01
106	12/14/89	519.97	519.99	0.02
106	01/21/90	520.57	520.61	0.04
106	02/14/90	521.75	521.80	0.05
106	03/31/90	522.81	522.85	0.04
106	04/23/90	523.05	523.08	0.03
106	05/17/90	524.29	524.36	0.07
106	06/16/90	523.65	523.64	-0.01
106	07/16/90	523.20	523.27	0.07
106	08/09/90	522.32	522.38	0.06
106	09/19/90	521.84	521.90	0.06
106	10/20/90	522.66	522.67	0.01
106	11/15/90	522.35	522.37	0.02
106	12/11/90	522.62	522.66	0.04
106	01/22/91	524.05	524.07	0.02
106	02/26/91	522.99	523.02	0.03
106	03/28/91	524.35	524.41	0.06
106	06/01/91	523.34	523.39	0.05
106	08/24/91	521.21	521.26	0.05
106	09/08/91	520.90	520.95	0.05
106	10/09/91	520.15	520.20	0.05
106	12/10/91	519.01	519.04	0.03
107	03/10/89	522.15	522.06	-0.09

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
107	04/16/89	524.02	523.93	-0.09
107	05/13/89	524.90	524.81	-0.09
107	06/15/89	525.38	525.28	-0.10
107	07/13/89	524.24	523.83	-0.41
107	08/15/89	523.16	523.11	-0.05
107	09/11/89	522.80	522.73	-0.07
107	10/11/89	522.23	520.59	-1.64
107	10/25/89	522.00	521.90	-0.10
107	11/16/89	522.28	522.47	0.19
107	12/15/89	522.05	522.19	0.14
107	01/21/90	522.96	522.86	-0.10
107	02/14/90	524.39	524.30	-0.09
107	04/02/90	525.39	525.27	-0.12
107	04/22/90	524.87	524.77	-0.10
107	05/18/90	526.70	526.56	-0.14
107	08/08/90	524.44	524.40	-0.04
107	09/18/90	523.78	523.69	-0.09
107	10/19/90	524.60	524.49	-0.11
107	11/15/90	524.95	524.85	-0.10
107	12/14/90	524.97	524.86	-0.11
107	01/16/91	526.11	526.01	-0.10
107	02/26/91	526.53	526.44	-0.09
107	03/19/91	526.62	526.51	-0.11
107	05/31/91	526.42	526.43	0.01
107	07/25/91	524.19	524.09	-0.10
107	09/05/91	523.16	523.00	-0.16
107	10/15/91	522.09	522.02	-0.07
107	11/05/91	521.54	521.46	-0.08
108	04/16/89	525.33	525.37	0.04
108	05/14/89	525.62	525.67	0.05
108	06/15/89	526.51	526.55	0.04
108	07/13/89	524.89	524.90	0.01
108	08/15/89	523.80	523.82	0.02
108	09/11/89	523.58	523.59	0.01
108	10/10/89	521.49	521.53	0.04
108	11/16/89	523.52	523.57	0.05
108	12/14/89	523.39	523.40	0.01
108	12/19/89	523.41	523.43	0.02
108	01/21/90	524.94	524.97	0.03
108	02/14/90	525.32	525.35	0.03
108	03/31/90	525.35	525.52	0.17
108	04/22/90	525.83	525.90	0.07
108	05/15/90	526.70	526.75	0.05
108	06/17/90	527.52	526.57	-0.95
108	07/17/90	526.31	526.38	0.07
108	08/07/90	525.47	525.49	0.02
108	09/19/90	524.92	524.96	0.04
108	10/20/90	525.81	525.85	0.04
108	11/15/90	525.81	525.85	0.04
108	12/11/90	525.85	525.90	0.05
108	01/18/91	526.53	526.58	0.05
108	02/26/91	527.02	527.08	0.06
108	03/27/91	527.45	526.50	-0.95

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
108	06/01/91	527.24	527.31	0.07
108	07/26/91	525.08	525.12	0.04
108	08/23/91	524.42	524.46	0.04
108	09/07/91	524.02	524.08	0.06
108	10/07/91	523.18	523.22	0.04
108	11/04/91	522.51	522.56	0.05
108	12/02/91	521.88	521.94	0.06
120	04/03/90	521.80	521.81	0.01
120	04/23/90	522.91	521.46	-1.45
120	05/23/90	523.10	523.07	-0.03
120	06/18/90	523.69	523.70	0.01
120	07/18/90	524.40	522.98	-1.42
120	08/15/90	522.36	522.35	-0.01
120	09/25/90	521.47	521.46	-0.01
120	10/20/90	521.35	521.32	-0.03
120	11/14/90	521.67	521.60	-0.07
120	11/20/90	521.66	521.63	-0.03
120	12/14/90	521.48	521.48	0.00
120	01/17/91	524.07	524.06	-0.01
120	02/19/91	524.06	524.06	0.00
120	03/18/91	524.54	523.93	-0.61
120	06/13/91	523.14	523.14	0.00
120	08/01/91	521.26	521.29	0.03
120	08/22/91	520.54	520.51	-0.03
120	10/09/91	518.83	519.08	0.25
120	11/20/91	517.92	517.96	0.04
120	12/05/91	517.47	517.53	0.06
125	12/14/89	517.92	518.48	0.56
125	01/21/90	519.32	519.12	-0.20
125	02/14/90	519.69	519.58	-0.11
125	03/31/90	520.50	520.38	-0.12
125	04/22/90	520.74	520.68	-0.06
125	05/17/90	522.36	522.25	-0.11
125	06/19/90	520.60	520.65	0.05
125	07/16/90	520.71	520.70	-0.01
125	08/07/90	520.14	520.13	-0.01
125	08/15/90	520.07	520.03	-0.04
125	09/25/90	519.96	519.95	-0.01
125	10/24/90	520.64	520.64	0.00
125	11/15/90	520.28	520.09	-0.19
125	12/12/90	520.49	520.48	-0.01
125	02/26/91	521.29	521.31	0.02
125	03/27/91	521.86	521.87	0.01
125	06/03/91	521.63	521.70	0.07
125	08/23/91	519.59	519.57	-0.02
125	09/08/91	519.35	519.34	-0.01
125	10/08/91	518.77	518.79	0.02
125	11/04/91	518.36	518.35	-0.01
125	12/05/91	518.18	518.12	-0.06
126	02/19/90	517.37	517.82	0.45
126	03/31/90	517.11	517.36	0.25

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
126	04/22/90	517.30	517.56	0.26
126	05/17/90	519.94	520.10	0.16
126	06/16/90	517.45	517.75	0.30
126	07/16/90	517.54	517.82	0.28
126	08/07/90	517.02	513.97	-3.05
126	09/25/90	516.81	517.09	0.28
126	10/24/90	517.58	517.83	0.25
126	11/15/90	517.03	517.29	0.26
126	12/12/90	517.17	517.44	0.27
126	01/28/91	518.12	518.31	0.19
126	02/26/91	517.75	518.02	0.27
126	03/27/91	518.47	518.77	0.30
126	04/29/91	518.23	518.39	0.16
126	06/03/91	517.16	517.50	0.34
126	07/27/91	516.72	517.01	0.29
126	08/23/91	516.47	516.69	0.22
126	09/08/91	516.43	516.69	0.26
126	10/08/91	516.07	516.29	0.22
126	11/04/91	515.86	516.06	0.20
126	12/05/91	515.83	516.00	0.17
127	05/14/89	507.28	507.35	0.07
127	06/15/89	507.12	506.40	-0.72
127	07/13/89	506.47	506.47	0.00
127	08/15/89	505.00	505.18	0.18
127	09/11/89	504.71	504.78	0.07
127	10/10/89	503.64	503.71	0.07
127	10/12/89	501.99	504.12	2.13
127	11/15/89	503.46	503.51	0.05
127	12/14/89	503.22	503.28	0.06
127	01/21/90	505.82	505.80	-0.02
127	02/14/90	506.56	506.59	0.03
127	03/31/90	506.48	506.49	0.01
127	04/22/90	506.93	506.66	-0.27
127	05/17/90	511.04	510.98	-0.06
127	06/18/90	506.56	506.59	0.03
127	07/16/90	507.07	507.10	0.03
128	11/15/89	516.42	515.86	-0.56
128	12/14/89	516.25	515.90	-0.35
128	02/14/90	517.46	517.52	0.06
128	03/31/90	517.86	517.91	0.05
128	04/22/90	518.06	518.12	0.06
128	06/18/90	518.39	518.45	0.06
128	07/16/90	518.31	518.48	0.17
128	08/07/90	517.74	517.80	0.06
128	09/26/90	518.20	517.48	-0.72
128	10/24/90	518.28	518.35	0.07
128	11/15/90	517.71	517.79	0.08
128	12/12/90	517.83	518.17	0.34
128	02/27/91	518.66	518.77	0.11
128	03/27/91	519.49	519.55	0.06
128	06/14/91	517.79	517.97	0.18
128	08/23/91	516.93	516.71	-0.22

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
128	10/08/91	516.30	516.39	0.09
128	11/06/91	515.95	516.06	0.11
128	12/17/91	515.62	515.73	0.11
129	01/28/91	516.95	516.68	-0.27
129	03/28/91	517.54	517.47	-0.07
129	04/29/91	516.98	516.69	-0.29
385	08/07/90	523.07	523.10	0.03
385	09/18/90	522.22	522.25	0.03
385	10/18/90	522.46	522.48	0.02
385	11/14/90	522.73	522.77	0.04
385	12/12/90	522.83	522.89	0.06
385	01/16/91	524.71	524.74	0.03
385	02/19/91	524.10	524.14	0.04
385	03/18/91	524.73	524.77	0.04
385	05/31/91	524.34	524.39	0.05
385	07/25/91	522.45	522.49	0.04
385	08/22/91	521.71	521.66	-0.05
385	09/05/91	521.28	521.30	0.02
385	10/09/91	520.40	520.45	0.05
385	11/05/91	519.74	519.77	0.03
385	12/10/91	519.00	518.98	-0.02
387	06/17/90	523.89	524.00	0.11
387	07/18/90	523.22	523.34	0.12
387	08/09/90	522.60	522.72	0.12
387	09/25/90	521.90	522.02	0.12
387	10/20/90	522.37	522.44	0.07
387	11/16/90	522.26	522.31	0.05
387	12/11/90	522.20	522.61	0.41
387	01/24/91	524.37	524.48	0.11
387	02/27/91	524.42	524.54	0.12
387	03/28/91	524.64	524.76	0.12
387	06/14/91	523.27	523.31	0.04
387	07/27/91	521.88	521.98	0.10
387	09/07/91	520.74	520.88	0.14
387	10/09/91	519.86	519.97	0.11
387	11/04/91	519.22	519.34	0.12
387	12/05/91	518.70	518.75	0.05
390	08/09/90	522.64	522.64	0.00
390	09/19/90	522.11	522.11	0.00
390	10/20/90	522.86	522.85	-0.01
390	11/16/90	522.59	522.58	-0.01
390	12/11/90	522.80	522.80	0.00
390	01/24/91	524.38	524.37	-0.01
390	02/27/91	524.47	524.45	-0.02
390	03/28/91	524.82	524.85	0.03
390	06/01/91	523.79	523.80	0.01
390	07/26/91	521.67	521.70	0.03
390	08/24/91	521.38	521.39	0.01
390	09/08/91	521.06	521.07	0.01
390	10/09/91	520.27	520.28	0.01

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Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

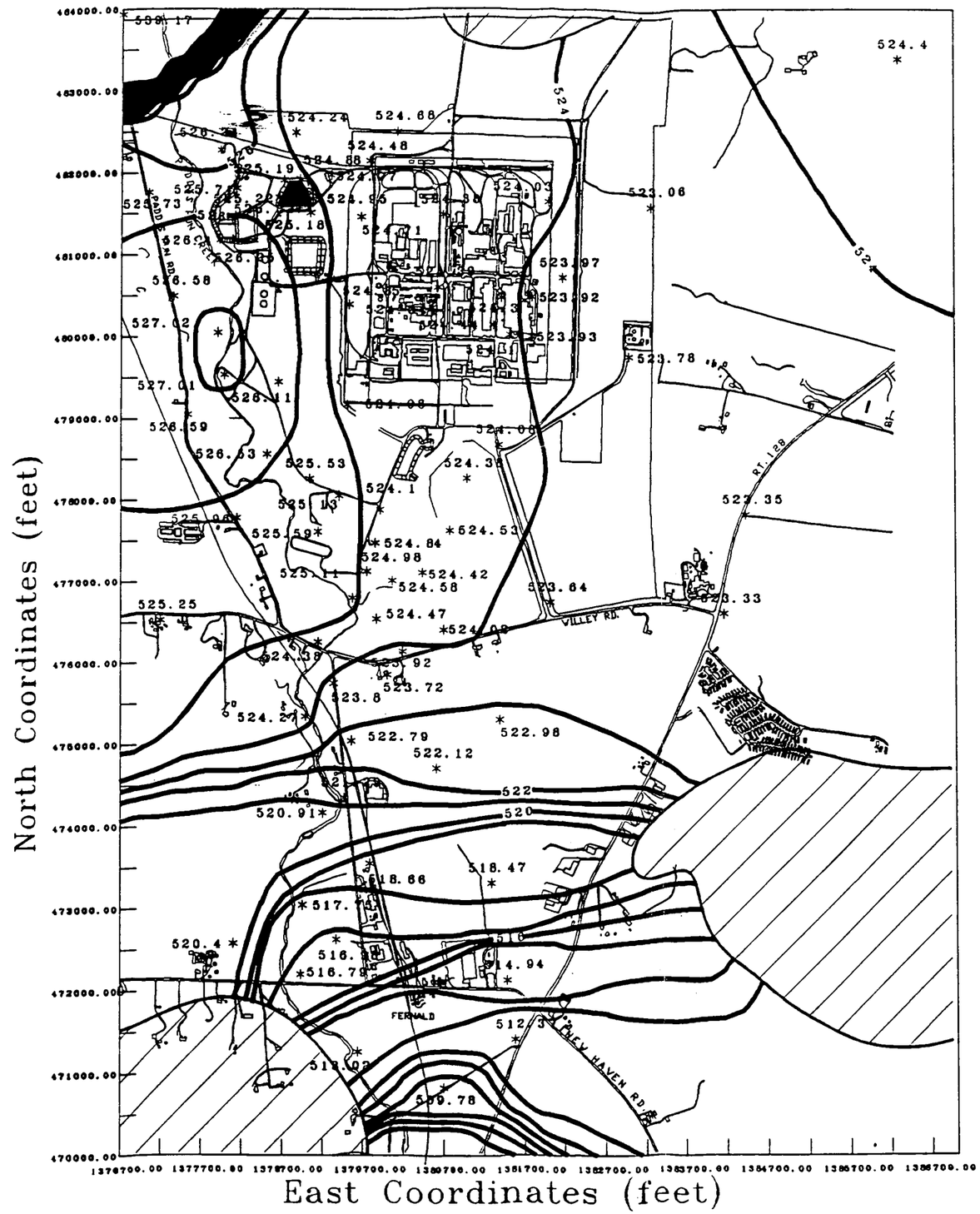
Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
390	11/04/91	519.66	519.68	0.02
390	12/05/91	519.26	519.27	0.01
391	05/15/90	514.69	514.90	0.21
391	06/16/90	514.53	514.64	0.11
391	06/21/90	514.48	514.36	-0.12
391	07/16/90	514.12	514.29	0.17
391	08/07/90	513.39	513.50	0.11
391	10/24/90	514.31	514.41	0.10
391	11/16/90	513.30	513.41	0.11
391	12/12/90	513.44	513.51	0.07
391	01/22/91	515.17	515.25	0.08
391	02/20/91	514.94	515.04	0.10
391	03/27/91	515.67	515.75	0.08
391	06/03/91	513.58	513.68	0.10
391	07/27/91	512.67	512.66	-0.01
391	08/23/91	512.23	512.30	0.07
391	09/08/91	512.09	512.18	0.09
391	10/08/91	511.45	511.54	0.09
391	11/04/91	511.01	511.10	0.09
391	12/02/91	510.60	510.67	0.07
396	07/27/90	520.13	520.16	0.03
396	08/07/90	519.96	519.96	0.00
396	09/25/90	519.77	519.76	-0.01
396	10/24/90	520.44	520.45	0.01
396	11/15/90	520.04	520.04	0.00
396	12/12/90	520.26	520.25	-0.01
396	01/22/91	521.03	521.03	0.00
396	02/26/91	520.91	520.93	0.02
396	03/27/91	521.49	521.51	0.02
396	06/03/91	520.41	523.38	2.97
396	07/27/91	519.32	520.15	0.83
396	08/23/91	519.45	518.46	-0.99
396	09/08/91	519.27	519.27	0.00
396	10/08/91	518.73	518.75	0.02
396	11/04/91	518.34	518.37	0.03
396	12/05/91	518.25	518.23	-0.02
397	11/05/91	519.08	518.98	-0.10
397	12/10/91	518.27	518.18	-0.09
550	11/04/91	519.72	519.72	0.00
550	12/05/91	519.51	519.49	-0.02
551	10/08/91	520.48	520.45	-0.03
551	11/04/91	519.95	519.94	-0.01
551	12/05/91	519.85	519.80	-0.05
624	06/15/90	521.37	521.39	0.02
624	01/28/91	521.78	521.80	0.02
624	03/28/91	522.21	522.23	0.02
624	04/29/91	521.88	521.92	0.04

Table A-2

Great Miami Aquifer Monitoring Well Cluster Water Elevation
And Vertical Elevation Difference (3000-series minus 2000-series)

Cluster Number	Date	2000-Series Well Elevations	3000-Series Well Elevations	Calculated Difference
634	06/15/90	515.08	515.21	0.13
634	01/28/91	515.21	515.31	0.10
634	03/28/91	516.15	516.20	0.05
634	04/29/91	515.25	515.28	0.03
636	06/15/90	518.10	518.02	-0.08
636	01/28/91	518.32	518.26	-0.06
636	03/28/91	519.03	518.92	-0.11
636	04/29/91	518.36	518.29	-0.07
638	06/15/90	512.33	512.50	0.17
638	01/28/91	512.40	512.60	0.20
638	03/28/91	513.31	513.50	0.19
638	04/29/91	512.40	512.56	0.16

3713



Legend

142.8 * Water Elevations At Specific Well Locations

Shaded Areas Represent Bedrock Outcrops. The Sand And Gravel Aquifer Does Not Exist In These Areas

Dark Lines Represent Equal Water Elevations Within The Aquifer. These Lines Are Determined Through Approximation Methods and Are Spaced At One Foot Intervals Above Mean Sea Level

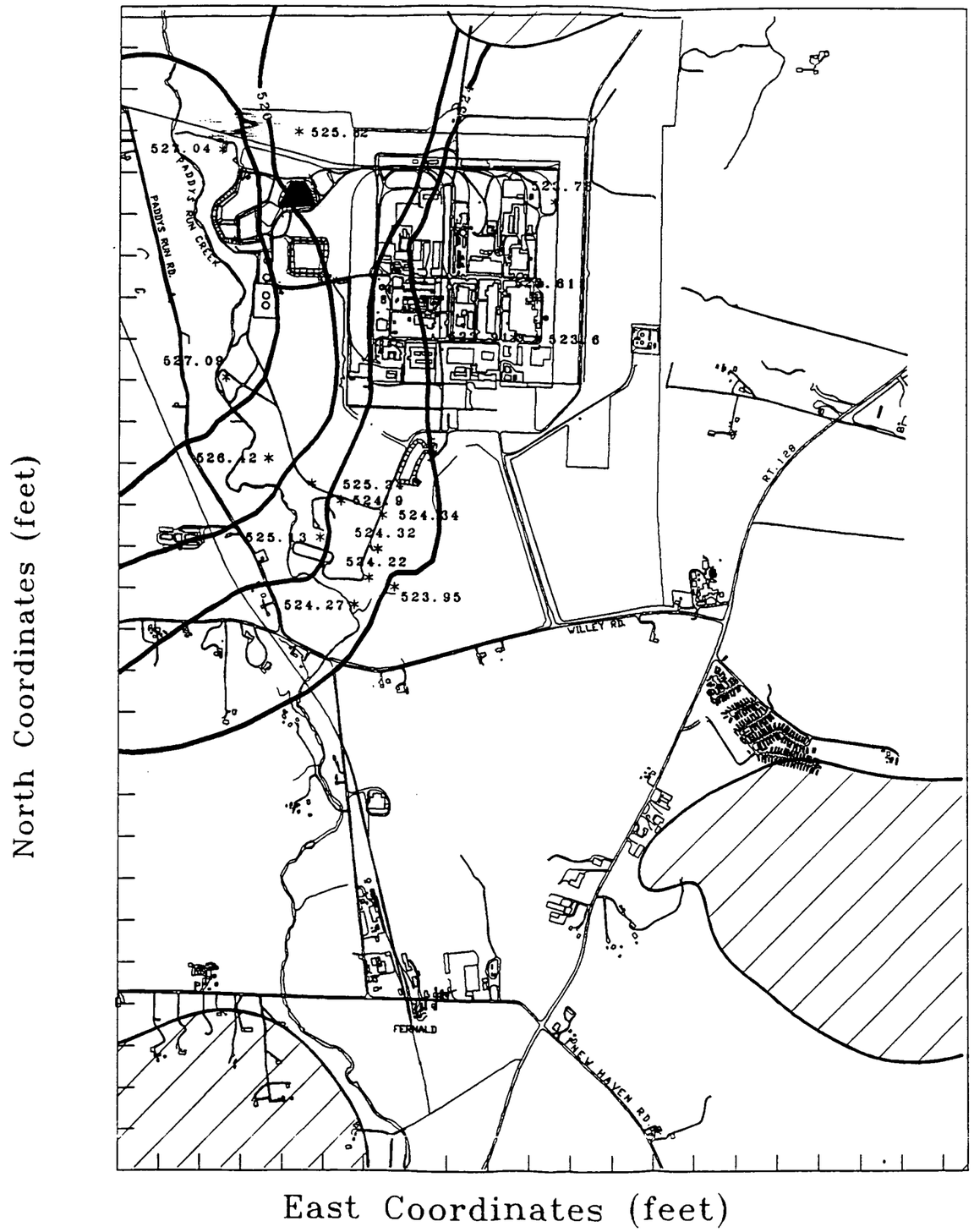
Waste Pit 4

FIGURE A-1

Water Table Elevation Map For The 2000 Series Wells As Of February, 1991

Scale (in feet)

3713



Legend

142.8 * Water Elevations At Specific Well Locations

Shaded Areas Represent Bedrock Outcrops. The Sand And Gravel Aquifer Does Not Exist In These Areas

Dark Lines Represent Equal Water Elevations Within The Aquifer. These Lines Are Determined Through Approximation Methods and Are Spaced At One Foot Intervals Above Mean Sea Level

Waste Pit 4

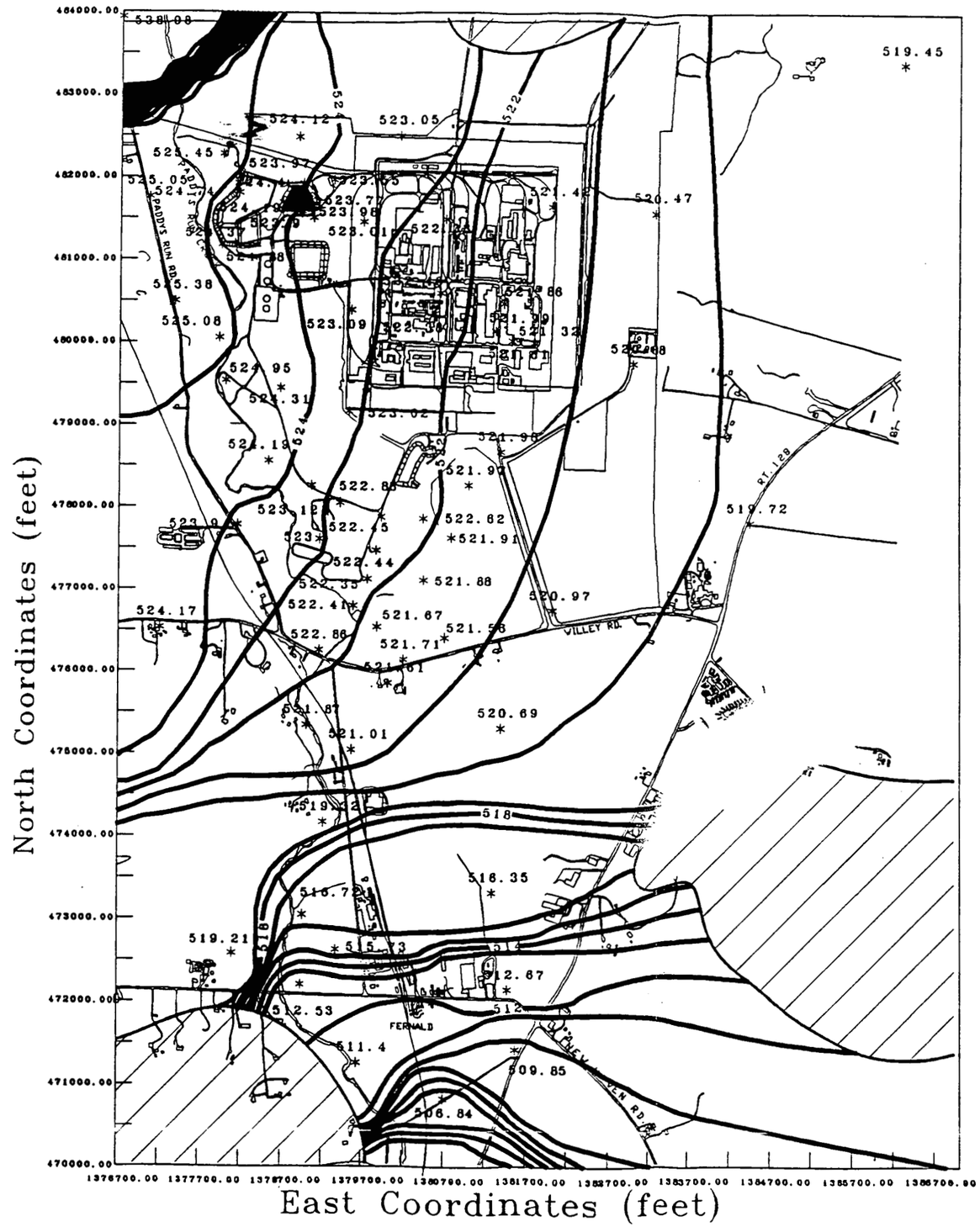
FIGURE A-2

Water Table Elevation Map For The 2000 Series Wells As Of May, 1991

Scale (in feet)

0 600 1200 1800 2400

3713



Legend

142.8 * Water Elevations At Specific Well Locations

Shaded Areas Represent Bedrock Outcrops. The Sand And Gravel Aquifer Does Not Exist In These Areas

Dark Lines Represent Equal Water Elevations Within The Aquifer. These Lines Are Determined Through Approximation Methods and Are Spaced At One Foot Intervals Above Mean Sea Level

Waste Pit 4

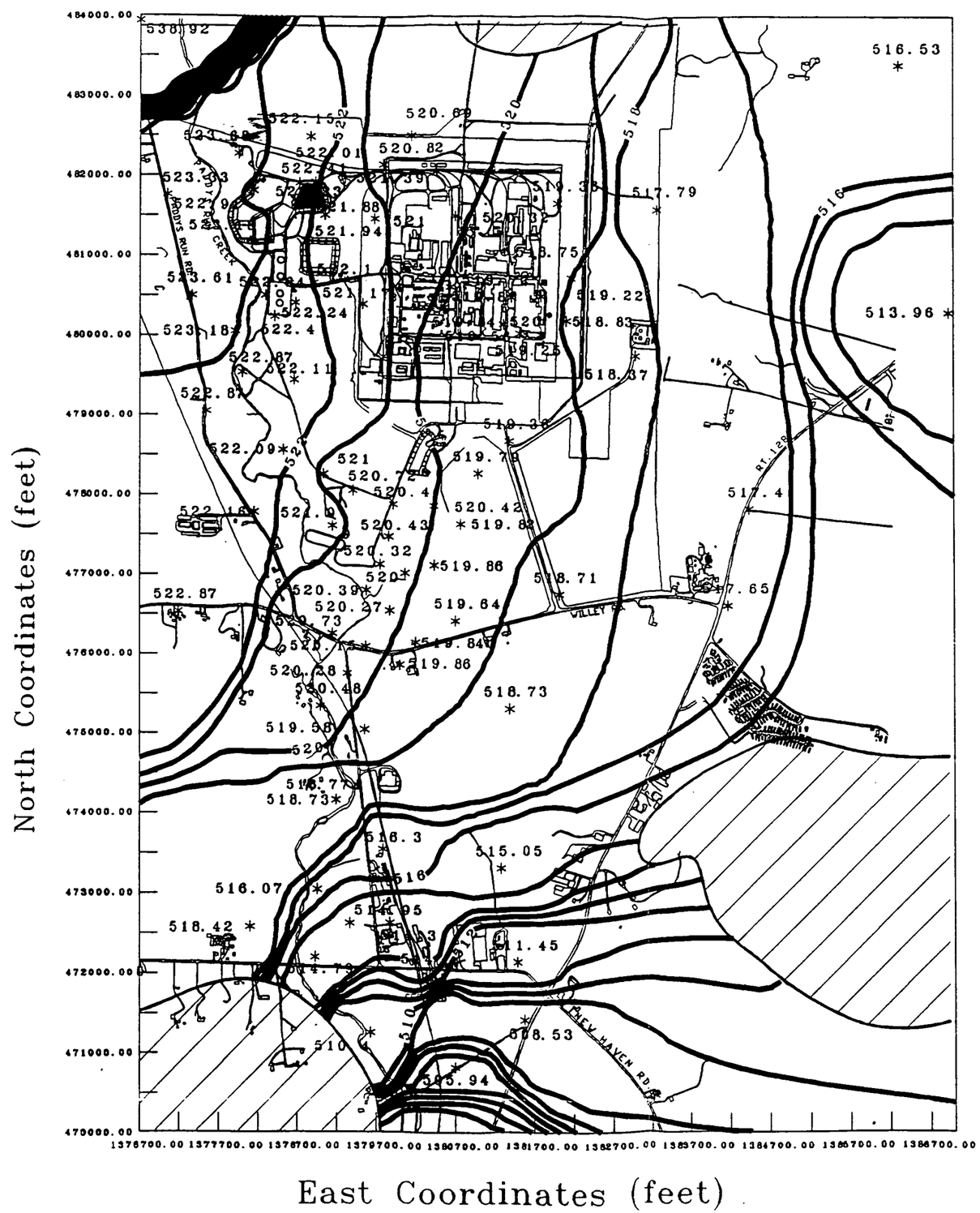
FIGURE A-3

Water Table Elevation Map For The 2000 Series Wells As Of July, 1991

Scale (in feet)

0 600 1200 1800 2400

3713



Legend

142.8 * Water Elevations At Specific Well Locations

Shaded Areas Represent Bedrock Outcrops. The Sand And Gravel Aquifer Does Not Exist In These Areas

Dark Lines Represent Equal Water Elevations Within The Aquifer. These Lines Are Determined Through Approximation Methods and Are Spaced At One Foot Intervals Above Mean Sea Level

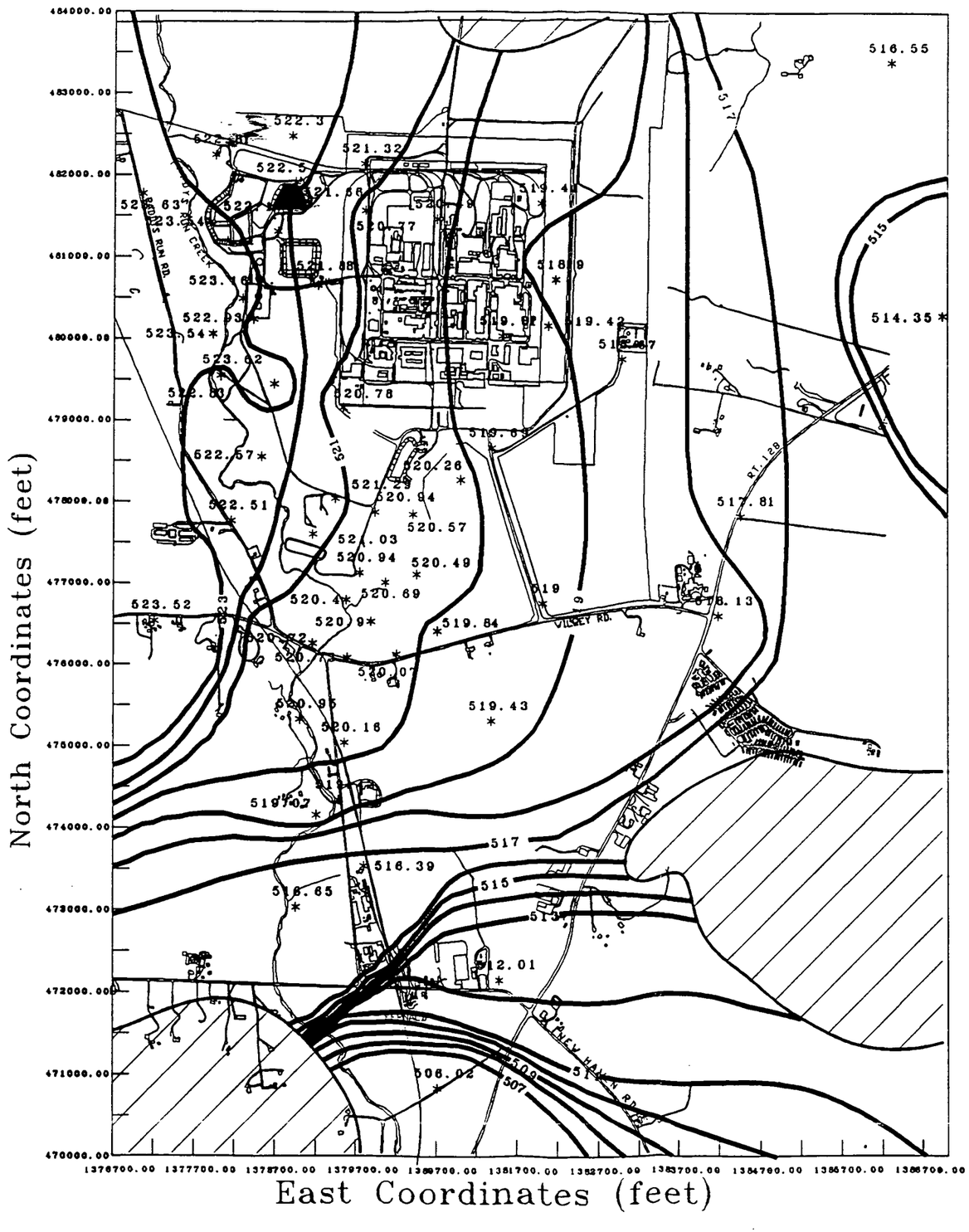
Waste Pit 4

FIGURE A-4

Water Table Elevation Map For The 2000 Series Wells As Of October, 1991

Scale (in feet)
0 600 1200 1800 2400

3713



Legend

142.8 * Water Elevations At Specific Well Locations

Shaded Areas Represent Bedrock Outcrops. The Sand And Gravel Aquifer Does Not Exist In These Areas

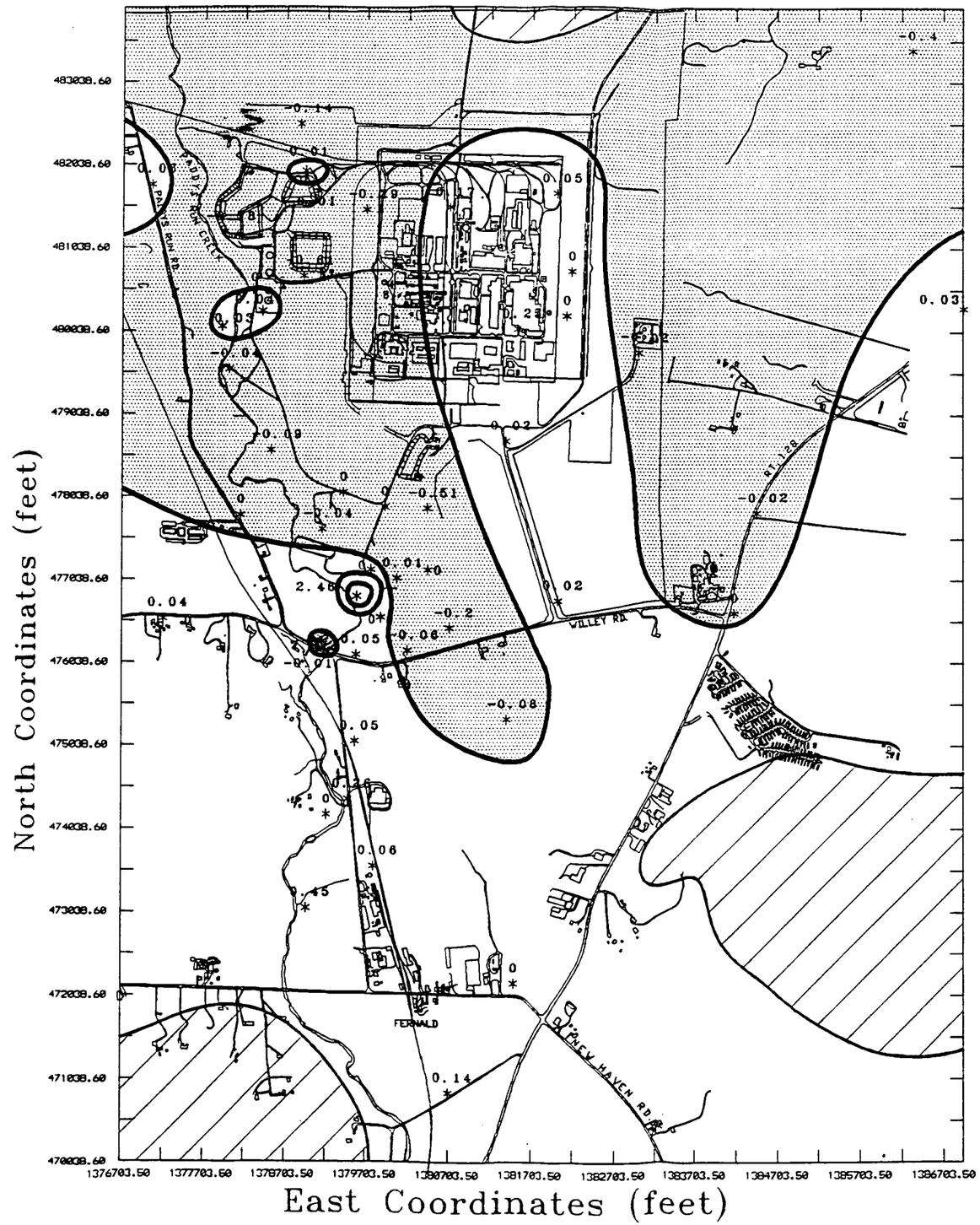
Dark Lines Represent Equal Water Elevations Within The Aquifer. These Lines Are Determined Through Approximation Methods and Are Spaced At One Foot Intervals Above Mean Sea Level

Waste Pit 4

FIGURE A-5

Water Table Elevation Map For The 3000 Series Wells As Of October, 1991

Scale (in feet)



3713

Legend

-0.53 * Vertical Water Table Elevation Difference (3000 Series - 2000 Series Wells)

Gray-shaded Areas Indicate Where Negative Differences Were Encountered

Shaded Areas Represent Bedrock Outcrops. The Sand And Gravel Aquifer Does Not Exist In These Areas

Dark Lines Represent Equal Vertical Differences Within The Aquifer. These Lines Are Determined Through Approximation Methods and Are Spaced At 0.25 Foot Intervals.

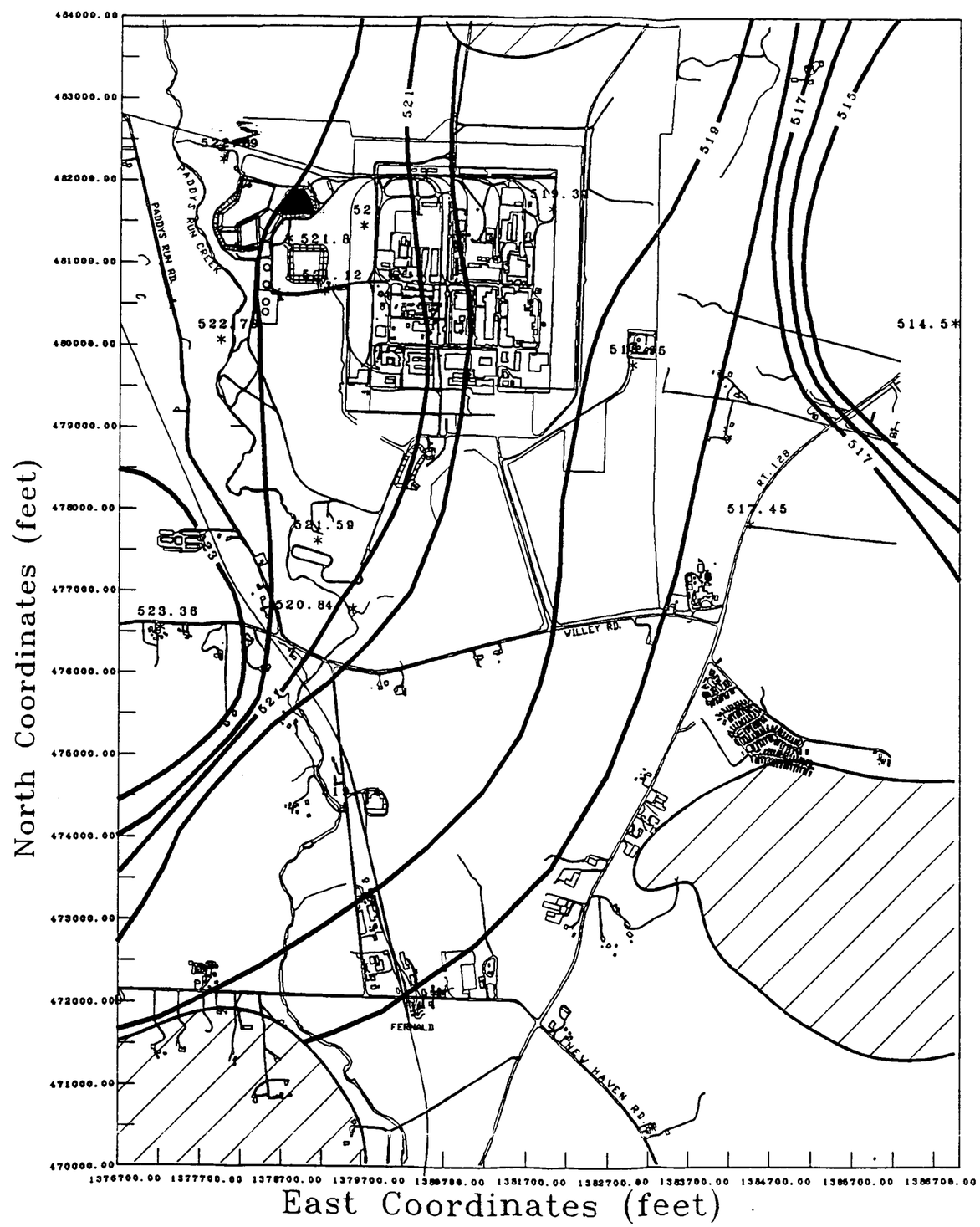
FIGURE A-7

Vertical Head Differences In The Sand And Gravel Aquifer As Of February, 1990

Scale (in feet)

0 600 1200 1800 2400

3713



Legend

142.8 * Water Elevations At Specific Well Locations

Shaded Areas Represent Bedrock Outcrops. The Sand And Gravel Aquifer Does Not Exist In These Areas

Dark Lines Represent Equal Water Elevations Within The Aquifer. These Lines Are Determined Through Approximation Methods and Are Spaced At One Foot Intervals Above Mean Sea Level

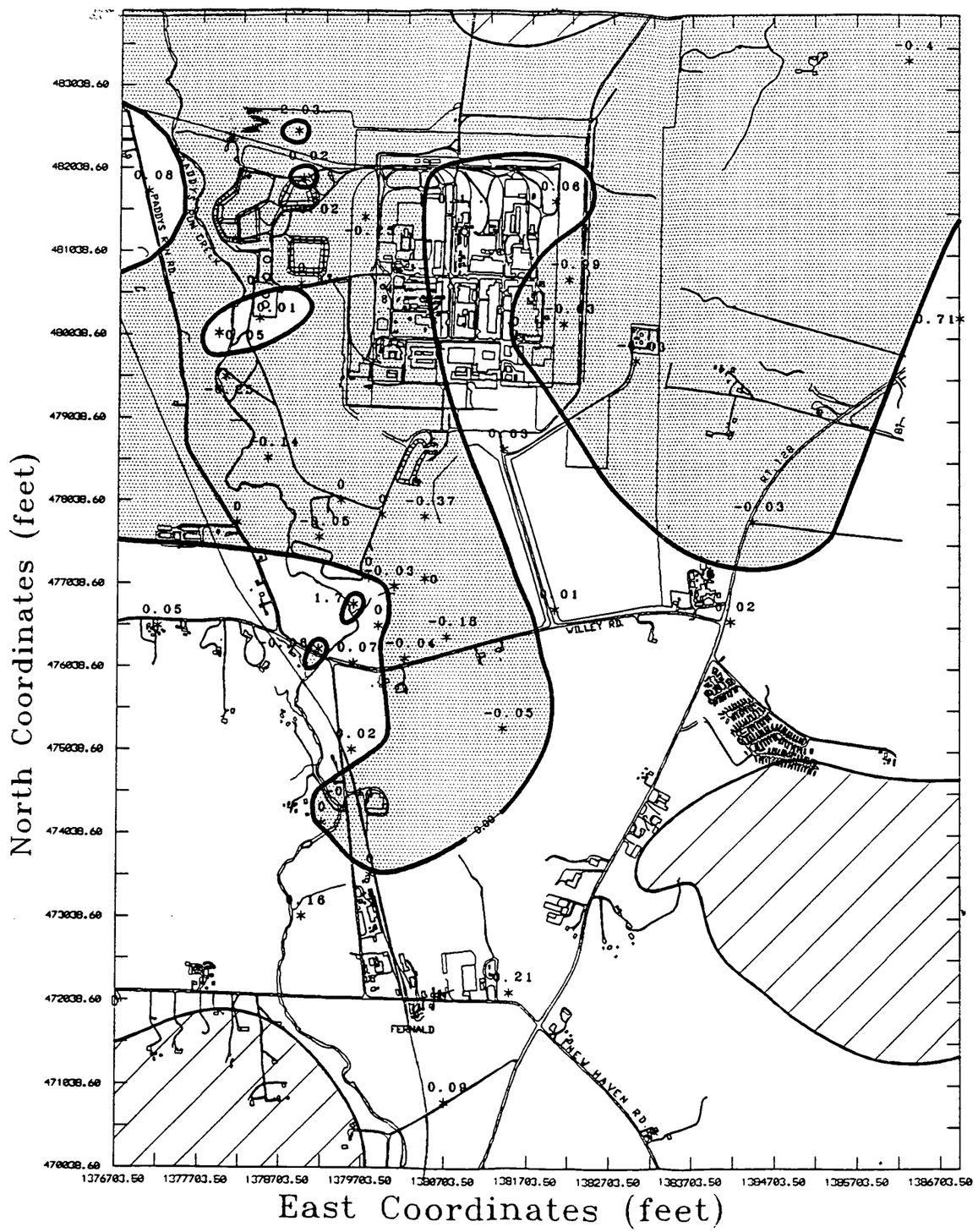
Waste Pit 4

FIGURE A-6

Water Table Elevation Map For The 4000 Series Wells As Of October, 1991

Scale (in feet)

3713



Legend

-0.53 * Vertical Water Table Elevation Difference (3000 Series - 2000 Series Wells)

Gray-shaded Areas Indicate Where Negative Differences Were Encountered

Shaded Areas Represent Bedrock Outcrops. The Sand And Gravel Aquifer Does Not Exist In These Areas

Dark Lines Represent Equal Vertical Differences Within The Aquifer. These Lines Are Determined Through Approximation Methods and Are Spaced At 0.25 Foot Intervals.

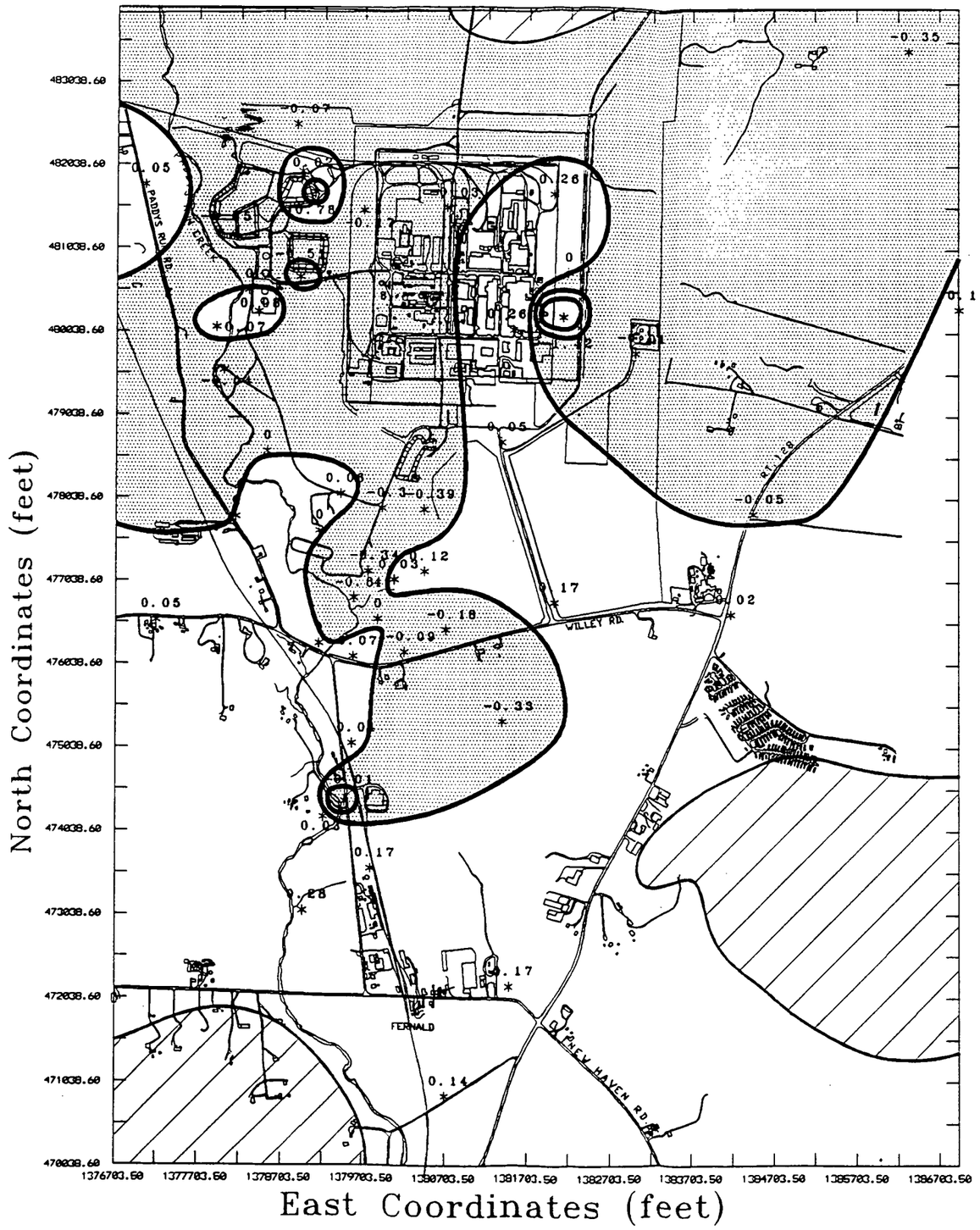
FIGURE A-8

Vertical Head Differences In The Sand And Gravel Aquifer As Of May, 1990

Scale (in feet)

0 600 1200 1800 2400

3713



Legend

-0.53 * Vertical Water Table Elevation Difference (3000 Series - 2000 Series Wells)

Gray-shaded Areas Indicate Where Negative Differences Were Encountered

Shaded Areas Represent Bedrock Outcrops. The Sand And Gravel Aquifer Does Not Exist In These Areas

Dark Lines Represent Equal Vertical Differences Within The Aquifer. These Lines Are Determined Through Approximation Methods and Are Spaced At 0.25 Foot Intervals.

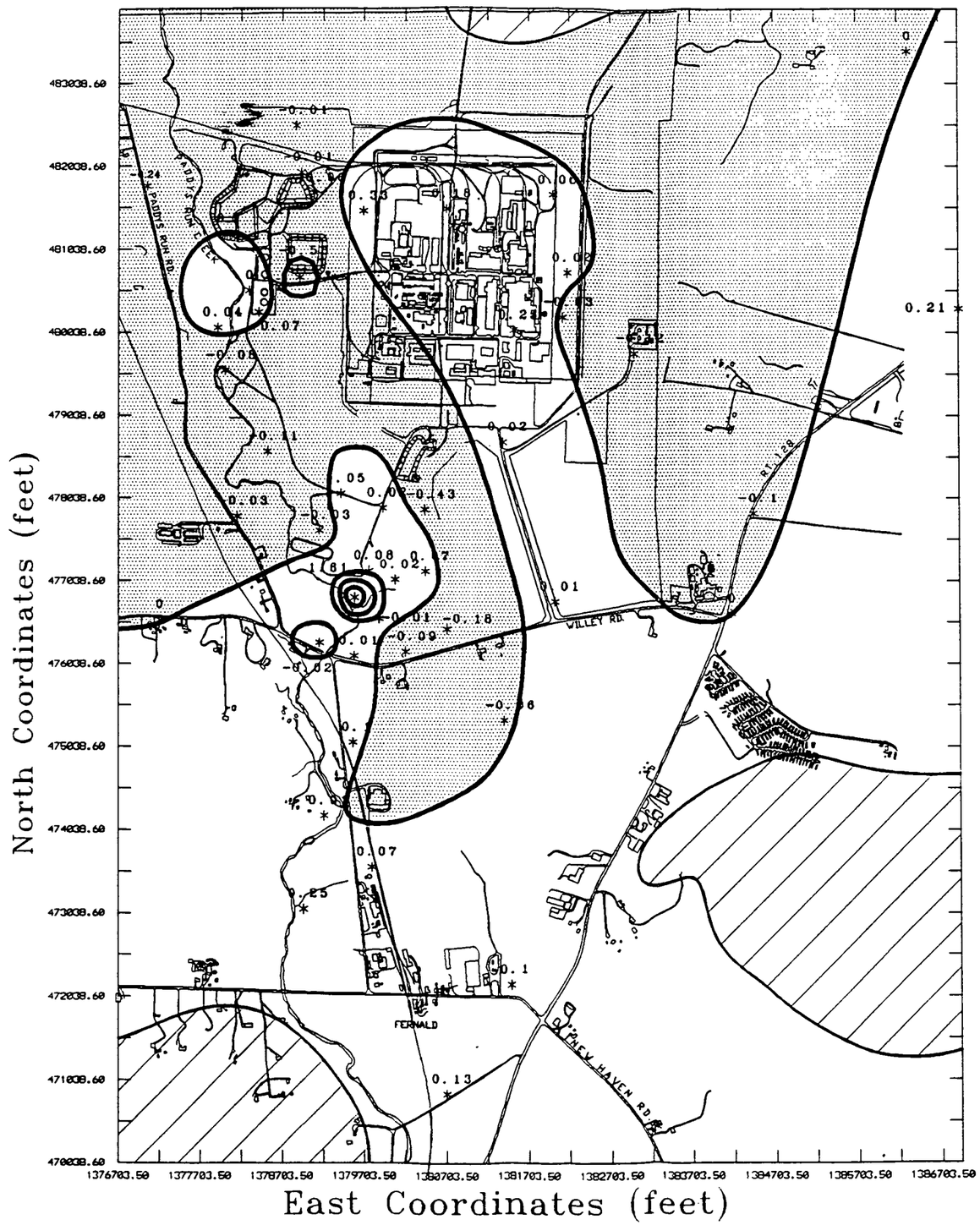
FIGURE A-9

Vertical Head Differences In The Sand And Gravel Aquifer As Of July, 1990

Scale (in feet)

0 600 1200 1800 2400

3713



Legend

-0.53 * Vertical Water Table Elevation Difference (3000 Series - 2000 Series Wells)

Gray-shaded Areas Indicate Where Negative Differences Were Encountered

Shaded Areas Represent Bedrock Outcrops. The Sand And Gravel Aquifer Does Not Exist In These Areas

Dark Lines Represent Equal Vertical Differences Within The Aquifer. These Lines Are Determined Through Approximation Methods and Are Spaced At 0.25 Foot Intervals.

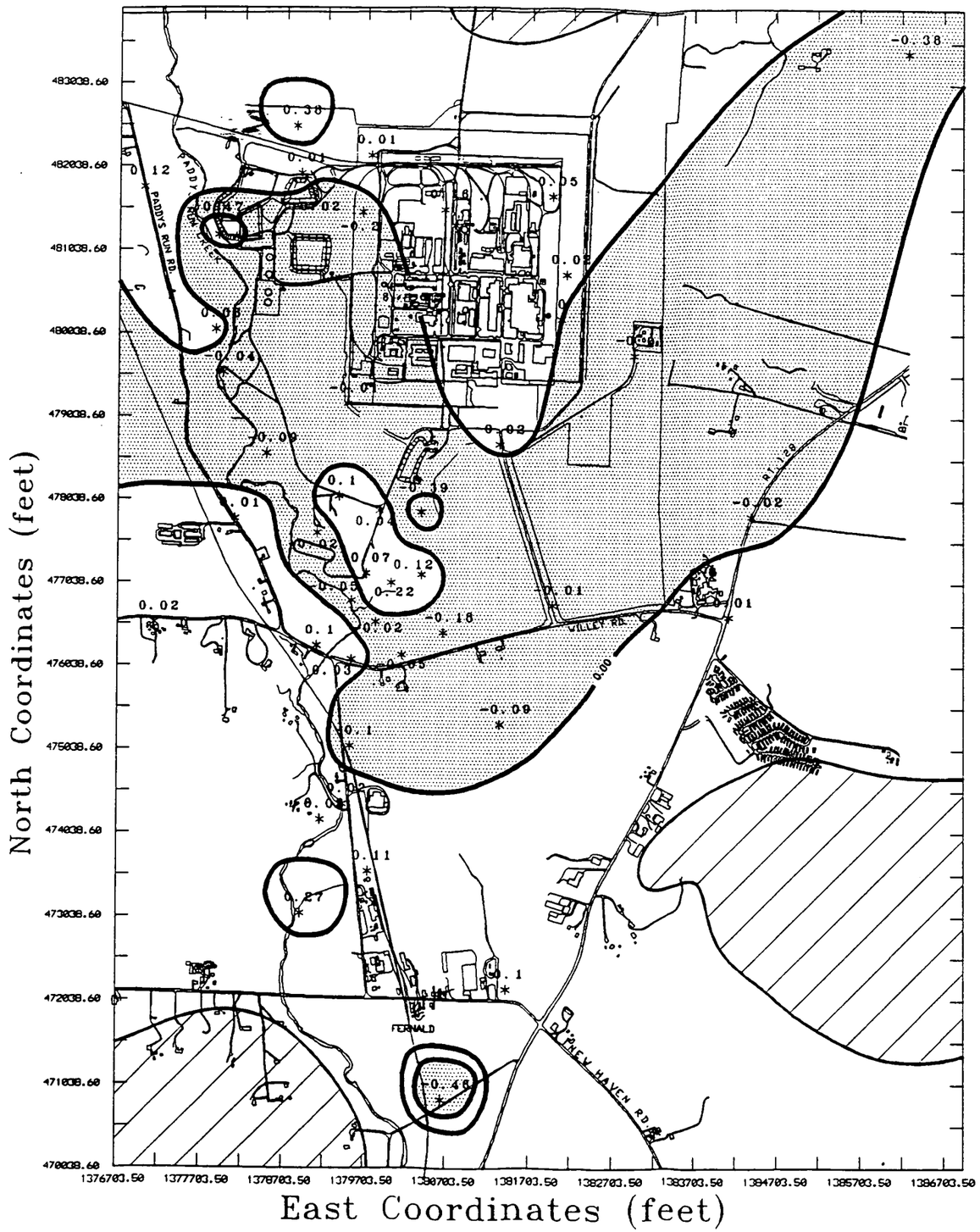
FIGURE A-10

Vertical Head Differences In The Sand And Gravel Aquifer As Of October, 1990

Scale (in feet)

0 600 1200 1800 2400

3713



Legend

-0.53 * Vertical Water Table Elevation Difference (3000 Series - 2000 Series Wells)

Gray-shaded Areas Indicate Where Negative Differences Were Encountered

Shaded Areas Represent Bedrock Outcrops. The Sand And Gravel Aquifer Does Not Exist In These Areas

Dark Lines Represent Equal Vertical Differences Within The Aquifer. These Lines Are Determined Through Approximation Methods and Are Spaced At 0.25 Foot Intervals.

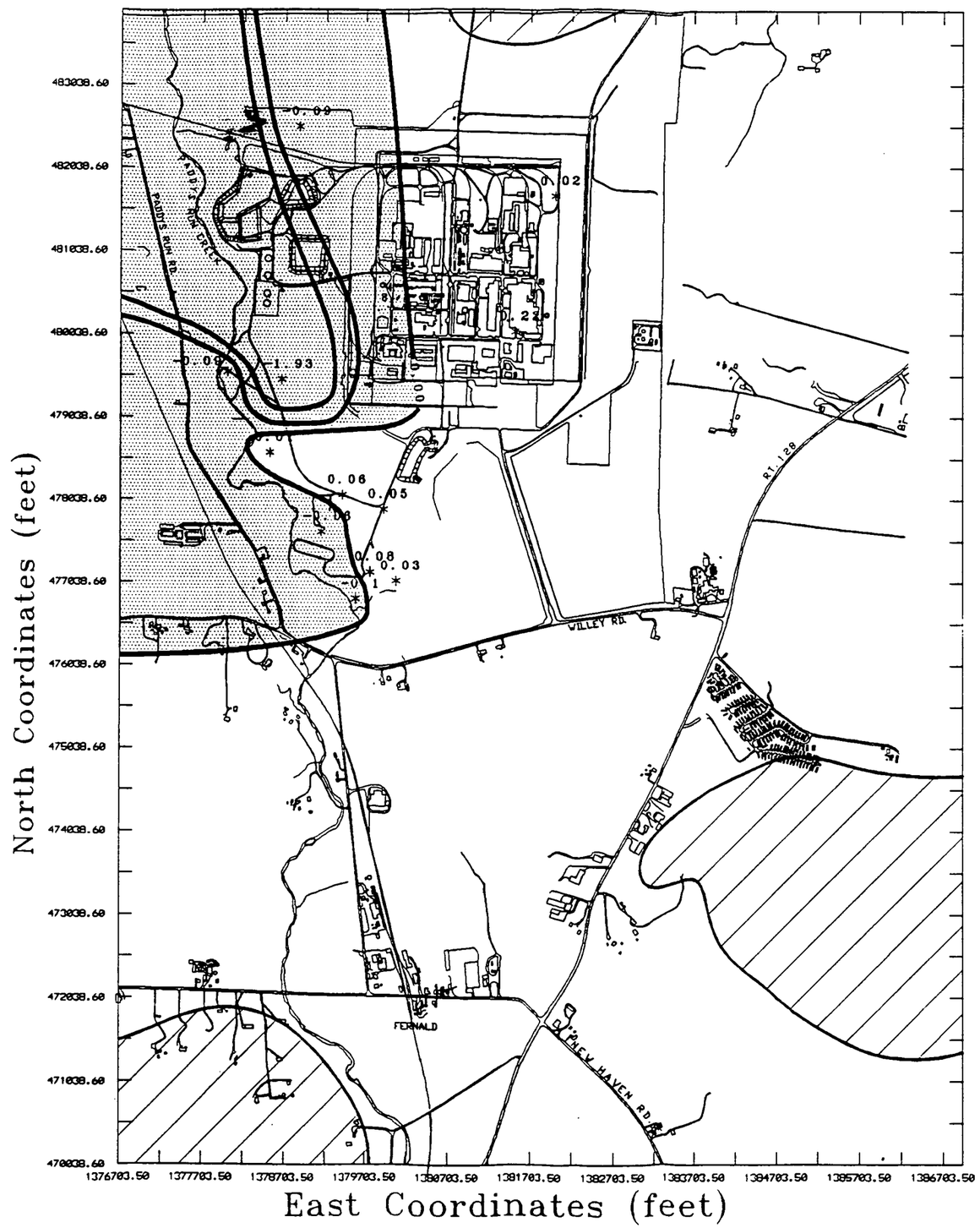
FIGURE A-11

Vertical Head Differences In The Sand And Gravel Aquifer As Of February, 1991

Scale (in feet)

0 600 1200 1800 2400

3713



Legend

-0.53 * Vertical Water Table Elevation Difference (3000 Series - 2000 Series Wells)

Gray-shaded Areas Indicate Where Negative Differences Were Encountered

Shaded Areas Represent Bedrock Outcrops. The Sand And Gravel Aquifer Does Not Exist In These Areas

Dark Lines Represent Equal Vertical Differences Within The Aquifer. These Lines Are Determined Through Approximation Methods and Are Spaced At 0.25 Foot Intervals.

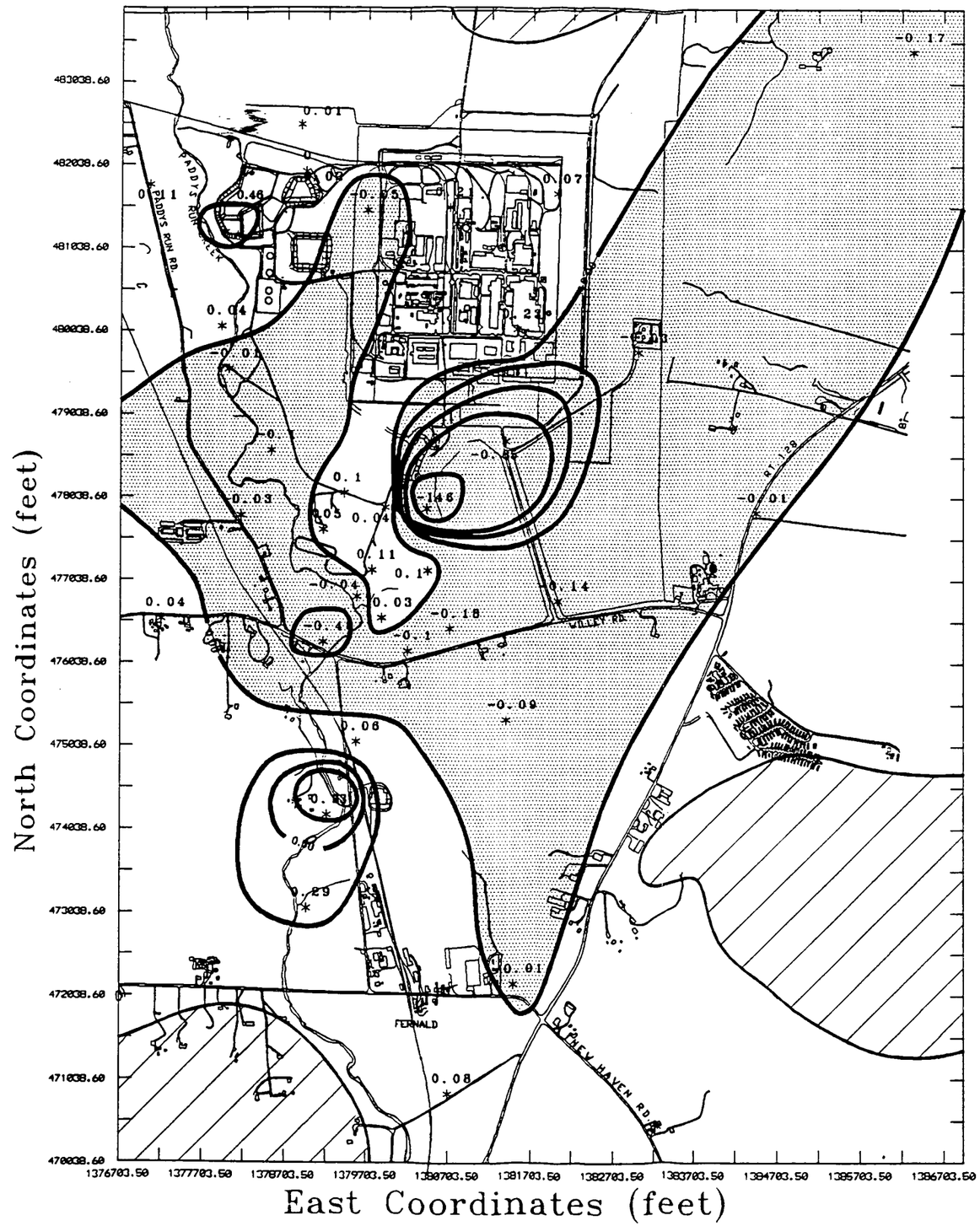
FIGURE A-12

Vertical Head Differences In The Sand And Gravel Aquifer As Of May, 1991

Scale (in feet)

0 600 1200 1800 2400

3713



Legend

-0.53 * Vertical Water Table Elevation Difference (3000 Series - 2000 Series Wells)

Shaded Areas Represent Bedrock Outcrops. The Sand And Gravel Aquifer Does Not Exist In These Areas

Dark Lines Represent Equal Vertical Differences Within The Aquifer. These Lines Are Determined Through Approximation Methods and Are Spaced At 0.25 Foot Intervals

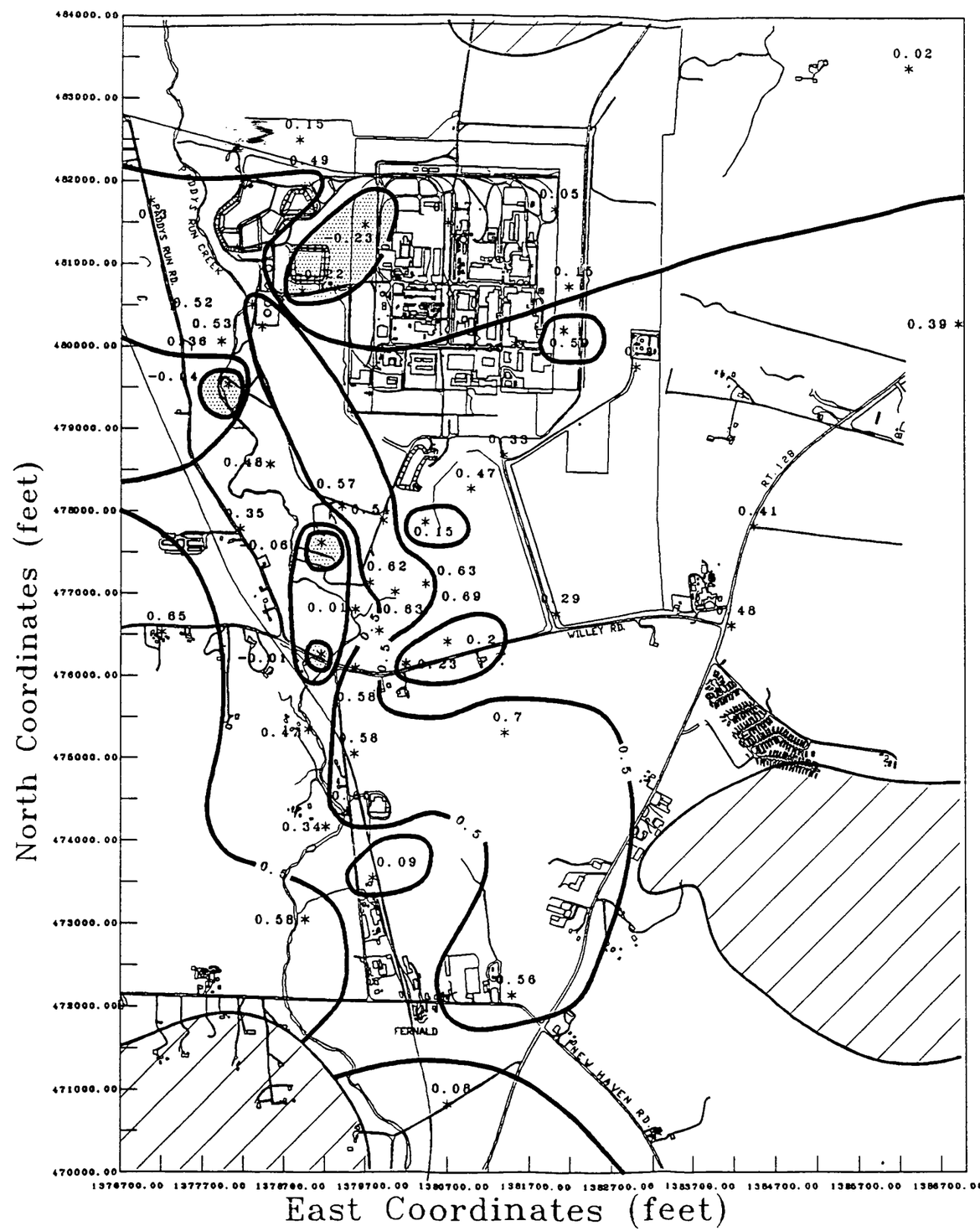
FIGURE A-13

Vertical Head Differences In The Sand And Gravel Aquifer As Of July, 1991

Scale (in feet)

0 600 1200 1800 2400

3713



Legend

-0.53 * Vertical Water Table Elevation Difference (3000 Series - 2000 Series Wells)

Gray-shaded Areas Indicate Where Negative Differences Were Encountered

Shaded Areas Represent Bedrock Outcrops. The Sand And Gravel Aquifer Does Not Exist In These Areas

Dark Lines Represent Equal Vertical Differences Within The Aquifer. These Lines Are Determined Through Approximation Methods and Are Spaced At 0.25 Foot Intervals.

FIGURE A-14

Vertical Head Differences In The Sand And Gravel Aquifer As Of October, 1991

Scale (in feet)

APPENDIX B

1991 RCRA Sampling Field Results

Test / Measurement Date		Start of Purge	Start of Sample	End of Sample
Well #1004				
Dissolved Oxygen				
02/05/91	Dry	N/A	N/A	N/A
05/20/91	Dry	N/A	N/A	N/A
10/07/91	Dry	N/A	N/A	N/A
pH				
02/05/91	Dry	N/A	N/A	N/A
05/20/91	Dry	N/A	N/A	N/A
10/07/91	Dry	N/A	N/A	N/A
Specific conductance				
02/05/91	Dry	N/A	N/A	N/A
05/20/91	Dry	N/A	N/A	N/A
10/07/91	Dry	N/A	N/A	N/A
Temperature				
02/05/91	Dry	N/A	N/A	N/A
05/20/91	Dry	N/A	N/A	N/A
10/07/91	Dry	N/A	N/A	N/A
Well #1024				
Dissolved Oxygen				
02/27/91		4.00 mg/L	4.40 mg/L	2.80 mg/L
05/24/91		2.25 mg/L	6.75 mg/L	7.25 mg/L
07/15/91		1.80 mg/L	4.00 mg/L	1.70 mg/L
10/01/91		2.50 mg/L	N/A	N/A
pH				
02/27/91		7.18 S. U.	6.98 S. U.	6.95 S. U.
05/24/91		7.27 S. U.	7.28 S. U.	7.19 S. U.
07/15/91		7.11 S. U.	7.06 S. U.	7.03 S. U.
10/01/91		7.22 S. U.	7.05 S. U.	7.08 S. U.
Specific conductance				
02/27/91		0.538 mmhos/cm	0.562 mmhos/cm	0.567 mmhos/cm
05/24/91		0.810 mmhos/cm	0.817 mmhos/cm	0.811 mmhos/cm
07/15/91		0.792 mmhos/cm	0.794 mmhos/cm	0.799 mmhos/cm
10/01/91		0.778 mmhos/cm	N/A	N/A
Temperature				
02/27/91		9.0 C.	11.4 C.	11.3 C.
05/24/91		13.4 C.	14.6 C.	14.7 C.

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #1024			
Temperature			
07/15/91	15.2 C.	15.3 C.	14.5 C.
10/01/91	15.6 C.	17.5 C.	N/A
Well #1025			
Dissolved Oxygen			
02/12/91	2.50 mg/L	3.10 mg/L	6.60 mg/L
05/20/91	2.60 mg/L	N/A	N/A
05/21/91	N/A	5.90 mg/L	N/A
07/11/91	4.90 mg/L	1.30 mg/L	2.40 mg/L
10/09/91	N/A	1.20 mg/L	N/A
pH			
02/12/91	6.48 S. U.	6.58 S. U.	6.75 S. U.
05/20/91	6.62 S. U.	N/A	N/A
05/21/91	N/A	6.70 S. U.	N/A
07/11/91	6.53 S. U.	6.53 S. U.	6.84 S. U.
10/09/91	6.41 S. U.	6.36 S. U.	6.44 S. U.
Specific conductance			
02/12/91	1.000 mmhos/cm	1.000 mmhos/cm	1.000 mmhos/cm
05/20/91	1.000 mmhos/cm	N/A	N/A
05/21/91	N/A	1.000 mmhos/cm	N/A
07/11/91	1.000 mmhos/cm	1.000 mmhos/cm	1.000 mmhos/cm
10/09/91	N/A	4.770 mmhos/cm	4.540 mmhos/cm
Temperature			
02/12/91	9.7 C.	10.3 C.	9.8 C.
05/20/91	13.9 C.	N/A	N/A
05/21/91	N/A	14.1 C.	N/A
07/11/91	16.6 C.	17.3 C.	16.1 C.
10/09/91	N/A	14.8 C.	15.5 C.
Well #1027			
Dissolved Oxygen			
02/04/91	2.80 mg/L	2.40 mg/L	2.00 mg/L
05/13/91	2.10 mg/L	2.00 mg/L	2.10 mg/L
07/02/91	1.40 mg/L	3.30 mg/L	3.30 mg/L
10/09/91	N/A	2.10 mg/L	N/A

1991 RCRA Sampling Field Results

Test / Measurement Date		Start of Purge	Start of Sample	End of Sample
Well #1027				
pH				
02/04/91		7.33 S. U.	7.14 S. U.	7.22 S. U.
05/13/91		6.72 S. U.	7.12 S. U.	7.14 S. U.
07/02/91		7.09 S. U.	7.11 S. U.	7.13 S. U.
10/09/91		7.04 S. U.	7.12 S. U.	7.01 S. U.
Specific conductance				
02/04/91		0.340 mmhos/cm	0.304 mmhos/cm	0.283 mmhos/cm
05/13/91		0.651 mmhos/cm	0.618 mmhos/cm	0.600 mmhos/cm
07/02/91		0.453 mmhos/cm	0.842 mmhos/cm	0.844 mmhos/cm
10/09/91		N/A	0.888 mmhos/cm	0.914 mmhos/cm
Temperature				
02/04/91		13.1 C.	13.5 C.	13.2 C.
05/13/91		12.6 C.	13.5 C.	13.3 C.
07/02/91		16.5 C.	16.7 C.	15.7 C.
10/09/91		N/A	15.2 C.	14.6 C.
Well #1028				
Dissolved Oxygen				
02/05/91	Dry	N/A	N/A	N/A
05/16/91	Dry	N/A	N/A	N/A
07/02/91	Dry	N/A	N/A	N/A
10/07/91	Dry	N/A	N/A	N/A
pH				
02/05/91	Dry	N/A	N/A	N/A
05/16/91	Dry	N/A	N/A	N/A
07/02/91	Dry	N/A	N/A	N/A
10/07/91	Dry	N/A	N/A	N/A
Specific conductance				
02/05/91	Dry	N/A	N/A	N/A
05/16/91	Dry	N/A	N/A	N/A
07/02/91	Dry	N/A	N/A	N/A
10/07/91	Dry	N/A	N/A	N/A
Temperature				
02/05/91	Dry	N/A	N/A	N/A
05/16/91	Dry	N/A	N/A	N/A
07/02/91	Dry	N/A	N/A	N/A
10/07/91	Dry	N/A	N/A	N/A

1991 RCRA Sampling Field Results

Test / Measurement Date		Start of Purge	Start of Sample	End of Sample
Well #1030				
Dissolved Oxygen				
02/05/91		6.30 mg/L	N/A	N/A
05/21/91	Dry	N/A	N/A	N/A
05/24/91		6.00 mg/L	N/A	N/A
07/11/91		6.50 mg/L	N/A	N/A
07/12/91	Dry	N/A	N/A	N/A
10/15/91	Dry	N/A	N/A	N/A
10/16/91	Dry	N/A	N/A	N/A
pH				
02/05/91		7.07 S. U.	N/A	N/A
05/21/91	Dry	N/A	N/A	N/A
05/24/91		6.87 S. U.	N/A	N/A
07/11/91		7.04 S. U.	N/A	N/A
07/12/91	Dry	N/A	N/A	N/A
10/15/91		7.10 S. U.	N/A	N/A
10/16/91	Dry	N/A	N/A	N/A
Specific conductance				
02/05/91		1.063 mmhos/cm	N/A	N/A
05/21/91	Dry	N/A	N/A	N/A
05/24/91		1.468 mmhos/cm	N/A	N/A
07/11/91		1.472 mmhos/cm	N/A	N/A
07/12/91	Dry	N/A	N/A	N/A
10/15/91	Dry	N/A	N/A	N/A
10/16/91	Dry	N/A	N/A	N/A
Temperature				
02/05/91		12.8 C.	N/A	N/A
05/21/91	Dry	N/A	N/A	N/A
05/24/91		13.7 C.	N/A	N/A
07/11/91		15.7 C.	N/A	N/A
07/12/91	Dry	N/A	N/A	N/A
10/15/91	Dry	N/A	N/A	N/A
10/16/91	Dry	N/A	N/A	N/A
Well #1031				
Dissolved Oxygen				
02/12/91		1.90 mg/L	2.20 mg/L	3.30 mg/L
05/28/91		2.00 mg/L	2.50 mg/L	2.80 mg/L
07/30/91		1.70 mg/L	2.20 mg/L	1.90 mg/L
10/23/91		N/A	3.20 mg/L	N/A
pH				
02/12/91		9.15 S. U.	9.26 S. U.	9.82 S. U.

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #1031			
pH			
05/28/91	7.95 S. U.	8.99 S. U.	9.09 S. U.
07/30/91	8.67 S. U.	9.04 S. U.	9.08 S. U.
10/23/91	7.82 S. U.	9.08 S. U.	9.07 S. U.
Specific conductance			
02/12/91	1.000 mmhos/cm	1.000 mmhos/cm	1.000 mmhos/cm
05/28/91	3.700 mmhos/cm	3.670 mmhos/cm	3.660 mmhos/cm
07/30/91	3.550 mmhos/cm	3.670 mmhos/cm	3.660 mmhos/cm
10/23/91	N/A	3.510 mmhos/cm	3.510 mmhos/cm
Temperature			
02/12/91	9.9 C.	11.3 C.	10.6 C.
05/28/91	14.7 C.	15.2 C.	15.1 C.
07/30/91	13.9 C.	13.8 C.	13.7 C.
10/23/91	N/A	14.2 C.	14.8 C.
Well #1038			
Dissolved Oxygen			
02/11/91	2.80 mg/L	2.80 mg/L	3.20 mg/L
05/16/91	1.40 mg/L	2.90 mg/L	3.70 mg/L
07/17/91	1.50 mg/L	3.40 mg/L	N/A
07/18/91	N/A	2.40 mg/L	3.20 mg/L
10/08/91	N/A	4.60 mg/L	N/A
pH			
02/11/91	6.83 S. U.	6.77 S. U.	6.87 S. U.
05/16/91	6.75 S. U.	6.85 S. U.	6.91 S. U.
07/17/91	6.81 S. U.	6.88 S. U.	N/A
07/18/91	N/A	6.78 S. U.	6.79 S. U.
10/08/91	7.00 S. U.	7.13 S. U.	7.32 S. U.
Specific conductance			
02/11/91	0.716 mmhos/cm	0.736 mmhos/cm	0.753 mmhos/cm
05/16/91	1.102 mmhos/cm	1.121 mmhos/cm	1.117 mmhos/cm
07/17/91	1.058 mmhos/cm	1.086 mmhos/cm	N/A
07/18/91	N/A	1.070 mmhos/cm	1.097 mmhos/cm
10/08/91	N/A	1.016 mmhos/cm	1.016 mmhos/cm
Temperature			
02/11/91	9.9 C.	11.0 C.	10.9 C.
05/16/91	13.9 C.	14.0 C.	13.9 C.
07/17/91	16.4 C.	16.8 C.	N/A
07/18/91	N/A	14.2 C.	14.3 C.

1991 RCRA Sampling Field Results

Test / Measurement Date		Start of Purge	Start of Sample	End of Sample
Well #1038				
Temperature				
10/08/91		N/A	12.8 C.	12.6 C.
Well #1052				
Dissolved Oxygen				
02/25/91		9.20 mg/L	6.00 mg/L	9.00 mg/L
05/28/91		2.50 mg/L	4.20 mg/L	5.50 mg/L
07/18/91		2.20 mg/L	3.80 mg/L	4.70 mg/L
10/02/91	Dry	N/A	N/A	N/A
10/03/91		N/A	4.00 mg/L	N/A
pH				
02/25/91		7.19 S. U.	7.18 S. U.	7.26 S. U.
05/28/91		7.35 S. U.	7.38 S. U.	7.42 S. U.
07/18/91		6.92 S. U.	7.02 S. U.	7.04 S. U.
10/02/91		7.15 S. U.	N/A	N/A
10/03/91		N/A	7.01 S. U.	7.12 S.
Specific conductance				
02/25/91		0.540 mmhos/cm	0.609 mmhos/cm	0.627 mmhos/cm
05/28/91		1.024 mmhos/cm	1.049 mmhos/cm	1.023 mmhos/cm
07/18/91		0.893 mmhos/cm	0.866 mmhos/cm	0.860 mmhos/cm
10/02/91	Dry	N/A	N/A	N/A
10/03/91		N/A	0.837 mmhos/cm	N/A
Temperature				
02/25/91		7.7 C.	11.4 C.	11.8 C.
05/28/91		13.5 C.	14.7 C.	13.7 C.
07/18/91		19.8 C.	17.2 C.	15.3 C.
10/02/91		14.9 C.	N/A	N/A
10/03/91		N/A	13.5 C.	N/A
Well #1072				
Dissolved Oxygen				
02/05/91	Dry	N/A	N/A	N/A
05/16/91	Dry	N/A	N/A	N/A
10/07/91	Dry	N/A	N/A	N/A
pH				
02/05/91	Dry	N/A	N/A	N/A
05/16/91	Dry	N/A	N/A	N/A

1991 RCRA Sampling Field Results

Test / Measurement Date		Start of Purge	Start of Sample	End of Sample
Well #1072				
pH				
10/07/91	Dry	N/A	N/A	N/A
Specific conductance				
02/05/91	Dry	N/A	N/A	N/A
05/16/91	Dry	N/A	N/A	N/A
10/07/91	Dry	N/A	N/A	N/A
Temperature				
02/05/91	Dry	N/A	N/A	N/A
05/16/91	Dry	N/A	N/A	N/A
10/07/91	Dry	N/A	N/A	N/A
Well #1074				
Dissolved Oxygen				
02/06/91		2.00 mg/L	5.40 mg/L	N/A
05/23/91		1.90 mg/L	N/A	N/A
05/24/91		N/A	3.10 mg/L	4.20 mg/L
07/15/91		3.20 mg/L	N/A	N/A
07/16/91		N/A	6.40 mg/L	6.50 mg/L
10/16/91		N/A	1.60 mg/L	N/A
pH				
02/06/91		7.18 S. U.	7.42 S. U.	N/A
05/23/91		6.48 S. U.	N/A	N/A
05/24/91		N/A	6.57 S. U.	6.97 S. U.
07/15/91		6.95 S. U.	N/A	N/A
07/16/91		N/A	7.10 S. U.	7.11 S. U.
10/16/91		6.78 S. U.	6.85 S. U.	6.91 S. U.
Specific conductance				
02/06/91		0.865 mmhos/cm	0.869 mmhos/cm	N/A
05/23/91		1.190 mmhos/cm	N/A	N/A
05/24/91		N/A	1.317 mmhos/cm	1.302 mmhos/cm
07/15/91		1.227 mmhos/cm	N/A	N/A
07/16/91		N/A	1.232 mmhos/cm	1.210 mmhos/cm
10/16/91		N/A	1.213 mmhos/cm	1.207 mmhos/cm
Temperature				
02/06/91		10.5 C.	11.2 C.	N/A
05/23/91		16.7 C.	N/A	N/A
05/24/91		N/A	13.4 C.	13.2 C.
07/15/91		17.3 C.	N/A	N/A
07/16/91		N/A	13.7 C.	13.7 C.

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #1074			
Temperature			
10/16/91	N/A	14.8 C.	15.2 C.
Well #1079			
Dissolved Oxygen			
02/20/91	2.70 mg/L	5.00 mg/L	5.00 mg/L
05/23/91	4.30 mg/L	N/A	N/A
05/24/91	N/A	4.30 mg/L	5.30 mg/L
07/22/91	3.40 mg/L	3.10 mg/L	3.60 mg/L
10/03/91	N/A	4.20 mg/L	N/A
pH			
02/20/91	6.75 S. U.	6.93 S. U.	6.90 S. U.
05/23/91	7.05 S. U.	N/A	N/A
05/24/91	N/A	7.10 S. U.	7.13 S. U.
07/22/91	7.00 S. U.	7.02 S. U.	7.05 S. U.
10/03/91	6.97 S. U.	6.84 S. U.	6.73 S. U.
Specific conductance			
02/20/91	N/A	0.424 mmhos/cm	N/A
05/23/91	1.163 mmhos/cm	N/A	N/A
05/24/91	N/A	1.208 mmhos/cm	1.209 mmhos/cm
07/22/91	1.188 mmhos/cm	1.207 mmhos/cm	1.198 mmhos/cm
10/03/91	N/A	1.232 mmhos/cm	N/A
Temperature			
02/20/91	11.9 C.	11.8 C.	12.3 C.
05/23/91	13.5 C.	N/A	N/A
05/24/91	N/A	14.2 C.	13.6 C.
07/22/91	15.2 C.	15.2 C.	15.1 C.
10/03/91	13.9 C.	14.6 C.	N/A
Well #1080			
Dissolved Oxygen			
02/26/91	3.20 mg/L	3.50 mg/L	2.95 mg/L
05/30/91	4.50 mg/L	3.20 mg/L	4.50 mg/L
07/25/91	4.00 mg/L	4.50 mg/L	4.00 mg/L
10/24/91	N/A	5.00 mg/L	N/A
pH			
02/26/91	6.92 S. U.	7.09 S. U.	7.11 S. U.

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #1080			
pH			
05/30/91	6.52 S. U.	6.90 S. U.	6.91 S. U.
07/25/91	6.89 S. U.	6.92 S. U.	7.07 S. U.
10/24/91	6.81 S. U.	6.87 S. U.	6.90 S. U.
Specific conductance			
02/26/91	0.530 mmhos/cm	0.832 mmhos/cm	0.916 mmhos/cm
05/30/91	1.252 mmhos/cm	1.306 mmhos/cm	1.301 mmhos/cm
07/25/91	1.194 mmhos/cm	1.193 mmhos/cm	1.242 mmhos/cm
10/24/91	N/A	1.263 mmhos/cm	1.240 mmhos/cm
Temperature			
02/26/91	9.1 C.	8.7 C.	10.2 C.
05/30/91	13.3 C.	15.1 C.	14.9 C.
07/25/91	19.4 C.	19.5 C.	14.9 C.
10/24/91	N/A	15.8 C.	15.6 C.
Well #1081			
Dissolved Oxygen			
02/05/91 Dry	N/A	N/A	N/A
02/06/91	N/A	4.60 mg/L	5.00 mg/L
05/14/91	4.90 mg/L	N/A	N/A
05/15/91	N/A	6.10 mg/L	6.40 mg/L
07/09/91	4.50 mg/L	N/A	N/A
07/10/91	N/A	3.00 mg/L	5.10 mg/L
10/17/91	N/A	3.20 mg/L	N/A
pH			
02/05/91	7.06 S. U.	N/A	N/A
02/06/91	N/A	6.84 S. U.	6.88 S. U.
05/14/91	6.89 S. U.	N/A	N/A
05/15/91	N/A	6.87 S. U.	6.89 S. U.
07/09/91	6.77 S. U.	N/A	N/A
07/10/91	N/A	6.61 S. U.	6.61 S. U.
10/17/91	6.52 S. U.	6.49 S. U.	6.64 S. U.
Specific conductance			
02/05/91	1.445 mmhos/cm	N/A	N/A
02/06/91	N/A	1.480 mmhos/cm	1.502 mmhos/cm
05/14/91	1.994 mmhos/cm	N/A	N/A
05/15/91	N/A	1.973 mmhos/cm	1.386 mmhos/cm
07/09/91	1.972 mmhos/cm	N/A	N/A
07/10/91	N/A	1.936 mmhos/cm	1.982 mmhos/cm
10/17/91	N/A	1.825 mmhos/cm	1.907 mmhos/cm

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #1081			
Temperature			
02/05/91	12.4 C.	N/A	N/A
02/06/91	N/A	11.5 C.	10.9 C.
05/14/91	14.8 C.	N/A	N/A
05/15/91	N/A	13.3 C.	14.2 C.
07/09/91	17.4 C.	N/A	N/A
07/10/91	N/A	14.8 C.	14.8 C.
10/17/91	N/A	12.0 C.	12.0 C.
Well #1082			
Dissolved Oxygen			
02/05/91	6.10 mg/L	N/A	N/A
02/06/91	N/A	5.50 mg/L	6.00 mg/L
05/14/91	5.70 mg/L	N/A	N/A
05/15/91	N/A	6.70 mg/L	7.70 mg/L
07/09/91	6.10 mg/L	N/A	N/A
07/10/91	N/A	5.60 mg/L	6.10 mg/L
10/21/91	N/A	3.80 mg/L	N/A
pH			
02/05/91	7.25 S. U.	N/A	N/A
02/06/91	N/A	7.15 S. U.	7.19 S. U.
05/14/91	6.92 S. U.	N/A	N/A
05/15/91	N/A	7.10 S. U.	7.09 S. U.
07/09/91	6.99 S. U.	N/A	N/A
07/10/91	N/A	6.88 S. U.	6.92 S. U.
10/21/91	6.86 S. U.	6.83 S. U.	6.96 S. U.
Specific conductance			
02/05/91	0.950 mmhos/cm	N/A	N/A
02/06/91	N/A	0.994 mmhos/cm	0.990 mmhos/cm
05/14/91	1.425 mmhos/cm	N/A	N/A
05/15/91	N/A	1.404 mmhos/cm	1.367 mmhos/cm
07/09/91	1.335 mmhos/cm	N/A	N/A
07/10/91	N/A	1.369 mmhos/cm	1.381 mmhos/cm
10/21/91	N/A	1.311 mmhos/cm	1.271 mmhos/cm
Temperature			
02/05/91	10.1 C.	N/A	N/A
02/06/91	N/A	12.4 C.	11.8 C.
05/14/91	13.5 C.	N/A	N/A
05/15/91	N/A	13.8 C.	13.1 C.
07/09/91	18.5 C.	N/A	N/A
07/10/91	N/A	15.1 C.	16.2 C.
10/21/91	N/A	14.9 C.	15.1 C.

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #1083			
Dissolved Oxygen			
02/05/91	2.40 mg/L	4.00 mg/L	5.10 mg/L
05/20/91	1.90 mg/L	N/A	N/A
05/21/91	N/A	3.60 mg/L	4.00 mg/L
07/09/91	2.00 mg/L	1.60 mg/L	3.80 mg/L
10/21/91	N/A	4.00 mg/L	N/A
pH			
02/05/91	6.91 S. U.	7.05 S. U.	6.95 S. U.
05/20/91	6.85 S. U.	N/A	N/A
05/21/91	N/A	6.75 S. U.	6.86 S. U.
07/09/91	6.99 S. U.	7.00 S. U.	7.07 S. U.
10/21/91	6.88 S. U.	6.84 S. U.	6.86 S. U.
Specific conductance			
02/05/91	0.788 mmhos/cm	0.777 mmhos/cm	0.791 mmhos/cm
05/20/91	1.043 mmhos/cm	N/A	N/A
05/21/91	N/A	1.068 mmhos/cm	1.090 mmhos/cm
07/09/91	1.037 mmhos/cm	1.041 mmhos/cm	1.015 mmhos/cm
10/21/91	N/A	0.980 mmhos/cm	0.963 mmhos/cm
Temperature			
02/05/91	9.8 C.	10.6 C.	10.4 C.
05/20/91	14.7 C.	N/A	N/A
05/21/91	N/A	14.2 C.	13.0 C.
07/09/91	16.3 C.	16.1 C.	16.1 C.
10/21/91	N/A	16.2 C.	16.7 C.
Well #1643			
Dissolved Oxygen			
07/22/91	5.40 mg/L	5.30 mg/L	N/A
07/23/91	N/A	5.40 mg/L	5.40 mg/L
10/22/91 Dry	N/A	N/A	N/A
10/23/91	N/A	4.50 mg/L	N/A
pH			
07/22/91	6.90 S. U.	6.94 S. U.	N/A
07/23/91	N/A	6.81 S. U.	6.94 S. U.
10/22/91	6.80 S. U.	N/A	N/A
10/23/91	N/A	6.87 S. U.	6.91 S. U.
Specific conductance			
07/22/91	1.432 mmhos/cm	1.434 mmhos/cm	N/A
07/23/91	N/A	1.440 mmhos/cm	1.420 mmhos/cm

1991 RCRA Sampling Field Results

Test / Measurement Date		Start of Purge	Start of Sample	End of Sample
Well #1643				
Specific conductance				
10/22/91	Dry	N/A	N/A	N/A
10/23/91		N/A	1.391 mmhos/cm	1.336 mmhos/cm
Temperature				
07/22/91		16.8 C.	15.8 C.	N/A
07/23/91		N/A	15.4 C.	15.0 C.
10/22/91	Dry	N/A	N/A	N/A
10/23/91		N/A	13.2 C.	13.1 C.
Well #1644				
Dissolved Oxygen				
07/22/91		1.40 mg/L	N/A	N/A
07/23/91		N/A	2.50 mg/L	2.70 mg/L
10/22/91	Dry	N/A	N/A	N/A
10/23/91		N/A	3.30 mg/L	N/A
pH				
07/22/91		6.80 S. U.	N/A	N/A
07/23/91		N/A	6.90 S. U.	7.02 S. U.
10/22/91		6.85 S. U.	N/A	N/A
10/23/91		N/A	6.80 S. U.	6.93 S. U.
Specific conductance				
07/22/91		3.330 mmhos/cm	N/A	N/A
07/23/91		N/A	3.320 mmhos/cm	3.310 mmhos/cm
10/22/91	Dry	N/A	N/A	N/A
10/23/91		N/A	1.000 mmhos/cm	1.000 mmhos/cm
Temperature				
07/22/91		17.2 C.	N/A	N/A
07/23/91		N/A	23.5 C.	22.4 C.
10/22/91	Dry	N/A	N/A	N/A
10/23/91		N/A	17.0 C.	17.3 C.
Well #1645				
Dissolved Oxygen				
07/22/91		6.60 mg/L	N/A	N/A
07/23/91		N/A	4.20 mg/L	16.30 mg/L
10/22/91	Dry	N/A	N/A	N/A
10/23/91		N/A	4.20 mg/L	N/A

1991 RCRA Sampling Field Results

Test / Measurement Date		Start of Purge	Start of Sample	End of Sample
Well #1645				
pH				
07/22/91		7.42 S. U.	N/A	N/A
07/23/91		N/A	7.06 S. U.	7.05 S. U.
10/22/91		6.90 S. U.	N/A	N/A
10/23/91		N/A	7.15 S. U.	7.08 S. U.
Specific conductance				
07/22/91		2.360 mmhos/cm	N/A	N/A
07/23/91		N/A	1.270 mmhos/cm	1.260 mmhos/cm
10/22/91	Dry	N/A	N/A	N/A
10/23/91		N/A	0.929 mmhos/cm	1.235 mmhos/cm
Temperature				
07/22/91		24.2 C.	N/A	N/A
07/23/91		N/A	16.3 C.	15.5 C.
10/22/91	Dry	N/A	N/A	N/A
10/23/91		N/A	15.8 C.	16.1 C.
Well #1646				
Dissolved Oxygen				
07/23/91		3.60 mg/L	N/A	N/A
07/24/91		N/A	2.50 mg/L	4.20 mg/L
10/23/91		N/A	3.00 mg/L	N/A
pH				
07/23/91		7.07 S. U.	N/A	N/A
07/24/91		N/A	6.95 S. U.	7.07 S. U.
10/23/91		4.09 S. U.	3.78 S. U.	N/A
Specific conductance				
07/23/91		1.400 mmhos/cm	N/A	N/A
07/24/91		N/A	1.400 mmhos/cm	1.410 mmhos/cm
10/23/91		N/A	1.352 mmhos/cm	N/A
Temperature				
07/23/91		22.4 C.	N/A	N/A
07/24/91		N/A	15.9 C.	15.8 C.
10/23/91		N/A	16.7 C.	N/A

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #2010			
Dissolved Oxygen			
02/25/91	2.90 mg/L	1.30 mg/L	1.50 mg/L
05/20/91	1.50 mg/L	1.60 mg/L	1.70 mg/L
07/16/91	2.10 mg/L	1.00 mg/L	1.90 mg/L
10/09/91	N/A	1.50 mg/L	N/A
pH			
02/25/91	6.88 S. U.	6.97 S. U.	7.01 S. U.
05/20/91	6.56 S. U.	6.95 S. U.	6.99 S. U.
07/16/91	6.83 S. U.	6.81 S. U.	6.84 S. U.
10/09/91	6.87 S. U.	6.86 S. U.	6.88 S. U.
Specific conductance			
02/25/91	0.550 mmhos/cm	0.556 mmhos/cm	0.585 mmhos/cm
05/20/91	0.866 mmhos/cm	0.798 mmhos/cm	0.870 mmhos/cm
07/16/91	1.052 mmhos/cm	1.002 mmhos/cm	1.020 mmhos/cm
10/09/91	N/A	0.953 mmhos/cm	0.956 mmhos/cm
Temperature			
02/25/91	7.6 C.	8.6 C.	8.5
05/20/91	13.2 C.	13.8 C.	13.7 C.
07/16/91	14.9 C.	15.2 C.	14.7 C.
10/09/91	N/A	13.7 C.	13.3 C.
Well #2013			
Dissolved Oxygen			
02/06/91	1.60 mg/L	2.60 mg/L	1.80 mg/L
05/22/91	2.00 mg/L	4.60 mg/L	4.30 mg/L
07/02/91	4.40 mg/L	2.10 mg/L	3.40 mg/L
10/07/91	N/A	2.10 mg/L	N/A
pH			
02/06/91	7.12 S. U.	7.14 S. U.	7.08 S. U.
05/22/91	7.19 S. U.	7.52 S. U.	7.28 S. U.
07/02/91	7.01 S. U.	7.09 S. U.	7.06 S. U.
10/07/91	7.16 S. U.	7.19 S. U.	7.24 S. U.
Specific conductance			
02/06/91	0.266 mmhos/cm	0.282 mmhos/cm	0.300 mmhos/cm
05/22/91	0.836 mmhos/cm	0.796 mmhos/cm	0.813 mmhos/cm
07/02/91	0.788 mmhos/cm	0.798 mmhos/cm	0.815 mmhos/cm
10/07/91	N/A	0.800 mmhos/cm	0.796 mmhos/cm

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #2013			
Temperature			
02/06/91	13.7 C.	13.2 C.	13.0 C.
05/22/91	15.3 C.	15.5 C.	15.6 C.
07/02/91	16.1 C.	15.9 C.	15.6 C.
10/07/91	13.6 C.	12.6 C.	13.3 C.
Well #2019			
Dissolved Oxygen			
02/04/91	5.90 mg/L	2.00 mg/L	2.20 mg/L
05/09/91	7.00 mg/L	2.90 mg/L	2.20 mg/L
07/01/91	3.80 mg/L	1.85 mg/L	1.85 mg/L
10/15/91	N/A	2.00 mg/L	N/A
pH			
02/04/91	6.49 S. U.	7.09 S. U.	6.94 S. U.
05/09/91	7.16 S. U.	7.27 S. U.	7.08 S. U.
07/01/91	7.19 S. U.	7.19 S. U.	7.17 S. U.
10/15/91	6.88 S. U.	7.06 S. U.	7.08 S. U.
Specific conductance			
02/04/91	1.121 mmhos/cm	1.015 mmhos/cm	1.110 mmhos/cm
05/09/91	1.150 mmhos/cm	1.183 mmhos/cm	1.252 mmhos/cm
07/01/91	0.964 mmhos/cm	0.971 mmhos/cm	0.936 mmhos/cm
10/15/91	N/A	1.080 mmhos/cm	1.010 mmhos/cm
Temperature			
02/04/91	11.6 C.	11.0 C.	9.6 C.
05/09/91	13.6 C.	13.5 C.	13.2 C.
07/01/91	16.1 C.	15.8 C.	17.3 C.
10/15/91	10.8 C.	12.3 C.	12.4 C.
Well #2021			
Dissolved Oxygen			
02/20/91	3.10 mg/L	2.60 mg/L	2.20 mg/L
05/29/91	2.00 mg/L	2.40 mg/L	3.80 mg/L
07/29/91	2.60 mg/L	4.90 mg/L	2.30 mg/L
10/16/91	N/A	1.80 mg/L	N/A
pH			
02/20/91	7.05 S. U.	7.06 S. U.	7.16 S. U.
05/29/91	6.66 S. U.	7.09 S. U.	7.18 S. U.

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #2021			
pH			
07/29/91	7.06 S. U.	7.08 S. U.	7.15 S. U.
10/16/91	7.20 S. U.	7.23 S. U.	7.28 S. U.
Specific conductance			
02/20/91	0.606 mmhos/cm	0.604 mmhos/cm	0.579 mmhos/cm
05/29/91	0.880 mmhos/cm	0.858 mmhos/cm	0.844 mmhos/cm
07/29/91	1.058 mmhos/cm	1.094 mmhos/cm	0.774 mmhos/cm
10/16/91	N/A	1.097 mmhos/cm	0.812 mmhos/cm
Temperature			
02/20/91	10.7 C.	10.5 C.	10.7 C.
05/29/91	17.5 C.	15.5 C.	14.9 C.
07/29/91	14.4 C.	13.7 C.	14.3 C.
10/16/91	N/A	9.8 C.	10.4 C.
Well #2024			
Dissolved Oxygen			
02/12/91	2.50 mg/L	2.40 mg/L	1.60 mg/L
06/10/91	2.30 mg/L	1.80 mg/L	1.50 mg/L
06/17/91	0.99 mg/L	1.30 mg/L	1.80 mg/L
07/15/91	1.60 mg/L	1.00 mg/L	1.10 mg/L
10/01/91	N/A	1.00 mg/L	N/A
pH			
02/12/91	6.56 S. U.	6.76 S. U.	6.73 S. U.
06/10/91	6.71 S. U.	6.04 S. U.	6.03 S. U.
06/17/91	6.60 S. U.	6.71 S. U.	6.73 S. U.
07/15/91	6.76 S. U.	6.73 S. U.	6.72 S. U.
10/01/91	6.94 S. U.	6.94 S. U.	6.84 S. U.
Specific conductance			
02/12/91	0.311 mmhos/cm	0.531 mmhos/cm	N/A
06/10/91	0.960 mmhos/cm	0.925 mmhos/cm	0.909 mmhos/cm
06/17/91	1.013 mmhos/cm	0.936 mmhos/cm	0.948 mmhos/cm
07/15/91	1.103 mmhos/cm	1.031 mmhos/cm	1.052 mmhos/cm
10/01/91	N/A	0.827 mmhos/cm	N/A
Temperature			
02/12/91	11.6 C.	11.0 C.	11.4 C.
06/10/91	14.6 C.	14.2 C.	16.1 C.
06/17/91	16.1 C.	16.2 C.	16.8 C.
07/15/91	15.7 C.	14.6 C.	14.5 C.
10/01/91	14.2 C.	14.8 C.	N/A

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #2027			
Dissolved Oxygen			
02/04/91	2.80 mg/L	4.40 mg/L	4.20 mg/L
05/09/91	1.50 mg/L	2.60 mg/L	2.60 mg/L
07/02/91	2.75 mg/L	3.00 mg/L	3.85 mg/L
10/09/91	N/A	3.10 mg/L	N/A
pH			
02/04/91	6.70 S. U.	6.81 S. U.	6.79 S. U.
05/09/91	6.62 S. U.	6.85 S. U.	6.78 S. U.
07/02/91	6.84 S. U.	6.89 S. U.	7.00 S. U.
10/09/91	6.86 S. U.	6.75 S. U.	6.73 S. U.
Specific conductance			
02/04/91	0.898 mmhos/cm	0.004 mmhos/cm	0.448 mmhos/cm
05/09/91	1.378 mmhos/cm	1.107 mmhos/cm	1.179 mmhos/cm
07/02/91	1.361 mmhos/cm	1.102 mmhos/cm	0.933 mmhos/cm
10/09/91	N/A	1.277 mmhos/cm	1.595 mmhos/cm
Temperature			
02/04/91	12.8 C.	13.4 C.	13.6 C.
05/09/91	14.4 C.	14.4 C.	14.4 C.
07/02/91	16.9 C.	17.1 C.	17.6 C.
10/09/91	N/A	14.9 C.	14.9 C.
Well #2037			
Dissolved Oxygen			
02/04/91	2.40 mg/L	1.00 mg/L	1.40 mg/L
05/13/91	1.20 mg/L	1.40 mg/L	1.70 mg/L
07/03/91	1.70 mg/L	1.20 mg/L	1.30 mg/L
10/08/91	N/A	1.80 mg/L	N/A
pH			
02/04/91	6.90 S. U.	6.86 S. U.	6.89 S. U.
05/13/91	6.58 S. U.	6.84 S. U.	6.88 S. U.
07/03/91	6.86 S. U.	6.87 S. U.	6.87 S. U.
10/08/91	7.20 S. U.	7.09 S. U.	7.04 S. U.
Specific conductance			
02/04/91	0.001 mmhos/cm	0.004 mmhos/cm	0.003 mmhos/cm
05/13/91	0.782 mmhos/cm	0.887 mmhos/cm	0.892 mmhos/cm
07/03/91	0.853 mmhos/cm	0.875 mmhos/cm	0.854 mmhos/cm
10/08/91	N/A	0.801 mmhos/cm	0.804 mmhos/cm

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #2037			
Temperature			
02/04/91	11.2 C.	11.2 C.	11.5 C.
05/13/91	14.2 C.	14.5 C.	14.8 C.
07/03/91	15.3 C.	14.8 C.	15.0 C.
10/08/91	N/A	12.4 C.	12.6 C.
Well #2043			
Dissolved Oxygen			
02/28/91	2.20 mg/L	1.60 mg/L	2.10 mg/L
05/30/91	2.00 mg/L	1.70 mg/L	1.70 mg/L
07/16/91	1.40 mg/L	1.20 mg/L	0.80 mg/L
10/01/91	N/A	1.00 mg/L	N/A
pH			
02/28/91	7.08 S. U.	6.99 S. U.	7.02 S. U.
05/30/91	7.08 S. U.	7.13 S. U.	7.08 S. U.
07/16/91	6.84 S. U.	6.98 S. U.	7.00 S. U.
10/01/91	6.99 S. U.	7.14 S. U.	7.12 S. U.
Specific conductance			
02/28/91	0.649 mmhos/cm	0.676 mmhos/cm	0.666 mmhos/cm
05/30/91	0.930 mmhos/cm	0.942 mmhos/cm	0.937 mmhos/cm
07/16/91	1.306 mmhos/cm	1.020 mmhos/cm	0.994 mmhos/cm
10/01/91	N/A	1.048 mmhos/cm	N/A
Temperature			
02/28/91	10.5 C.	11.2 C.	11.3 C.
05/30/91	13.8 C.	14.0 C.	14.3 C.
07/16/91	14.1 C.	14.6 C.	16.2 C.
10/01/91	13.7 C.	13.4 C.	N/A
Well #2051			
Dissolved Oxygen			
02/25/91	1.80 mg/L	1.60 mg/L	2.10 mg/L
05/30/91	1.80 mg/L	2.00 mg/L	2.00 mg/L
07/23/91	2.00 mg/L	0.95 mg/L	1.60 mg/L
10/02/91	N/A	1.20 mg/L	N/A
pH			
02/25/91	6.81 S. U.	6.86 S. U.	6.88 S. U.
05/30/91	6.57 S. U.	6.82 S. U.	6.89 S. U.

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #2051			
pH			
07/23/91	6.94 S. U.	6.86 S. U.	6.93 S. U.
10/02/91	6.93 S. U.	6.97 S. U.	6.96 S. U.
Specific conductance			
02/25/91	0.556 mmhos/cm	0.583 mmhos/cm	0.587 mmhos/cm
05/30/91	0.880 mmhos/cm	0.918 mmhos/cm	0.881 mmhos/cm
07/23/91	0.883 mmhos/cm	0.983 mmhos/cm	0.903 mmhos/cm
10/02/91	N/A	0.837 mmhos/cm	N/A
Temperature			
02/25/91	9.1 C.	11.0 C.	11.6 C.
05/30/91	14.3 C.	15.4 C.	15.2 C.
07/23/91	15.9 C.	14.9 C.	15.4 C.
10/02/91	13.4 C.	14.4 C.	N/A
Well #2052			
Dissolved Oxygen			
02/25/91	5.00 mg/L	3.40 mg/L	3.70 mg/L
06/10/91	2.10 mg/L	2.30 mg/L	1.90 mg/L
06/17/91	1.20 mg/L	1.50 mg/L	2.30 mg/L
07/18/91	0.80 mg/L	1.20 mg/L	1.25 mg/L
10/02/91	N/A	1.50 mg/L	N/A
pH			
02/25/91	6.77 S. U.	6.85 S. U.	6.88 S. U.
06/10/91	6.78 S. U.	6.79 S. U.	6.03 S. U.
06/17/91	6.68 S. U.	6.70 S. U.	6.82 S. U.
07/18/91	6.81 S. U.	6.79 S. U.	6.77 S. U.
10/02/91	6.87 S. U.	7.01 S. U.	6.96 S. U.
Specific conductance			
02/25/91	0.731 mmhos/cm	0.376 mmhos/cm	0.727 mmhos/cm
06/10/91	1.041 mmhos/cm	1.035 mmhos/cm	1.020 mmhos/cm
06/17/91	1.048 mmhos/cm	1.013 mmhos/cm	1.031 mmhos/cm
07/18/91	1.218 mmhos/cm	0.988 mmhos/cm	0.955 mmhos/cm
10/02/91	N/A	0.937 mmhos/cm	N/A
Temperature			
02/25/91	11.2 C.	10.8 C.	10.9 C.
06/10/91	14.6 C.	13.9 C.	15.7 C.
06/17/91	14.6 C.	12.8 C.	16.0 C.
07/18/91	17.5 C.	15.7 C.	18.0 C.
10/02/91	13.1 C.	12.4 C.	N/A

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #2055			
Dissolved Oxygen			
02/07/91	3.20 mg/L	1.20 mg/L	1.80 mg/L
05/22/91	2.20 mg/L	2.10 mg/L	2.60 mg/L
07/01/91	1.30 mg/L	1.00 mg/L	1.60 mg/L
10/07/91	N/A	1.60 mg/L	N/A
pH			
02/07/91	6.88 S. U.	6.93 S. U.	6.97 S. U.
05/22/91	7.06 S. U.	7.14 S. U.	7.04 S. U.
07/01/91	7.35 S. U.	7.35 S. U.	7.21 S. U.
10/07/91	7.02 S. U.	7.16 S. U.	7.02 S. U.
Specific conductance			
02/07/91	N/A	0.440 mmhos/cm	0.360 mmhos/cm
05/22/91	0.767 mmhos/cm	0.777 mmhos/cm	0.773 mmhos/cm
07/01/91	0.764 mmhos/cm	0.783 mmhos/cm	0.783 mmhos/cm
10/07/91	N/A	0.789 mmhos/cm	0.807 mmhos/cm
Temperature			
02/07/91	11.1 C.	11.3 C.	12.1 C.
05/22/91	14.2 C.	14.4 C.	14.7 C.
07/01/91	16.6 C.	15.9 C.	15.7 C.
10/07/91	15.1 C.	14.0 C.	13.6 C.
Well #2066			
Dissolved Oxygen			
02/26/91	1.80 mg/L	1.70 mg/L	3.00 mg/L
05/29/91	1.90 mg/L	3.70 mg/L	1.80 mg/L
07/17/91	1.35 mg/L	1.00 mg/L	1.25 mg/L
10/02/91	N/A	2.00 mg/L	N/A
pH			
02/26/91	7.14 S. U.	7.18 S. U.	7.21 S. U.
05/29/91	7.29 S. U.	7.29 S. U.	7.30 S. U.
07/17/91	7.32 S. U.	7.34 S. U.	7.34 S. U.
10/02/91	7.14 S. U.	7.34 S. U.	7.36 S. U.
Specific conductance			
02/26/91	0.566 mmhos/cm	0.574 mmhos/cm	0.572 mmhos/cm
05/29/91	0.700 mmhos/cm	0.700 mmhos/cm	0.700 mmhos/cm
07/17/91	0.804 mmhos/cm	0.843 mmhos/cm	0.822 mmhos/cm
10/02/91	N/A	0.857 mmhos/cm	N/A

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #2066			
Temperature			
02/26/91	9.8 C.	10.3 C.	10.9 C.
05/29/91	14.1 C.	15.3 C.	14.7 C.
07/17/91	15.7 C.	13.8 C.	13.9 C.
10/02/91	13.0 C.	13.3 C.	N/A
Well #2084			
Dissolved Oxygen			
02/05/91	1.70 mg/L	1.60 mg/L	1.80 mg/L
05/13/91	2.00 mg/L	1.40 mg/L	2.20 mg/L
07/03/91	1.40 mg/L	1.60 mg/L	2.00 mg/L
10/08/91	N/A	1.60 mg/L	N/A
pH			
02/05/91	6.64 S. U.	6.65 S. U.	6.68 S. U.
05/13/91	6.83 S. U.	6.80 S. U.	6.83 S. U.
07/03/91	6.46 S. U.	6.70 S. U.	6.74 S. U.
10/08/91	6.62 S. U.	6.80 S. U.	6.77 S. U.
Specific conductance			
02/05/91	1.310 mmhos/cm	1.070 mmhos/cm	N/A
05/13/91	1.591 mmhos/cm	1.346 mmhos/cm	1.592 mmhos/cm
07/03/91	1.094 mmhos/cm	1.708 mmhos/cm	1.693 mmhos/cm
10/08/91	N/A	1.785 mmhos/cm	1.641 mmhos/cm
Temperature			
02/05/91	14.9 C.	13.5 C.	13.4 C.
05/13/91	14.2 C.	13.7 C.	15.3 C.
07/03/91	15.0 C.	15.5 C.	15.3 C.
10/08/91	11.6 C.	12.4 C.	12.5 C.
Well #2643			
Dissolved Oxygen			
02/27/91	2.60 mg/L	5.50 mg/L	2.60 mg/L
06/03/91	1.60 mg/L	6.20 mg/L	5.10 mg/L
07/18/91	4.50 mg/L	1.50 mg/L	1.70 mg/L
10/21/91	N/A	1.00 mg/L	N/A
pH			
02/27/91	6.78 S. U.	6.97 S. U.	7.01 S. U.
06/03/91	6.94 S. U.	6.73 S. U.	6.75 S. U.

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #2643			
pH			
07/18/91	6.77 S. U.	6.82 S. U.	6.82 S. U.
10/21/91	6.75 S. U.	6.87 S. U.	6.77 S. U.
Specific conductance			
02/27/91	1.329 mmhos/cm	1.237 mmhos/cm	1.440 mmhos/cm
06/03/91	2.270 mmhos/cm	1.520 mmhos/cm	1.770 mmhos/cm
07/18/91	1.914 mmhos/cm	1.996 mmhos/cm	2.310 mmhos/cm
10/21/91	N/A	1.457 mmhos/cm	N/A
Temperature			
02/27/91	10.3 C.	7.9 C.	9.6 C.
06/03/91	15.8 C.	15.2 C.	14.9 C.
07/18/91	15.9 C.	15.8 C.	16.0 C.
10/21/91	N/A	12.5 C.	12.1 C.
Well #2648			
Dissolved Oxygen			
02/21/91	1.90 mg/L	2.35 mg/L	2.00 mg/L
07/18/91	1.30 mg/L	1.60 mg/L	1.90 mg/L
10/16/91	N/A	1.90 mg/L	N/A
pH			
02/21/91	6.95 S. U.	7.08 S. U.	7.13 S. U.
07/18/91	7.05 S. U.	6.88 S. U.	6.96 S. U.
10/16/91	6.77 S. U.	6.94 S. U.	6.83 S. U.
Specific conductance			
02/21/91	0.312 mmhos/cm	0.596 mmhos/cm	0.380 mmhos/cm
07/18/91	0.857 mmhos/cm	0.934 mmhos/cm	0.945 mmhos/cm
10/16/91	N/A	0.901 mmhos/cm	0.996 mmhos/cm
Temperature			
02/21/91	10.0 C.	10.0 C.	11.0 C.
07/18/91	14.6 C.	14.8 C.	14.2 C.
10/16/91	N/A	11.8 C.	11.3 C.
Well #2649			
Dissolved Oxygen			
02/14/91	3.90 mg/L	4.40 mg/L	5.40 mg/L

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #2649			
Dissolved Oxygen			
07/30/91	3.50 mg/L	2.80 mg/L	2.40 mg/L
10/23/91	N/A	2.00 mg/L	N/A
pH			
02/14/91	6.50 S. U.	6.69 S. U.	6.56 S. U.
07/30/91	6.88 S. U.	6.84 S. U.	6.76 S. U.
10/23/91	7.18 S. U.	6.79 S. U.	5.23 S. U.
Specific conductance			
02/14/91	0.010 mmhos/cm	0.030 mmhos/cm	0.030 mmhos/cm
07/30/91	3.540 mmhos/cm	3.560 mmhos/cm	3.450 mmhos/cm
10/23/91	N/A	2.130 mmhos/cm	2.060 mmhos/cm
Temperature			
02/14/91	8.3 C.	9.6 C.	9.4 C.
07/30/91	14.9 C.	13.9 C.	13.9 C.
10/23/91	N/A	14.1 C.	13.7 C.
Well #3001			
Dissolved Oxygen			
02/20/91	2.20 mg/L	1.60 mg/L	1.80 mg/L
05/23/91	1.40 mg/L	2.10 mg/L	2.40 mg/L
07/09/91	1.70 mg/L	2.20 mg/L	1.90 mg/L
10/15/91	N/A	2.00 mg/L	N/A
pH			
02/20/91	6.95 S. U.	6.93 S. U.	7.25 S. U.
05/23/91	7.01 S. U.	7.56 S. U.	7.58 S. U.
07/09/91	7.59 S. U.	7.65 S. U.	7.79 S. U.
10/15/91	8.99 S. U.	7.24 S. U.	8.97 S. U.
Specific conductance			
02/20/91	0.396 mmhos/cm	0.179 mmhos/cm	0.180 mmhos/cm
05/23/91	0.318 mmhos/cm	0.306 mmhos/cm	0.286 mmhos/cm
07/09/91	0.528 mmhos/cm	0.254 mmhos/cm	0.256 mmhos/cm
10/15/91	N/A	0.711 mmhos/cm	0.223 mmhos/cm
Temperature			
02/20/91	9.5 C.	10.8 C.	10.4 C.
05/23/91	13.5 C.	13.5 C.	13.2 C.
07/09/91	11.9 C.	13.5 C.	13.3 C.

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #3001			
Temperature			
10/15/91	N/A	11.2 C.	11.5 C.
Well #3008			
Dissolved Oxygen			
02/07/91	1.20 mg/L	3.40 mg/L	3.20 mg/L
05/28/91	1.60 mg/L	N/A	N/A
05/29/91	N/A	1.60 mg/L	2.10 mg/L
07/24/91	1.00 mg/L	N/A	N/A
07/25/91	N/A	0.95 mg/L	1.70 mg/L
10/14/91	N/A	1.10 mg/L	N/A
pH			
02/07/91	7.77 S. U.	8.22 S. U.	8.11 S. U.
05/28/91	8.13 S. U.	N/A	N/A
05/29/91	N/A	7.04 S. U.	7.48 S. U.
07/24/91	7.42 S. U.	N/A	N/A
07/25/91	N/A	7.92 S. U.	7.49 S. U.
10/14/91	7.58 S. U.	7.99 S. U.	8.17 S. U.
Specific conductance			
02/07/91	0.212 mmhos/cm	0.196 mmhos/cm	0.205 mmhos/cm
05/28/91	0.300 mmhos/cm	N/A	N/A
05/29/91	N/A	0.348 mmhos/cm	0.528 mmhos/cm
07/24/91	0.360 mmhos/cm	N/A	N/A
07/25/91	N/A	0.380 mmhos/cm	0.498 mmhos/cm
10/14/91	N/A	0.293 mmhos/cm	0.299 mmhos/cm
Temperature			
02/07/91	9.1 C.	11.2 C.	10.1 C.
05/28/91	12.8 C.	N/A	N/A
05/29/91	N/A	14.5 C.	14.6 C.
07/24/91	16.1 C.	N/A	N/A
07/25/91	N/A	14.7 C.	14.9 C.
10/14/91	N/A	13.3 C.	13.3 C.
Well #3010			
Dissolved Oxygen			
02/04/91	1.20 mg/L	2.20 mg/L	2.30 mg/L
05/21/91	0.90 mg/L	1.40 mg/L	1.50 mg/L
07/16/91	2.10 mg/L	1.20 mg/L	1.20 mg/L
10/17/91	N/A	1.50 mg/L	N/A

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #3010			
pH			
02/04/91	7.05 S. U.	6.95 S. U.	6.94 S. U.
05/21/91	6.73 S. U.	6.69 S. U.	6.74 S. U.
07/16/91	6.89 S. U.	6.72 S. U.	6.79 S. U.
10/17/91	6.98 S. U.	6.84 S. U.	7.09 S. U.
Specific conductance			
02/04/91	1.288 mmhos/cm	1.186 mmhos/cm	1.209 mmhos/cm
05/21/91	1.221 mmhos/cm	1.307 mmhos/cm	1.333 mmhos/cm
07/16/91	1.289 mmhos/cm	1.392 mmhos/cm	1.405 mmhos/cm
10/17/91	N/A	1.445 mmhos/cm	1.306 mmhos/cm
Temperature			
02/04/91	9.2 C.	11.6 C.	11.6 C.
05/21/91	13.2 C.	14.1 C.	14.1 C.
07/16/91	15.5 C.	15.1 C.	14.0 C.
10/17/91	N/A	11.2 C.	10.2 C.
Well #3011			
Dissolved Oxygen			
02/21/91	3.10 mg/L	0.80 mg/L	1.20 mg/L
07/22/91	1.30 mg/L	0.60 mg/L	1.10 mg/L
10/03/91	N/A	1.50 mg/L	N/A
pH			
02/21/91	7.08 S. U.	7.09 S. U.	7.14 S. U.
07/22/91	7.00 S. U.	7.30 S. U.	6.99 S. U.
10/03/91	6.41 S. U.	6.93 S. U.	6.82 S. U.
Specific conductance			
02/21/91	0.002 mmhos/cm	0.255 mmhos/cm	0.002 mmhos/cm
07/22/91	0.677 mmhos/cm	0.712 mmhos/cm	0.680 mmhos/cm
10/03/91	N/A	0.666 mmhos/cm	N/A
Temperature			
02/21/91	10.2 C.	10.5 C.	11.1 C.
07/22/91	18.1 C.	17.3 C.	14.4 C.
10/03/91	13.6 C.	13.4 C.	N/A

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #3013			
Dissolved Oxygen			
02/06/91	1.10 mg/L	4.90 mg/L	5.40 mg/L
05/22/91	1.20 mg/L	6.40 mg/L	6.20 mg/L
07/02/91	1.70 mg/L	5.00 mg/L	5.30 mg/L
10/07/91	N/A	7.00 mg/L	N/A
pH			
02/06/91	6.97 S. U.	7.11 S. U.	7.29 S. U.
05/22/91	6.91 S. U.	7.33 S. U.	7.36 S. U.
07/02/91	6.63 S. U.	7.19 S. U.	7.17 S. U.
10/07/91	7.03 S. U.	7.33 S. U.	7.36 S. U.
Specific conductance			
02/06/91	0.472 mmhos/cm	0.460 mmhos/cm	0.252 mmhos/cm
05/22/91	1.314 mmhos/cm	0.836 mmhos/cm	0.834 mmhos/cm
07/02/91	1.372 mmhos/cm	0.867 mmhos/cm	0.856 mmhos/cm
10/07/91	N/A	0.907 mmhos/cm	0.886 mmhos/cm
Temperature			
02/06/91	12.8 C.	13.2 C.	13.2 C.
05/22/91	15.0 C.	15.1 C.	15.3 C.
07/02/91	15.1 C.	15.3 C.	15.4 C.
10/07/91	12.8 C.	13.3 C.	13.6 C.
Well #3019			
Dissolved Oxygen			
02/04/91	1.90 mg/L	3.60 mg/L	3.40 mg/L
05/09/91	1.80 mg/L	2.90 mg/L	3.40 mg/L
07/01/91	2.10 mg/L	1.70 mg/L	2.30 mg/L
10/15/91	N/A	1.80 mg/L	N/A
pH			
02/04/91	6.83 S. U.	7.12 S. U.	7.13 S. U.
05/09/91	6.82 S. U.	7.05 S. U.	7.10 S. U.
07/01/91	6.80 S. U.	7.09 S. U.	7.11 S. U.
10/15/91	6.81 S. U.	6.84 S. U.	7.08 S. U.
Specific conductance			
02/04/91	1.510 mmhos/cm	0.877 mmhos/cm	0.863 mmhos/cm
05/09/91	1.455 mmhos/cm	0.872 mmhos/cm	0.843 mmhos/cm
07/01/91	1.420 mmhos/cm	0.965 mmhos/cm	1.033 mmhos/cm
10/15/91	N/A	1.372 mmhos/cm	1.078 mmhos/cm

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #3019			
Temperature			
02/04/91	11.1 C.	10.8 C.	11.6 C.
05/09/91	12.6 C.	13.1 C.	13.0 C.
07/01/91	15.3 C.	16.3 C.	15.2 C.
10/15/91	12.6 C.	12.4 C.	12.3 C.
Well #3024			
Dissolved Oxygen			
02/27/91	5.60 mg/L	6.00 mg/L	6.00 mg/L
05/28/91	3.10 mg/L	1.70 mg/L	7.10 mg/L
07/15/91	1.70 mg/L	4.30 mg/L	4.20 mg/L
10/01/91	N/A	1.10 mg/L	N/A
pH			
02/27/91	7.33 S. U.	7.34 S. U.	7.44 S. U.
05/28/91	7.13 S. U.	7.05 S. U.	7.64 S. U.
07/15/91	7.03 S. U.	7.55 S. U.	7.46 S. U.
10/01/91	7.06 S. U.	6.98 S. U.	7.56 S. U.
Specific conductance			
02/27/91	0.345 mmhos/cm	0.361 mmhos/cm	0.311 mmhos/cm
05/28/91	0.704 mmhos/cm	0.776 mmhos/cm	0.506 mmhos/cm
07/15/91	0.765 mmhos/cm	0.507 mmhos/cm	0.523 mmhos/cm
10/01/91	N/A	0.777 mmhos/cm	N/A
Temperature			
02/27/91	8.5 C.	10.2 C.	11.5 C.
05/28/91	13.8 C.	13.7 C.	13.1 C.
07/15/91	15.0 C.	14.5 C.	14.2 C.
10/01/91	N/A	14.2 C.	N/A
Well #3037			
Dissolved Oxygen			
02/04/91	1.40 mg/L	1.40 mg/L	1.60 mg/L
05/14/91	1.10 mg/L	1.30 mg/L	1.50 mg/L
05/15/91	0.80 mg/L	1.50 mg/L	2.00 mg/L
07/03/91	1.20 mg/L	1.20 mg/L	1.90 mg/L
10/08/91	N/A	3.40 mg/L	N/A
pH			
02/04/91	6.66 S. U.	6.66 S. U.	6.62 S. U.

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #3037			
pH			
05/14/91	6.50 S. U.	6.68 S. U.	6.68 S. U.
05/15/91	6.43 S. U.	6.58 S. U.	6.67 S. U.
07/03/91	6.74 S. U.	6.73 S. U.	6.77 S. U.
10/08/91	6.90 S. U.	6.85 S. U.	6.85 S. U.
Specific conductance			
02/04/91	0.006 mmhos/cm	0.002 mmhos/cm	0.006 mmhos/cm
05/14/91	2.010 mmhos/cm	1.991 mmhos/cm	1.981 mmhos/cm
05/15/91	2.080 mmhos/cm	2.270 mmhos/cm	2.240 mmhos/cm
07/03/91	1.881 mmhos/cm	1.000 mmhos/cm	1.914 mmhos/cm
10/08/91	N/A	1.346 mmhos/cm	1.536 mmhos/cm
Temperature			
02/04/91	11.3 C.	11.4 C.	12.0 C.
05/14/91	13.5 C.	14.0 C.	14.3 C.
05/15/91	14.1 C.	14.2 C.	14.1 C.
07/03/91	14.8 C.	14.5 C.	15.1 C.
10/08/91	N/A	12.8 C.	13.0 C.
Well #3043			
Dissolved Oxygen			
02/28/91	2.40 mg/L	1.60 mg/L	1.60 mg/L
05/30/91	1.70 mg/L	1.60 mg/L	1.50 mg/L
07/16/91	1.00 mg/L	0.85 mg/L	1.00 mg/L
10/01/91	N/A	2.20 mg/L	N/A
pH			
02/28/91	6.97 S. U.	7.06 S. U.	7.07 S. U.
05/30/91	7.12 S. U.	7.21 S. U.	7.16 S. U.
07/16/91	7.18 S. U.	7.20 S. U.	7.22 S. U.
10/01/91	7.25 S. U.	7.25 S. U.	7.29 S. U.
Specific conductance			
02/28/91	0.475 mmhos/cm	0.525 mmhos/cm	0.531 mmhos/cm
05/30/91	0.753 mmhos/cm	0.764 mmhos/cm	0.741 mmhos/cm
07/16/91	0.717 mmhos/cm	0.718 mmhos/cm	0.707 mmhos/cm
10/01/91	N/A	0.746 mmhos/cm	N/A
Temperature			
02/28/91	10.3 C.	11.1 C.	11.4 C.
05/30/91	14.1 C.	14.5 C.	14.4 C.
07/16/91	14.1 C.	15.0 C.	17.5 C.
10/01/91	13.7 C.	13.1 C.	N/A

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #3055			
Dissolved Oxygen			
02/11/91	1.00 mg/L	1.80 mg/L	2.40 mg/L
05/22/91	1.20 mg/L	1.20 mg/L	1.40 mg/L
07/01/91	0.70 mg/L	1.00 mg/L	1.30 mg/L
10/07/91	N/A	1.00 mg/L	N/A
pH			
02/11/91	6.69 S. U.	6.86 S. U.	6.69 S. U.
05/22/91	6.82 S. U.	6.84 S. U.	6.92 S. U.
07/01/91	7.00 S. U.	7.04 S. U.	7.28 S. U.
10/07/91	6.78 S. U.	6.86 S. U.	6.92 S. U.
Specific conductance			
02/11/91	0.001 mmhos/cm	0.484 mmhos/cm	0.002 mmhos/cm
05/22/91	1.433 mmhos/cm	1.446 mmhos/cm	1.378 mmhos/cm
07/01/91	1.357 mmhos/cm	1.352 mmhos/cm	1.351 mmhos/cm
10/07/91	N/A	1.244 mmhos/cm	1.324 mmhos/cm
Temperature			
02/11/91	10.7 C.	11.4 C.	12.0 C.
05/22/91	14.1 C.	15.1 C.	15.2 C.
07/01/91	15.7 C.	15.6 C.	15.3 C.
10/07/91	13.2 C.	13.1 C.	13.3 C.
Well #3066			
Dissolved Oxygen			
02/26/91	1.80 mg/L	2.50 mg/L	3.40 mg/L
05/29/91	2.00 mg/L	1.80 mg/L	2.00 mg/L
07/17/91	1.15 mg/L	1.20 mg/L	1.30 mg/L
10/02/91	N/A	1.40 mg/L	N/A
pH			
02/26/91	7.26 S. U.	7.09 S. U.	7.11 S. U.
05/29/91	7.44 S. U.	7.13 S. U.	7.18 S. U.
07/17/91	7.14 S. U.	7.05 S. U.	6.97 S. U.
10/02/91	6.90 S. U.	6.93 S. U.	7.05 S. U.
Specific conductance			
02/26/91	0.686 mmhos/cm	0.979 mmhos/cm	1.100 mmhos/cm
05/29/91	0.800 mmhos/cm	1.500 mmhos/cm	1.500 mmhos/cm
07/17/91	1.804 mmhos/cm	1.000 mmhos/cm	1.000 mmhos/cm
10/02/91	N/A	1.400 mmhos/cm	N/A

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #3066			
Temperature			
02/26/91	10.7 C.	9.5 C.	11.1 C.
05/29/91	14.6 C.	15.4 C.	14.4 C.
07/17/91	15.3 C.	17.4 C.	17.8 C.
10/02/91	13.0 C.	13.0 C.	N/A
Well #3084			
Dissolved Oxygen			
02/27/91	4.50 mg/L	2.70 mg/L	4.60 mg/L
05/13/91	6.30 mg/L	2.90 mg/L	5.00 mg/L
07/11/91	4.20 mg/L	2.00 mg/L	5.20 mg/L
10/08/91	N/A	6.80 mg/L	N/A
pH			
02/27/91	7.27 S. U.	6.86 S. U.	7.19 S. U.
05/13/91	7.49 S. U.	7.42 S. U.	7.37 S. U.
07/11/91	7.81 S. U.	6.74 S. U.	7.67 S. U.
10/08/91	6.74 S. U.	6.76 S. U.	7.98 S. U.
Specific conductance			
02/27/91	0.937 mmhos/cm	1.242 mmhos/cm	1.072 mmhos/cm
05/13/91	1.297 mmhos/cm	1.500 mmhos/cm	1.504 mmhos/cm
07/11/91	1.167 mmhos/cm	1.949 mmhos/cm	1.084 mmhos/cm
10/08/91	N/A	1.982 mmhos/cm	0.946 mmhos/cm
Temperature			
02/27/91	9.5 C.	9.2 C.	8.6 C.
05/13/91	13.3 C.	14.6 C.	14.0 C.
07/11/91	16.5 C.	16.0 C.	15.5 C.
10/08/91	12.9 C.	13.0 C.	13.4 C.
Well #4001			
Dissolved Oxygen			
02/11/91	2.40 mg/L	2.20 mg/L	2.70 mg/L
05/21/91	1.70 mg/L	1.50 mg/L	1.40 mg/L
07/30/91	2.15 mg/L	1.50 mg/L	1.90 mg/L
10/16/91	N/A	1.80 mg/L	N/A
pH			
02/11/91	6.88 S. U.	7.46 S. U.	7.23 S. U.
05/21/91	7.62 S. U.	7.19 S. U.	7.21 S. U.

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #4001			
pH			
07/30/91	7.31 S. U.	7.26 S. U.	7.78 S. U.
10/16/91	7.46 S. U.	7.28 S. U.	7.84 S. U.
Specific conductance			
02/11/91	0.001 mmhos/cm	0.003 mmhos/cm	0.001 mmhos/cm
05/21/91	0.627 mmhos/cm	0.855 mmhos/cm	0.883 mmhos/cm
07/30/91	0.844 mmhos/cm	0.745 mmhos/cm	0.369 mmhos/cm
10/16/91	N/A	0.701 mmhos/cm	0.335 mmhos/cm
Temperature			
02/11/91	10.0 C.	10.7 C.	11.1 C.
05/21/91	12.5 C.	13.3 C.	12.6 C.
07/30/91	13.8 C.	14.2 C.	14.5 C.
10/16/91	N/A	11.2 C.	10.7 C.
Well #4008			
Dissolved Oxygen			
02/07/91	3.10 mg/L	1.80 mg/L	1.60 mg/L
05/20/91	3.10 mg/L	1.10 mg/L	1.30 mg/L
07/15/91	3.70 mg/L	1.30 mg/L	1.50 mg/L
10/14/91	N/A	1.00 mg/L	N/A
pH			
02/07/91	7.01 S. U.	7.15 S. U.	7.17 S. U.
05/20/91	6.73 S. U.	7.00 S. U.	7.05 S. U.
07/15/91	7.10 S. U.	7.04 S. U.	6.96 S. U.
10/14/91	7.34 S. U.	7.30 S. U.	7.28 S. U.
Specific conductance			
02/07/91	0.418 mmhos/cm	0.305 mmhos/cm	0.328 mmhos/cm
05/20/91	0.605 mmhos/cm	0.478 mmhos/cm	0.473 mmhos/cm
07/15/91	0.623 mmhos/cm	0.458 mmhos/cm	0.463 mmhos/cm
10/14/91	N/A	0.435 mmhos/cm	0.421 mmhos/cm
Temperature			
02/07/91	10.6 C.	9.8 C.	10.4 C.
05/20/91	13.4 C.	13.4 C.	13.5 C.
07/15/91	13.9 C.	14.1 C.	13.6 C.
10/14/91	N/A	11.3 C.	11.9 C.

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #4010			
Dissolved Oxygen			
02/25/91	1.50 mg/L	1.90 mg/L	1.90 mg/L
05/29/91	2.30 mg/L	1.50 mg/L	2.20 mg/L
07/29/91	3.20 mg/L	2.90 mg/L	2.40 mg/L
10/09/91	N/A	1.50 mg/L	N/A
pH			
02/25/91	7.23 S. U.	7.29 S. U.	7.25 S. U.
05/29/91	6.93 S. U.	7.32 S. U.	7.21 S. U.
07/29/91	7.12 S. U.	7.06 S. U.	7.25 S. U.
10/09/91	7.29 S. U.	7.34 S. U.	7.30 S. U.
Specific conductance			
02/25/91	0.573 mmhos/cm	0.301 mmhos/cm	0.306 mmhos/cm
05/29/91	0.886 mmhos/cm	0.899 mmhos/cm	0.846 mmhos/cm
07/29/91	0.799 mmhos/cm	0.817 mmhos/cm	0.816 mmhos/cm
10/09/91	N/A	0.801 mmhos/cm	0.745 mmhos/cm
Temperature			
02/25/91	8.5 C.	9.9 C.	9.8
05/29/91	17.4 C.	15.1 C.	15.1
07/29/91	14.0 C.	14.1 C.	14.2 C.
10/09/91	N/A	13.2 C.	13.2 C.
Well #4011			
Dissolved Oxygen			
02/21/91	2.00 mg/L	1.00 mg/L	1.20 mg/L
06/19/91	1.90 mg/L	1.20 mg/L	1.70 mg/L
07/30/91	3.25 mg/L	3.70 mg/L	2.55 mg/L
10/02/91	N/A	2.20 mg/L	N/A
pH			
02/21/91	6.91 S. U.	7.10 S. U.	7.06 S. U.
06/19/91	6.98 S. U.	6.98 S. U.	7.02 S. U.
07/30/91	7.18 S. U.	7.13 S. U.	7.17 S. U.
10/02/91	6.88 S. U.	7.15 S. U.	7.26 S. U.
Specific conductance			
02/21/91	0.003 mmhos/cm	0.001 mmhos/cm	0.002 mmhos/cm
06/19/91	0.918 mmhos/cm	0.893 mmhos/cm	0.875 mmhos/cm
07/30/91	0.947 mmhos/cm	0.895 mmhos/cm	0.933 mmhos/cm
10/02/91	N/A	0.868 mmhos/cm	N/A

1991 RCRA Sampling Field Results

Test / Measurement Date	Start of Purge	Start of Sample	End of Sample
Well #4011			
Temperature			
02/21/91	9.8 C.	9.4 C.	10.4 C.
06/19/91	13.3 C.	15.2 C.	15.5 C.
07/30/91	14.1 C.	14.3 C.	13.4 C.
10/02/91	13.3 C.	13.9 C.	N/A
Well #4013			
Dissolved Oxygen			
02/06/91	1.60 mg/L	1.60 mg/L	1.00 mg/L
05/22/91	0.70 mg/L	0.70 mg/L	1.50 mg/L
07/17/91	1.10 mg/L	2.10 mg/L	1.80 mg/L
10/07/91	N/A	2.00 mg/L	N/A
pH			
02/06/91	7.35 S. U.	7.47 S. U.	7.46 S. U.
05/22/91	7.09 S. U.	7.49 S. U.	7.51 S. U.
07/17/91	7.00 S. U.	7.20 S. U.	7.21 S. U.
10/07/91	7.34 S. U.	7.22 S. U.	7.23 S. U.
Specific conductance			
02/06/91	0.004 mmhos/cm	0.660 mmhos/cm	0.007 mmhos/cm
05/22/91	1.449 mmhos/cm	1.527 mmhos/cm	1.544 mmhos/cm
07/17/91	1.695 mmhos/cm	1.606 mmhos/cm	1.742 mmhos/cm
10/07/91	N/A	2.170 mmhos/cm	2.160 mmhos/cm
Temperature			
02/06/91	13.3 C.	13.3 C.	13.3 C.
05/22/91	15.5 C.	15.5 C.	15.5 C.
07/17/91	14.5 C.	15.1 C.	15.3 C.
10/07/91	8.0 C.	13.9 C.	13.8 C.

1991 RCRA Sampling Field Results

Well and Date		Total depth of well	Water level from well top	Total purge amount
Well #1004				
02/05/91	Dry	N/A	N/A	N/A
05/20/91	Dry	32.68 Ft.	N/A	N/A
10/07/91	Dry	32.90 Ft.	N/A	N/A
Well #1024				
02/27/91		30.20 Ft.	3.20 Ft.	52.89 Gal.
05/24/91		30.41 Ft.	9.81 Ft.	40.35 Gal.
07/15/91		30.60 Ft.	11.20 Ft.	38.00 Gal.
10/01/91		30.40 Ft.	12.10 Ft.	55.50 Gal.
Well #1025				
02/12/91		25.55 Ft.	11.95 Ft.	26.64 Gal.
05/20/91		25.52 Ft.	11.75 Ft.	26.97 Gal.
05/21/91		25.52 Ft.	22.12 Ft.	N/A
07/11/91		26.65 Ft.	11.20 Ft.	30.00 Gal.
10/09/91		25.78 Ft.	11.23 Ft.	52.00 Gal.
Well #1027				
02/04/91		32.60 Ft.	8.55 Ft.	47.10 Gal.
05/13/91		32.60 Ft.	9.52 Ft.	45.21
07/02/91		32.80 Ft.	10.67 Ft.	43.3[illegible]
10/09/91		32.82 Ft.	11.00 Ft.	68.00 [illegible]
Well #1028				
02/05/91		32.10 Ft.	30.70 Ft.	N/A
05/16/91		32.60 Ft.	30.35 Ft.	4.40 Gal.
07/02/91	Dry	37.80 Ft.	N/A	N/A
10/07/91	Dry	32.80 Ft.	N/A	N/A
Well #1030				
02/05/91		32.00 Ft.	26.40 Ft.	10.90 Gal.
05/21/91		32.05 Ft.	25.00 Ft.	13.81 Gal.
05/24/91		32.30 Ft.	24.80 Ft.	14.70 Gal.
07/11/91		32.30 Ft.	24.65 Ft.	15.00 Gal.
07/12/91	Dry	N/A	N/A	N/A
10/15/91		32.30 Ft.	23.98 Ft.	42.60 Gal.
10/16/91		32.30 Ft.	29.80 Ft.	N/A
Well #1031				
02/12/91		29.60 Ft.	24.59 Ft.	9.80 Gal.
05/28/91		30.84 Ft.	24.54 Ft.	12.34 Gal.
07/30/91		29.70 Ft.	24.20 Ft.	10.77 Gal.
10/23/91		29.90 Ft.	24.11 Ft.	43.00 Gal.
Well #1038				
02/11/91		29.60 Ft.	13.73 Ft.	31.00 Gal.

1991 RCRA Sampling Field Results

Well and Date		Total depth of well	Water level from well top	Total purge amount
Well #1038				
05/16/91		29.60 Ft.	13.60 Ft.	31.00 Gal.
07/17/91		29.87 Ft.	13.73 Ft.	31.62 Gal.
07/18/91	Dry	N/A	N/A	N/A
10/08/91		29.82 Ft.	13.70 Ft.	55.00 Gal.
Well #1052				
02/25/91		31.48 Ft.	3.17 Ft.	55.50 Gal.
05/28/91		31.71 Ft.	6.00 Ft.	50.36 Gal.
07/18/91		31.85 Ft.	9.75 Ft.	43.30 Gal.
10/02/91		31.70 Ft.	14.12 Ft.	59.00 Gal.
10/03/91		N/A	23.24 Ft.	N/A
Well #1072				
02/05/91	Dry	N/A	N/A	N/A
05/16/91	Dry	31.60 Ft.	N/A	N/A
10/07/91	Dry	32.86 Ft.	N/A	N/A
Well #1074				
02/06/91		24.60 Ft.	7.90 Ft.	32.70 Gal.
05/23/91		24.82 Ft.	7.20 Ft.	34.51 Gal.
05/24/91	Dry	N/A	N/A	N/A
07/15/91		24.60 Ft.	7.92 Ft.	33.00 Gal.
07/16/91		N/A	17.91 Ft.	N/A
10/16/91		24.85 Ft.	11.24 Ft.	58.00 Gal.
Well #1079				
02/20/91		32.64 Ft.	22.77 Ft.	19.30 Gal.
05/23/91		32.88 Ft.	23.32 Ft.	18.70 Gal.
05/24/91		N/A	27.42 Ft.	N/A
07/22/91		33.00 Ft.	23.88 Ft.	18.00 Gal.
10/03/91		32.85 Ft.	22.65 Ft.	43.80 Gal.
Well #1080				
02/26/91		32.65 Ft.	14.72 Ft.	35.10 Gal.
05/30/91		32.86 Ft.	14.91 Ft.	35.18 Gal.
07/25/91		32.74 Ft.	15.59 Ft.	33.50 Gal.
10/24/91		32.88 Ft.	15.58 Ft.	62.10 Gal.
Well #1081				
02/05/91		24.65 Ft.	15.00 Ft.	18.90 Gal.
02/06/91		24.65 Ft.	15.00 Ft.	18.90 Gal.
05/14/91		34.65 Ft.	15.15 Ft.	38.20 Gal.
05/15/91		N/A	25.93 Ft.	N/A
07/09/91		34.90 Ft.	16.14 Ft.	37.00 Gal.
07/10/91		N/A	22.60 Ft.	N/A
10/17/91		34.90 Ft.	16.26 Ft.	60.00 Gal.

1991 RCRA Sampling Field Results

Well and Date		Total depth of well	Water level from well top	Total purge amount
Well #1082				
02/05/91		24.75 Ft.	7.10 Ft.	34.60 Gal.
02/06/91		24.75 Ft.	7.10 Ft.	34.60 Gal.
05/14/91		24.70 Ft.	7.10 Ft.	34.50 Gal.
05/15/91		N/A	17.90 Ft.	N/A
07/09/91		25.00 Ft.	8.02 Ft.	33.00 Gal.
07/10/91		N/A	14.00 Ft.	N/A
10/21/91		25.00 Ft.	7.88 Ft.	59.78 Gal.
Well #1083				
02/05/91		22.60 Ft.	3.98 Ft.	36.50 Gal.
05/20/91		22.60 Ft.	4.36 Ft.	35.70 Gal.
05/21/91		N/A	4.71 Ft.	N/A
07/09/91		22.80 Ft.	5.28 Ft.	34.00 Gal.
10/21/91		22.92 Ft.	8.36 Ft.	53.99 Gal.
Well #1643				
07/22/91		32.20 Ft.	10.10 Ft.	43.29 Gal.
07/23/91	Dry	N/A	N/A	N/A
10/22/91		32.38 Ft.	5.84 Ft.	78.20 Gal.
10/23/91	Dry	N/A	N/A	N/A
Well #1644				
07/22/91		32.20 Ft.	2.78 Ft.	57.63 Gal.
07/23/91	Dry	N/A	N/A	N/A
10/22/91		32.32 Ft.	3.86 Ft.	80.20 Gal.
10/23/91	Dry	N/A	N/A	N/A
Well #1645				
07/22/91		27.18 Ft.	6.35 Ft.	40.81 Gal.
07/23/91	Dry	N/A	N/A	N/A
10/22/91		27.36 Ft.	8.46 Ft.	69.10 Gal.
10/23/91	Dry	N/A	N/A	N/A
Well #1646				
07/23/91		27.24 Ft.	7.55 Ft.	38.57 Gal.
07/24/91		N/A	15.52 Ft.	N/A
10/23/91		27.36 Ft.	22.24 Ft.	44.00 Gal.
Well #2010				
02/25/91		76.65 Ft.	59.31 Ft.	33.90 Gal.
05/20/91		76.81 Ft.	59.08 Ft.	34.73 Gal.
07/16/91		76.78 Ft.	60.58 Ft.	32.00 Gal.
10/09/91		77.00 Ft.	62.96 Ft.	66.98 Gal.
Well #2013				
02/06/91		79.80 Ft.	66.20 Ft.	26.60 Gal.

1991 RCRA Sampling Field Results

Well and Date	Total depth of well	Water level from well top	Total purge amount
Well #2013			
05/22/91	80.60 Ft.	66.62 Ft.	27.39 Gal.
07/02/91	80.82 Ft.	67.96 Ft.	25.19 Gal.
10/07/91	79.65 Ft.	71.50 Ft.	15.90 Gal.
Well #2019			
02/04/91	80.05 Ft.	60.50 Ft.	38.30 Gal.
05/09/91	80.50 Ft.	59.85 Ft.	41.00 Gal.
07/01/91	80.25 Ft.	60.60 Ft.	38.50 Gal.
10/15/91	80.10 Ft.	63.67 Ft.	32.00 Gal.
Well #2021			
02/20/91	72.12 Ft.	61.40 Ft.	21.00 Gal.
05/29/91	75.70 Ft.	60.33 Ft.	30.10 Gal.
07/29/91	74.80 Ft.	61.85 Ft.	25.00 Gal.
10/16/91	74.90 Ft.	64.40 Ft.	21.00 Gal.
Well #2024			
02/12/91	70.56 Ft.	70.56 Ft.	25.90 Gal.
06/10/91	69.80 Ft.	69.80 Ft.	25.44 Gal.
06/17/91	70.72 Ft.	70.72 Ft.	26.93 Gal.
07/15/91	70.80 Ft.	70.80 Ft.	25.27 Gal.
10/01/91	70.70 Ft.	70.70 Ft.	70.50 Gal.
Well #2027			
02/04/91	77.56 Ft.	60.84 Ft.	32.70 Gal.
05/09/91	77.53 Ft.	60.25 Ft.	33.85 Gal.
07/02/91	77.76 Ft.	61.10 Ft.	32.60 Gal.
10/09/91	77.72 Ft.	64.10 Ft.	60.00 Gal.
Well #2037			
02/04/91	84.42 Ft.	66.08 Ft.	35.90 Gal.
05/13/91	84.40 Ft.	65.42 Ft.	37.18 Gal.
07/03/91	84.65 Ft.	66.63 Ft.	35.30 Gal.
10/08/91	84.58 Ft.	69.62 Ft.	67.10 Gal.
Well #2043			
02/28/91	70.55 Ft.	53.98 Ft.	33.00 Gal.
05/30/91	70.70 Ft.	53.24 Ft.	34.20 Gal.
07/16/91	71.00 Ft.	54.50 Ft.	32.30 Gal.
10/01/91	70.75 Ft.	56.10 Ft.	59.00 Gal.
Well #2051			
02/25/91	104.25 Ft.	85.72 Ft.	36.30 Gal.
05/30/91	108.51 Ft.	86.56 Ft.	42.98 Gal.
07/23/91	104.50 Ft.	88.72 Ft.	30.90 Gal.
10/02/91	104.42 Ft.	91.40 Ft.	60.00 Gal.

1991 RCRA Sampling Field Results

Well and Date	Total depth of well	Water level from well top	Total purge amount
Well #2052			
02/25/91	78.76 Ft.	78.76 Ft.	33.00 Gal.
06/10/91	78.99 Ft.	78.99 Ft.	33.34 Gal.
06/17/91	78.80 Ft.	78.80 Ft.	32.50 Gal.
07/18/91	79.10 Ft.	79.10 Ft.	31.30 Gal.
10/02/91	79.00 Ft.	79.00 Ft.	87.30 Gal.
Well #2055			
02/07/91	81.75 Ft.	63.80 Ft.	35.10 Gal.
05/22/91	81.90 Ft.	63.76 Ft.	35.53 Gal.
07/01/91	81.90 Ft.	54.81 Ft.	53.07 Gal.
10/07/91	81.90 Ft.	68.20 Ft.	67.00 Gal.
Well #2066			
02/26/91	64.52 Ft.	40.76 Ft.	46.50 Gal.
05/29/91	64.70 Ft.	40.71 Ft.	47.00 Gal.
07/17/91	64.80 Ft.	40.88 Ft.	46.89 Gal.
10/02/91	64.70 Ft.	40.69 Ft.	78.00 Gal.
Well #2084			
02/05/91	76.98 Ft.	60.19 Ft.	32.80 Gal.
05/13/91	77.00 Ft.	59.42 Ft.	34.00 Gal.
07/03/91	77.22 Ft.	60.44 Ft.	32.87 Gal.
10/08/91	77.18 Ft.	63.20 Ft.	61.26 Gal.
Well #2643			
02/27/91	82.10 Ft.	58.37 Ft.	46.50 Gal.
06/03/91	82.18 Ft.	57.67 Ft.	48.02 Gal.
07/18/91	81.90 Ft.	59.10 Ft.	44.67 Gal.
10/21/91	82.12 Ft.	61.70 Ft.	79.41 Gal.
Well #2648			
02/21/91	77.00 Ft.	58.18 Ft.	36.90 Gal.
07/18/91	77.17 Ft.	58.98 Ft.	35.63 Gal.
10/16/91	77.30 Ft.	61.83 Ft.	66.00 Gal.
Well #2649			
02/14/91	66.40 Ft.	51.23 Ft.	29.70 Gal.
07/30/91	66.58 Ft.	52.85 Ft.	26.90 Gal.
10/23/91	66.70 Ft.	55.11 Ft.	67.00 Gal.
Well #3001			
02/20/91	130.50 Ft.	60.76 Ft.	546.48 Gal.
05/23/91	130.12 Ft.	60.03 Ft.	549.23 Gal.
07/09/91	132.80 Ft.	61.30 Ft.	560.27 Gal.
10/15/91	109.35 Ft.	63.95 Ft.	355.50 Gal.

1991 RCRA Sampling Field Results

Well and Date		Total depth of well	Water level from well top	Total purge amount
Well #3008				
02/07/91		118.40 Ft.	52.70 Ft.	128.70 Gal.
05/28/91		118.39 Ft.	52.21 Ft.	129.65 Gal.
05/29/91	Dry	N/A	N/A	N/A
07/24/91		118.10 Ft.	53.75 Ft.	126.00 Gal.
07/25/91		N/A	55.30 Ft.	N/A
10/14/91		118.64 Ft.	56.16 Ft.	122.00 Gal.
Well #3010				
02/04/91		130.50 Ft.	63.45 Ft.	295.50 Gal.
05/21/91		130.00 Ft.	63.12 Ft.	294.74 Gal.
07/16/91		130.50 Ft.	64.65 Ft.	290.00 Gal.
10/17/91		130.62 Ft.	67.38 Ft.	279.00 Gal.
Well #3011				
02/21/91		117.46 Ft.	58.97 Ft.	114.50 Gal.
07/22/91		117.80 Ft.	59.50 Ft.	114.00 Gal.
10/03/91		117.60 Ft.	61.25 Ft.	137.00 Gal.
Well #3013				
02/06/91		115.25 Ft.	66.22 Ft.	96.00 Gal.
05/22/91		115.51 Ft.	66.62 Ft.	95.78 Gal.
07/02/91		115.54 Ft.	67.97 Ft.	93.19 Gal.
10/07/91		115.15 Ft.	71.50 Ft.	85.12 Gal.
Well #3019				
02/04/91		125.30 Ft.	60.30 Ft.	127.30 Gal.
05/09/91		125.20 Ft.	59.68 Ft.	128.00 Gal.
07/01/91		126.00 Ft.	60.45 Ft.	128.40 Gal.
10/15/91		125.20 Ft.	63.21 Ft.	121.00 Gal.
Well #3024				
02/27/91		111.95 Ft.	56.60 Ft.	108.40 Gal.
05/28/91		112.11 Ft.	56.40 Ft.	109.13 Gal.
07/15/91		112.20 Ft.	57.60 Ft.	106.90 Gal.
10/01/91		111.98 Ft.	59.42 Ft.	132.10 Gal.
Well #3037				
02/04/91		136.53 Ft.	65.80 Ft.	138.50 Gal.
05/14/91		136.52 Ft.	65.19 Ft.	139.74 Gal.
05/15/91		136.50 Ft.	65.35 Ft.	139.38 Gal.
07/03/91		141.30 Ft.	66.34 Ft.	146.80 Gal.
10/08/91		136.74 Ft.	69.34 Ft.	166.00 Gal.
Well #3043				
02/28/91		121.50 Ft.	54.29 Ft.	132.00 Gal.
05/30/91		121.68 Ft.	53.57 Ft.	133.42 Gal.

1991 RCRA Sampling Field Results

Well and Date	Total depth of well	Water level from well top	Total purge amount
Well #3043			
07/16/91	122.00 Ft.	54.86 Ft.	131.50 Gal.
10/01/91	120.82 Ft.	56.60 Ft.	162.00 Gal.
Well #3055			
02/11/91	123.05 Ft.	64.87 Ft.	113.90 Gal.
05/22/91	123.00 Ft.	64.50 Ft.	114.60 Gal.
07/01/91	123.25 Ft.	65.76 Ft.	112.62 Gal.
10/07/91	123.00 Ft.	58.91 Ft.	125.00 Gal.
Well #3066			
02/26/91	139.09 Ft.	54.36 Ft.	165.90 Gal.
05/29/91	139.20 Ft.	53.70 Ft.	167.50 Gal.
07/17/91	139.42 Ft.	54.65 Ft.	166.00 Gal.
10/02/91	139.30 Ft.	56.25 Ft.	187.00 Gal.
Well #3084			
02/27/91	116.40 Ft.	59.87 Ft.	110.70 Gal.
05/13/91	115.00 Ft.	59.28 Ft.	109.00 Gal.
07/11/91	115.00 Ft.	59.60 Ft.	109.00 Gal.
10/08/91	113.28 Ft.	63.10 Ft.	140.00 Gal.
Well #4001			
02/11/91	153.60 Ft.	61.72 Ft.	179.90 Gal.
05/21/91	153.45 Ft.	61.16 Ft.	180.70 Gal.
07/30/91	153.35 Ft.	62.95 Ft.	177.00 Gal.
10/16/91	153.30 Ft.	65.18 Ft.	172.00 Gal.
Well #4008			
02/07/91	124.50 Ft.	53.10 Ft.	139.90 Gal.
05/20/91	124.04 Ft.	52.71 Ft.	139.74 Gal.
07/15/91	124.10 Ft.	54.24 Ft.	137.00 Gal.
10/14/91	124.28 Ft.	56.57 Ft.	132.00 Gal.
Well #4010			
02/25/91	203.40 Ft.	59.28 Ft.	282.30 Gal.
05/29/91	204.86 Ft.	59.20 Ft.	285.35 Gal.
07/29/91	203.70 Ft.	60.80 Ft.	280.00 Gal.
10/09/91	204.00 Ft.	63.36 Ft.	315.40 Gal.
Well #4011			
02/21/91	184.21 Ft.	59.61 Ft.	244.00 Gal.
06/19/91	184.45 Ft.	59.34 Ft.	245.00 Gal.
07/30/91	186.00 Ft.	60.30 Ft.	246.20 Gal.
10/02/91	184.00 Ft.	61.90 Ft.	284.00 Gal.

1991 RCRA Sampling Field Results

Well and Date	Total depth of well	Water level from well top	Total purge amount
Well #4013			
02/06/91	212.95 Ft.	66.25 Ft.	287.30 Gal.
05/22/91	213.28 Ft.	66.64 Ft.	287.27 Gal.
07/17/91	213.30 Ft.	68.54 Ft.	283.58 Gal.
10/07/91	213.10 Ft.	71.54 Ft.	332.10 Gal.

APPENDIX C

Statistical Techniques Used in Groundwater Assessment

A statistical assessment of groundwater data is performed once a year. The statistical assessment's primary goal is to determine those results or group of results that indicate statistical significance when compared to background results. A number of methods are used to make statistical comparisons between background and compliance wells. The criteria for determining which statistical method to use for each data set is shown in Figure A. A description of each statistical method is provided in this appendix.

Student's t Test

The assumptions underlying the derivation of the Student's t are: independence, normality, and homogeneous variance. It has been found that moderate departures from normality and homogeneous variance (which is the least critical) do not have a marked effect on the distribution of the t statistic. Tests for non-normality, (i.e. a coefficient-of-variation or CV) and chi square test and a test for homogeneous variance, i. e. an F statistic, are calculated and in those instances that are deemed to be significant, the data is either log transformed or a nonparametric statistical test is performed (Figure B).

The assumption of independence is important for the Student's t Test. This is a valid assumption for groundwater assessment data since the wells are purged completely when sampled and are sampled quarterly, which should allow sufficient time for migration of the constituents.

Due to the abundance of data that qualifies for a Student's t Test (Figures A and B), compliance wells are first screened to determine if any data exceeds a calculated tolerance limit (T.L.). A Student's t Test is then performed only if one or more values from a compliance well exceeds this T.L.

For most parameters, a one-sided T.L. is constructed based on 95% confidence and 95% coverage of the data representing the two background wells. A two-sided tolerance interval or limit is calculated for pH and specific conductivity since a value too high or too low for either of these paramenters could be evidence of a statistically significant value. There must be at least eight analyses available from the background wells in order to construct a meaningful T.L. The two background wells are considered one unit when calculating their central tendency and dispersion of data. The mean and variance are needed to create the T.L. and to perform the Student's t Test.

The Student's t Test calculates a range for the difference between the means of the background constituent concentration vs. the individual compliance well constituent concentration with an alpha error of 1% (USEPA, April 1989, pp2-4, item no. 2) tailed test of significance is used. For pH and specific conductivity a two-tailed test of significance and an alpha error of 0.5% is used. If the range for the difference overlaps zero, then the H_o: η_B-η_C = 0 is not contradicted by the available data and the compliance well is determined to not show evidence of statistically significant concentrations. If the range has negative values at both ends (except for pH and conductivity), then the compliance well is determined to show statistically significant concentrations and the null hypothesis that there is no statistically significant difference between the two means is rejected.

Below is an example of the procedure:

Example

RCRA WELL DATA TO DATE

SAMPLING ROUNDS

VER-DICT	WELL#	CONSTITUENT	1	2	3	4	5	6	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	1024	Calcium	83.8	130	**90.4	89	89.2	95.6	0	5	0.0
	1052	Calcium	91.5	100	105	110	99.5	113	0	6	0.0
*	1080	Calcium	94.3	120	114	130	139	146	0	6	0.0

* Constituent found in statistically significant amount(s)
** Signifies a statistical outlier

The concentration found in the second round for background well #1024 was determined to be a statistical outlier with an alpha error of 1% based on the following Dixon text calculations:

$$r=\frac{x_2-X_1}{X_n-X_1}$$

where X_1 = suspect outlier; X_2 = the next larger or smaller value; and X_n = the value at the opposite end of the range.

Substituting data:

$$r=\frac{95.6-130}{83.8-130}=0.745$$

Since the calculated r is > the critical value for r (i.e., 0.698), 130 ppm calcium is determined to be a statistical outlier.

The following are the calculations for constructing the upper 95% coverage T.L. with a tolerance coefficient of 95%:

n_B = the number of analyses from the two background wells 1024 and 1052, excluding statistical outliers = 11. If n_B = 11, then K (tolerance factor) = 2.815 (USEPA, April 1989, Appendix B, Table 5).

y_B = the average of the analytical data from the two background wells, excluding statistical outliers = 97

Y_c = the average of the analytical data from the compliance wells

t = the t statistic

df = degrees of freedom

SD_B = the standard deviation of the analytical data from the two background wells, excluding statistical outliers = 9.38

The one-sided upper tolerance limit (T.L.) = $y_B + K\ SD_B$

By substituting actual data, one gets:

$$T.L. = 97 + (2.815)\ (9.38) = 123.39$$

Compliance well #1080 has three values out of six that exceed the T.L. All the criteria for performing a Student's t Test described in Figures A and B are met. The following are the calculations involved in performing such a test using well #1080 as the test group and background wells #1024 and #1052 as the control group:

The formula used for the Student's t test is:

$$CI = (\overline{y_B} - \overline{y_C}) \pm t((n_B + n_C - 2)df, 0.01) \times \sqrt{(\frac{1}{n_B} + \frac{1}{n_C}) \times s^2 pooled}$$

where CI is the 98% confidence interval for the difference between $(Y_B - Y_C)$

where

$$S^2 pooled = \frac{df_B s_B^{\ 2} + df_C s_C^{\ 2}}{df_B + df_C}$$

where s_B^2 = background well variance and s_{C2} = compliance well variance

where $df_B = n_B - 1$ where n_B = number of samples taken from the two background wells, and

where $df_C = n_C - 1$ where n_C = number of samples taken from the compliance well.

By substituting the actual data, one gets:

$$(97 - 123.9) \pm 2.602_{(11+6-2df, 0.01)} \times \sqrt{(\frac{1}{11} + \frac{1}{6}) \times s^2 pooled}$$

where

$$s^2 pooled = \frac{(10 \times 87.91) + (5 \times 348.6)}{(10+5)} = 174.81$$

or, if simplified, the range for the difference between the two means becomes:

$$-26.9 \pm 2.602 \times 6.71 = -9.4 \text{ through } -44.4$$

Since this interval estimate does not overlap zero, the t Test is considered significant. Consequently, the null hypothesis that there is no statistically significant difference between the two means is contradicted by the available data, and is therefore rejected. The compliance well data is declared to be statistically significant.

The formula used above in performing the Student's t test was derived from the following equation which calculates the t statistic:

$$t = \frac{(\overline{y_B} - \overline{y_C}) - (\eta_B - \eta_C)}{\sqrt{(\frac{1}{n_B} + \frac{1}{n_C} \times s^2 pooled}}$$

The Kruskal-Wallis And Wilcoxon-Mann-Whitney Nonparametric Statistical Tests

The Kruskal-Wallis and Wilcoxon-Mann-Whitney nonparametric statistical tests can be used to determine if two independent groups have been drawn from the same population. These tests are useful in that they identify satstistically significant bias. These tests are used as alternatives to the Student's t Test when the t test's normality assumption can not be met based on either a coefficient of variation test or the chi-square test.

Both nonparametric tests rank the combined observations from the two independent groups while maintaining the identity of the group with which each observation is associated. The sums of the rankings of each of the two groups are calculated. These tests are one-tailed tests with a 1% alpha level of significance. Therefore, if the compliance well data ranked disproportionately higher than the background (upgradient) well data, the test statistic would be significant.

If the number of compliance well data and background well data each exceeds 10 observations, then the Wilcoxon-Mann-Whitney test is used; otherwise the Kruskal-Wallis test is applied.

A minimum restriction of 11 observations is needed from each well in order to perform the Wilcoxon-Mann-Whitney test. Therefore, this test is used only when the background and compliance well has been sampled every quarter to-date. If the Kruskal-Wallis test is applied, such as in the majority of cases, then only one background well is used (11 observations instead of 22). The background well with the higher average concentration is selected for comparison with the compliance well as these tests are prone to false positive results.

Test of Proportions

The Test of Proportions method is used to compare two background wells with a corresponding group of compliance wells when there is a significant proportion of nondetectable (ND) values (Figures A and C). This method is explained below and is also described in Section 8.1.2 of the USEPA Interim Final Guidance titled, "Statistical Analysis of Ground-Water Monitoring Data at

RCRA Facilities," dated, April 1989.

Example

RCRA WELL DATA TO DATE

SAMPLING ROUNDS

VER-DICT	WELL#	CONSTITUENT	1	2	3	4	5	6		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	2043	Nitrate	0.1U	0.1U	0.1U	0.1U	0.1U	0.869max		5	6	0.83
	2066	Nitrate	0.1U	2.5J	0.1U	0.02U	0.1U	0.1U		5	6	0.83
									totals	10	12	
	2010	Nitrate	0.02U	2.5U	0.1U	0.02U	0.1U	0.1U		6	6	1.00
	2013	Nitrate	0.1U	5U	0.1U	0.03	0.1U	0.13		4	6	0.67
•	2019	Nitrate	17.0	23.4	24.6	22.0	28.4	60.6		0	6	0.00
•	2021	Nitrate	9.2	0.28	0.1U	53.0	38.6	23.5		1	6	0.17
	2027	Nitrate	0.1U	0.11	0.1U	0.02U	0.1U	0.1U		5	6	0.83
	2037	Nitrate	0.15	2.5U	0.1U	0.02U	0.1U	0.1U		5	6	0.83
	2051	Nitrate	0.1U	0.12	0.1U	0.1U	0.1U			4	5	0.80
	2055	Nitrate				0.1U	0.1U			2	2	1.00
•	2084	Nitrate	0.1U	16.0	32.4	2.8	9.01	7.66		1	6	0.17
									totals	28	49	

• Constituent found in statistically significant amount(s) U Signifies Nondetects

Let:

n_b = the total number of background well samples analyzed (12)
n_c = the total number of compliance well samples analyzed (49)
n = $n_b + n_c$ (61)
X = the number of background well samples in which the compound was detected (2)
Y = the number of compliance well samples in which the compound was detected (21)
P = the proportion of detected values = $(X + Y)/n = (2 + 21)/61$ (0.377)

Compute:

$$nP = 61 \times 0.377 = 23$$

$$n(1 - P) = 61 \times (1 - 0.377) = 38$$

Since both nP and n(1 - P) are both greater than or equal to 5, the normal distribution approximation to the binomial distribution may be used in this example.

Compute the proportion of detects in the background well samples:

$$P_b = X/n_b = 2/12 = 0.1666$$

Compute the proportion of detects in the compliance well samples:

$$P_c = Y/n_c = 21/49 = 0.4285$$

Compute the standard error of the difference in proportions:

$$S_D = \sqrt{\frac{(X+Y)}{(n_b+n_c)} \times (1 - \frac{(X+Y)}{(n_b+n_c)}) \times (\frac{1}{n_b} + \frac{1}{n_c})}$$

$$S_D = \sqrt{\frac{(2+21)}{(12+49)} \times (1 - \frac{(2+21)}{(12+49)}) \times (\frac{1}{12} + \frac{1}{49})}$$

$$S_D = 0.1560$$

and form the statistic:

$$Z = (P_b - P_c)/S_D = (0.1666 - 0.4285)/0.1560 = -1.677$$

Compare the absolute value of the Z statistic to the 97.5 percentile from the standard normal distribution, 1.96. Since this absolute value is less than 1.96, there is no statistically significant evidence that the proportion of samples with nitrate levels above the detection limit differs in the compliance well and background well samples.

A 5% alpha error is employed because the USEPA requires that all RCRA facilities use no less than a 5% alpha error when making multiple well comparisons, as is the case in this example. A two-sided test of significance was applied to provide information about differences in either direction.

In an effort to be conservative in identifying all instances of statistical significance, even if the normality test is met and the Z statistic is insignificant, a further evaluation of the data is made. All compliance wells in a group being evaluated by the Test of Proportions method which have less than 50% NDs are compared to twice the maximum value observed from either of the two respective background wells. If any data (except for data determined to be a statistical outlier) exceeds this calculated value, the compliance well data is determined to be statistically significant.

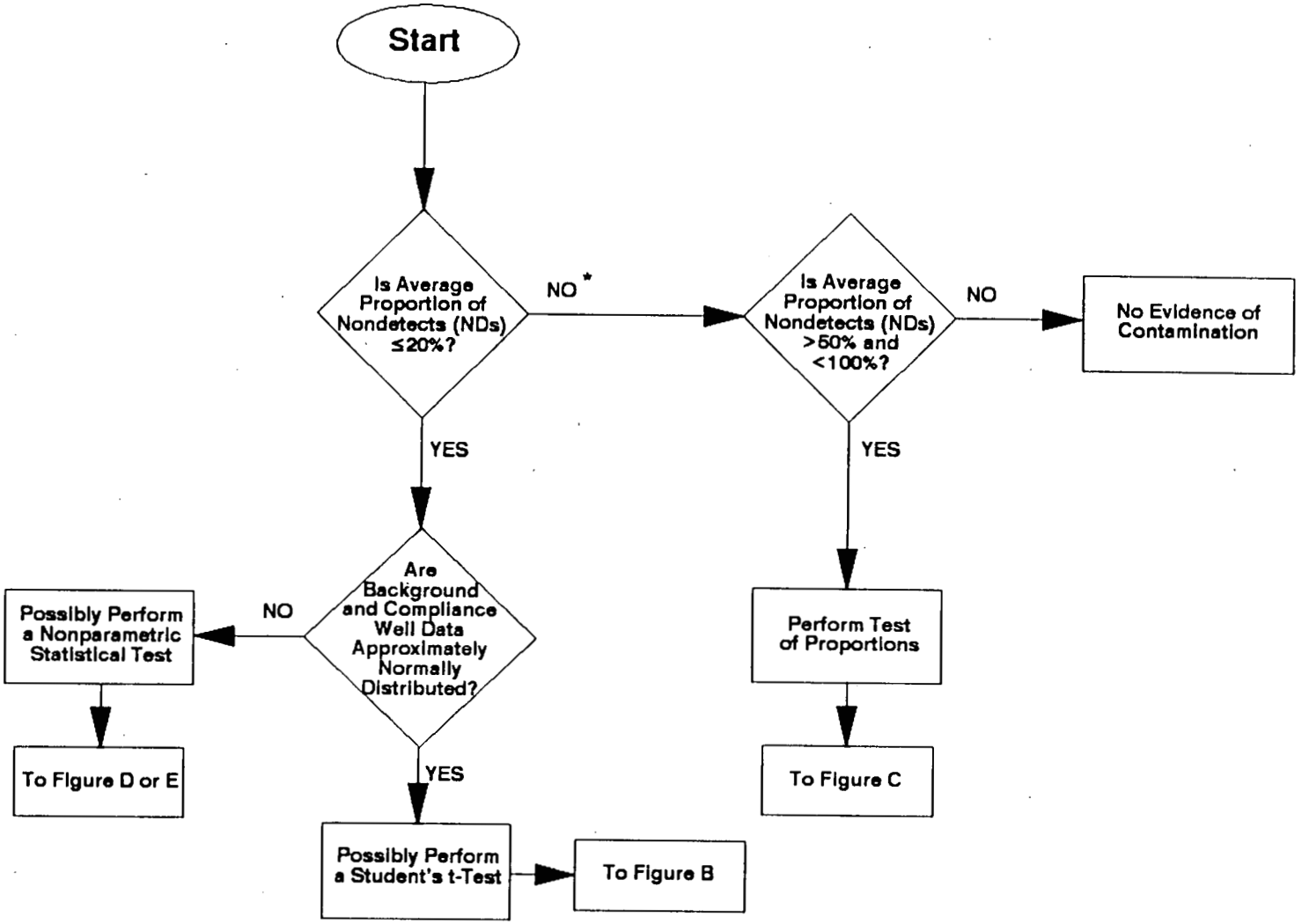
To illustrate this, in the example above, the maximum detectable value from the two background wells (#2043 and #2066) was 0.869 ppm of nitrate. Two times this value equals 1.738 ppm of nitrate. Compliance wells #2019, #2021, and #2084 each have less than 50% NDs and at least one value, which is not a statistical outlier, that exceeds 1.738 ppm of nitrate. Therefore, these wells are also considered to have statistically significant concentrations.

<u>Comparisons of Volatile Organic Compounds (VOCs) to Practical Quantitation Limits (PQLs)</u>

The VOCs are compared to the PQL because over 90% of the sample results are below the detection limit. An example of the methodology utilized is shown in Figure D.

Figure A

Criteria for the Selection of a Statistical Method to Analyze RCRA Groundwater Data

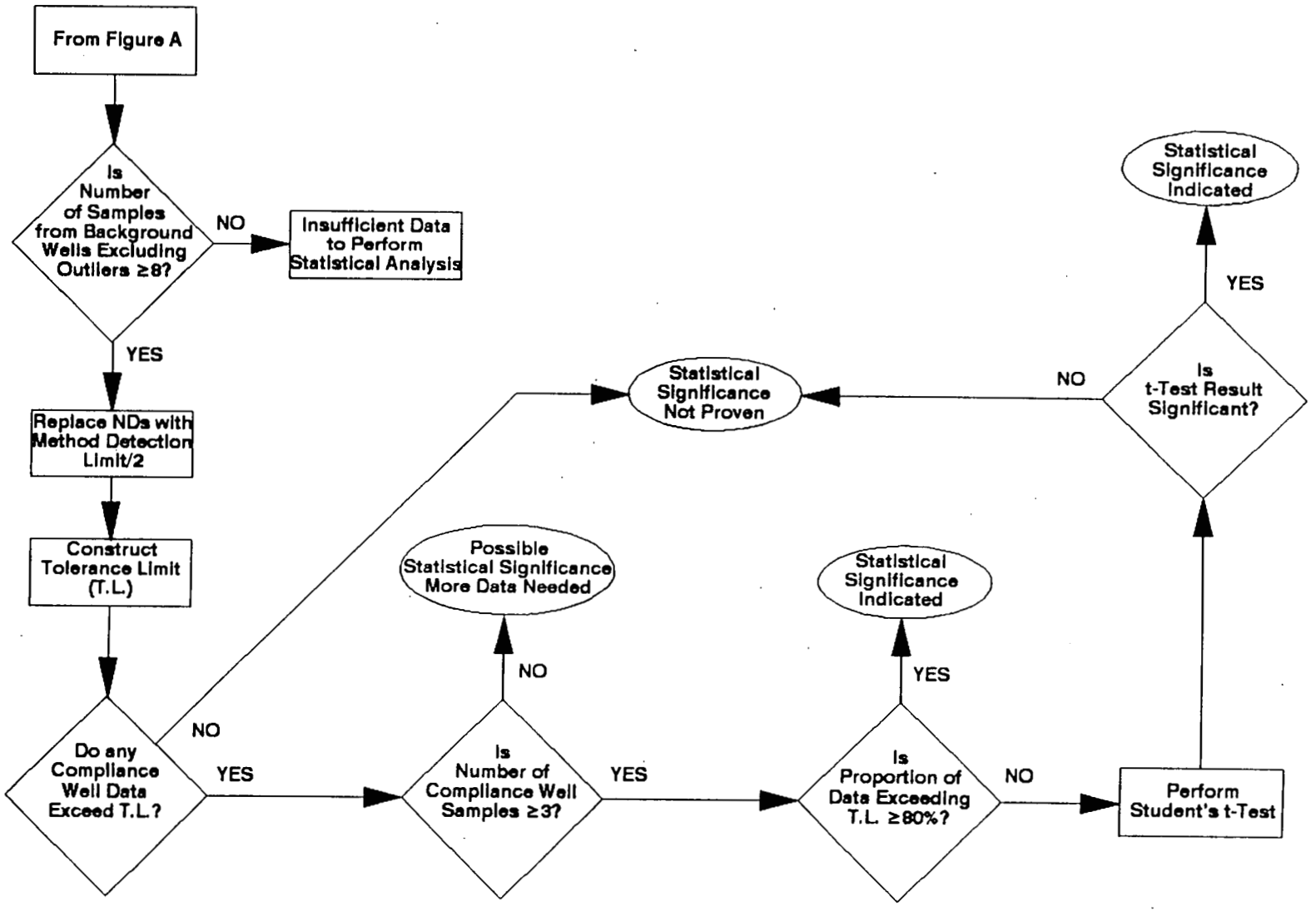


* A few groups of wells exhibited an average proportion of nondetects between 20% and 50%, but all affected compliance wells had lesser concentrations than background.

3713
1250

Figure B

Student's t-Test Logic Diagram



0251

Figure C

Test of Proportions Logic Diagram

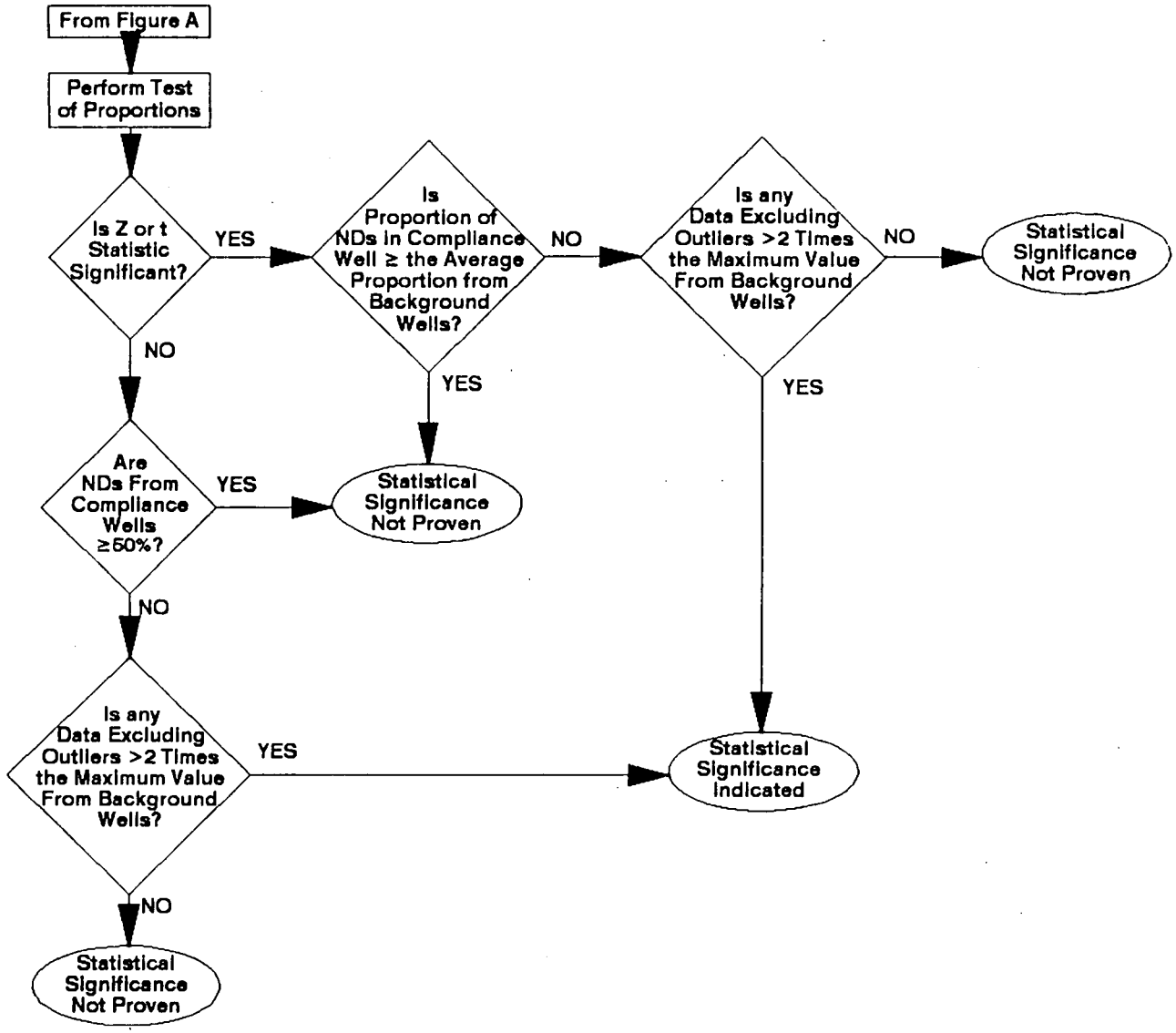


Figure D

Nonparametric Tests Logic Diagram

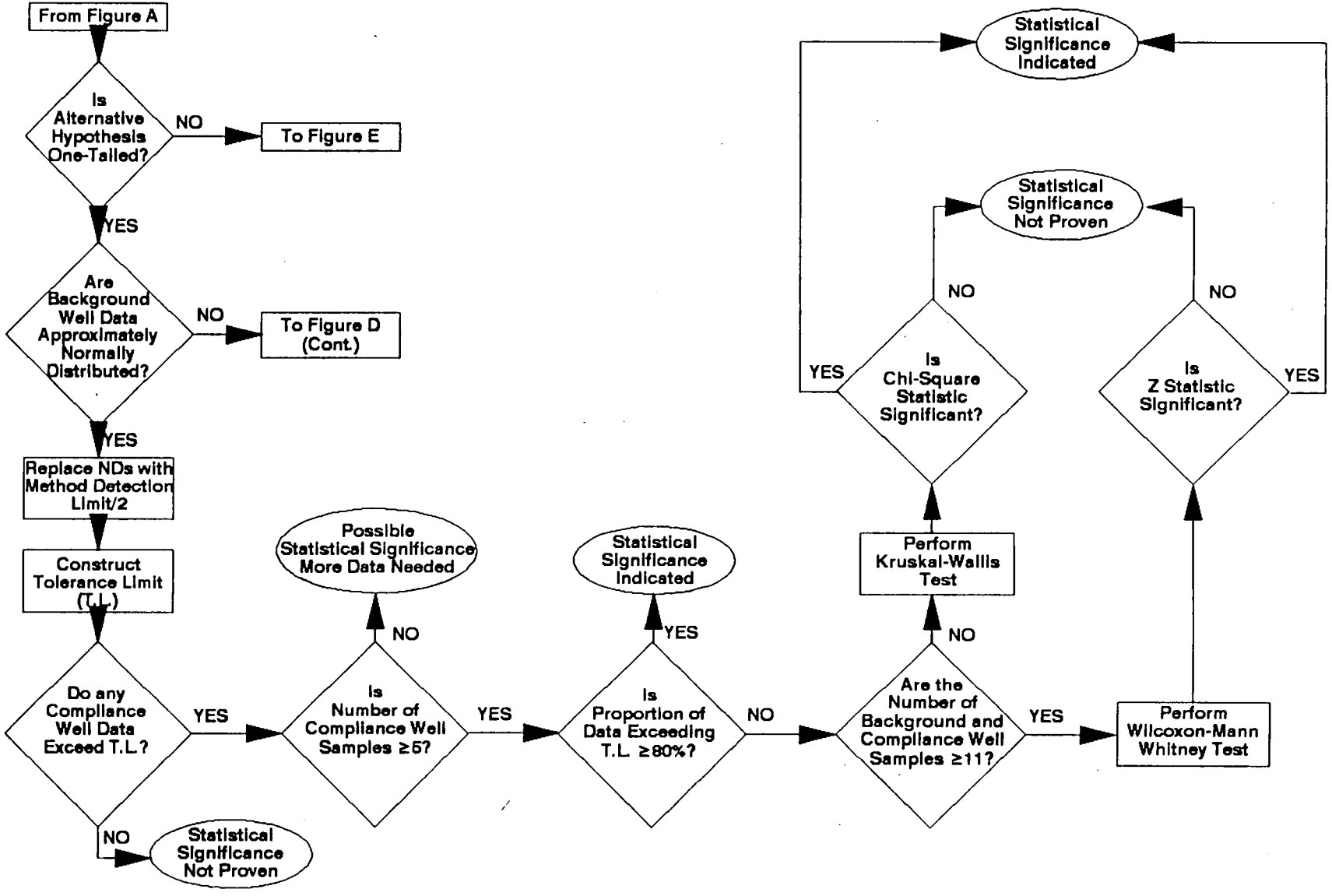


Figure D (Cont.)

Nonparametric Tests Logic Diagram

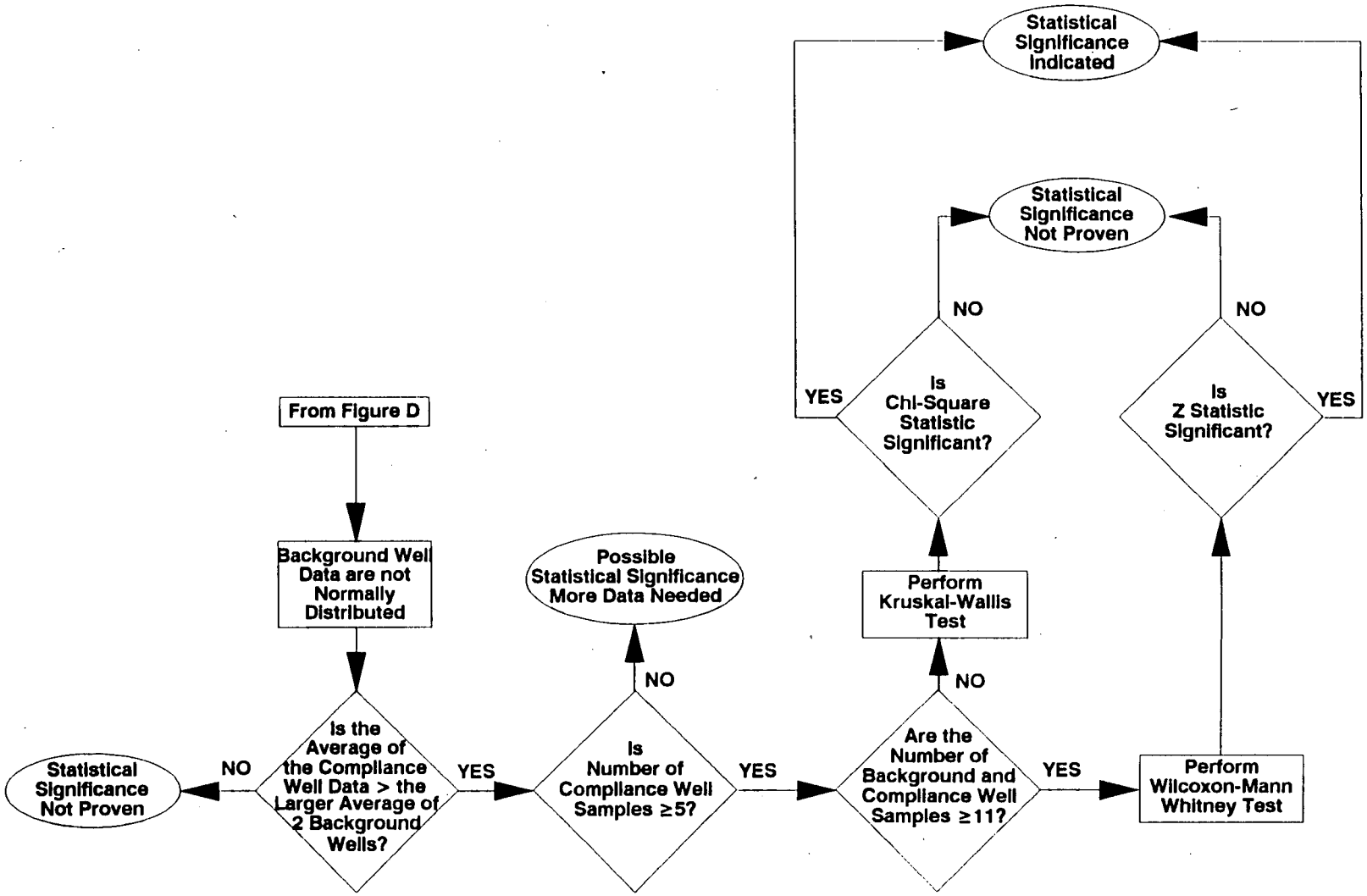
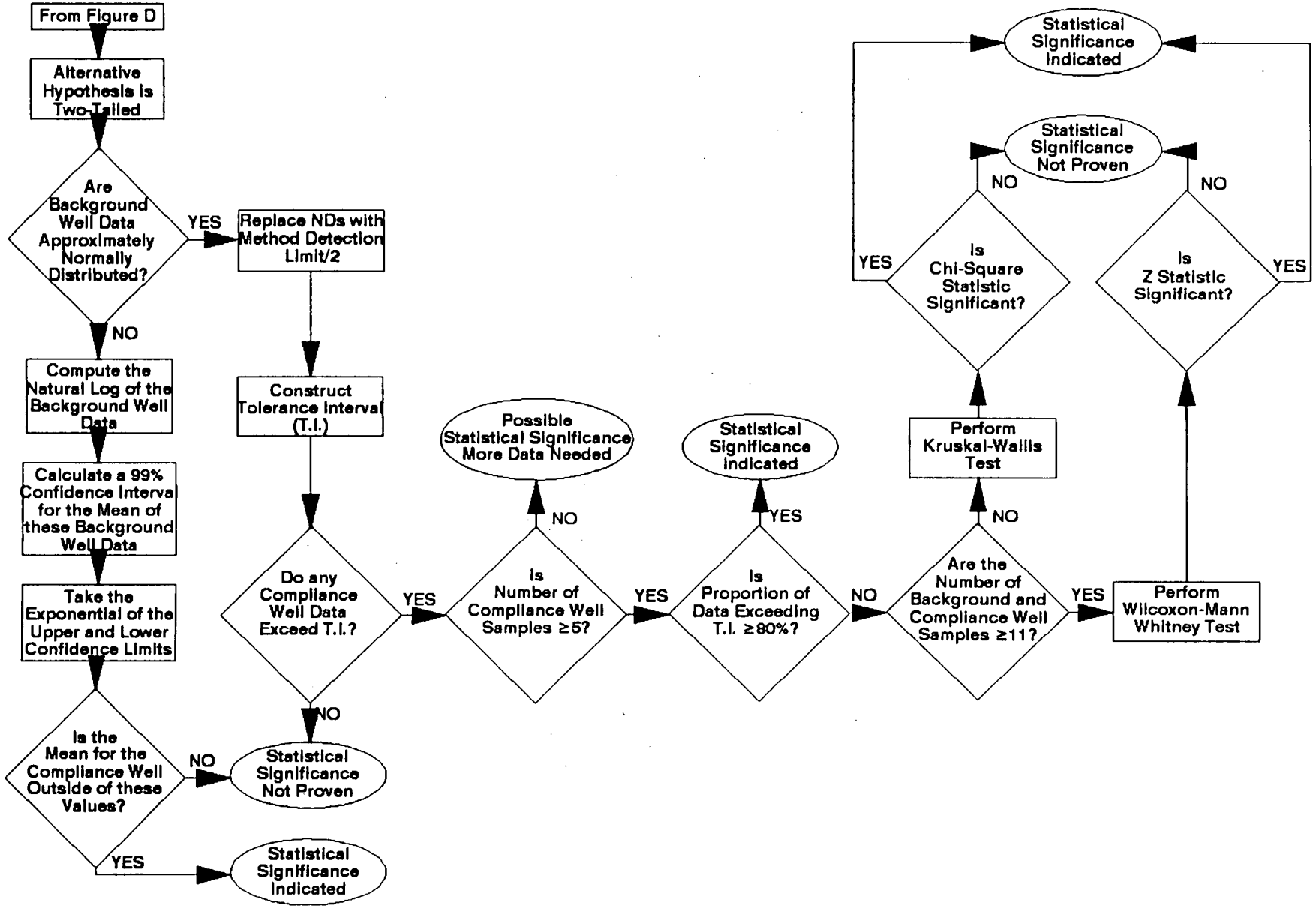


Figure E
Confidence Interval for Non-Normal Data Logic Diagram



If two or more values in sequence for a given compliance well and of a particular VOC exceed the PQL, then that compliance well is determined to have a statistically significant concentration. If there is a result exceeding the PQL with subsequent values indicating non-detectable, or if there is only one value available that exceeds the PQL, then the value is considered suspect until further data can support or overturn the detected sample.

The finding of VOCs in blanks sent to the laboratory has an impact on the validity of the data. Any result that is obtained when a blank is determined to be contaminated is not included in the analysis.

Groundwater Data Categories

The following list includes 21 different categories that groundwater data has been divided into by the type of statistical methods used and the results of the method. Future data will be treated in a similar manner

Cross Ref. #	Description
(1)	All data from the compliance well lie below the tolerance limit (T.L.) (or within the T.L.'s for pH or conductivity) - the concentrations are statistically insignificant.
(2)	The number of samples from the compliance well was $\geq$ 3 and one or more of the values from the compliance well exceeded the respective tolerance limit (T.L.). A Student's t test was performed. The Student's t test calculated a range for the difference between the means of the background wells and the compliance well with an alpha error of 1%.
	(a) The range for the difference between the means overlapped zero; therefore, the H_o: η_B-η_C = 0 is not contradicted by the available data, and the compliance well was determined to have statistically insignificant concentrations.
	(b) The range for the difference between the means had negative values at both ends (except for pH and conductivity where they were either both negative or both positive); therefore, the compliance well was determined to have a statistically significant amount of the constituent and the null hypothesis that there was no statistical difference between the two means was rejected.
(3)	The number of samples from the compliance well was $\geq$ 3 and approximately 80% or greater of the values exceeded the respective tolerance limit (T.L.). Based on this information, the well was declared to have a statistically significant amount of the constituent and no further test was performed.
(4)	Concluded that the compliance well had a statistically significant amount of the constituent without performing an actual test. This decision was based on the fact that a Student's t test determineed another compliance well in the same group (except for pH and conductivity) had statistically significant amount(s) of the constituent. The evaluated well had a smaller calculated average concentration and either somewhat similar or greater variability than this well.

(5) A Student's t test was performed, including a high statistical outlier that was associated with this compliance well, and the test was determined to be not significant. The outlier was the only value from this well that significantly exceeded the T.L. This conservative type of methodology was administered because the statistical outliers could not be confirmed due to time constraints.

(6) A Student's t test was performed, excluding a high statistical outlier that was associated with this compliance well, and the test was determined to still be significant. The outlier as well as several other values from this well significantly exceed the T.L. This type of methodology (i.e. excluding the outlier from the analysis) was administered because the statistical outliers could not be confirmed due to time constraints.

(7) There was sufficient data from the two background wells to construct a tolerance limit (T.L.), but the compliance well had only 1 or 2 samples to compare to the T.L. Therefore, a valid Student's t test could not have been performed, if called for. The well was evaluated solely by comparing each value to respective T.L. An additional comparison was made to the appropriate MCL, if applicable. This was provided for informational purposes only. All such comparisons can be placed into one of the following categories and verdicts:

Compliance Wells with 1 Value

	Criteria	Verdict
(7a)	< T.L. and < MCL	O.K.
(7b)	< T.L. and no MCL	O.K.
(7c)	< T.L. but > MCL	O.K.
(7d)	> T.L. and > MCL	Possible statistical significance - more data needed to confirm
(7e)	> T.L. and no MCL	Possible statistical significance - more data needed to confirm

Compliance Wells with 2 Values

	Criteria	Verdict
(7f)	Both values < T.L. and < MCL	O.K.
(7g)	Both values < T.L. and no MCL	O.K.
(7h)	Both values < T.L. but > MCL	O.K.
(7i)	Both values > T.L. and > MCL	Possible statistical significance - more data needed to confirm
(7j)	Both values > T.L. but < MCL	Possible statistical significance - more data needed to confirm
(7k)	Both values > T.L. and no MCL	Possible statistical significance - more data needed to confirm

(8) The Z or t statistic from the Test of Proportions (USEPA, April 1989) was insignificant;

however, to be conservative a further evaluation of the data was made. All quantified data (excluding statistical outliers) from the compliance wells which had less than 50% NDs were compared to two times the maximum value observed from the two respective background wells. Based on other empirical observations, if any of these measurements exceeded this calculated value, then the affected well was declared to have statistically significant concentration(s) of the constituent. Correspondingly, if the converse were true, then the well was declared to have statistically insignificant concentrations.

(9) The Z or t statistic from the Test of Proportions (USEPA, April 1989) was insignificant and the proportion of NDs from the compliance well was $\geq$ 50% - the concentrations are statistically insignificant.

(10) The Z statistic from the Test of Proportions (USEPA, April 1989) was significant (i. e., $|Z| > 1.96$). However, the proportion of NDs in this compliance well was $\geq$ the average proportion of NDs observed in the two respective background wells. Therefore, this well does not indicate statistically significant concentrations.

(11) The Z statistic from the Test of Proportions (USEPA, April 1989) was significant (i. e., $|Z| > 1.96$); the proportion of detectables in the background well(s) was significantly higher than in the compliance wells. An additional study is required to determine this cause.

(12) The Z statistic from the Test of Proportions (USEPA, April 1989) was <u>significant</u> (i. e., $|Z| > 1.96$). Each compliance well which had a smaller proportion of NDs than that experienced by the two respective background wells were evaluated further to quantitatively determine their status. Based on other empirical observations, if any quantified data from these wells (excluding statistical outliers) exceeded two times the maximum value observed from the two background wells, the affected well was determined to have statistically significant concentration(s). Correspondingly, if the converse were true, then the well did not show statistically significant concentrations.

(13) Left blank intentionally for possible future use.

(14) Left blank intentionally for possible future use.

(15) The measure of central tendency for the compliance well was less than or equal to the measure of central tendency for the gackground well data - the concentrations are statistically insignificant.

(16) Left blank intentionally for possible future use.

(17) Not enough data to perform a meaningful statistical analysis.

(18) The background well data were determined to be significantly non-normal. A two-tailed test of significance was called for, so a 99% confidence interval for the mean of the background wells was calculated based on the natural log of the background well data. The mean for this compliance well lies within the upper and lower confidence limits; the compliance well was determined to have statistically insignificant concentrations.

(19) The background well data were determined to be significantly non-normal. A two-tailed test of significance was called for so a 99% confidence interval for the mean of the background wells was calculated based on the natural log of the background well data. The mean for this compliance well lies outside the upper and lower confidence limits; the compliance well was determined to have a statistically significant amount of the constituent.

(20) The compliance well and/or background well data were determined to be significantly non-normal. A one-tailed test of significance was called for either because the compliance well mean exceeded the background well mean or the compliance well had a value that exceeded the tolerance limit (see Figure E). Thus, a nonparametric test (i.e., Wilcoxon-Mann-Whitney or Kruskal-Wallis) was performed. The test statistic was insignificant: therefore, the compliance well was determined to have statistically insignificant concentrations.

(21) The compliance well and/or background well data were determined to be significantly non-normal. A one-tailed test of significance was called for either because the compliance well mean exceeded the background well mean or the compliance well had a value that exceeded the tolerance limit (see Figure E). Thus, a nonparametric test (i.e., Wilcoxon-Mann-Whitney or Kruskal-Wallis) was performed. The text statistic was significant; therefore, the compliance well was determined to have a statistically significant amount of the constituent.

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	1024	Aluminum		2	8	0.250	2.8451	5.1030	26.0409	1.7936				
	1052	Aluminum		1	8	0.125	4.3274	3.9701	15.7615	0.9174	3.5862	4.4689	19.9707	1.2461
	1025	Aluminum	20	0	8	0.000	16.0850	19.7658	390.6859	1.2288				
	1027	Aluminum	15	4	8	0.500	0.4569	0.2822	0.0797	0.6178				
	1028	Aluminum	15	1	1	1.000	0.5000							
	1031	Aluminum	15	4	8	0.500	0.6926	0.6187	0.3827	0.8932				
*	1038	Aluminum	21	0	8	0.000	29.2962	16.6880	278.4881	0.5696				
	1074	Aluminum	15	3	8	0.375	2.5200	2.5827	6.6702	1.0249				
	1079	Aluminum	20	0	8	0.000	7.1975	11.9435	142.6476	1.6594				
	1080	Aluminum	20	0	8	0.000	10.5588	9.0482	81.8698	0.8569				
	1081	Aluminum	15	1	8	0.125	1.8988	1.5692	2.4623	0.8264				
	1082	Aluminum	20	0	8	0.000	6.3958	12.4295	154.4918	1.9434				
	1083	Aluminum	20	2	8	0.250	7.8761	9.3611	87.6307	1.1885				
?	2043	Aluminum		3	8	0.375	2.8970	4.1771	17.4481	1.4419				
	2066	Aluminum		3	8	0.375	0.6766	0.9437	0.8906	1.3947	1.7868	3.0128	9.0768	1.6861
	2010	Aluminum	15	1	8	0.125	1.7338	1.5753	2.4814	0.9086				
	2013	Aluminum	15	6	8	0.750	0.3593	0.2375	0.0564	0.6611				
	2019	Aluminum	15	7	8	0.875	0.3164	0.2270	0.0516	0.7177				
	2021	Aluminum	15	5	8	0.625	0.3306	0.2311	0.0534	0.6989				
	2027	Aluminum	15	2	8	0.250	2.1838	1.9053	3.6300	0.8725				
	2037	Aluminum	15	0	8	0.000	1.6754	1.8113	3.2808	1.0811				
	2051	Aluminum	15	2	8	0.250	2.2087	2.3854	5.6903	1.0800				
	2055	Aluminum	15	4	8	0.500	0.9840	0.8295	0.6881	0.8430				
	2084	Aluminum	15	2	8	0.250	1.2011	0.9957	0.9915	0.8290				
	3043	Aluminum	11	6	8	0.750								
?	3066	Aluminum	11	4	8	0.500								
			totals	10	16									
	3001	Aluminum	11	8	8	1.000								
	3008	Aluminum	11	7	8	0.875								
	3010	Aluminum	11	8	8	1.000								

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

09260

3713

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3013	Aluminum	11	7	8	0.875								
	3019	Aluminum	11	8	8	1.000								
	3024	Aluminum	11	6	8	0.750								
	3037	Aluminum	11	7	8	0.875								
	3051	Aluminum	11	1	1	1.000								
	3055	Aluminum	11	7	8	0.875								
	3084	Aluminum	11	5	8	0.625								
	4001	Aluminum	11	7	8	0.875								
	4008	Aluminum	11	8	8	1.000								
	4010	Aluminum	11	6	8	0.750								
	4013	Aluminum	11	7	8	0.875								

totals	92	105	
X=	6	n=	121
Y=	13	P=	0.157024
Pb=	0.375	nP=	19
Pc=	0.1238	n(1-P)=	102
Sd=	0.0976		
Z=	2.5726	Statistically Significant	

Test of Proportions

	1024	Aluminum, (Dissd)		8	11	0.727								
	1052	Aluminum, (Dissd)		7	11	0.636								
		totals		15	22									
	1025	Aluminum, (Dissd)	9	9	12	0.750								
	1027	Aluminum, (Dissd)	9	7	11	0.636								
	1028	Aluminum, (Dissd)	9	1	2	0.500								
	1030	Aluminum, (Dissd)	17	0	2	0.000								
	1031	Aluminum, (Dissd)	9	8	11	0.727								
	1038	Aluminum, (Dissd)	9	7	11	0.636								
	1074	Aluminum, (Dissd)	9	9	12	0.750								
	1079	Aluminum, (Dissd)	9	7	11	0.636								
	1080	Aluminum, (Dissd)	9	8	11	0.727								
	1081	Aluminum, (Dissd)	9	8	11	0.727								
	1082	Aluminum, (Dissd)	9	7	11	0.636								
	1083	Aluminum, (Dissd)	9	9	12	0.750								

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL		BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
				totals	80	117									
				X=	7	n=	139								
				Y=	37	P=	0.316546								
				Pb=	0.3181	nP=	44	Test of Proportions							
				Pc=	0.3162	n(1-P)=	95								
				Sd=	0.1080										
				Z=	0.0179	O. K.									
	2043	Aluminum, (Dissd)			8	11	0.727								
	2066	Aluminum, (Dissd)			8	11	0.727								
				totals	16	22									
	2010	Aluminum, (Dissd)	9		9	12	0.750								
	2013	Aluminum, (Dissd)	9		8	11	0.727								
	2019	Aluminum, (Dissd)	9		9	12	0.750								
	2021	Aluminum, (Dissd)	9		9	12	0.750								
	2027	Aluminum, (Dissd)	9		9	12	0.750								
	2037	Aluminum, (Dissd)	9		8	12	0.667								
	2051	Aluminum, (Dissd)	9		7	11	0.636								
	2055	Aluminum, (Dissd)	9		7	11	0.636								
	2084	Aluminum, (Dissd)	9		6	11	0.545								
				totals	72	104									
				X=	6	n=	126								
				Y=	32	P=	0.301587								
				Pb=	0.2727	nP=	38	Test of Proportions							
				Pc=	0.3076	n(1-P)=	88								
				Sd=	0.1077										
				Z=	-0.324	O. K.									
	3043	Aluminum, (Dissd)			9	11	0.818								
	3066	Aluminum, (Dissd)			8	11	0.727								
				totals	17	22									

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3001	Aluminum, (Dissd)	9	10	12	0.833								
	3008	Aluminum, (Dissd)	9	8	11	0.727								
	3010	Aluminum, (Dissd)	9	8	11	0.727								
	3013	Aluminum, (Dissd)	9	8	11	0.727								
	3019	Aluminum, (Dissd)	9	8	11	0.727								
	3024	Aluminum, (Dissd)	9	7	11	0.636								
	3037	Aluminum, (Dissd)	9	9	11	0.818								
	3051	Aluminum, (Dissd)	9	2	4	0.500								
	3055	Aluminum, (Dissd)	9	8	11	0.727								
	3084	Aluminum, (Dissd)	9	9	11	0.818								
	4001	Aluminum, (Dissd)	9	9	11	0.818								
	4008	Aluminum, (Dissd)	9	8	11	0.727								
	4010	Aluminum, (Dissd)	9	9	11	0.818								
	4013	Aluminum, (Dissd)	9	8	11	0.727								

totals	111	148	
X=	5	n=	170
Y=	37	P=	0.247058
Pb=	0.2272	nP=	42
Pc=	0.25	n(1-P)=	128
Sd=	0.0985		
Z=	-0.230	O. K.	

Test of Proportions

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	1024	Antimony		7	7	1.000
	1052	Antimony		7	7	1.000
	1025	Antimony	15	7	7	1.000
	1027	Antimony	15	7	7	1.000
	1028	Antimony	15	1	1	1.000
	1031	Antimony	15	7	7	1.000
	1038	Antimony	15	7	7	1.000
	1074	Antimony	15	7	7	1.000
	1079	Antimony	15	7	7	1.000
	1080	Antimony	15	7	7	1.000
	1081	Antimony	15	7	7	1.000
	1082	Antimony	15	7	7	1.000
	1083	Antimony	15	7	7	1.000
	2043	Antimony		7	7	1.000
	2066	Antimony		7	7	1.000
			totals	14	14	
	2010	Antimony	9	7	7	1.000
	2013	Antimony	9	7	7	1.000
	2019	Antimony	9	7	7	1.000
	2021	Antimony	9	6	7	0.857
	2027	Antimony	9	6	7	0.857
	2037	Antimony	9	7	7	1.000
	2051	Antimony	9	7	7	1.000
	2055	Antimony	9	7	7	1.000
	2084	Antimony	9	7	7	1.000
			totals	61	63	

X=	0	n=	77	
Y=	2	P=	0.02597	
Pb=	0	nP=	2	Test of Proportions
Pc=	0.031746	n(1-P)=	75	
Sd=	0.046996			
Z=	-0.67549	O. K.		

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

3713

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	3043	Antimony		7	7	1.000
	3066	Antimony		7	7	1.000
			totals	14	14	
	3001	Antimony	9	7	7	1.000
	3008	Antimony	9	6	7	0.857
	3010	Antimony	9	7	7	1.000
	3013	Antimony	9	7	7	1.000
	3019	Antimony	9	7	7	1.000
	3024	Antimony	9	6	6	1.000
	3037	Antimony	9	7	7	1.000
	3055	Antimony	9	7	7	1.000
	3084	Antimony	9	7	7	1.000
	4001	Antimony	9	7	7	1.000
	4008	Antimony	9	7	7	1.000
	4010	Antimony	9	7	7	1.000
	4013	Antimony	9	7	7	1.000
			totals	89	90	
			X=	0	n=	104
			Y=	1	P=	0.00961
			Pb=	0	nP=	1
			Pc=	0.011111	n(1-P)=	103
			Sd=	0.028036		
			Z=	-0.39631	O. K.	
	1024	Antimony, (Dissd.)		7	7	1.000
	1052	Antimony, (Dissd.)		8	8	1.000
	1025	Antimony, (Dissd.)	15	9	9	1.000
	1027	Antimony, (Dissd.)	15	7	7	1.000
	1028	Antimony, (Dissd.)	15	1	1	1.000
	1031	Antimony, (Dissd.)	15	8	8	1.000
	1038	Antimony, (Dissd.)	15	7	7	1.000
	1074	Antimony, (Dissd.)	15	9	9	1.000
	1079	Antimony, (Dissd.)	15	8	8	1.000
	1080	Antimony, (Dissd.)	15	8	8	1.000
	1081	Antimony, (Dissd.)	15	7	7	1.000

Test of Proportions

* Constituent found in statistically significant amount(s) *** See Cros ference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	1082	Antimony, (Dissd.)	15	8	8	1.000
	1083	Antimony, (Dissd.)	15	8	8	1.000
	2043	Antimony, (Dissd.)		8	8	1.000
	2066	Antimony, (Dissd.)		7	7	1.000
	2010	Antimony, (Dissd.)	15	8	8	1.000
	2013	Antimony, (Dissd.)	15	7	7	1.000
	2019	Antimony, (Dissd.)	15	9	9	1.000
	2021	Antimony, (Dissd.)	15	8	8	1.000
	2027	Antimony, (Dissd.)	15	9	9	1.000
	2037	Antimony, (Dissd.)	15	9	9	1.000
	2051	Antimony, (Dissd.)	15	7	7	1.000
	2055	Antimony, (Dissd.)	15	7	7	1.000
	2084	Antimony, (Dissd.)	15	8	8	1.000
	3043	Antimony, (Dissd.)		8	8	1.000
	3066	Antimony, (Dissd.)		7	7	1.000
	3001	Antimony, (Dissd.)	15	8	8	1.000
	3008	Antimony, (Dissd.)	15	7	7	1.000
	3010	Antimony, (Dissd.)	15	7	7	1.000
	3013	Antimony, (Dissd.)	15	7	7	1.000
	3019	Antimony, (Dissd.)	15	8	8	1.000
	3024	Antimony, (Dissd.)	15	6	6	1.000
	3037	Antimony, (Dissd.)	15	8	8	1.000
	3055	Antimony, (Dissd.)	15	7	7	1.000
	3084	Antimony, (Dissd.)	15	8	8	1.000
	4001	Antimony, (Dissd.)	15	7	7	1.000
	4008	Antimony, (Dissd.)	15	7	7	1.000
	4010	Antimony, (Dissd.)	15	7	7	1.000
	4013	Antimony, (Dissd.)	15	7	7	1.000

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1024	Arsenic			2	8	0.250	
	1052	Arsenic			4	8	0.500	
				totals	6	16		
	1025	Arsenic	9		4	8	0.500	
	1027	Arsenic	8		3	8	0.375	
	1028	Arsenic	8		0	1	0.000	
	1031	Arsenic	9		7	8	0.875	
*	1038	Arsenic	8		1	8	0.125	
	1074	Arsenic	9		5	8	0.625	
	1079	Arsenic	9		4	8	0.500	
	1080	Arsenic	9		5	8	0.625	
	1081	Arsenic	9		8	8	1.000	
	1082	Arsenic	9		6	8	0.750	
	1083	Arsenic	9		6	8	0.750	
				totals	49	81		
				X=	10	n=	97	
				Y=	32	P=	0.4329896	
				Pb=	0.625	nP=	42	Test of Proportions
				Pc=	0.395061	n(1-P)=	55	
				Sd=	0.135555			
				Z=	1.696264	O. K.		
	2043	Arsenic			5	8	0.625	
	2066	Arsenic			5	8	0.625	
				totals	10	16		
	2010	Arsenic	9		4	8	0.500	
	2013	Arsenic	9		8	8	1.000	
	2019	Arsenic	9		8	8	1.000	
	2021	Arsenic	9		8	8	1.000	
*	2027	Arsenic	8		0	8	0.000	
	2037	Arsenic	9		4	8	0.500	
	2051	Arsenic	8		3	8	0.375	
	2055	Arsenic	9		6	8	0.750	
	2084	Arsenic	9		4	8	0.500	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
				totals	45	72		
				X=	6	n=	88	
				Y=	27	P=	0.375	
				Pb=	0.375	nP=	33	Test of Proportions
				Pc=	0.375	n(1-P)=	55	
				Sd=	0.133804			
				Z=	0	O. K.		
?	3043	Arsenic	11		1	8	0.125	
?	3066	Arsenic	11		0	8	0.000	
				totals	1	16		
	3001	Arsenic	11		8	8	1.000	
	3008	Arsenic	11		8	8	1.000	
	3010	Arsenic	11		8	8	1.000	
	3013	Arsenic	11		5	8	0.625	
	3019	Arsenic	11		8	8	1.000	
	3024	Arsenic	11		7	8	0.875	
	3037	Arsenic	11		8	8	1.000	
	3051	Arsenic	11		1	1	1.000	
	3055	Arsenic	11		8	8	1.000	
	3084	Arsenic	11		8	8	1.000	
	4001	Arsenic	11		8	8	1.000	
	4008	Arsenic	11		6	8	0.750	
	4010	Arsenic	11		8	8	1.000	
	4013	Arsenic	11		6	8	0.750	
				totals	97	105		
				X=	15	n=	121	
				Y=	8	P=	0.1900826	
				Pb=	0.9375	nP=	23	Test of Proportions
				Pc=	0.076190	n(1-P)=	98	
				Sd=	0.105300			
				Z=	8.179553	Statistically Significant		
?	1024	Arsenic, Dissd.	11		5	13	0.385	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1052	Arsenic, Dissd.	11		11	14	0.786	
				totals	16	27		
	1025	Arsenic, Dissd.	11		10	13	0.769	
	1027	Arsenic, Dissd.	11		9	13	0.692	
	1028	Arsenic, Dissd.	11		1	1	1.000	
	1030	Arsenic, Dissd.	11		1	1	1.000	
	1031	Arsenic, Dissd.	11		11	12	0.917	
	1038	Arsenic, Dissd.	11		12	13	0.923	
	1074	Arsenic, Dissd.	11		14	14	1.000	
	1079	Arsenic, Dissd.	11		13	14	0.929	
	1080	Arsenic, Dissd.	11		8	14	0.571	
	1081	Arsenic, Dissd.	11		12	13	0.923	
	1082	Arsenic, Dissd.	11		12	13	0.923	
	1083	Arsenic, Dissd.	11		13	13	1.000	
				totals	116	134		
				X=	11	n=	161	
				Y=	18	P=	0.1801242	
				Pb=	0.407407	nP=	29	Test of Proportions
				Pc=	0.134328	n(1-P)=	132	
				Sd=	0.081066			
				Z=	3.368601	Statistically Significant		
	2043	Arsenic, Dissd.	11		14	14	1.000	
?	2066	Arsenic, Dissd.	11		5	13	0.385	
				totals	19	27		
	2010	Arsenic, Dissd.	11		12	13	0.923	
	2013	Arsenic, Dissd.	11		12	12	1.000	
	2019	Arsenic, Dissd.	11		13	14	0.929	
	2021	Arsenic, Dissd.	11		13	13	1.000	
	2027	Arsenic, Dissd.	11		13	14	0.929	
	2037	Arsenic, Dissd.	11		13	13	1.000	
	2051	Arsenic, Dissd.	11		13	13	1.000	
	2055	Arsenic, Dissd.	11		9	9	1.000	

• Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	2084	Arsenic, Dissd.	11	14	14	1.000	
			totals	112	115		
			X=	8	n=	142	
			Y=	3	P=	0.0774647	
			Pb=	0.296296	nP=	11	Test of Proportions
			Pc=	0.026086	n(1-P)=	131	
			Sd=	0.057168			
			Z=	4.726540	Statistically Significant		
?	3043	Arsenic, Dissd.	11	7	14	0.500	
?	3066	Arsenic, Dissd.	11	3	13	0.231	
			totals	10	27		
	3001	Arsenic, Dissd.	11	12	13	0.923	
	3008	Arsenic, Dissd.	11	13	13	1.000	
	3010	Arsenic, Dissd.	11	12	12	1.000	
	3013	Arsenic, Dissd.	11	12	12	1.000	
	3019	Arsenic, Dissd.	11	14	14	1.000	
	3024	Arsenic, Dissd.	11	13	13	1.000	
	3037	Arsenic, Dissd.	11	13	13	1.000	
	3051	Arsenic, Dissd.	11	6	6	1.000	
	3055	Arsenic, Dissd.	11	13	13	1.000	
	3084	Arsenic, Dissd.	11	14	14	1.000	
	4001	Arsenic, Dissd.	11	13	13	1.000	
	4008	Arsenic, Dissd.	11	10	12	0.833	
	4010	Arsenic, Dissd.	11	10	10	1.000	
	4013	Arsenic, Dissd.	11	10	10	1.000	
			totals	165	168		
			X=	17	n=	195	
			Y=	3	P=	0.1025641	
			Pb=	0.629629	nP=	20	Test of Proportions
			Pc=	0.017857	n(1-P)=	175	
			Sd=	0.062904			
			Z=	9.725450	Statistically Significant		

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

115270

3713

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1024	Barium			6	8	0.750	
	1052	Barium			6	8	0.750	
				totals	12	16		
*	1025	Barium	8		3	8	0.375	
	1027	Barium	9		8	8	1.000	
	1028	Barium	9		1	1	1.000	
	1031	Barium	9		5	8	0.625	
	1038	Barium	9		4	8	0.500	
	1074	Barium	9		7	8	0.875	
	1079	Barium	9		6	8	0.750	
	1080	Barium	9		7	8	0.875	
	1081	Barium	9		8	8	1.000	
	1082	Barium	9		6	8	0.750	
	1083	Barium	9		6	8	0.750	
				totals	61	81		
				X=	4	n=	97	
				Y=	20	P=	0.247423	
				Pb=	0.25	nP=	24	Test of Proportions
				Pc=	0.246913	n(1-P)=	73	
				Sd=	0.118053			
				Z=	0.026144	O. K.		
?	2043	Barium	11		4	8	0.500	
?	2066	Barium	11		0	8	0.000	
				totals	4	16		
	2010	Barium	11		7	8	0.875	
	2013	Barium	11		7	8	0.875	
	2019	Barium	11		8	8	1.000	
	2021	Barium	11		8	8	1.000	
	2027	Barium	11		2	8	0.250	
	2037	Barium	11		8	8	1.000	
	2051	Barium	11		7	8	0.875	
	2055	Barium	11		8	8	1.000	
	2084	Barium	11		6	8	0.750	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
				totals	61	72		
				X=	12	n=	88	
				Y=	11	P=	0.261364	
				Pb=	0.75	nP=	23	Test of Proportions
				Pc=	0.152777	n(1-P)=	65	
				Sd=	0.121437			
				Z=	4.917936	Statistically Significant		
?	3043	Barium	11		1	8	0.125	
?	3066	Barium	11		1	8	0.125	
				totals	2	16		
	3001	Barium	11		8	8	1.000	
	3008	Barium	11		8	8	1.000	
	3010	Barium	11		7	8	0.875	
	3013	Barium	11		8	8	1.000	
	3019	Barium	11		7	8	0.875	
	3024	Barium	11		8	8	1.000	
	3037	Barium	11		7	8	0.875	
	3051	Barium	11		1	1	1.000	
	3055	Barium	11		8	8	1.000	
	3084	Barium	11		7	8	0.875	
	4001	Barium	11		7	8	0.875	
	4008	Barium	11		8	8	1.000	
	4010	Barium	11		4	8	0.500	
	4013	Barium	11		6	8	0.750	
				totals	94	105		
				X=	14	n=	121	
				Y=	11	P=	0.206612	
				Pb=	0.875	nP=	25	Test of Proportions
				Pc=	0.104761	n(1-P)=	96	
				Sd=	0.108657			
				Z=	7.088701	Statistically Significant		
	1024	Barium, Dissd.			9	15	0.600	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

3713

C1S272

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1052	Barium, Dissd.			10	15	0.667	
				totals	19	30		
*	1025	Barium, Dissd.	8		6	14	0.429	
	1027	Barium, Dissd.	9		10	15	0.667	
	1028	Barium, Dissd.	9		1	2	0.500	
	1030	Barium, Dissd.	9		1	2	0.500	
	1031	Barium, Dissd.	8		6	13	0.462	
	1038	Barium, Dissd.	9		10	15	0.667	
	1074	Barium, Dissd.	9		9	15	0.600	
	1079	Barium, Dissd.	9		9	15	0.600	
	1080	Barium, Dissd.	9		11	15	0.733	
	1081	Barium, Dissd.	9		11	15	0.733	
	1082	Barium, Dissd.	9		8	14	0.571	
	1083	Barium, Dissd.	9		11	15	0.733	
				totals	93	150		
				X=	11	n=	180	
				Y=	57	P=	0.3778	
				Pb=	0.3667	nP=	68	Test of Proportions
				Pc=	0.3800	n(1-P)=	112	
				Sd=	0.0970			
				Z=	-0.1375	O. K.		
?	2043	Barium, Dissd.	11		6	15	0.400	
?	2066	Barium, Dissd.	11		5	15	0.333	
				totals	11	30		
	2010	Barium, Dissd.	11		10	15	0.667	
	2013	Barium, Dissd.	11		9	14	0.643	
	2019	Barium, Dissd.	11		10	15	0.667	
	2021	Barium, Dissd.	11		10	15	0.667	
	2027	Barium, Dissd.	11		11	15	0.733	
	2037	Barium, Dissd.	11		12	14	0.857	
	2051	Barium, Dissd.	11		9	15	0.600	
	2055	Barium, Dissd.	11		9	11	0.818	
	2084	Barium, Dissd.	11		8	15	0.533	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
				totals	88	129		
				X=	19	n=	159	
				Y=	41	P=	0.377358	
				Pb=	0.633333	nP=	60	Test of Proportions
				Pc=	0.317829	n(1-P)=	99	
				Sd=	0.098251			
				Z=	3.211186	Statistically Significant		
?	3043	Barium, Dissd.	11		1	15	0.067	
?	3066	Barium, Dissd.	11		1	15	0.067	
				totals	2	30		
	3001	Barium, Dissd.	11		8	15	0.533	
	3008	Barium, Dissd.	11		10	15	0.667	
	3010	Barium, Dissd.	11		11	14	0.786	
	3013	Barium, Dissd.	11		10	14	0.714	
	3019	Barium, Dissd.	11		10	15	0.667	
	3024	Barium, Dissd.	11		9	15	0.600	
	3037	Barium, Dissd.	11		9	14	0.643	
	3051	Barium, Dissd.	11		1	8	0.125	
	3055	Barium, Dissd.	11		10	15	0.667	
	3084	Barium, Dissd.	11		9	15	0.600	
	4001	Barium, Dissd.	11		10	15	0.667	
	4008	Barium, Dissd.	11		9	14	0.643	
	4010	Barium, Dissd.	11		2	12	0.167	
	4013	Barium, Dissd.	11		6	12	0.500	
				totals	114	193		
				X=	28	n=	223	
				Y=	79	P=	0.479821	
				Pb=	0.933333	nP=	107	Test of Proportions
				Pc=	0.409326	n(1-P)=	116	
				Sd=	0.098045			
				Z=	5.344509	Statistically Significant		

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

3713
US274

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	1024	Beryllium			8	8	1.000
	1052	Beryllium			8	8	1.000
				totals	16	16	
	1025	Beryllium	15		8	8	1.000
	1027	Beryllium	15		8	8	1.000
	1028	Beryllium	15		1	1	1.000
	1031	Beryllium	15		8	8	1.000
	1038	Beryllium	15		8	8	1.000
	1074	Beryllium	15		8	8	1.000
	1079	Beryllium	15		8	8	1.000
	1080	Beryllium	15		8	8	1.000
	1081	Beryllium	15		8	8	1.000
	1082	Beryllium	15		8	8	1.000
	1083	Beryllium	15		8	8	1.000
				totals	81	81	
	2043	Beryllium			8	8	1.000
	2066	Beryllium			8	8	1.000
				totals	16	16	
	2010	Beryllium	15		8	8	1.000
	2013	Beryllium	15		8	8	1.000
	2019	Beryllium	15		8	8	1.000
	2021	Beryllium	15		8	8	1.000
	2027	Beryllium	15		8	8	1.000
	2037	Beryllium	15		8	8	1.000
	2051	Beryllium	15		8	8	1.000
	2055	Beryllium	15		8	8	1.000
	2084	Beryllium	15		8	8	1.000
				totals	72	72	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	3043	Beryllium			8	8	1.000	
	3066	Beryllium			8	8	1.000	
				totals	16	16		
	3001	Beryllium	9		8	8	1.000	
	3008	Beryllium	9		8	8	1.000	
	3010	Beryllium	9		8	8	1.000	
	3013	Beryllium	9		8	8	1.000	
	3019	Beryllium	9		8	8	1.000	
	3024	Beryllium	9		8	8	1.000	
	3037	Beryllium	9		8	8	1.000	
	3051	Beryllium	9		1	1	1.000	
	3055	Beryllium	9		8	8	1.000	
	3084	Beryllium	9		8	8	1.000	
	4001	Beryllium	9		8	8	1.000	
	4008	Beryllium	9		8	8	1.000	
	4010	Beryllium	9		7	8	0.875	
	4013	Beryllium	9		8	8	1.000	
				totals	104	105		
				X=	0	n=	113	
				Y=	1	P=	0.008850	
				Pb=	0	nP=	1	Test of Proportions
				Pc=	0.009523	n(1-P)=	112	
				Sd=	0.034350			
				Z=	-0.27725	O. K.		
	1024	Beryllium, Dissd.			9	11	0.818	
	1052	Beryllium, Dissd.			11	11	1.000	
				totals	20	22		
	1025	Beryllium, Dissd.	9		11	12	0.917	
	1027	Beryllium, Dissd.	9		10	11	0.909	
	1028	Beryllium, Dissd.	9		1	2	0.500	
	1030	Beryllium, Dissd.	9		2	2	1.000	
	1031	Beryllium, Dissd.	9		10	11	0.909	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1038	Beryllium, Dissd.	9	10	11	0.909	
	1074	Beryllium, Dissd.	9	11	12	0.917	
	1079	Beryllium, Dissd.	9	9	11	0.818	
	1080	Beryllium, Dissd.	9	10	11	0.909	
	1081	Beryllium, Dissd.	9	9	11	0.818	
	1082	Beryllium, Dissd.	9	10	11	0.909	
	1083	Beryllium, Dissd.	9	11	12	0.917	
			totals	104	117		
			X=	2	n=	139	
			Y=	13	P=	0.107914	
			Pb=	0.090909	nP=	15	Test of Proportions
			Pc=	0.111111	n(1-P)=	124	
			Sd=	0.072101			
			Z=	-0.28018	O. K.		
	2043	Beryllium, Dissd.		11	11	1.000	
	2066	Beryllium, Dissd.		10	11	0.909	
			totals	21	22		
	2010	Beryllium, Dissd.	9	11	12	0.917	
	2013	Beryllium, Dissd.	9	10	11	0.909	
	2019	Beryllium, Dissd.	9	12	12	1.000	
	2021	Beryllium, Dissd.	9	11	12	0.917	
	2027	Beryllium, Dissd.	9	12	12	1.000	
	2037	Beryllium, Dissd.	9	12	12	1.000	
	2051	Beryllium, Dissd.	9	10	11	0.909	
	2055	Beryllium, Dissd.	9	10	11	0.909	
	2084	Beryllium, Dissd.	9	9	11	0.818	
			totals	97	104		
			X=	1	n=	126	
			Y=	7	P=	0.063492	
			Pb=	0.045454	nP=	8	Test of Proportions
			Pc=	0.067307	n(1-P)=	118	
			Sd=	0.057223			
			Z=	-0.38189	O. K.		

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	3043	Beryllium, Dissd.			11	11	1.000
	3066	Beryllium, Dissd.			10	11	0.909
				totals	21	22	
	3001	Beryllium, Dissd.	9		11	12	0.917
	3008	Beryllium, Dissd.	9		9	11	0.818
	3010	Beryllium, Dissd.	9		10	11	0.909
	3013	Beryllium, Dissd.	9		9	11	0.818
	3019	Beryllium, Dissd.	9		11	11	1.000
	3024	Beryllium, Dissd.	9		9	11	0.818
	3037	Beryllium, Dissd.	9		11	11	1.000
	3051	Beryllium, Dissd.	9		3	4	0.750
	3055	Beryllium, Dissd.	9		10	11	0.909
	3084	Beryllium, Dissd.	9		9	11	0.818
	4001	Beryllium, Dissd.	9		10	11	0.909
	4008	Beryllium, Dissd.	9		9	11	0.818
	4010	Beryllium, Dissd.	9		10	11	0.909
	4013	Beryllium, Dissd.	9		9	11	0.818
				totals	130	148	

X=	1	n=	170	
Y=	18	P=	0.111765	
Pb=	0.045454	nP=	19	Test of Proportions
Pc=	0.121621	n(1-P)=	151	
Sd=	0.071994			
Z=	-1.05795	O. K.		

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1024	Cadmium			6	7	0.857	
	1052	Cadmium			7	7	1.000	
				totals	13	14		
	1025	Cadmium	9		7	7	1.000	
	1027	Cadmium	9		7	7	1.000	
	1028	Cadmium	9		1	1	1.000	
	1031	Cadmium	9		7	7	1.000	
	1038	Cadmium	9		7	7	1.000	
	1074	Cadmium	9		7	7	1.000	
	1079	Cadmium	9		7	8	0.875	
	1080	Cadmium	9		7	7	1.000	
	1081	Cadmium	9		7	7	1.000	
	1082	Cadmium	9		7	7	1.000	
	1083	Cadmium	9		7	7	1.000	
				totals	71	72		
				X=	1	n=	86	
				Y=	1	P=	0.02326	
				Pb=	0.071428	nP=	2	Test of Proportions
				Pc=	0.013888	n(1-P)=	84	
				Sd=	0.044022			
				Z=	1.307050	O. K.		
	2043	Cadmium			7	7	1.000	
	2066	Cadmium			7	7	1.000	
				totals	14	14		
	2010	Cadmium	9		7	7	1.000	
	2013	Cadmium	9		6	7	0.857	
	2019	Cadmium	9		7	7	1.000	
	2021	Cadmium	9		7	7	1.000	
	2027	Cadmium	9		7	7	1.000	
	2037	Cadmium	9		7	7	1.000	
	2051	Cadmium	9		7	7	1.000	
	2055	Cadmium	9		7	7	1.000	
	2084	Cadmium	9		7	7	1.000	

* Constituent found in statistically significant amount(s) *** See Cross [illegible] nce listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
				totals	62	63		
				X=	0	n=	77	
				Y=	1	P=	0.01298	
				Pb=	0	nP=	1	Test of Proportions
				Pc=	0.015873	n(1-P)=	76	
				Sd=	0.033452			
				Z=	-0.47449	O. K.		
	3043	Cadmium			7	7	1.000	
	3066	Cadmium			7	7	1.000	
				totals	14	14		
	3001	Cadmium	9		7	7	1.000	
	3008	Cadmium	9		7	7	1.000	
	3010	Cadmium	9		6	7	0.857	
	3013	Cadmium	9		7	7	1.000	
	3019	Cadmium	9		7	7	1.000	
	3024	Cadmium	9		6	6	1.000	
	3037	Cadmium	9		7	7	1.000	
	3055	Cadmium	9		7	7	1.000	
	3084	Cadmium	9		7	7	1.000	
	4001	Cadmium	9		6	7	0.857	
	4008	Cadmium	9		7	7	1.000	
	4010	Cadmium	9		7	7	1.000	
	4013	Cadmium	9		7	7	1.000	
				totals	88	90		
				X=	0	n=	104	
				Y=	2	P=	0.01923	
				Pb=	0	nP=	2	Test of Proportions
				Pc=	0.022222	n(1-P)=	102	
				Sd=	0.039456			
				Z=	-0.56321	O. K.		

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

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3713

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1024	Cadmium, (Dissd.)			7	9	0.778	
	1052	Cadmium, (Dissd.)			7	12	0.583	
				totals	14	21		
	1025	Cadmium, (Dissd.)	9		7	11	0.636	
	1027	Cadmium, (Dissd.)	9		7	11	0.636	
	1028	Cadmium, (Dissd.)	9		1	1	1.000	
	1031	Cadmium, (Dissd.)	9		9	9	1.000	
	1038	Cadmium, (Dissd.)	9		7	11	0.636	
	1074	Cadmium, (Dissd.)	9		7	12	0.583	
	1079	Cadmium, (Dissd.)	9		7	9	0.778	
	1080	Cadmium, (Dissd.)	9		7	12	0.583	
	1081	Cadmium, (Dissd.)	9		7	11	0.636	
	1082	Cadmium, (Dissd.)	9		7	11	0.636	
	1083	Cadmium, (Dissd.)	9		7	11	0.636	
				totals	73	109		
				X=	7	n=	130	
				Y=	36	P=	0.33076	
				Pb=	0.333333	nP=	43	Test of Proportions
				Pc=	0.330275	n(1-P)=	87	
				Sd=	0.112124			
				Z=	0.027274	O. K.		
	2043	Cadmium, (Dissd.)			7	11	0.636	
	2066	Cadmium, (Dissd.)			10	10	1.000	
				totals	17	21		
	2010	Cadmium, (Dissd.)	9		11	11	1.000	
	2013	Cadmium, (Dissd.)	9		7	11	0.636	
	2019	Cadmium, (Dissd.)	9		12	12	1.000	
	2021	Cadmium, (Dissd.)	9		11	11	1.000	
	2027	Cadmium, (Dissd.)	9		7	12	0.583	
	2037	Cadmium, (Dissd.)	9		7	12	0.583	
	2051	Cadmium, (Dissd.)	9		7	8	0.875	
	2055	Cadmium, (Dissd.)	9		7	9	0.778	
	2084	Cadmium, (Dissd.)	9		7	11	0.636	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
				totals	76	97		
				X=	4	n=	118	
				Y=	21	P=	0.21186	
				Pb=	0.190476	nP=	25	Test of Proportions
				Pc=	0.216494	n(1-P)=	93	
				Sd=	0.098350			
				Z=	-0.26455	O. K.		
	3043	Cadmium, (Dissd.)			7	11	0.636	
	3066	Cadmium, (Dissd.)			10	10	1.000	
				totals	17	21		
	3001	Cadmium, (Dissd.)	9		11	11	1.000	
	3008	Cadmium, (Dissd.)	9		11	11	1.000	
	3010	Cadmium, (Dissd.)	9		11	11	1.000	
	3013	Cadmium, (Dissd.)	9		7	11	0.636	
	3019	Cadmium, (Dissd.)	9		12	12	1.000	
	3024	Cadmium, (Dissd.)	9		6	8	0.750	
	3037	Cadmium, (Dissd.)	9		7	12	0.583	
	3055	Cadmium, (Dissd.)	9		11	11	1.000	
	3084	Cadmium, (Dissd.)	9		7	11	0.636	
	4001	Cadmium, (Dissd.)	9		11	11	1.000	
	4008	Cadmium, (Dissd.)	9		10	10	1.000	
	4010	Cadmium, (Dissd.)	9		7	9	0.778	
	4013	Cadmium, (Dissd.)	9		7	9	0.778	
				totals	118	137		
				X=	4	n=	158	
				Y=	19	P=	0.14556	
				Pb=	0.190476	nP=	23	Test of Proportions
				Pc=	0.138686	n(1-P)=	135	
				Sd=	0.082647			
				Z=	0.626634	O. K.		

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

0282

3713

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	1024	Calcium		0	8	0	98.23	21.28	452.85	0.2166				
	1052	Calcium		0	8	0	111.08	23.67	560.50	0.2131	104.6500	22.7361	516.93	0.2173
*	1025	Calcium	3	0	8	0	533.75	104.48	10917.07	0.1958	T.L. =	162.01	n=16	
	1027	Calcium	1	0	8	0	82.70	21.35	455.84	0.2582				
	1028	Calcium	7e	0	1	0	323.00							
*	1031	Calcium	3	0	8	0	232.38	70.16	4921.98	0.3019				
*	1038	Calcium	3	0	8	0	456.00	133.09	17712.29	0.2919				
	1074	Calcium	1	0	8	0	119.96	29.93	896.04	0.2495				
*	1079	Calcium	2b	0	8	0	148.66	47.82	2286.97	0.3217				
	1080	Calcium	5	0	8	0	178.25	106.17	11272.66	0.5956				
*	1081	Calcium	3	0	8	0	280.63	43.97	1933.70	0.1567				
*	1082	Calcium	2b	0	8	0	180.39	60.49	3659.26	0.3353				
*	1083	Calcium	6	0	8	0	152.86	58.35	3404.26	0.3817				
	2043	Calcium		0	8	0	139.88	53.75	2888.70	0.3842				
	2066	Calcium		0	8	0	72.13	17.03	290.02	0.2361	106.0000	52.0328	2707.42	0.4909
	2010	Calcium	1	0	8	0	143.00	29.88	892.86	0.2090	T.L. =	237.28	n=16	
	2013	Calcium	1	0	8	0	90.44	20.95	439.06	0.2317				
	2019	Calcium	2a	0	8	0	143.20	57.42	3296.83	0.4010				
	2021	Calcium	1	0	8	0	97.51	29.65	879.22	0.3041				
*	2027	Calcium	2b	0	8	0	210.75	59.48	3538.21	0.2822				
	2037	Calcium	1	0	8	0	127.84	22.97	527.66	0.1797				
	2051	Calcium	2a	0	8	0	164.20	68.23	4655.35	0.4155				
	2055	Calcium	1	0	8	0	115.63	18.14	329.12	0.1569				
*	2084	Calcium	2b	0	8	0	274.13	80.95	6553.55	0.2953				
	3043	Calcium		0	8	0	77.95	17.79	316.41	0.2282				
	3066	Calcium		0	8	0	152.45	31.35	982.53	0.2056	115.2000	45.6754	2086.24	0.3965
	3001	Calcium	1	0	8	0	38.78	39.48	1558.40	1.0181	T.L. =	230.44	n=16	
	3008	Calcium	1	0	8	0	36.30	29.19	852.24	0.8042				
*	3010	Calcium	2b	0	8	0	182.50	39.62	1570.00	0.2171				
	3013	Calcium	1	0	8	0	102.00	45.91	2107.91	0.4501				
	3019	Calcium	2a	0	8	0	191.50	101.94	10390.86	0.5323				
	3024	Calcium	1	0	8	0	85.15	37.88	1434.92	0.4449				

* Constituent found in statistically significant amount(s) *** See Cross [illegible]ence listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
*	3037	Calcium	2b	0	8	0	204.63	52.21	2725.41	0.2551				
	3051	Calcium	7b	0	1	0	148.00							
	3055	Calcium	1	0	8	0	172.25	19.59	383.64	0.1137				
*	3084	Calcium	2b	0	8	0	185.38	73.81	5448.27	0.3982				
	4001	Calcium	1	0	8	0	46.31	37.55	1410.24	0.8109				
	4008	Calcium	1	0	8	0	55.14	17.48	305.50	0.3170				
	4010	Calcium	1	0	8	0	82.23	17.59	309.26	0.2139				
*	4013	Calcium	2b	0	8	0	174.50	47.62	2268.00	0.2729				
	1024	Calcium, Dissd.		0	15	0	88.69	13.85	191.88	0.1562				
	1052	Calcium, Dissd.		0	15	0	94.63	17.20	295.80	0.1818	91.6567	15.6384	244.56	0.1706
*	1025	Calcium, Dissd.	3	0	14	0	416.39	143.18	20501.78	0.3439	T.L. =	126.37	n=30	
	1027	Calcium, Dissd.	2a	0	15	0	89.99	31.23	975.01	0.3470				
	1028	Calcium, Dissd.	7k	0	2	0	498.00	70.71	5000.00	0.1420				
	1030	Calcium, Dissd.	7k	0	2	0	183.50	41.72	1740.50	0.2274				
*	1031	Calcium, Dissd.	3	0	13	0	235.54	91.31	8337.77	0.3877				
*	1038	Calcium, Dissd.	3	0	15	0	133.20	21.13	446.46	0.1586				
	1074	Calcium, Dissd.	5	0	15	0	128.72	55.97	3132.76	0.4348				
*	1079	Calcium, Dissd.	2b	0	15	0	120.91	28.19	794.54	0.2331				
*	1080	Calcium, Dissd.	2b	0	15	0	119.30	45.06	2030.25	0.3777				
*	1081	Calcium, Dissd.	3	0	15	0	210.89	38.71	1498.66	0.1836				
*	1082	Calcium, Dissd.	3	0	14	0	150.36	26.12	682.04	0.1737				
*	1083	Calcium, Dissd.	2b	0	15	0	128.02	34.63	1199.53	0.2705				
	2043	Calcium, Dissd.		0	15	0	97.91	21.12	446.10	0.2157				
	2066	Calcium, Dissd.		0	15	0	67.26	14.67	215.21	0.2181	82.5867	23.7121	562.26	0.2871
*	2010	Calcium, Dissd.	2b	0	15	0	164.62	84.05	7064.91	0.5106	T.L. =	135.23	n=30	
	2013	Calcium, Dissd.	1	0	14	0	98.54	21.21	450.04	0.2153				
*	2019	Calcium, Dissd.	4	1	15	0.067	127.63	36.98	1367.48	0.2897				
*	2021	Calcium, Dissd.	2b	0	15	0	127.94	56.26	3165.19	0.4397				
*	2027	Calcium, Dissd.	2b	0	15	0	200.40	97.19	9445.26	0.4850				
*	2037	Calcium, Dissd.	2b	0	14	0	123.07	47.36	2242.83	0.3848				
*	2051	Calcium, Dissd.	4	0	15	0	148.05	48.54	2356.32	0.3279				
	2055	Calcium, Dissd.	1	1	11	0.091	97.41	21.12	446.15	0.2168				
*	2084	Calcium, Dissd.	3	0	15	0	238.87	91.81	8429.84	0.3844				

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

2841
03413

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3043	Calcium, Dissd.		0	15	0	79.81	22.89	523.94	0.2868				
	3066	Calcium, Dissd.		0	15	0	149.47	22.28	496.41	0.1491	114.6400	41.8008	1747.30	0.3646
	3001	Calcium, Dissd.	1	0	15	0	68.34	49.32	2432.03	0.7216	T.L. =	207.44	n=30	
	3008	Calcium, Dissd.	1	0	15	0	49.70	31.59	997.75	0.6356				
*	3010	Calcium, Dissd.	2b	0	14	0	214.50	70.88	5024.12	0.3304				
	3013	Calcium, Dissd.	1	0	14	0	127.10	68.74	4724.92	0.5408				
*	3019	Calcium, Dissd.	4	0	15	0	209.67	59.53	3543.24	0.2839				
	3024	Calcium, Dissd.	1	0	15	0	94.33	37.99	1443.31	0.4028				
*	3037	Calcium, Dissd.	4	0	14	0	232.14	59.78	3573.21	0.2575				
	3051	Calcium, Dissd.	1	0	8	0	140.38	11.27	127.12	0.0803				
*	3055	Calcium, Dissd.	2b	0	15	0	167.33	32.68	1068.24	0.1953				
*	3084	Calcium, Dissd.	4	0	15	0	206.27	69.86	4880.09	0.3387				
	4001	Calcium, Dissd.	1	0	15	0	76.73	38.89	1512.09	0.5068				
	4008	Calcium, Dissd.	1	0	14	0	62.44	20.18	407.42	0.3233				
	4010	Calcium, Dissd.	1	0	12	0	81.44	18.15	329.27	0.2228				
*	4013	Calcium, Dissd.	2b	1	12	0.083	191.17	76.17	5802.56	0.3985				

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	1024	Chloride		2	14	0.143	1.68	0.77	0.59	0.4550				
	1052	Chloride		0	15	0.000	6.23	1.66	2.76	0.2663	4.036	2.692	7.24	0.6668
*	1025	Chloride	3	0	13	0.000	856.69	79.44	6310.40	0.0927	T.L. =	10.046	n=29	
	1027	Chloride	2a	1	15	0.067	5.72	3.44	11.86	0.6022				
	1028	Chloride	7i	0	2	0.000	606.00	121.62	14792.00	0.2007				
	1030	Chloride	7a	0	1	0.000	5.00							
*	1031	Chloride	3	0	13	0.000	966.21	125.30	15700.84	0.1297				
*	1038	Chloride	3	0	15	0.000	14.35	5.02	25.25	0.3502				
*	1074	Chloride	3	0	15	0.000	134.80	15.19	230.89	0.1127				
	1079	Chloride	1	1	15	0.067	2.75	2.43	5.91	0.8831				
	1080	Chloride	1	0	15	0.000	5.15	1.83	3.34	0.3549				
*	1081	Chloride	3	0	15	0.000	31.63	9.67	93.44	0.3056				
*	1082	Chloride	3	0	14	0.000	34.27	12.51	156.54	0.3651				
*	1083	Chloride	3	0	15	0.000	51.38	10.70	114.44	0.2082				
	2043	Chloride		0	13	0.000	38.71	16.19	262.02	0.4181				
	2066	Chloride		0	15	0.000	67.97	8.40	70.52	0.1236	54.384	19.333	373.78	0.3555
	2010	Chloride	1	0	15	0.000	32.39	3.60	12.96	0.1111	T.L. =	97.807	n =28	
	2013	Chloride	1	0	15	0.000	28.04	9.65	93.05	0.3440				
	2019	Chloride	1	0	15	0.000	49.67	6.31	39.76	0.1269				
	2021	Chloride	1	1	15	0.067	46.64	19.93	397.32	0.4274				
*	2027	Chloride	2b	0	15	0.000	80.33	29.32	859.39	0.3650				
	2037	Chloride	1	0	15	0.000	25.64	2.14	4.56	0.0833				
	2051	Chloride	20	0	14	0.000	38.01	49.79	2478.66	1.3097				
	2055	Chloride	1	0	11	0.000	28.28	2.09	4.37	0.0739				
*	2084	Chloride	3	0	15	0.000	160.60	38.44	1477.83	0.2394				
	3043	Chloride		0	14	0.000	18.73	9.39	88.10	0.5013				
?	3066	Chloride		0	15	0.000	549.00	221.78	49184.29	0.4040	293.005	312.018	97355.0	1.0649
	3001	Chloride	15	0	15	0.000	18.90	2.38	5.65	0.1257				
	3008	Chloride	15	0	15	0.000	21.77	9.02	81.39	0.4145				
	3010	Chloride	15	0	15	0.000	63.38	9.00	80.91	0.1419				
	3013	Chloride	15	0	15	0.000	42.42	19.06	363.16	0.4492				
	3019	Chloride	15	0	15	0.000	46.08	44.53	1983.20	0.9664				

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3713

085286

085281

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3024	Chloride	15	0	15	0.000	13.99	7.80	60.76	0.5571				
	3037	Chloride	15	0	15	0.000	181.87	58.45	3416.70	0.3214				
	3051	Chloride	15	0	8	0.000	87.53	64.65	4180.22	0.7387				
	3055	Chloride	15	0	15	0.000	51.03	3.69	13.58	0.0722				
	3084	Chloride	15	0	15	0.000	152.07	86.69	7515.50	0.5701				
	4001	Chloride	15	0	15	0.000	25.59	5.42	29.33	0.2116				
	4008	Chloride	15	0	14	0.000	11.39	0.93	0.86	0.0814				
	4010	Chloride	15	0	12	0.000	30.92	3.03	9.17	0.0980				
	4013	Chloride	15	0	12	0.000	195.83	55.39	3068.15	0.2828				

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	1024	Chromium		2	8	0.250	0.0055	0.0032	0.0000	0.5883				
	1052	Chromium		1	8	0.125	0.0520	0.0491	0.0024	0.9435	0.02875	0.0392	0.0015	1.3621
	1025	Chromium	20	0	8	0.000	0.1677	0.1430	0.0204	0.8523				
	1027	Chromium	15	2	8	0.250	0.0064	0.0039	0.0000	0.6047				
	1028	Chromium	15	0	1	0.000	0.0490							
*	1031	Chromium	21	0	8	0.000	0.7205	0.7519	0.5653	1.0435				
	1038	Chromium	15	0	8	0.000	0.0578	0.0312	0.0010	0.5406				
*	1074	Chromium	21	0	8	0.000	0.5354	0.3509	0.1232	0.6555				
	1079	Chromium	15	0	8	0.000	0.0265	0.0291	0.0008	1.0990				
	1080	Chromium	15	1	8	0.125	0.0462	0.0355	0.0013	0.7688				
	1081	Chromium	15	0	8	0.000	0.0233	0.0232	0.0005	0.9947				
	1082	Chromium	15	0	8	0.000	0.0232	0.0214	0.0005	0.9247				
	1083	Chromium	15	0	8	0.000	0.0365	0.0333	0.0011	0.9113				
?	2043	Chromium		0	8	0.000	0.0627	0.1049	0.0110	1.6719				
	2066	Chromium		5	8	0.625	0.0077	0.0081	0.0001	1.0524	0.03521	0.0693	0.0048	1.9667
	2010	Chromium	15	0	8	0.000	0.0182	0.0142	0.0002	0.7802				
	2013	Chromium	15	3	8	0.375	0.0057	0.0035	0.0000	0.6028				
	2019	Chromium	15	3	8	0.375	0.0062	0.0036	0.0000	0.5735				
	2021	Chromium	15	3	8	0.375	0.0068	0.0038	0.0000	0.5600				
	2027	Chromium	15	0	8	0.000	0.0136	0.0089	0.0001	0.6561				
	2037	Chromium	15	1	8	0.125	0.0246	0.0194	0.0004	0.7904				
	2051	Chromium	15	0	8	0.000	0.0242	0.0240	0.0006	0.9893				
	2055	Chromium	15	0	8	0.000	0.0066	0.0040	0.0000	0.6015				
	2084	Chromium	15	0	8	0.000	0.0185	0.0104	0.0001	0.5621				
	3043	Chromium		3	8	0.375	0.0085	0.0074	0.0001	0.8753				
?	3066	Chromium		0	8	0.000	0.0254	0.0201	0.0004	0.7910	0.01696	0.0169	0.0003	0.9961
	3001	Chromium	15	5	8	0.625	0.0061	0.0048	0.0000	0.7881				
	3008	Chromium	15	2	8	0.250	0.0139	0.0119	0.0001	0.8539				
	3010	Chromium	15	3	8	0.375	0.0070	0.0049	0.0000	0.7055				
	3013	Chromium	15	4	8	0.500	0.0067	0.0052	0.0000	0.7789				
	3019	Chromium	15	3	8	0.375	0.0058	0.0039	0.0000	0.6646				
	3024	Chromium	15	2	8	0.250	0.0115	0.0100	0.0001	0.8706				

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3037	Chromium	15	2	8	0.250	0.0102	0.0059	0.0000	0.5771				
	3051	Chromium	15	1	1	1.000	0.0050							
	3055	Chromium	15	3	8	0.375	0.0057	0.0033	0.0000	0.5719				
	3084	Chromium	15	2	8	0.250	0.0189	0.0202	0.0004	1.0684				
	4001	Chromium	15	3	8	0.375	0.0067	0.0050	0.0000	0.7552				
	4008	Chromium	15	4	8	0.500	0.0054	0.0036	0.0000	0.6519				
	4010	Chromium	15	3	8	0.375	0.0166	0.0119	0.0001	0.7188				
	4013	Chromium	15	1	8	0.125	0.0241	0.0350	0.0012	1.4524				
	1024	Chromium, Dissd.		10	15	0.667								
	1052	Chromium, Dissd.		9	15	0.600								
			totals	19	30									
	1025	Chromium, Dissd.	9	7	14	0.500								
	1027	Chromium, Dissd.	9	11	15	0.733								
	1028	Chromium, Dissd.	9	1	2	0.500								
•	1030	Chromium, Dissd.	8	0	2	0.000								
	1031	Chromium, Dissd.	8	6	13	0.462								
	1038	Chromium, Dissd.	9	9	15	0.600								
	1074	Chromium, Dissd.	9	11	15	0.733								
	1079	Chromium, Dissd.	9	10	15	0.667								
	1080	Chromium, Dissd.	9	11	15	0.733								
	1081	Chromium, Dissd.	9	9	15	0.600								
	1082	Chromium, Dissd.	9	8	14	0.571								
	1083	Chromium, Dissd.	9	11	15	0.733								
			totals	94	150									

X=	11	n=	180
Y=	56	P=	0.372222
Pb=	0.3666	nP=	67
Pc=	0.3733	n(1-P)=	113
Sd=	0.0966		
Z=	-0.068	O. K.	

Test of Proportions

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	2043	Chromium, Dissd.			10	15	0.667								
	2066	Chromium, Dissd.			11	15	0.733								
				totals	21	30									
	2010	Chromium, Dissd.	9		12	15	0.800								
	2013	Chromium, Dissd.	9		10	14	0.714								
	2019	Chromium, Dissd.	9		12	15	0.800								
	2021	Chromium, Dissd.	9		12	15	0.800								
	2027	Chromium, Dissd.	9		11	15	0.733								
	2037	Chromium, Dissd.	9		12	14	0.857								
	2051	Chromium, Dissd.	9		11	15	0.733								
	2055	Chromium, Dissd.	9		8	11	0.727								
	2084	Chromium, Dissd.	9		10	15	0.667								
				totals	98	129									
				X=	9	n=	159								
				Y=	31	P=	0.251572								
				Pb=	0.3	nP=	40	Test of Proportions							
				Pc=	0.2403	n(1-P)=	119								
				Sd=	0.0879										
				Z=	0.6786	O. K.									
	3043	Chromium, Dissd.			12	15	0.800								
	3066	Chromium, Dissd.			11	15	0.733								
				totals	23	30									
	3001	Chromium, Dissd.	9		12	15	0.800								
	3008	Chromium, Dissd.	9		12	15	0.800								
	3010	Chromium, Dissd.	9		12	14	0.857								
	3013	Chromium, Dissd.	9		11	14	0.786								
	3019	Chromium, Dissd.	9		12	15	0.800								
	3024	Chromium, Dissd.	9		10	15	0.667								
	3037	Chromium, Dissd.	9		9	14	0.643								
	3051	Chromium, Dissd.	9		5	8	0.625								
	3055	Chromium, Dissd.	9		11	15	0.733								
	3084	Chromium, Dissd.	9		8	15	0.533								
	4001	Chromium, Dissd.	9		12	15	0.800								

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RCRA Groundwater Data as of 07-Feb-92

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	4008	Chromium, Dissd.	9	12	14	0.857								
	4010	Chromium, Dissd.	9	9	12	0.750								
	4013	Chromium, Dissd.	9	8	12	0.667								

totals	143	193	
X=	7	n=	223
Y=	50	P=	0.255605
Pb=	0.2333	nP=	57
Pc=	0.2590	n(1-P)=	166
Sd=	0.0856		
Z=	-0.300	O. K.	

Test of Proportions

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1024	Cobalt			8	8	1.000	
	1052	Cobalt			7	8	0.875	
				totals	15	16		
	1025	Cobalt	9		6	8	0.750	
	1027	Cobalt	9		8	8	1.000	
	1028	Cobalt	9		1	1	1.000	
	1031	Cobalt	9		5	8	0.625	
	1038	Cobalt	9		5	8	0.625	
	1074	Cobalt	9		5	8	0.625	
	1079	Cobalt	9		8	8	1.000	
	1080	Cobalt	9		6	8	0.750	
	1081	Cobalt	9		8	8	1.000	
	1082	Cobalt	9		7	8	0.875	
	1083	Cobalt	9		8	8	1.000	
				totals	67	81		
				X=	1	n=	97	
				Y=	14	P=	0.154639	
				Pb=	0.0625	nP=	15	Test of Proportions
				Pc=	0.1728	n(1-P)=	82	
				Sd=	0.0989			
				Z=	-1.115	O. K.		
	2043	Cobalt			8	8	1.000	
	2066	Cobalt			8	8	1.000	
				totals	16	16		
	2010	Cobalt	9		8	8	1.000	
	2013	Cobalt	9		8	8	1.000	
	2019	Cobalt	9		8	8	1.000	
	2021	Cobalt	9		8	8	1.000	
	2027	Cobalt	9		8	8	1.000	
	2037	Cobalt	9		7	8	0.875	
	2051	Cobalt	9		8	8	1.000	
	2055	Cobalt	9		8	8	1.000	
	2084	Cobalt	9		8	8	1.000	

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VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
				totals	71	72		
				X=	0	n=	88	
				Y=	1	P=	0.011363	
				Pb=	0	nP=	1	Test of Proportions
				Pc=	0.0138	n(1-P)=	87	
				Sd=	0.0292			
				Z=	-0.474	O. K.		
	3043	Cobalt			8	8	1.000	
	3066	Cobalt			8	8	1.000	
				totals	16	16		
	3001	Cobalt	9		8	8	1.000	
	3008	Cobalt	9		7	8	0.875	
	3010	Cobalt	9		8	8	1.000	
	3013	Cobalt	9		8	8	1.000	
	3019	Cobalt	9		8	8	1.000	
	3024	Cobalt	9		8	8	1.000	
	3037	Cobalt	9		8	8	1.000	
	3051	Cobalt	9		1	1	1.000	
	3055	Cobalt	9		8	8	1.000	
	3084	Cobalt	9		8	8	1.000	
	4001	Cobalt	9		8	8	1.000	
	4008	Cobalt	9		8	8	1.000	
	4010	Cobalt	9		8	8	1.000	
	4013	Cobalt	9		8	8	1.000	
				totals	104	105		
				X=	0	n=	121	
				Y=	1	P=	0.008264	
				Pb=	0	nP=	1	Test of Proportions
				Pc=	0.0095	n(1-P)=	120	
				Sd=	0.0242			
				Z=	-0.391	O. K.		
	1024	Cobalt, Dissd.			11	11	1.000	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1052	Cobalt, Dissd.			10	11	0.909	
				totals	21	22		
	1025	Cobalt, Dissd.	9		11	12	0.917	
	1027	Cobalt, Dissd.	9		11	11	1.000	
	1028	Cobalt, Dissd.	9		1	2	0.500	
	1030	Cobalt, Dissd.	9		2	2	1.000	
	1031	Cobalt, Dissd.	9		10	11	0.909	
	1038	Cobalt, Dissd.	9		11	11	1.000	
	1074	Cobalt, Dissd.	9		10	12	0.833	
	1079	Cobalt, Dissd.	9		11	11	1.000	
	1080	Cobalt, Dissd.	9		11	11	1.000	
	1081	Cobalt, Dissd.	9		10	11	0.909	
	1082	Cobalt, Dissd.	9		11	11	1.000	
	1083	Cobalt, Dissd.	9		11	12	0.917	
				totals	110	117		
				X=	1	n=	139	
				Y=	7	P=	0.057553	
				Pb=	0.0454	nP=	8	Test of Proportions
				Pc=	0.0598	n(1-P)=	131	
				Sd=	0.0541			
				Z=	-0.265	O. K.		
	2043	Cobalt, Dissd.			11	11	1.000	
	2066	Cobalt, Dissd.			11	11	1.000	
				totals	22	22		
	2010	Cobalt, Dissd.	9		11	12	0.917	
	2013	Cobalt, Dissd.	9		11	11	1.000	
	2019	Cobalt, Dissd.	9		12	12	1.000	
	2021	Cobalt, Dissd.	9		12	12	1.000	
	2027	Cobalt, Dissd.	9		11	12	0.917	
	2037	Cobalt, Dissd.	9		12	12	1.000	
	2051	Cobalt, Dissd.	9		11	11	1.000	
	2055	Cobalt, Dissd.	9		11	11	1.000	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	2084	Cobalt, Dissd.	9		10	11	0.909	
				totals	101	104		
				X=	0	n=	126	
				Y=	3	P=	0.023809	
				Pb=	0	nP=	3	Test of Proportions
				Pc=	0.0288	n(1-P)=	123	
				Sd=	0.0357			
				Z=	-0.806	O. K.		
	3043	Cobalt, Dissd.			11	11	1.000	
	3066	Cobalt, Dissd.			11	11	1.000	
	3001	Cobalt, Dissd.	15		12	12	1.000	
	3008	Cobalt, Dissd.	15		11	11	1.000	
	3010	Cobalt, Dissd.	15		11	11	1.000	
	3013	Cobalt, Dissd.	15		11	11	1.000	
	3019	Cobalt, Dissd.	15		11	11	1.000	
	3024	Cobalt, Dissd.	15		11	11	1.000	
	3037	Cobalt, Dissd.	15		11	11	1.000	
	3051	Cobalt, Dissd.	15		4	4	1.000	
	3055	Cobalt, Dissd.	15		11	11	1.000	
	3084	Cobalt, Dissd.	15		11	11	1.000	
	4001	Cobalt, Dissd.	15		11	11	1.000	
	4008	Cobalt, Dissd.	15		11	11	1.000	
	4010	Cobalt, Dissd.	15		11	11	1.000	
	4013	Cobalt, Dissd.	15		11	11	1.000	

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	1024	Conductivity		0	15	0.000	649.1	164.8	27159	0.25388				
	1052	Conductivity		0	15	0.000	659.5	234.6	55045	0.35577	654.3	199.28	39712.1	0.3046
*	1025	Conductivity	21	0	15	0.000	2747.5	1426.5	2034776	0.51919	T.L. = >1162.26n =30			
	1027	Conductivity	20	0	15	0.000	1026.7	1417.7	2009810	1.38085	or <146.34 k =2.549			
*	1028	Conductivity	3	0	4	0.000	3788.8	431.5	186173	0.11388				
	1030	Conductivity	7k	0	2	0.000	1417.5	229.8	52813	0.16212				
	1031	Conductivity	20	0	13	0.000	2058.7	1210.5	1465411	0.58801				
	1038	Conductivity	1	0	15	0.000	849.7	158.4	25092	0.18643				
*	1074	Conductivity	2b	0	15	0.000	992.4	152.7	23325	0.15390				
*	1079	Conductivity	2b	0	15	0.000	875.3	304.0	92387	0.34724				
*	1080	Conductivity	2b	0	15	0.000	891.9	265.5	70484	0.29766				
*	1081	Conductivity	3	0	15	0.000	1508.1	252.7	63857	0.16756				
*	1082	Conductivity	2b	0	14	0.000	1038.0	197.3	38932	0.19009				
	1083	Conductivity	1	0	15	0.000	864.1	152.7	23330	0.17677				
	1643	Conductivity	7k	0	2	0.000	1378.0	59.4	3528	0.04310				
	1644	Conductivity	17	0	2	0.000	2155.0	1633.4	2668050	0.75797				
	1645	Conductivity	7k	0	2	0.000	1247.5	17.7	313	0.01417				
	1646	Conductivity	7k	0	2	0.000	1381.0	41.0	1682	0.02970				
	2043	Conductivity		0	15	0.000	853.6	317.8	101020	0.37235				
	2066	Conductivity		0	15	0.000	696.1	179.1	32094	0.25737	774.833	265.86	70680	0.3431
	2010	Conductivity	2a	0	14	0.000	925.9	341.3	116504	0.36863	T.L. = >1452.5 n =30			
	2013	Conductivity	1	0	15	0.000	662.7	179.7	32308	0.27122	or <97.16 k =2.549			
	2019	Conductivity	1	0	15	0.000	923.5	147.4	21713	0.15955				
	2021	Conductivity	1	0	15	0.000	844.9	172.4	29734	0.20410				
*	2027	Conductivity	2b	0	15	0.000	1168.5	356.9	127396	0.30545				
	2037	Conductivity	2a	0	15	0.000	695.3	222.1	49311	0.31936				
	2051	Conductivity	1	0	15	0.000	800.3	182.0	33120	0.22741				
	2055	Conductivity	1	0	10	0.000	635.0	131.4	17272	0.20696				
*	2084	Conductivity	3	0	15	0.000	1576.7	277.5	76995	0.17599				
*	2643	Conductivity	3	0	4	0.000	1744.3	406.5	165272	0.23307				
	2648	Conductivity	1	0	3	0.000	773.7	341.9	116880	0.44189				
*	2649	Conductivity	3	0	3	0.000	1846.7	1720.0	2958233	0.93138				
	3043	Conductivity		0	14	0.000	565.7	93.3	8704	0.16491				
?	3066	Conductivity		0	15	0.000	1621.9	554.2	307178	0.34173	1112	667.92	446110.	0.6006

* Parameter found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high (or low) values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
*	3001	Conductivity	2b	0	15	0.000	386.1	133.4	17800	0.34558	T.L. = >2603.46		n=29	
*	3008	Conductivity	2b	0	14	0.000	392.8	128.3	16464	0.32667			k= 2.233	
	3010	Conductivity	2a	0	15	0.000	1264.7	468.6	219610	0.37055				
	3011	Conductivity	2a	0	3	0.000	449.3	387.5	150129	0.86231	or T.L. = < 321.81		n=14	
	3013	Conductivity	2a	0	15	0.000	869.9	251.3	63156	0.28890			k= 2.614	
	3019	Conductivity	1	0	15	0.000	1107.4	150.4	22623	0.13582				
	3024	Conductivity	2a	0	15	0.000	566.4	137.9	19019	0.24349				
	3037	Conductivity	2a	0	15	0.000	1530.9	480.3	230703	0.31375				
	3051	Conductivity	1	0	8	0.000	759.1	65.0	4226	0.08564				
	3055	Conductivity	2a	0	15	0.000	1003.9	322.5	103990	0.32123				
	3084	Conductivity	1	0	14	0.000	1397.7	246.4	60689	0.17625				
	4001	Conductivity	2a	0	15	0.000	480.1	196.9	38770	0.41010				
	4008	Conductivity	2a	0	15	0.000	428.2	43.3	1871	0.10101				
	4010	Conductivity	2a	0	12	0.000	638.8	138.4	19158	0.21666				
	4011	Conductivity	2a	0	4	0.000	669.5	446.0	198874	0.66610				
	4013	Conductivity	2a	0	12	0.000	1505.8	505.4	255403	0.33561				

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1024	Copper			7	8	0.875	
	1052	Copper			4	8	0.500	
				totals	11	16		
	1025	Copper	8		0	8	0.000	
	1027	Copper	9		8	8	1.000	
	1028	Copper	8		0	1	0.000	
	1031	Copper	9		4	8	0.500	
	1038	Copper	8		1	8	0.125	
	1074	Copper	9		4	8	0.500	
	1079	Copper	9		5	8	0.625	
	1080	Copper	8		3	8	0.375	
	1081	Copper	8		3	8	0.375	
	1082	Copper	9		5	8	0.625	
	1083	Copper	9		5	8	0.625	
				totals	38	81		
				X=	5	n=	97	
				Y=	43	P=	0.494845	
				Pb=	0.3125	nP=	48	Test of Proportions
				Pc=	0.5308	n(1-P)=	49	
				Sd=	0.1367			
				Z=	-1.596	O. K.		
	2043	Copper			6	8	0.750	
	2066	Copper			8	8	1.000	
				totals	14	16		
	2010	Copper	9		7	8	0.875	
	2013	Copper	9		4	8	0.500	
	2019	Copper	9		7	8	0.875	
	2021	Copper	8		2	8	0.250	
	2027	Copper	9		6	8	0.750	
	2037	Copper	9		6	8	0.750	
	2051	Copper	8		2	8	0.250	
	2055	Copper	9		7	8	0.875	
	2084	Copper	9		5	8	0.625	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
				totals	46	72		
				X=	2	n=	88	
				Y=	26	P=	0.318181	
				Pb=	0.125	nP=	28	Test of Proportions
				Pc=	0.3611	n(1-P)=	60	
				Sd=	0.1287			
				Z=	-1.834	O. K.		
	3043	Copper			6	8	0.750	
	3066	Copper			6	8	0.750	
				totals	12	16		
	3001	Copper	9		8	8	1.000	
	3008	Copper	9		7	8	0.875	
	3010	Copper	9		7	8	0.875	
	3013	Copper	9		6	8	0.750	
	3019	Copper	9		8	8	1.000	
	3024	Copper	9		8	8	1.000	
	3037	Copper	9		8	8	1.000	
	3051	Copper	9		1	1	1.000	
	3055	Copper	9		7	8	0.875	
	3084	Copper	9		7	8	0.875	
	4001	Copper	9		5	8	0.625	
	4008	Copper	9		8	8	1.000	
	4010	Copper	9		7	8	0.875	
	4013	Copper	9		7	8	0.875	
				totals	94	105		
				X=	4	n=	121	
				Y=	11	P=	0.123966	
				Pb=	0.25	nP=	15	Test of Proportions
				Pc=	0.1047	n(1-P)=	106	
				Sd=	0.0884			
				Z=	1.6422	O. K.		
	1024	Copper, Dissd.			14	15	0.933	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1052	Copper, Dissd.			14	15	0.933	
				totals	28	30		
	1025	Copper, Dissd.	9		11	14	0.786	
	1027	Copper, Dissd.	9		14	15	0.933	
	1028	Copper, Dissd.	9		2	2	1.000	
	1030	Copper, Dissd.	9		1	2	0.500	
	1031	Copper, Dissd.	9		8	13	0.615	
	1038	Copper, Dissd.	9		14	15	0.933	
	1074	Copper, Dissd.	9		13	15	0.867	
	1079	Copper, Dissd.	9		14	15	0.933	
	1080	Copper, Dissd.	9		15	15	1.000	
	1081	Copper, Dissd.	9		12	15	0.800	
	1082	Copper, Dissd.	9		11	14	0.786	
	1083	Copper, Dissd.	9		13	15	0.867	
				totals	128	150		
				X=	2	n=	180	
				Y=	22	P=	0.133333	
				Pb=	0.0666	nP=	24	Test of Proportions
				Pc=	0.1466	n(1-P)=	156	
				Sd=	0.0679			
				Z=	-1.176	O. K.		
	2043	Copper, Dissd.			13	15	0.867	
	2066	Copper, Dissd.			15	15	1.000	
				totals	28	30		
	2010	Copper, Dissd.	9		15	15	1.000	
	2013	Copper, Dissd.	9		14	14	1.000	
	2019	Copper, Dissd.	9		14	15	0.933	
	2021	Copper, Dissd.	9		14	15	0.933	
	2027	Copper, Dissd.	9		14	15	0.933	
	2037	Copper, Dissd.	9		13	14	0.929	
	2051	Copper, Dissd.	9		13	15	0.867	
	2055	Copper, Dissd.	9		11	11	1.000	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

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3713

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	2084	Copper, Dissd.	9		13	15	0.867	
				totals	121	129		
				X=	2	n=	159	
				Y=	8	P=	0.062893	
				Pb=	0.0666	nP=	10	Test of Proportions
				Pc=	0.0620	n(1-P)=	149	
				Sd=	0.0492			
				Z=	0.0945	O. K.		
	3043	Copper, Dissd.			14	15	0.933	
	3066	Copper, Dissd.			14	15	0.933	
				totals	28	30		
	3001	Copper, Dissd.	9		15	15	1.000	
	3008	Copper, Dissd.	9		15	15	1.000	
	3010	Copper, Dissd.	9		14	14	1.000	
	3013	Copper, Dissd.	9		13	14	0.929	
	3019	Copper, Dissd.	9		15	15	1.000	
	3024	Copper, Dissd.	9		13	15	0.867	
	3037	Copper, Dissd.	9		13	14	0.929	
	3051	Copper, Dissd.	9		6	8	0.750	
	3055	Copper, Dissd.	9		15	15	1.000	
	3084	Copper, Dissd.	9		15	15	1.000	
	4001	Copper, Dissd.	9		14	15	0.933	
	4008	Copper, Dissd.	9		14	14	1.000	
	4010	Copper, Dissd.	9		12	12	1.000	
	4013	Copper, Dissd.	9		10	12	0.833	
				totals	184	193		
				X=	2	n=	223	
				Y=	9	P=	0.049327	
				Pb=	0.0666	nP=	11	Test of Proportions
				Pc=	0.0466	n(1-P)=	212	
				Sd=	0.0424			
				Z=	0.4714	O. K.		

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1024	Cyanide, Total			6	6	1.000	
	1052	Cyanide, Total			7	7	1.000	
				totals	13	13		
	1025	Cyanide, Total	9		7	7	1.000	
	1027	Cyanide, Total	9		6	6	1.000	
	1031	Cyanide, Total	9		6	7	0.857	
	1038	Cyanide, Total	9		5	5	1.000	
	1074	Cyanide, Total	9		8	8	1.000	
	1079	Cyanide, Total	9		7	7	1.000	
	1080	Cyanide, Total	9		7	7	1.000	
	1081	Cyanide, Total	9		6	6	1.000	
	1082	Cyanide, Total	9		7	7	1.000	
	1083	Cyanide, Total	9		7	7	1.000	
				totals	66	67		
				X=	0	n=	80	
				Y=	1	P=	0.0125	
				Pb=	0	nP=	1	Test of Proportions
				Pc=	0.0149253	n(1-P)=	79	
				Sd=	0.0336712			
				Z=	-0.443267	O. K.		
	2043	Cyanide, Total			7	7	1.000	
	2066	Cyanide, Total			6	6	1.000	
				totals	13	13		
	2010	Cyanide, Total	9		7	7	1.000	
	2013	Cyanide, Total	9		5	5	1.000	
	2019	Cyanide, Total	9		8	8	1.000	
	2021	Cyanide, Total	9		7	7	1.000	
	2027	Cyanide, Total	9		8	8	1.000	
	2037	Cyanide, Total	9		7	7	1.000	
	2051	Cyanide, Total	9		5	5	1.000	
	2055	Cyanide, Total	9		4	5	0.800	
	2084	Cyanide, Total	9		7	7	1.000	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
			totals	58	59	
			X=	0	n=	72
			Y=	1	P=	0.01388
			Pb=	0	nP=	1
			Pc=	0.0169491	n(1-P)=	71
			Sd=	0.0358562		
			Z=	-0.472696	O. K.	
	3043	Cyanide, Total		7	7	1.000
	3066	Cyanide, Total		6	6	1.000
	3001	Cyanide, Total	15	7	7	1.000
	3008	Cyanide, Total	15	5	5	1.000
	3010	Cyanide, Total	15	6	6	1.000
	3013	Cyanide, Total	15	5	5	1.000
	3019	Cyanide, Total	15	7	7	1.000
	3024	Cyanide, Total	15	5	5	1.000
	3037	Cyanide, Total	15	6	6	1.000
	3055	Cyanide, Total	15	5	5	1.000
	3084	Cyanide, Total	15	7	7	1.000
	4001	Cyanide, Total	15	6	6	1.000
	4008	Cyanide, Total	15	5	5	1.000
	4010	Cyanide, Total	15	6	6	1.000
	4013	Cyanide, Total	15	5	5	1.000

Test of Proportions

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	1024	Fluoride		0	15	0.00	0.9080	0.1540	0.0237	0.1696				
	1052	Fluoride		0	15	0.00	0.9653	0.1788	0.0320	0.1853	0.93666	0.1666	0.0277	0.1778
	1025	Fluoride	1	0	13	0.00	0.5131	0.1690	0.0286	0.3295	T.L. =	1.3064	n =30	
	1027	Fluoride	2a	0	15	0.00	0.9267	0.3635	0.1321	0.3923				
	1028	Fluoride	7f	0	2	0.00	0.2225							
	1030	Fluoride	7a	0	1	0.00	0.6500							
*	1031	Fluoride	3	0	13	0.00	1.5562	0.2682	0.0719	0.1723				
	1038	Fluoride	5	0	15	0.00	0.7820	0.6863	0.4710	0.8776				
*	1074	Fluoride	2b	0	15	0.00	1.1380	0.1721	0.0296	0.1512				
	1079	Fluoride	1	0	15	0.00	1.0587	0.1691	0.0286	0.1597				
	1080	Fluoride	1	0	15	0.00	0.8967	0.2154	0.0464	0.2402				
	1081	Fluoride	1	0	15	0.00	0.5010	0.2163	0.0468	0.4317				
	1082	Fluoride	1	0	14	0.00	0.7764	0.2094	0.0438	0.2697				
	1083	Fluoride	1	0	15	0.00	0.3487	0.0965	0.0093	0.2768				
?	2043	Fluoride		0	14	0.00	0.4993	0.1034	0.0107	0.2072				
?	2066	Fluoride		0	15	0.00	0.8067	0.1814	0.0329	0.2249	0.65827	0.2141	0.0459	0.3253
	2010	Fluoride	1	0	15	0.00	0.1632	0.0468	0.0022	0.2866	T.L. =	1.1365	n =29	
	2013	Fluoride	1	0	15	0.00	0.2283	0.0657	0.0043	0.2876				
	2019	Fluoride	1	0	15	0.00	0.3093	0.0482	0.0023	0.1557				
	2021	Fluoride	1	0	15	0.00	0.3093	0.0707	0.0050	0.2284				
	2027	Fluoride	5	0	15	0.00	0.5900	0.4189	0.1755	0.7101				
	2037	Fluoride	1	0	15	0.00	0.2447	0.0840	0.0071	0.3433				
	2051	Fluoride	1	0	14	0.00	0.2957	0.0807	0.0065	0.2730				
	2055	Fluoride	1	0	11	0.00	0.2461	0.1379	0.0190	0.5604				
	2084	Fluoride	1	0	15	0.00	0.1713	0.0592	0.0035	0.3454				
	3043	Fluoride		0	15	0.00	0.3407	0.1014	0.0103	0.2976				
	3066	Fluoride		1	15	0.07	0.1763	0.0903	0.0082	0.5124	0.25846	0.1297	0.0168	0.5017
	3001	Fluoride	1	1	15	0.07	0.1246	0.0667	0.0044	0.5353	T.L. =	0.5464	n =30	
	3008	Fluoride	5	1	15	0.07	0.1807	0.2183	0.0477	1.2084				
	3010	Fluoride	1	3	15	0.20	0.0978	0.0603	0.0036	0.6161				
	3013	Fluoride	1	1	15	0.07	0.2849	0.1753	0.0307	0.6153				
	3019	Fluoride	2a	2	15	0.13	0.3232	0.2763	0.0764	0.8550				

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
*	3024	Fluoride	6	1	14	0.07	0.4614	0.1657	0.0274	0.3590				
	3037	Fluoride	1	0	15	0.00	0.1663	0.0989	0.0098	0.5946				
	3051	Fluoride	1	0	8	0.00	0.2463	0.0686	0.0047	0.2788				
	3055	Fluoride	1	2	15	0.13	0.1369	0.1135	0.0129	0.8288				
	3084	Fluoride	20	1	15	0.07	0.4267	0.4196	0.1761	0.9835				
	4001	Fluoride	15	0	15	0.00	0.2100	0.2510	0.0630	1.1954				
	4008	Fluoride	20	0	14	0.00	0.2836	0.2718	0.0739	0.9584				
	4010	Fluoride	1	0	12	0.00	0.4900	0.0416	0.0017	0.0848				
	4013	Fluoride	1	1	12	0.08	0.3979	0.1678	0.0282	0.4218				

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VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	1024	Iron		0	8	0.00	12.6712	26.6179	708.5111	2.1007				
	1052	Iron		0	8	0.00	11.7424	12.6798	160.7783	1.0798	12.2068	20.1469	405.8985	1.6505
	1025	Iron	20	0	8	0.00	25.5000	25.5229	651.4204	1.0009				
	1027	Iron	15	0	8	0.00	1.4011	0.3932	0.1546	0.2806				
	1028	Iron	17	0	1	0.00	21.3000							
	1031	Iron	15	0	8	0.00	3.6638	3.3779	11.4101	0.9220				
*	1038	Iron	21	0	8	0.00	86.6000	47.4083	2247.5457	0.5474				
	1074	Iron	15	0	8	0.00	6.1116	4.8537	23.5588	0.7942				
	1079	Iron	20	0	8	0.00	12.1150	17.7239	314.1377	1.4630				
	1080	Iron	20	0	8	0.00	13.5835	12.9353	167.3224	0.9523				
	1081	Iron	15	0	8	0.00	3.0815	1.9440	3.7790	0.6309				
	1082	Iron	15	0	8	0.00	7.4401	10.1928	103.8938	1.3700				
	1083	Iron	20	0	8	0.00	17.6779	32.6161	1063.8096	1.8450				
	2043	Iron		0	8	0.00	16.6861	17.0265	289.9032	1.0204				
	2066	Iron		0	8	0.00	2.7600	1.7527	3.0721	0.6351	9.72306	13.7273	188.4383	1.4118
	2010	Iron	20	0	8	0.00	17.7212	10.7440	115.4339	0.6063				
	2013	Iron	15	0	8	0.00	1.7531	0.7776	0.6047	0.4436				
	2019	Iron	15	3	8	0.38	0.1875	0.1719	0.0295	0.9165				
	2021	Iron	15	0	8	0.00	0.3755	0.2802	0.0785	0.7461				
*	2027	Iron	21	0	8	0.00	66.0375	23.5575	554.9570	0.3567				
	2037	Iron	15	0	8	0.00	7.1575	4.1371	17.1156	0.5780				
	2051	Iron	15	0	8	0.00	10.8762	6.0840	37.0154	0.5594				
	2055	Iron	15	0	8	0.00	3.6363	1.8390	3.3818	0.5057				
	2084	Iron	15	0	8	0.00	11.3195	9.6427	92.9815	0.8519				
	3043	Iron		0	8	0.00	3.7438	0.1886	0.0356	0.0504				
?	3066	Iron		0	8	0.00	16.2238	7.8847	62.1691	0.4860	9.98375	8.4001	70.5623	0.8414
	3001	Iron	1	0	8	0.00	2.1525	0.7841	0.6147	0.3643	T. L. = 31.1773 n = 16			
	3008	Iron	20	0	8	0.00	16.7212	15.6815	245.9092	0.9378				
	3010	Iron	1	0	8	0.00	14.8125	17.4189	303.4171	1.1760				
	3013	Iron	1	0	8	0.00	6.9062	2.6288	6.9107	0.3806				
	3019	Iron	1	0	8	0.00	0.7359	0.5635	0.3175	0.7658				
	3024	Iron	1	0	8	0.00	2.9488	1.7186	2.9537	0.5828				

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3713

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3037	Iron	1	0	8	0.00	9.8137	4.7934	22.9768	0.4884				
	3051	Iron	7c	0	1	0.00	3.7000							
	3055	Iron	1	0	8	0.00	5.1525	2.6135	6.8302	0.5072				
	3084	Iron	1	0	8	0.00	1.2155	1.8377	3.3772	1.5119				
	4001	Iron	1	0	8	0.00	4.5600	0.8942	0.7996	0.1961				
	4008	Iron	1	0	8	0.00	8.3850	5.2709	27.7824	0.6286				
	4010	Iron	1	0	8	0.00	3.6925	0.8112	0.6580	0.2197				
	4013	Iron	1	0	8	0.00	4.5500	4.1883	17.5419	0.9205				
?	1024	Iron, Dissd.		0	15	0.00	1.5777	1.4277	2.0382	0.9049				
	1052	Iron, Dissd.		10	15	0.67	0.6198	1.4095	1.9867	2.2741	1.09876	1.5114	2.2842	1.3755
	1025	Iron, Dissd.	15	7	14	0.50	1.4499	3.9570	15.6579	2.7291				
	1027	Iron, Dissd.	15	1	15	0.07	0.6930	0.6640	0.4409	0.9581				
	1028	Iron, Dissd.	15	0	2	0.00	0.3015	0.1945	0.0378	0.6450				
	1030	Iron, Dissd.	17	0	2	0.00	4.0525	5.5826	31.1655	1.3776				
	1031	Iron, Dissd.	15	7	13	0.54	1.0712	2.8217	7.9620	2.6341				
	1038	Iron, Dissd.	15	6	15	0.40	0.8838	2.3581	5.5608	2.6682				
	1074	Iron, Dissd.	15	9	15	0.60	0.4955	1.3324	1.7754	2.6893				
	1079	Iron, Dissd.	15	6	15	0.40	0.7003	1.8559	3.4444	2.6500				
	1080	Iron, Dissd.	15	7	15	0.47	0.6521	1.7113	2.9286	2.6244				
	1081	Iron, Dissd.	15	7	15	0.47	0.3234	0.5878	0.3455	1.8175				
	1082	Iron, Dissd.	15	5	14	0.36	1.4629	4.2661	18.2000	2.9163				
	1083	Iron, Dissd.	15	8	15	0.53	0.2478	0.4159	0.1730	1.6788				
	2043	Iron, Dissd.		0	15	0.00	0.6835	0.4855	0.2358	0.7103				
	2066	Iron, Dissd.		0	15	0.00	1.3205	0.5185	0.2688	0.3926	1.00203	0.5904	0.3485	0.5892
	2010	Iron, Dissd.	2a	1	15	0.07	1.9578	1.6607	2.7579	0.8482	T. L. =	2.3126	n = 30	
	2013	Iron, Dissd.	2a	2	14	0.14	1.6866	1.1477	1.3173	0.6805				
	2019	Iron, Dissd.	15	8	15	0.53	0.0728	0.0466	0.0022	0.6398				
	2021	Iron, Dissd.	15	7	15	0.47	1.2138	3.2704	10.6958	2.6943				
*	2027	Iron, Dissd.	21	0	15	0.00	6.6130	12.5257	156.8925	1.8941				
*	2037	Iron, Dissd.	2b	0	14	0.00	2.7634	1.3425	1.8023	0.4858				
*	2051	Iron, Dissd.	2b	0	15	0.00	2.8207	1.3651	1.8634	0.4839				
	2055	Iron, Dissd.	2a	1	11	0.09	1.8002	1.1912	1.4189	0.6617				
	2084	Iron, Dissd.	20	0	15	0.00	2.3253	2.4134	5.8247	1.0379				

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3043	Iron, Dissd.		0	15	0.00	2.9987	0.9616	0.9246	0.3207				
?	3066	Iron, Dissd.		0	15	0.00	12.9013	7.2260	52.2154	0.5601	7.94996	7.1424	51.0145	0.8984
	3001	Iron, Dissd.	1	3	15	0.20	1.9685	1.5169	2.3010	0.7706	T. L. = 23.8062 n = 30			
	3008	Iron, Dissd.	1	2	15	0.13	1.1458	1.6976	2.8818	1.4816				
	3010	Iron, Dissd.	15	0	14	0.00	6.5364	9.0071	81.1271	1.3780				
	3013	Iron, Dissd.	1	5	14	0.36	4.1514	3.4127	11.6464	0.8221				
	3019	Iron, Dissd.	1	7	15	0.47	0.1022	0.0745	0.0056	0.7288				
	3024	Iron, Dissd.	1	4	15	0.27	2.4750	1.9111	3.6525	0.7722				
	3037	Iron, Dissd.	1	0	14	0.00	10.6293	5.5221	30.4939	0.5195				
	3051	Iron, Dissd.	1	0	8	0.00	2.8854	1.2911	1.6670	0.4475				
	3055	Iron, Dissd.	1	0	15	0.00	5.1477	2.7440	7.5296	0.5331				
	3084	Iron, Dissd.	1	5	15	0.33	0.1517	0.1431	0.0205	0.9436				
	4001	Iron, Dissd.	1	3	15	0.20	3.5633	2.4525	6.0146	0.6882				
	4008	Iron, Dissd.	1	0	14	0.00	3.5931	2.7781	7.7176	0.7732				
	4010	Iron, Dissd.	1	1	12	0.08	2.2352	1.8719	3.5040	0.8375				
	4013	Iron, Dissd.	1	1	12	0.08	5.0152	4.3793	19.1780	0.8732				

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3713

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1024	Lead			7	8	0.875	
	1052	Lead			5	8	0.625	
				totals	12	16		
	1025	Lead	9		4	8	0.500	
	1027	Lead	9		8	8	1.000	
*	1028	Lead	8		0	1	0.000	
	1031	Lead	9		7	8	0.875	
	1038	Lead	8		0	8	0.000	
	1074	Lead	9		7	8	0.875	
	1079	Lead	9		6	8	0.750	
	1080	Lead	8		2	8	0.250	
	1081	Lead	9		7	8	0.875	
	1082	Lead	9		6	8	0.750	
	1083	Lead	9		4	8	0.500	
				totals	51	81		
				X=	4	n=	97	
				Y=	30	P=	0.350515	
				Pb=	0.25	nP=	34	Test of Proportions
				Pc=	0.3703	n(1-P)=	63	
				Sd=	0.1305			
				Z=	-0.922	O. K.		
	2043	Lead			3	8	0.375	
	2066	Lead			7	8	0.875	
				totals	10	16		
	2010	Lead	8		3	8	0.375	
	2013	Lead	9		6	8	0.750	
	2019	Lead	9		5	8	0.625	
	2021	Lead	8		3	8	0.375	
	2027	Lead	9		4	8	0.500	
	2037	Lead	8		3	8	0.375	
	2051	Lead	8		2	8	0.250	
	2055	Lead	9		8	8	1.000	
	2084	Lead	9		4	8	0.500	

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
				totals	38	72		
				X=	6	n=	88	
				Y=	34	P=	0.454545	
				Pb=	0.375	nP=	40	Test of Proportions
				Pc=	0.4722	n(1-P)=	48	
				Sd=	0.1376			
				Z=	-0.706	O. K.		
	3043	Lead			8	8	1.000	
	3066	Lead			6	8	0.750	
				totals	14	16		
	3001	Lead	9		7	8	0.875	
*	3008	Lead	8		0	8	0.000	
	3010	Lead	9		5	8	0.625	
	3013	Lead	9		6	8	0.750	
	3019	Lead	9		7	8	0.875	
	3024	Lead	9		7	8	0.875	
	3037	Lead	9		6	8	0.750	
	3051	Lead	9		1	1	1.000	
	3055	Lead	9		8	8	1.000	
	3084	Lead	9		6	8	0.750	
	4001	Lead	8		3	8	0.375	
*	4008	Lead	8		2	8	0.250	
	4010	Lead	9		5	8	0.625	
	4013	Lead	9		6	8	0.750	
				totals	69	105		
				X=	2	n=	121	
				Y=	36	P=	0.314049	
				Pb=	0.125	nP=	38	Test of Proportions
				Pc=	0.3428	n(1-P)=	83	
				Sd=	0.1245			
				Z=	-1.748	O. K.		
	1024	Lead, Dissd.			12	15	0.800	

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116310

3713

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1052	Lead, Dissd.			14	15	0.933	
				totals	26	30		
	1025	Lead, Dissd.	9		11	14	0.786	
	1027	Lead, Dissd.	9		14	15	0.933	
	1028	Lead, Dissd.	9		2	2	1.000	
	1030	Lead, Dissd.	9		1	2	0.500	
	1031	Lead, Dissd.	9		12	13	0.923	
	1038	Lead, Dissd.	9		14	15	0.933	
	1074	Lead, Dissd.	9		11	15	0.733	
	1079	Lead, Dissd.	9		12	15	0.800	
	1080	Lead, Dissd.	9		12	15	0.800	
	1081	Lead, Dissd.	9		13	15	0.867	
	1082	Lead, Dissd.	9		13	14	0.929	
	1083	Lead, Dissd.	9		14	15	0.933	
				totals	129	150		
				X=	4	n=	180	
				Y=	21	P=	0.138888	
				Pb=	0.1333	nP=	25	Test of Proportions
				Pc=	0.14	n(1-P)=	155	
				Sd=	0.0691			
				Z=	-0.096	O. K.		
	2043	Lead, Dissd.			11	15	0.733	
	2066	Lead, Dissd.			12	15	0.800	
				totals	23	30		
	2010	Lead, Dissd.	9		12	15	0.800	
	2013	Lead, Dissd.	9		13	14	0.929	
	2019	Lead, Dissd.	9		12	15	0.800	
	2021	Lead, Dissd.	9		13	15	0.867	
	2027	Lead, Dissd.	9		15	15	1.000	
	2037	Lead, Dissd.	9		11	14	0.786	
	2051	Lead, Dissd.	9		14	15	0.933	
	2055	Lead, Dissd.	9		10	11	0.909	

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VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	2084	Lead, Dissd.	9		11	15	0.733	
				totals	111	129		
				X=	7	n=	159	
				Y=	18	P=	0.157232	
				Pb=	0.2333	nP=	25	Test of Proportions
				Pc=	0.1395	n(1-P)=	134	
				Sd=	0.0737			
				Z=	1.2712	O. K.		
	3043	Lead, Dissd.			11	15	0.733	
	3066	Lead, Dissd.			13	15	0.867	
				totals	24	30		
	3001	Lead, Dissd.	9		14	15	0.933	
	3008	Lead, Dissd.	9		13	15	0.867	
	3010	Lead, Dissd.	9		13	14	0.929	
	3013	Lead, Dissd.	9		13	14	0.929	
	3019	Lead, Dissd.	9		13	15	0.867	
	3024	Lead, Dissd.	9		14	15	0.933	
	3037	Lead, Dissd.	9		11	14	0.786	
	3051	Lead, Dissd.	9		7	8	0.875	
	3055	Lead, Dissd.	9		13	15	0.867	
	3084	Lead, Dissd.	9		12	15	0.800	
	4001	Lead, Dissd.	9		14	15	0.933	
	4008	Lead, Dissd.	9		12	14	0.857	
	4010	Lead, Dissd.	9		11	12	0.917	
	4013	Lead, Dissd.	9		10	12	0.833	
				totals	170	193		
				X=	6	n=	223	
				Y=	23	P=	0.130044	
				Pb=	0.2	nP=	29	Test of Proportions
				Pc=	0.1191	n(1-P)=	194	
				Sd=	0.0660			
				Z=	1.2245	O. K.		

• Constituent found in statistically significant amount(s) ***.See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	1024	Magnesium		0	8	0.00	46.375	6.3852	40.7707	0.1377				
	1052	Magnesium		0	8	0.00	47.275	9.8212	96.4564	0.2077	46.825	8.0159	64.2553	0.1712
*	1025	Magnesium	3	0	8	0.00	218.625	44.4745	1977.9821	0.2034	T.L. =	67.0492	n = 16	
	1027	Magnesium	1	0	8	0.00	33.413	15.5692	242.4013	0.4660				
	1028	Magnesium	7e	0	1	0.00	215.000							
	1031	Magnesium	1	0	8	0.00	8.825	3.2411	10.5050	0.3673				
*	1038	Magnesium	3	0	8	0.00	164.000	40.7676	1662.0000	0.2486				
*	1074	Magnesium	2b	0	8	0.00	65.225	14.0181	196.5079	0.2149				
	1079	Magnesium	2a	0	8	0.00	76.250	30.4291	925.9286	0.3991				
*	1080	Magnesium	3	0	8	0.00	106.875	52.9379	2802.4221	0.4953				
*	1081	Magnesium	3	0	8	0.00	98.375	14.1112	199.1250	0.1434				
*	1082	Magnesium	3	0	8	0.00	80.575	15.4962	240.1307	0.1923				
	1083	Magnesium	2a	0	8	0.00	68.675	29.3801	863.1879	0.4278				
	2043	Magnesium		0	8	0.00	49.663	15.0512	226.5398	0.3031				
	2066	Magnesium		0	8	0.00	30.463	5.2565	27.6313	0.1726	40.0625	14.7281	216.9172	0.3676
	2010	Magnesium	1	0	8	0.00	33.588	6.6249	43.8898	0.1972	T.L. =	77.2215	n = 16	
	2013	Magnesium	1	0	8	0.00	30.063	13.1934	174.0655	0.4389				
	2019	Magnesium	1	0	8	0.00	21.438	9.1953	84.5541	0.4289				
	2021	Magnesium	1	0	8	0.00	21.225	2.5291	6.3964	0.1192				
	2027	Magnesium	1	0	8	0.00	50.625	21.8495	477.3993	0.4316				
	2037	Magnesium	1	0	8	0.00	32.637	9.5307	90.8341	0.2920				
	2051	Magnesium	1	0	8	0.00	41.725	14.1728	200.8679	0.3397				
	2055	Magnesium	1	0	8	0.00	26.950	12.6056	158.9000	0.4677				
*	2084	Magnesium	2b	0	8	0.00	71.550	19.7272	389.1629	0.2757				
	3043	Magnesium		0	8	0.00	26.138	1.8118	3.2827	0.0693				
	3066	Magnesium		0	8	0.00	47.675	6.0888	37.0736	0.1277	36.9062	11.9386	142.5300	0.3235
	3001	Magnesium	1	0	8	0.00	23.700	3.6379	13.2343	0.1535	T.L. =	67.0273	n = 16	
	3008	Magnesium	1	0	8	0.00	21.900	1.8966	3.5971	0.0866				
	3010	Magnesium	1	0	8	0.00	28.375	3.5620	12.6879	0.1255				
	3013	Magnesium	1	0	8	0.00	47.338	5.2516	27.5798	0.1109				
	3019	Magnesium	1	0	8	0.00	33.625	3.7151	13.8021	0.1105				
	3024	Magnesium	1	0	8	0.00	22.700	3.7256	13.8800	0.1641				

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*	3037	Magnesium	2b	0	8	0.00	53.400	11.3485	128.7886	0.2125				
	3051	Magnesium	7b	0	1	0.00	36.000							
	3055	Magnesium	1	0	8	0.00	34.425	3.4784	12.0993	0.1010				
*	3084	Magnesium	4	0	8	0.00	66.025	16.8270	283.1479	0.2549				
	4001	Magnesium	1	0	8	0.00	22.700	4.3346	18.7886	0.1910				
	4008	Magnesium	1	0	8	0.00	22.688	6.4621	41.7584	0.2848				
	4010	Magnesium	1	0	8	0.00	33.600	2.6742	7.1514	0.0796				
*	4013	Magnesium	2b	0	8	0.00	67.500	20.6743	427.4286	0.3063				
	1024	Magnesium, Dissd.		0	15	0.00	38.227	7.7166	59.5464	0.2019				
	1052	Magnesium, Dissd.		0	15	0.00	39.213	5.4277	29.4598	0.1384	38.72	6.5742	43.2203	0.1698
*	1025	Magnesium, Dissd.	3	0	14	0.00	180.214	28.5446	814.7967	0.1584	T.L. =	53.3148	n = 30	
	1027	Magnesium, Dissd.	1	0	15	0.00	33.013	12.5980	158.7098	0.3816				
	1028	Magnesium, Dissd.	7k	0	2	0.00	224.000	48.0833	2312.0000	0.2147				
	1030	Magnesium, Dissd.	7k	0	2	0.00	113.000	2.8284	8.0000	0.0250				
	1031	Magnesium, Dissd.	1	0	13	0.00	9.042	5.5554	30.8622	0.6144				
*	1038	Magnesium, Dissd.	2b	0	15	0.00	53.800	13.7328	188.5900	0.2553				
*	1074	Magnesium, Dissd.	2b	0	15	0.00	54.213	18.0893	327.2227	0.3337				
*	1079	Magnesium, Dissd.	4	0	15	0.00	54.831	11.5767	134.0210	0.2111				
*	1080	Magnesium, Dissd.	4	0	15	0.00	62.947	18.0989	327.5712	0.2875				
*	1081	Magnesium, Dissd.	2b	0	15	0.00	75.900	24.1986	585.5714	0.3188				
*	1082	Magnesium, Dissd.	4	0	14	0.00	63.157	17.3861	302.2765	0.2753				
*	1083	Magnesium, Dissd.	4	0	15	0.00	42.953	11.5222	132.7612	0.2682				
	2043	Magnesium, Dissd.		0	15	0.00	33.840	7.4533	55.5511	0.2203				
	2066	Magnesium, Dissd.		0	15	0.00	25.390	7.6335	58.2701	0.3006	29.615	8.5682	73.4143	0.2893
	2010	Magnesium, Dissd.	2a	0	15	0.00	32.727	11.6043	134.6607	0.3546	T.L. =	48.6364	n = 30	
	2013	Magnesium, Dissd.	1	0	14	0.00	24.879	8.6077	74.0926	0.3460				
	2019	Magnesium, Dissd.	1	0	15	0.00	24.385	9.0335	81.6035	0.3704				
	2021	Magnesium, Dissd.	15	0	15	0.00	27.400	16.7687	281.1886	0.6120				
*	2027	Magnesium, Dissd.	2b	0	15	0.00	42.613	17.0550	290.8727	0.4002				
	2037	Magnesium, Dissd.	1	0	14	0.00	25.914	7.3347	53.7982	0.2830				
	2051	Magnesium, Dissd.	2a	0	15	0.00	35.107	11.5759	134.0007	0.3297				
	2055	Magnesium, Dissd.	1	1	11	0.09	20.736	8.9770	80.5865	0.4329				
*	2084	Magnesium, Dissd.	2b	0	15	0.00	63.540	25.2048	635.2811	0.3967				

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3043	Magnesium, Dissd.		0	15	0.00	24.980	4.7871	22.9160	0.1916				
	3066	Magnesium, Dissd.		0	15	0.00	43.107	12.6678	160.4721	0.2939	34.0433	13.1723	173.5087	0.3869
	3001	Magnesium, Dissd.	1	0	15	0.00	23.527	6.6745	44.5492	0.2837	T.L. =	63.2858	n = 30	
	3008	Magnesium, Dissd.	1	0	15	0.00	21.701	2.9310	8.5909	0.1351				
	3010	Magnesium, Dissd.	1	0	14	0.00	29.307	9.7378	94.8238	0.3323				
	3013	Magnesium, Dissd.	1	0	14	0.00	39.243	8.5309	72.7765	0.2174				
	3019	Magnesium, Dissd.	1	0	15	0.00	28.547	6.0533	36.6427	0.2120				
	3024	Magnesium, Dissd.	1	0	15	0.00	25.120	7.3747	54.3860	0.2936				
*	3037	Magnesium, Dissd.	2b	0	14	0.00	55.221	11.1494	124.3095	0.2019				
	3051	Magnesium, Dissd.	1	0	8	0.00	39.050	3.0515	9.3114	0.0781				
	3055	Magnesium, Dissd.	1	0	15	0.00	31.053	5.9513	35.4184	0.1916				
*	3084	Magnesium, Dissd.	4	0	15	0.00	67.827	19.1116	365.2550	0.2818				
	4001	Magnesium, Dissd.	1	0	15	0.00	23.380	6.0408	36.4917	0.2584				
	4008	Magnesium, Dissd.	1	0	14	0.00	18.217	6.3575	40.4177	0.3490				
	4010	Magnesium, Dissd.	1	0	12	0.00	27.325	7.6144	57.9784	0.2787				
*	4013	Magnesium, Dissd.	2b	0	12	0.00	63.483	23.9587	574.0197	0.3774				

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	1024	Manganese		0	8	0.00	0.2351	0.3307	0.1094	1.4065				
	1052	Manganese		1	8	0.13	0.2146	0.2088	0.0436	0.9730	0.22484	0.2674	0.0715	1.1892
*	1025	Manganese	21	0	8	0.00	0.9824	0.8098	0.6557	0.8243				
	1027	Manganese	15	0	8	0.00	0.1107	0.0525	0.0028	0.4737				
	1028	Manganese	17	0	1	0.00	0.6990							
	1031	Manganese	15	0	8	0.00	0.0941	0.0681	0.0046	0.7233				
*	1038	Manganese	21	0	8	0.00	2.2051	0.8631	0.7449	0.3914				
	1074	Manganese	15	0	8	0.00	0.1329	0.0795	0.0063	0.5985				
	1079	Manganese	20	1	8	0.13	0.2820	0.3131	0.0980	1.1103				
	1080	Manganese	20	0	8	0.00	0.4800	0.3004	0.0902	0.6258				
	1081	Manganese	15	0	8	0.00	0.0914	0.0507	0.0026	0.5547				
	1082	Manganese	15	1	8	0.13	0.1520	0.1756	0.0309	1.1556				
	1083	Manganese	20	0	8	0.00	0.4914	0.5306	0.2815	1.0797				
	2043	Manganese		0	8	0.00	0.4044	0.2032	0.0413	0.5026				
	2066	Manganese		1	8	0.13	0.0542	0.0580	0.0034	1.0706	0.22928	0.2314	0.0535	1.0093
*	2010	Manganese	2b	0	8	0.00	0.8260	0.3457	0.1195	0.4185	T.L. =	0.8131	n = 16	
	2013	Manganese	1	0	8	0.00	0.1519	0.0936	0.0088	0.6161				
	2019	Manganese	1	4	8	0.50	0.0289	0.0181	0.0003	0.6281				
	2021	Manganese	1	5	8	0.63	0.0271	0.0173	0.0003	0.6395				
*	2027	Manganese	2b	0	8	0.00	1.2241	0.5120	0.2622	0.4183				
	2037	Manganese	1	0	8	0.00	0.6304	0.1179	0.0139	0.1871				
	2051	Manganese	1	0	8	0.00	0.4438	0.1091	0.0119	0.2459				
	2055	Manganese	1	0	8	0.00	0.3084	0.0638	0.0041	0.2068				
*	2084	Manganese	2b	0	8	0.00	1.5014	0.8085	0.6537	0.5385				
	3043	Manganese		0	8	0.00	0.0645	0.0082	0.0001	0.1278				
	3066	Manganese		0	8	0.00	0.3040	0.1414	0.0200	0.4652	0.18425	0.1570	0.0247	0.8523
	3001	Manganese	1	0	8	0.00	0.3391	0.1645	0.0271	0.4850	T.L. =	0.5805	n = 16	
	3008	Manganese	1	0	8	0.00	0.3400	0.1545	0.0239	0.4543				
*	3010	Manganese	3	0	8	0.00	2.6400	0.4177	0.1745	0.1582				
	3013	Manganese	1	0	8	0.00	0.2641	0.1366	0.0187	0.5172				
*	3019	Manganese	3	0	8	0.00	1.6395	1.1948	1.4276	0.7288				
	3024	Manganese	1	0	8	0.00	0.1646	0.0962	0.0093	0.5846				

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	3037	Manganese	2a	0	8	0.00	0.4461	0.1883	0.0355	0.4221				
	3051	Manganese	7c	0	1	0.00	0.1570							
	3055	Manganese	1	0	8	0.00	0.2996	0.0331	0.0011	0.1106				
*	3084	Manganese	2b	0	8	0.00	1.9129	1.4494	2.1008	0.7577				
	4001	Manganese	1	0	8	0.00	0.3206	0.0739	0.0055	0.2304				
*	4008	Manganese	2b	0	8	0.00	0.5116	0.0944	0.0089	0.1845				
	4010	Manganese	1	0	8	0.00	0.0775	0.0199	0.0004	0.2566				
	4013	Manganese	1	0	8	0.00	0.1048	0.0110	0.0001	0.1053				
	1024	Manganese, Dissd.		0	13	0.00	0.0955	0.0629	0.0040	0.6594				
	1052	Manganese, Dissd.		7	14	0.50	0.0421	0.0414	0.0017	0.9852	0.06777	0.0598	0.0036	0.8829
•	1025	Manganese, Dissd.	2b	0	13	0.00	0.3005	0.2161	0.0467	0.7190	T.L. =	0.2030	n = 27	
	1027	Manganese, Dissd.	1	0	13	0.00	0.1089	0.0567	0.0032	0.5204				
	1028	Manganese, Dissd.	7d	0	1	0.00	0.5250							
	1030	Manganese, Dissd.	7d	0	1	0.00	0.2790							
	1031	Manganese, Dissd.	20	7	12	0.58	0.0705	0.1401	0.0196	1.9864				
•	1038	Manganese, Dissd.	2b	0	13	0.00	0.2454	0.1200	0.0144	0.4889				
	1074	Manganese, Dissd.	2a	0	14	0.00	0.1020	0.0815	0.0067	0.7995				
	1079	Manganese, Dissd.	15	1	14	0.07	0.0943	0.0624	0.0039	0.6616				
	1080	Manganese, Dissd.	15	6	14	0.43	0.0475	0.0490	0.0024	1.0329				
	1081	Manganese, Dissd.	1	6	13	0.46	0.0278	0.0211	0.0004	0.7603				
	1082	Manganese, Dissd.	1	7	13	0.54	0.0419	0.0658	0.0043	1.5698				
	1083	Manganese, Dissd.	1	1	13	0.08	0.0621	0.0250	0.0006	0.4036				
	2043	Manganese, Dissd.		0	14	0.00	0.2044	0.0893	0.0080	0.4369				
	2066	Manganese, Dissd.		2	13	0.15	0.0373	0.0171	0.0003	0.4583	0.12398	0.1071	0.0115	0.8637
*	2010	Manganese, Dissd.	21	0	13	0.00	0.7160	0.7778	0.6049	1.0863	T.L. =	0.3660	n = 27	
	2013	Manganese, Dissd.	1	2	12	0.17	0.1540	0.0929	0.0086	0.6030				
	2019	Manganese, Dissd.	1	7	14	0.50	0.0282	0.0340	0.0012	1.2037				
	2021	Manganese, Dissd.	1	8	13	0.62	0.0481	0.0897	0.0080	1.8655				
*	2027	Manganese, Dissd.	3	0	14	0.00	0.6941	0.4532	0.2054	0.6528				
*	2037	Manganese, Dissd.	3	0	13	0.00	0.4405	0.1392	0.0194	0.3160				
*	2051	Manganese, Dissd.	2b	0	13	0.00	0.3145	0.0736	0.0054	0.2339				
	2055	Manganese, Dissd.	1	1	9	0.11	0.2333	0.0627	0.0039	0.2689				
*	2084	Manganese, Dissd.	3	0	14	0.00	0.8966	0.4029	0.1623	0.4494				

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317 013

RCRA Groundwater Data as of 07-Feb-92

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	3043	Manganese, Dissd.		0	14	0.00	0.0583	0.0093	0.0001	0.1602				
	3066	Manganese, Dissd.		0	13	0.00	0.1257	0.0650	0.0042	0.5175	0.09074	0.0563	0.0032	0.6209
*	3001	Manganese, Dissd.	2b	0	13	0.00	0.3765	0.1634	0.0267	0.4340	T.L. =	0.2181	n = 27	
*	3008	Manganese, Dissd.	2b	1	13	0.08	0.2214	0.1127	0.0127	0.5091				
*	3010	Manganese, Dissd.	3	0	12	0.00	2.7992	0.8001	0.6402	0.2858				
	3013	Manganese, Dissd.	2a	5	12	0.42	0.2272	0.1924	0.0370	0.8468				
*	3019	Manganese, Dissd.	2b	2	14	0.14	1.8246	1.4355	2.0607	0.7867				
	3024	Manganese, Dissd.	20	1	13	0.08	0.1724	0.1962	0.0385	1.1380				
*	3037	Manganese, Dissd.	3	0	13	0.00	0.5452	0.1676	0.0281	0.3074				
	3051	Manganese, Dissd.	2a	0	6	0.00	0.1470	0.0195	0.0004	0.1329				
*	3055	Manganese, Dissd.	3	0	13	0.00	0.2590	0.0932	0.0087	0.3600				
*	3084	Manganese, Dissd.	2b	1	14	0.07	1.7105	1.2190	1.4861	0.7127				
*	4001	Manganese, Dissd.	3	0	13	0.00	0.3374	0.0961	0.0092	0.2849				
*	4008	Manganese, Dissd.	3	0	12	0.00	0.4441	0.0886	0.0078	0.1995				
	4010	Manganese, Dissd.	1	1	10	0.10	0.0607	0.0199	0.0004	0.3279				
	4013	Manganese, Dissd.	5	0	10	0.00	0.1243	0.0953	0.0091	0.7666				

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1024	Mercury			7	7	1.000	
	1052	Mercury			7	7	1.000	
				totals	14	14		
	1025	Mercury	9		7	7	1.000	
	1027	Mercury	9		7	7	1.000	
	1028	Mercury	9		1	1	1.000	
	1031	Mercury	9		6	7	0.857	
	1038	Mercury	9		7	7	1.000	
	1074	Mercury	9		7	7	1.000	
	1079	Mercury	9		7	7	1.000	
	1080	Mercury	9		7	7	1.000	
	1081	Mercury	9		7	7	1.000	
	1082	Mercury	9		7	7	1.000	
	1083	Mercury	9		7	7	1.000	
				totals	70	71		
				X=	0	n=	85	
				Y=	1	P=	0.01176	
				Pb=	0	nP=	1	Test of Proportions
				Pc=	0.014084	n(1-P)=	84	
				Sd=	0.031530			
				Z=	-0.44668	O. K.		
	2043	Mercury			7	7	1.000	
	2066	Mercury			7	7	1.000	
				totals	14	14		
	2010	Mercury	15		7	7	1.000	
	2013	Mercury	15		7	7	1.000	
	2019	Mercury	15		7	7	1.000	
	2021	Mercury	15		7	7	1.000	
	2027	Mercury	15		7	7	1.000	
	2037	Mercury	15		7	7	1.000	
	2051	Mercury	15		7	7	1.000	
	2055	Mercury	15		7	7	1.000	
	2084	Mercury	15		7	7	1.000	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
				totals	63	63		
	3043	Mercury			7	7	1.000	
	3066	Mercury			7	7	1.000	
				totals	14	14		
	3001	Mercury	9		7	7	1.000	
	3008	Mercury	9		6	7	0.857	
	3010	Mercury	9		7	7	1.000	
	3013	Mercury	9		7	7	1.000	
	3019	Mercury	9		7	7	1.000	
	3024	Mercury	9		6	6	1.000	
	3037	Mercury	9		7	7	1.000	
	3055	Mercury	9		7	7	1.000	
	3084	Mercury	9		7	7	1.000	
	4001	Mercury	9		7	7	1.000	
	4008	Mercury	9		7	7	1.000	
	4010	Mercury	9		7	7	1.000	
	4013	Mercury	9		7	7	1.000	
				totals	89	90		
				X=	0	n=	104	
				Y=	1	P=	0.00961	
				Pb=	0	nP=	1	Test of Proportions
				Pc=	0.011111	n(1-P)=	103	
				Sd=	0.028036			
				Z=	-0.39631	O. K.		
	1024	Mercury, (Dissd.)			9	9	1.000	
	1052	Mercury, (Dissd.)			12	12	1.000	
				totals	21	21		
	1025	Mercury, (Dissd.)	9		11	11	1.000	
	1027	Mercury, (Dissd.)	9		7	11	0.636	
	1028	Mercury, (Dissd.)	9		1	1	1.000	
	1031	Mercury, (Dissd.)	9		9	9	1.000	
	1038	Mercury, (Dissd.)	9		7	11	0.636	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

3713

003320

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1074	Mercury, (Dissd.)	9		12	12	1.000	
	1079	Mercury, (Dissd.)	9		9	9	1.000	
	1080	Mercury, (Dissd.)	9		12	12	1.000	
	1081	Mercury, (Dissd.)	9		7	11	0.636	
	1082	Mercury, (Dissd.)	9		11	11	1.000	
	1083	Mercury, (Dissd.)	9		7	11	0.636	
				totals	93	109		
				X=	0	n=	130	
				Y=	16	P=	0.12307	
				Pb=	0	nP=	16	Test of Proportions
				Pc=	0.146788	n(1-P)=	114	
				Sd=	0.078292			
				Z=	-1.87488	O. K.		
	2043	Mercury, (Dissd.)			11	11	1.000	
	2066	Mercury, (Dissd.)			10	10	1.000	
				totals	21	21		
	2010	Mercury, (Dissd.)	9		7	11	0.636	
	2013	Mercury, (Dissd.)	9		11	11	1.000	
	2019	Mercury, (Dissd.)	9		12	12	1.000	
	2021	Mercury, (Dissd.)	9		11	11	1.000	
	2027	Mercury, (Dissd.)	9		12	12	1.000	
	2037	Mercury, (Dissd.)	9		12	12	1.000	
	2051	Mercury, (Dissd.)	9		7	8	0.875	
	2055	Mercury, (Dissd.)	9		9	9	1.000	
	2084	Mercury, (Dissd.)	9		11	11	1.000	
				totals	92	97		
				X=	0	n=	118	
				Y=	5	P=	0.04237	
				Pb=	0	nP=	5	Test of Proportions
				Pc=	0.051546	n(1-P)=	113	
				Sd=	0.048482			
				Z=	-1.06318	O. K.		

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

321

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	3043	Mercury, (Dissd.)			11	11	1.000
	3066	Mercury, (Dissd.)			10	10	1.000
				totals	21	21	
	3001	Mercury, (Dissd.)	9		11	11	1.000
	3008	Mercury, (Dissd.)	9		7	11	0.636
	3010	Mercury, (Dissd.)	9		11	11	1.000
	3013	Mercury, (Dissd.)	9		11	11	1.000
	3019	Mercury, (Dissd.)	9		12	12	1.000
	3024	Mercury, (Dissd.)	9		8	8	1.000
	3037	Mercury, (Dissd.)	9		12	12	1.000
	3055	Mercury, (Dissd.)	9		11	11	1.000
	3084	Mercury, (Dissd.)	9		11	11	1.000
	4001	Mercury, (Dissd.)	9		7	11	0.636
	4008	Mercury, (Dissd.)	9		10	10	1.000
	4010	Mercury, (Dissd.)	9		7	9	0.778
	4013	Mercury, (Dissd.)	9		7	9	0.778
				totals	125	137	

X=	0	n=	158	
Y=	12	P=	0.07594	
Pb=	0	nP=	12	Test of Proportions
Pc=	0.087591	n(1-P)=	146	
Sd=	0.062082			
Z=	-1.41088	O. K.		

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

533323

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1024	Molybdenum			4	7	0.571	
	1052	Molybdenum			3	7	0.429	
				totals	7	14		
	1025	Molybdenum	9		4	7	0.571	
	1027	Molybdenum	9		7	7	1.000	
*	1028	Molybdenum	8		0	1	0.000	
*	1031	Molybdenum	8		1	7	0.143	
	1038	Molybdenum	9		6	7	0.857	
*	1074	Molybdenum	8		0	7	0.000	
	1079	Molybdenum	8		3	7	0.429	
	1080	Molybdenum	9		7	7	1.000	
	1081	Molybdenum	9		6	7	0.857	
	1082	Molybdenum	9		7	7	1.000	
	1083	Molybdenum	9		7	7	1.000	
				totals	48	71		
				X=	7	n=	85	
				Y=	23	P=	0.35294	
				Pb=	0.5	nP=	30	Test of Proportions
				Pc=	0.323943	n(1-P)=	55	
				Sd=	0.139745			
				Z=	1.259831	O. K.		
	2043	Molybdenum			7	7	1.000	
	2066	Molybdenum			7	7	1.000	
				totals	14	14		
	2010	Molybdenum	15		7	7	1.000	
	2013	Molybdenum	15		7	7	1.000	
	2019	Molybdenum	15		7	7	1.000	
	2021	Molybdenum	15		7	7	1.000	
	2027	Molybdenum	15		7	7	1.000	
	2037	Molybdenum	15		7	7	1.000	
	2051	Molybdenum	15		7	7	1.000	
	2055	Molybdenum	15		7	7	1.000	
	2084	Molybdenum	15		7	7	1.000	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
				totals	63	63		
	3043	Molybdenum			7	7	1.000	
	3066	Molybdenum			7	7	1.000	
				totals	14	14		
	3001	Molybdenum	9		7	7	1.000	
	3008	Molybdenum	9		7	7	1.000	
	3010	Molybdenum	9		7	7	1.000	
	3013	Molybdenum	9		7	7	1.000	
	3019	Molybdenum	9		7	7	1.000	
	3024	Molybdenum	9		6	6	1.000	
	3037	Molybdenum	9		7	7	1.000	
	3055	Molybdenum	9		7	7	1.000	
	3084	Molybdenum	9		7	7	1.000	
	4001	Molybdenum	9		7	7	1.000	
	4008	Molybdenum	9		7	7	1.000	
	4010	Molybdenum	9		7	7	1.000	
*	4013	Molybdenum	8		2	7	0.286	
				totals	85	90		
				X=	0	n=	104	
				Y=	5	P=	0.04807	
				Pb=	0	nP=	5	Test of Proportions
				Pc=	0.055555	n(1-P)=	99	
				Sd=	0.061461			
				Z=	-0.90391	O. K.		
	1024	Molybdenum, (Dissd.)			9	9	1.000	
	1052	Molybdenum, (Dissd.)			7	11	0.636	
				totals	16	20		
	1025	Molybdenum, (Dissd.)	9		10	10	1.000	
	1027	Molybdenum, (Dissd.)	9		11	11	1.000	
	1028	Molybdenum, (Dissd.)	8		0	1	0.000	
*	1031	Molybdenum, (Dissd.)	8		0	8	0.000	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

324

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	1038	Molybdenum, (Dissd.)	9	11	11	1.000
	1074	Molybdenum, (Dissd.)	8	0	11	0.000
	1079	Molybdenum, (Dissd.)	9	6	8	0.750
	1080	Molybdenum, (Dissd.)	9	7	11	0.636
	1081	Molybdenum, (Dissd.)	9	11	11	1.000
	1082	Molybdenum, (Dissd.)	9	10	10	1.000
	1083	Molybdenum, (Dissd.)	9	11	11	1.000
			totals	77	103	
			X=	4	n=	123
			Y=	26	P=	0.24390
			Pb=	0.2	nP=	30
			Pc=	0.252427	n(1-P)=	93
			Sd=	0.104933		
			Z=	-0.49962	O. K.	
	2043	Molybdenum, (Dissd.)		10	10	1.000
	2066	Molybdenum, (Dissd.)		7	10	0.700
			totals	17	20	
	2010	Molybdenum, (Dissd.)	9	7	11	0.636
	2013	Molybdenum, (Dissd.)	9	7	11	0.636
	2019	Molybdenum, (Dissd.)	9	7	11	0.636
	2021	Molybdenum, (Dissd.)	9	11	11	1.000
	2027	Molybdenum, (Dissd.)	9	8	11	0.727
	2037	Molybdenum, (Dissd.)	9	8	11	0.727
	2051	Molybdenum, (Dissd.)	9	8	8	1.000
	2055	Molybdenum, (Dissd.)	9	9	9	1.000
	2084	Molybdenum, (Dissd.)	9	7	10	0.700
			totals	72	93	
			X=	3	n=	113
			Y=	21	P=	0.21238
			Pb=	0.15	nP=	24
			Pc=	0.225806	n(1-P)=	89
			Sd=	0.100810		
			Z=	-0.75197	O. K.	

Test of Proportions

Test of Proportions

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	3043	Molybdenum, (Dissd.)			10	10	1.000
	3066	Molybdenum, (Dissd.)			7	10	0.700
				totals	17	20	
	3001	Molybdenum, (Dissd.)	9		9	11	0.818
	3008	Molybdenum, (Dissd.)	9		7	11	0.636
	3010	Molybdenum, (Dissd.)	9		7	11	0.636
	3013	Molybdenum, (Dissd.)	9		7	11	0.636
	3019	Molybdenum, (Dissd.)	9		7	11	0.636
	3024	Molybdenum, (Dissd.)	9		8	8	1.000
	3037	Molybdenum, (Dissd.)	9		7	11	0.636
	3055	Molybdenum, (Dissd.)	9		7	11	0.636
	3084	Molybdenum, (Dissd.)	9		8	10	0.800
	4001	Molybdenum, (Dissd.)	9		7	11	0.636
	4008	Molybdenum, (Dissd.)	9		7	10	0.700
	4010	Molybdenum, (Dissd.)	9		9	9	1.000
	4013	Molybdenum, (Dissd.)	9		6	9	0.667
				totals	96	134	

X=	3	n=	154	
Y=	38	P=	0.26623	
Pb=	0.15	nP=	41	Test of Proportions
Pc=	0.283582	n(1-P)=	113	
Sd=	0.105950			
Z=	-1.26079	O. K.		

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

3713

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	1024	Nickel		5	8	0.63
	1052	Nickel		3	8	0.38
			totals	8	16	
*	1025	Nickel	8	0	8	0.00
	1027	Nickel	9	8	8	1.00
*	1028	Nickel	8	0	1	0.00
*	1031	Nickel	8	0	8	0.00
*	1038	Nickel	8	1	8	0.13
*	1074	Nickel	8	0	8	0.00
	1079	Nickel	9	5	8	0.63
	1080	Nickel	8	3	8	0.38
	1081	Nickel	9	4	8	0.50
	1082	Nickel	8	3	8	0.38
	1083	Nickel	8	3	8	0.38
			totals	27	81	
			X=	8	n=	97
			Y=	54	P=	0.639175
			Pb=	0.5	nP=	62
			Pc=	0.6666666	n(1-P)=	35
			Sd=	0.1313837		
			Z=	-1.268549	O. K.	
	2043	Nickel		5	8	0.63
	2066	Nickel		6	8	0.75
			totals	11	16	
	2010	Nickel	9	4	8	0.50
	2013	Nickel	9	7	8	0.88
	2019	Nickel	9	7	8	0.88
	2021	Nickel	9	8	8	1.00
	2027	Nickel	8	3	8	0.38
	2037	Nickel	8	3	8	0.38
	2051	Nickel	9	5	8	0.63
	2055	Nickel	9	5	8	0.63
	2084	Nickel	8	3	8	0.38

Test of Proportions

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

327

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
			totals	45	72		
			X=	5	n=	88	
			Y=	27	P=	0.363636	
			Pb=	0.3125	nP=	32	Test of Proportions
			Pc=	0.375	n(1-P)=	56	
			Sd=	0.1329540			
			Z=	-0.470087	O. K.		
	3043	Nickel		8	8	1.00	
	3066	Nickel		5	8	0.63	
			totals	13	16		
	3001	Nickel	9	8	8	1.00	
	3008	Nickel	9	6	8	0.75	
	3010	Nickel	9	6	8	0.75	
	3013	Nickel	9	8	8	1.00	
	3019	Nickel	9	8	8	1.00	
	3024	Nickel	9	8	8	1.00	
	3037	Nickel	9	5	8	0.63	
	3051	Nickel	9	1	1	1.00	
	3055	Nickel	9	8	8	1.00	
	3084	Nickel	9	5	8	0.63	
	4001	Nickel	9	8	8	1.00	
	4008	Nickel	9	8	8	1.00	
	4010	Nickel	9	6	8	0.75	
	4013	Nickel	9	4	8	0.50	
			totals	89	105		
			X=	3	n=	121	
			Y=	16	P=	0.157024	
			Pb=	0.1875	nP=	19	Test of Proportions
			Pc=	0.1523809	n(1-P)=	102	
			Sd=	0.0976404			
			Z=	0.3596774	O. K.		
	1024	Nickel, Dissd.		11	15	0.73	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	1052	Nickel, Dissd.		12	15	0.80
			totals	23	30	0.77
*	1025	Nickel, Dissd.	12	1	14	0.07
	1027	Nickel, Dissd.	10	14	15	0.93
*	1028	Nickel, Dissd.	12	0	2	0.00
*	1030	Nickel, Dissd.	12	0	2	0.00
*	1031	Nickel, Dissd.	12	0	13	0.00
	1038	Nickel, Dissd.	10	13	15	0.87
*	1074	Nickel, Dissd.	12	1	15	0.07
	1079	Nickel, Dissd.	12	10	15	0.67
	1080	Nickel, Dissd.	12	11	15	0.73
	1081	Nickel, Dissd.	10	12	15	0.80
	1082	Nickel, Dissd.	12	10	14	0.71
	1083	Nickel, Dissd.	12	11	15	0.73
			totals	83	150	
			X=	7	n=	180
			Y=	67	P=	0.411111
			Pb=	0.2333333	nP=	74
			Pc=	0.4466666	n(1-P)=	106
			Sd=	0.0984070		
			Z=	-2.167866	Statistically Significant	
	2043	Nickel, Dissd.		11	15	0.73
	2066	Nickel, Dissd.		15	15	1.00
			totals	26	30	
	2010	Nickel, Dissd.	9	13	15	0.87
	2013	Nickel, Dissd.	9	14	14	1.00
	2019	Nickel, Dissd.	9	15	15	1.00
	2021	Nickel, Dissd.	9	14	15	0.93
	2027	Nickel, Dissd.	9	13	15	0.87
	2037	Nickel, Dissd.	9	12	14	0.86
	2051	Nickel, Dissd.	9	12	15	0.80
	2055	Nickel, Dissd.	9	10	11	0.91

Test of Proportions

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

8323329

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	2084	Nickel, Dissd.	9	13	15	0.87	
				totals 116	129		
				X= 4	n=	159	
				Y= 13	P=	0.106918	
				Pb= 0.1333333	nP=	17	Test of Proportions
				Pc= 0.1007751	n(1-P)=	142	
				Sd= 0.0626346			
				Z= 0.5198104	O. K.		
	3043	Nickel, Dissd.		13	15	0.87	
	3066	Nickel, Dissd.		14	15	0.93	
				totals 27	30		
	3001	Nickel, Dissd.	9	14	15	0.93	
	3008	Nickel, Dissd.	9	13	15	0.87	
	3010	Nickel, Dissd.	9	13	14	0.93	
	3013	Nickel, Dissd.	9	13	14	0.93	
	3019	Nickel, Dissd.	9	14	15	0.93	
	3024	Nickel, Dissd.	9	13	15	0.87	
	3037	Nickel, Dissd.	9	10	14	0.71	
	3051	Nickel, Dissd.	9	7	8	0.88	
	3055	Nickel, Dissd.	9	13	15	0.87	
	3084	Nickel, Dissd.	9	11	15	0.73	
	4001	Nickel, Dissd.	9	13	15	0.87	
	4008	Nickel, Dissd.	9	12	14	0.86	
	4010	Nickel, Dissd.	9	11	12	0.92	
	4013	Nickel, Dissd.	9	7	12	0.58	
				totals 164	193		
				X= 3	n=	223	
				Y= 29	P=	0.143497	
				Pb= 0.1	nP=	32	Test of Proportions
				Pc= 0.1502590	n(1-P)=	191	
				Sd= 0.0688018			
				Z= -0.730490	O. K.		

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	1024	Nitrate		10	15	0.67	0.08	0.09	0.01	1.1056				
	1052	Nitrate		2	15	0.13	0.12	0.09	0.01	0.7683	0.1012	0.0943	0.01	0.931
*	1025	Nitrate	3	0	14	0.00	118.59	52.39	2745.05	0.4418	T.L. =	0.311	n=30	
	1027	Nitrate	15	6	15	0.40	0.12	0.12	0.02	0.9956				
	1028	Nitrate	7i	0	2	0.00	201.50	64.35	4140.50	0.3193				
	1030	Nitrate	17	0	1	0.00	1.41 > T.L. but < MCL							
*	1031	Nitrate	3	0	13	0.00	22.79	14.13	199.69	0.6202				
	1038	Nitrate	15	7	15	0.47	0.10	0.08	0.01	0.8381				
	1074	Nitrate	15	9	15	0.60	0.09	0.10	0.01	1.0566				
	1079	Nitrate	2a	2	15	0.13	0.19	0.12	0.01	0.6106				
	1080	Nitrate	15	5	15	0.33	0.08	0.06	0.00	0.8200				
*	1081	Nitrate	3	0	15	0.00	16.75	12.15	147.74	0.7257				
	1082	Nitrate	15	6	14	0.00	0.09	0.10	0.01	1.1491				
*	1083	Nitrate	3	0	15	0.00	2.14	2.31	5.32	1.0762				
	2043	Nitrate		8	14	0.57								
	2066	Nitrate		8	15	0.53								
			totals	16	29									
	2010	Nitrate	9	10	15	0.67								
	2013	Nitrate	8	7	15	0.47								
*	2019	Nitrate	8	1	15	0.07								
*	2021	Nitrate	8	1	15	0.07								
	2027	Nitrate	8	5	15	0.33								
	2037	Nitrate	9	10	15	0.67								
	2051	Nitrate	9	10	14	0.71								
	2055	Nitrate	9	9	11	0.82								
*	2084	Nitrate	8	1	15	0.07								
			totals	54	130									

X=	13	n=	159
Y=	76	P=	0.5597484
Pb=	0.44827	nP=	89
Pc=	0.58461	n(1-P)=	70
Sd=	0.10194		
Z=	-1.3373	O. K.	

Test of Proportions

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3043	Nitrate			11	15	0.73								
	3066	Nitrate			8	15	0.53								
				totals	19	30	0.63								
	3001	Nitrate	10		14	15	0.93								
	3008	Nitrate	12		8	15	0.53								
	3010	Nitrate	12		8	15	0.53								
	3013	Nitrate	12		4	15	0.27								
*	3019	Nitrate	12		0	15	0.00								
	3024	Nitrate	12		5	15	0.33								
	3037	Nitrate	12		6	15	0.40								
	3051	Nitrate	10		5	8	0.63								
	3055	Nitrate	12		6	15	0.40								
*	3084	Nitrate	12		2	15	0.13								
	4001	Nitrate	12		9	15	0.60								
	4008	Nitrate	10		10	14	0.71								
	4010	Nitrate	12		3	12	0.25								
	4013	Nitrate	12		5	12	0.42								
				totals	85	196									

X=	11	n=	226
Y=	111	P=	0.5398230
Pb=	0.36666	nP=	122
Pc=	0.56632	n(1-P)=	104
Sd=	0.09771		
Z=	-2.0433	Statistically Significant	

Test of Proportions

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	1024	pH		0	15	0.000	7.106	0.156	0.0244	0.0220				
	1052	pH		0	15	0.000	7.263	0.213	0.0456	0.0294	7.185	0.200	0.0402	0.0279
*	1025	pH	2b	0	15	0.000	6.730	0.453	0.2048	0.0672	T.L. = >7.696		n =30	
	1027	pH	2a	0	15	0.000	7.118	0.267	0.0711	0.0375	or <6.674		k =2.549	
*	1028	pH	3	0	4	0.000	6.350	0.425	0.1807	0.0669				
	1030	pH	1	0	2	0.000	6.950	0.071	0.0050	0.0102				
*	1031	pH	3	0	13	0.000	9.228	0.666	0.4442	0.0722				
*	1038	pH	2b	0	15	0.000	6.903	0.248	0.0617	0.0360				
	1074	pH	2a	0	15	0.000	7.189	0.274	0.0751	0.0381				
	1079	pH	1	0	15	0.000	7.101	0.194	0.0376	0.0273				
	1080	pH	2a	0	15	0.000	7.188	0.397	0.1579	0.0553				
*	1081	pH	2b	0	15	0.000	6.950	0.198	0.0392	0.0285				
	1082	pH	2a	0	14	0.000	7.014	0.352	0.1238	0.0502				
	1083	pH	2a	0	15	0.000	7.057	0.233	0.0544	0.0331				
	1643	pH	1	0	2	0.000	6.925	0.021	0.0004	0.0031				
	1644	pH	1	0	2	0.000	6.975	0.064	0.0040	0.0091				
	1645	pH	1	0	2	0.000	7.065	0.021	0.0005	0.0030				
	1646	pH	17	0	2	0.000	5.425	2.326	5.4120	0.4288				
	2043	pH		0	15	0.000	7.086	0.241	0.0579	0.0340				
	2066	pH		0	15	0.000	7.209	0.275	0.0757	0.0382	7.147	0.262	0.0684	0.0366
	2010	pH	1	0	14	0.000	6.920	0.157	0.0246	0.0227	T.L. = >7.814		n =30	
	2013	pH	1	0	15	0.000	7.172	0.166	0.0277	0.0232	or <6.481		k =2.549	
	2019	pH	2a	0	15	0.000	7.082	0.335	0.1124	0.0473				
	2021	pH	1	0	15	0.000	7.251	0.151	0.0227	0.0208				
*	2027	pH	2b	0	15	0.000	6.838	0.198	0.0391	0.0289				
	2037	pH	1	0	15	0.000	6.985	0.172	0.0296	0.0246				
	2051	pH	2a	0	15	0.000	6.945	0.215	0.0463	0.0310				
	2055	pH	1	0	10	0.000	7.092	0.120	0.0143	0.0169				
*	2084	pH	2b	0	15	0.000	6.787	0.159	0.0252	0.0234				
	2643	pH	2a	0	4	0.000	6.837	0.119	0.0141	0.0174				
	2648	pH	1	0	3	0.000	6.973	0.150	0.0226	0.0216				
	2649	pH	2a	0	3	0.000	6.183	0.832	0.6916	0.1345				

* Parameter found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high (or low) values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3043	pH		0	15	0.000	7.268	0.142	0.0202	0.0196				
	3066	pH		0	15	0.000	7.063	0.135	0.0182	0.0191	7.165	0.172	0.0295	0.0240
	3001	pH	2a	0	15	0.000	7.484	0.493	0.2435	0.0659	T.L. = >7.603	n =30		
*	3008	pH	2b	0	14	0.000	7.642	0.364	0.1325	0.0476	or <6.728	k =2.549		
*	3010	pH	2b	0	15	0.000	6.915	0.198	0.0392	0.0286				
	3011	pH	1	0	3	0.000	6.983	0.160	0.0256	0.0229				
	3013	pH	2a	0	15	0.000	7.101	0.415	0.1722	0.0584				
*	3019	pH	2b	0	15	0.000	6.915	0.179	0.0320	0.0259				
	3024	pH	2a	0	15	0.000	7.243	0.275	0.0755	0.0379				
*	3037	pH	2b	0	15	0.000	6.769	0.153	0.0235	0.0226				
	3051	pH	1	0	8	0.000	7.129	0.195	0.0381	0.0274				
*	3055	pH	2b	0	15	0.000	6.951	0.198	0.0391	0.0284				
	3084	pH	2a	0	15	0.000	7.093	0.405	0.1642	0.0571				
*	4001	pH	2b	0	14	0.000	7.423	0.233	0.0542	0.0314				
	4008	pH	2a	0	15	0.000	7.260	0.210	0.0441	0.0289				
	4010	pH	1	0	12	0.000	7.277	0.135	0.0181	0.0185				
	4011	pH	1	0	4	0.000	7.127	0.109	0.0118	0.0153				
	4013	pH	1	0	12	0.000	7.196	0.206	0.0426	0.0287				

* Parameter found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high (or low) values

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1024	Phenols			11	13	0.846	
	1052	Phenols			10	13	0.769	
				totals	21	26		
	1025	Phenols	9		10	12	0.833	
	1027	Phenols	9		10	13	0.769	
	1028	Phenols	9		1	1	1.000	
	1030	Phenols	8		0	1	0.000	
	1031	Phenols	8		5	11	0.455	
	1038	Phenols	9		10	13	0.769	
	1074	Phenols	9		8	13	0.615	
	1079	Phenols	9		10	13	0.769	
	1080	Phenols	9		9	13	0.692	
	1081	Phenols	9		10	13	0.769	
	1082	Phenols	9		11	12	0.917	
	1083	Phenols	9		12	13	0.923	
				totals	96	128		
				X=	5	n=	154	
				Y=	32	P=	0.240259	
				Pb=	0.1923076	nP=	37	Test of Proportions
				Pc=	0.25	n(1-P)=	117	
				Sd=	0.0919055			
				Z=	-0.627734	O. K.		
	2043	Phenols			10	13	0.769	
	2066	Phenols			9	13	0.692	
				totals	19	26		
	2010	Phenols	9		9	13	0.692	
	2013	Phenols	9		10	13	0.769	
	2019	Phenols	9		11	13	0.846	
	2021	Phenols	9		12	13	0.923	
	2027	Phenols	9		9	13	0.692	
	2037	Phenols	9		9	13	0.692	
	2051	Phenols	9		10	13	0.769	
	2055	Phenols	9		8	9	0.889	

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	2084	Phenols	9		11	13	0.846	
				totals	89	113		
				X=	7	n=	139	
				Y=	24	P=	0.223021	
				Pb=	0.2692307	nP=	31	Test of Proportions
				Pc=	0.2123893	n(1-P)=	108	
				Sd=	0.0905439			
				Z=	0.6277767	O. K.		
	3043	Phenols			10	13	0.769	
	3066	Phenols			9	13	0.692	
				totals	19	26		
	3001	Phenols	9		9	13	0.692	
	3008	Phenols	9		10	13	0.769	
	3010	Phenols	9		9	13	0.692	
	3013	Phenols	9		11	13	0.846	
	3019	Phenols	9		9	13	0.692	
	3024	Phenols	9		12	13	0.923	
	3037	Phenols	9		8	13	0.615	
	3051	Phenols	9		3	6	0.500	
	3055	Phenols	9		10	13	0.769	
	3084	Phenols	9		9	13	0.692	
	4001	Phenols	9		12	13	0.923	
	4008	Phenols	9		9	12	0.750	
	4010	Phenols	9		8	10	0.800	
	4013	Phenols	9		7	10	0.700	
				totals	126	168		
				X=	7	n=	194	
				Y=	42	P=	0.252577	
				Pb=	0.2692307	nP=	49	Test of Proportions
				Pc=	0.25	n(1-P)=	145	
				Sd=	0.0915671			
				Z=	0.2100181	O. K.		

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	1024	Phosphorus		2	7	0.286	0.08	0.06	0.00	0.6946				
	1052	Phosphorus		0	9	0.000	0.74	0.79	0.62	1.0557	0.4542	0.6574	0.43	1.4473
	1025	Phosphorus	15	0	7	0.000	0.75	0.65	0.42	0.8673				
	1027	Phosphorus	15	0	8	0.000	0.70	0.59	0.35	0.8506				
	1031	Phosphorus	15	0	6	0.000	0.21	0.06	0.00	0.2669				
	1038	Phosphorus	20	0	9	0.000	1.21	1.29	1.67	1.0631				
	1074	Phosphorus	15	4	8	0.500	0.30	0.25	0.06	0.8349				
	1079	Phosphorus	20	0	6	0.000	1.55	3.02	9.14	1.9506				
	1080	Phosphorus	15	0	9	0.000	0.73	0.55	0.31	0.7612				
	1081	Phosphorus	20	0	9	0.000	1.17	1.75	3.05	1.4862				
	1082	Phosphorus	20	2	8	0.250	0.93	1.27	1.61	1.3695				
	1083	Phosphorus	15	1	9	0.111	0.26	0.23	0.05	0.8846				
	2043	Phosphorus		0	8	0.000	0.83	1.23	1.52	1.4891				
	2066	Phosphorus		0	7	0.000	0.22	0.13	0.02	0.5927	0.5433	0.9302	0.87	1.7120
	2010	Phosphorus	15	0	7	0.000	0.56	0.91	0.82	1.6174				
	2013	Phosphorus	15	0	8	0.000	0.11	0.08	0.01	0.6881				
	2019	Phosphorus	15	3	9	0.333	0.08	0.08	0.01	1.0363				
	2021	Phosphorus	15	3	9	0.333	0.05	0.04	0.00	0.7097				
	2027	Phosphorus	20	0	8	0.000	6.07	8.60	73.98	1.4163				
	2037	Phosphorus	15	0	8	0.000	0.22	0.15	0.02	0.6747				
	2051	Phosphorus	20	1	5	0.200	0.87	1.35	1.84	1.5643				
	2055	Phosphorus	20	1	7	0.143	2.92	7.05	49.66	2.4109				
	2084	Phosphorus	15	0	7	0.000	0.24	0.18	0.03	0.7611				
	3043	Phosphorus		0	8	0.000	0.40	0.08	0.01	0.2042				
	3066	Phosphorus		0	7	0.000	1.04	0.36	0.13	0.3485	0.7005	0.4113	0.17	0.5872
	3001	Phosphorus	15	3	8	0.375	0.08	0.07	0.00	0.8506	T.L. =	1.7988	n=13	
	3008	Phosphorus	15	6	9	0.667	0.08	0.06	0.00	0.8359				
	3010	Phosphorus	15	6	8	0.750	0.12	0.14	0.02	1.1892				
	3013	Phosphorus	15	1	8	0.125	0.11	0.07	0.00	0.6199				
	3019	Phosphorus	15	4	9	0.444	0.10	0.10	0.01	0.9453				
	3024	Phosphorus	15	0	7	0.000	0.30	0.26	0.07	0.8730				
	3037	Phosphorus	15	0	8	0.000	0.19	0.17	0.03	0.8893				

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3055	Phosphorus	15	2	8	0.250	0.13	0.11	0.01	0.8067				
	3084	Phosphorus	15	0	7	0.000	0.65	0.65	0.42	1.0041				
	4001	Phosphorus	15	3	8	0.375	0.13	0.11	0.01	0.9007				
	4008	Phosphorus	15	4	8	0.500	0.14	0.15	0.02	1.1012				
	4010	Phosphorus	15	0	7	0.000	0.36	0.14	0.02	0.4017				
	4013	Phosphorus	2a	0	7	0.000	1.11	1.04	1.08	0.9383				

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	1024	Potassium		0	7	0.000	2.11	1.25	1.56	0.5924				
	1052	Potassium		0	7	0.000	4.11	3.80	14.48	0.9264	3.1071	2.9117	8.48	0.9371
*	1025	Potassium	2b	0	7	0.000	9.79	3.50	12.24	0.3573	T.L. =	10.7183	n=14	
	1027	Potassium	1	0	7	0.000	6.02	1.75	3.07	0.2909				
	1028	Potassium	7b	0	1	0.000	7.66							
*	1031	Potassium	3	0	7	0.000	100.06	42.22	1782.76	0.4220				
*	1038	Potassium	2b	0	7	0.000	13.30	6.70	44.95	0.5040				
	1074	Potassium	1	0	7	0.000	3.09	0.79	0.63	0.2571				
	1079	Potassium	5	0	7	0.000	4.25	4.14	17.16	0.9754				
	1080	Potassium	5	0	7	0.000	5.75	5.53	30.59	0.9619				
	1081	Potassium	1	0	7	0.000	3.42	0.77	0.59	0.2238				
	1082	Potassium	20	0	7	0.000	6.11	8.33	69.36	1.3637				
	1083	Potassium	20	0	7	0.000	8.02	9.26	85.83	1.1558				
	2043	Potassium		0	7	0.000	2.33	1.52	2.31	0.6519				
	2066	Potassium		0	7	0.000	2.10	0.50	0.25	0.2365	2.2150	1.0929	1.19	0.4934
*	2010	Potassium	2b	0	7	0.000	3.95	0.92	0.85	0.2330	T.L. =	5.0719	n=14	
	2013	Potassium	1	0	7	0.000	2.53	0.25	0.06	0.0983				
*	2019	Potassium	3	0	7	0.000	7.48	0.78	0.61	0.1044				
*	2021	Potassium	3	0	7	0.000	7.09	0.81	0.66	0.1142				
*	2027	Potassium	2b	0	7	0.000	4.57	1.91	3.66	0.4192				
	2037	Potassium	1	0	7	0.000	3.49	0.70	0.49	0.2016				
	2051	Potassium	1	0	7	0.000	2.82	0.32	0.11	0.1150				
*	2055	Potassium	4	0	7	0.000	4.55	0.85	0.73	0.1875				
*	2084	Potassium	3	0	7	0.000	13.60	1.93	3.72	0.1419				
	3043	Potassium		1	7	0.143	1.09	0.49	0.24	0.4519				
	3066	Potassium		0	7	0.000	3.51	1.51	2.28	0.4304	2.3021	1.6881	2.85	0.7333
	3001	Potassium	1	0	7	0.000	2.39	0.20	0.04	0.0837	T.L. =	6.7148	n=14	
	3008	Potassium	1	0	7	0.000	3.55	0.44	0.20	0.1246				
*	3010	Potassium	3	0	7	0.000	13.66	1.58	2.50	0.1158				
	3013	Potassium	1	0	7	0.000	4.39	0.76	0.58	0.1742				
	3019	Potassium	2a	1	7	0.143	4.22	3.76	14.17	0.8926				
*	3024	Potassium	2b	0	6	0.000	6.47	3.94	15.53	0.6097				

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
*	3037	Potassium	3	0	7	0.000	15.13	3.41	11.66	0.2257				
*	3055	Potassium	3	0	7	0.000	28.00	4.83	23.34	0.1725				
*	3084	Potassium	3	0	7	0.000	13.36	3.59	12.89	0.2688				
	4001	Potassium	1	0	7	0.000	1.95	0.77	0.59	0.3931				
	4008	Potassium	1	0	7	0.000	1.69	0.31	0.10	0.1851				
	4010	Potassium	1	0	7	0.000	1.80	0.87	0.76	0.4834				
	4013	Potassium	1	0	7	0.000	3.53	0.80	0.65	0.2281				
	1024	Potassium, (Dissd.)		1	9	0.111	1.26	0.50	0.25	0.3925				
	1052	Potassium, (Dissd.)		5	12	0.417	1.95	1.28	1.63	0.6540	1.6581	1.0440	1.09	0.6297
*	1025	Potassium, (Dissd.)	3	0	11	0.000	5.88	1.14	1.30	0.1939	T.L. =	4.1335 n=21		
*	1027	Potassium, (Dissd.)	2b	0	11	0.000	4.35	2.31	5.32	0.5308				
	1028	Potassium, (Dissd.)	7e	0	1	0.000	6.02							
*	1031	Potassium, (Dissd.)	3	0	9	0.000	147.49	125.71	15803.51	0.8523				
	1038	Potassium, (Dissd.)	1	0	11	0.000	2.23	0.28	0.08	0.1238				
	1074	Potassium, (Dissd.)	1	5	12	0.417	2.61	1.29	1.66	0.4947				
	1079	Potassium, (Dissd.)	1	2	9	0.222	1.97	0.93	0.87	0.4722				
	1080	Potassium, (Dissd.)	1	5	12	0.417	2.33	1.33	1.78	0.5730				
	1081	Potassium, (Dissd.)	1	0	11	0.000	2.83	0.36	0.13	0.1285				
	1082	Potassium, (Dissd.)	2a	4	11	0.364	2.56	1.57	2.47	0.6144				
	1083	Potassium, (Dissd.)	1	2	11	0.182	1.02	0.55	0.31	0.5439				
	2043	Potassium, (Dissd.)		5	11	0.455	1.68	1.27	1.61	0.7535				
	2066	Potassium, (Dissd.)		0	10	0.000	2.10	1.05	1.10	0.4997	1.8799	1.2502	1.56	0.6651
*	2010	Potassium, (Dissd.)	2b	0	11	0.000	3.96	1.17	1.38	0.2969	T.L. =	4.8441 n=21		
	2013	Potassium, (Dissd.)	2a	0	11	0.000	2.61	0.87	0.75	0.3324				
*	2019	Potassium, (Dissd.)	2b	5	12	0.417	5.84	3.16	10.00	0.5417				
*	2021	Potassium, (Dissd.)	3	0	11	0.000	8.80	3.22	10.36	0.3656				
*	2027	Potassium, (Dissd.)	2b	5	12	0.417	4.59	2.60	6.76	0.5668				
	2037	Potassium, (Dissd.)	2a	5	12	0.417	3.07	1.57	2.47	0.5118				
	2051	Potassium, (Dissd.)	1	0	8	0.000	2.44	0.24	0.06	0.0982				
*	2055	Potassium, (Dissd.)	2b	1	9	0.111	3.92	1.01	1.02	0.2580				
*	2084	Potassium, (Dissd.)	3	0	11	0.000	13.65	2.57	6.58	0.1880				

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

3413
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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3043	Potassium, (Dissd.)		5	11	0.455	1.38	1.21	1.47	0.8770				
	3066	Potassium, (Dissd.)		0	10	0.000	3.75	1.25	1.56	0.3325	2.5100	1.8379	3.38	0.7322
	3001	Potassium, (Dissd.)	1	0	11	0.000	2.70	0.99	0.98	0.3656	T.L. =	6.8675	n=21	
	3008	Potassium, (Dissd.)	1	0	11	0.000	3.54	0.76	0.57	0.2142				
*	3010	Potassium, (Dissd.)	3	0	11	0.000	14.16	2.28	5.21	0.1612				
*	3013	Potassium, (Dissd.)	2b	0	11	0.000	4.23	1.13	1.28	0.2670				
*	3019	Potassium, (Dissd.)	2b	1	12	0.083	5.43	3.45	11.90	0.6356				
	3024	Potassium, (Dissd.)	2a	0	8	0.000	5.01	4.31	18.58	0.8605				
*	3037	Potassium, (Dissd.)	3	0	12	0.000	14.49	2.21	4.90	0.1528				
*	3055	Potassium, (Dissd.)	3	0	11	0.000	29.70	9.26	85.78	0.3118				
*	3084	Potassium, (Dissd.)	3	0	11	0.000	13.48	4.67	21.84	0.3466				
	4001	Potassium, (Dissd.)	20	1	11	0.091	2.90	2.78	7.75	0.9595				
	4008	Potassium, (Dissd.)	1	0	10	0.000	2.05	1.66	2.75	0.8103				
	4010	Potassium, (Dissd.)	1	0	9	0.000	1.42	0.18	0.03	0.1283				
	4013	Potassium, (Dissd.)	1	0	9	0.000	3.69	0.97	0.94	0.2628				

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1024	Selenium			7	7	1.000	
	1052	Selenium			7	7	1.000	
				totals	14	14		
	1025	Selenium	9		7	7	1.000	
	1027	Selenium	9		7	7	1.000	
	1028	Selenium	9		1	1	1.000	
	1031	Selenium	9		5	7	0.714	
	1038	Selenium	9		7	7	1.000	
	1074	Selenium	9		7	7	1.000	
	1079	Selenium	9		7	7	1.000	
	1080	Selenium	9		7	7	1.000	
	1081	Selenium	9		7	7	1.000	
	1082	Selenium	9		7	7	1.000	
	1083	Selenium	9		7	7	1.000	
				totals	69	71		
				X=	0	n=	85	
				Y=	2	P=	0.02352	
				Pb=	0	nP=	2	Test of Proportions
				Pc=	0.028169	n(1-P)=	83.	
				Sd=	0.044325			
				Z=	-0.63550	O. K.		
	2043	Selenium			7	7	1.000	
	2066	Selenium			7	7	1.000	
				totals	14	14		
	2010	Selenium	9		7	7	1.000	
	2013	Selenium	9		7	7	1.000	
	2019	Selenium	9		7	7	1.000	
	2021	Selenium	9		7	7	1.000	
	2027	Selenium	9		7	7	1.000	
	2037	Selenium	9		7	7	1.000	
	2051	Selenium	9		7	7	1.000	
	2055	Selenium	9		7	7	1.000	
	2084	Selenium	9		5	7	0.714	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

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34113

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
				totals	61	63		
				X=	0	n=	77	
				Y=	2	P=	0.02597	
				Pb=	0	nP=	2	Test of Proportions
				Pc=	0.031746	n(1-P)=	75	
				Sd=	0.046996			
				Z=	-0.67549	O. K.		
	3043	Selenium			7	7	1.000	
	3066	Selenium			7	7	1.000	
				totals	14	14		
	3001	Selenium	15		7	7	1.000	
	3008	Selenium	15		7	7	1.000	
	3010	Selenium	15		7	7	1.000	
	3013	Selenium	15		7	7	1.000	
	3019	Selenium	15		7	7	1.000	
	3024	Selenium	15		6	6	1.000	
	3037	Selenium	15		7	7	1.000	
	3055	Selenium	15		7	7	1.000	
	3084	Selenium	15		7	7	1.000	
	4001	Selenium	15		7	7	1.000	
	4008	Selenium	15		7	7	1.000	
	4010	Selenium	15		7	7	1.000	
	4013	Selenium	15		7	7	1.000	
				totals	90	90		
	1024	Selenium, (Dissd.)			9	9	1.000	
	1052	Selenium, (Dissd.)			12	12	1.000	
				totals	21	21		
	1025	Selenium, (Dissd.)	9		11	11	1.000	
	1027	Selenium, (Dissd.)	9		11	11	1.000	
	1028	Selenium, (Dissd.)	9		1	1	1.000	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1031	Selenium, (Dissd.)	9	8	9	0.889	
	1038	Selenium, (Dissd.)	9	11	11	1.000	
	1074	Selenium, (Dissd.)	9	12	12	1.000	
	1079	Selenium, (Dissd.)	9	9	9	1.000	
	1080	Selenium, (Dissd.)	9	12	12	1.000	
	1081	Selenium, (Dissd.)	9	11	11	1.000	
	1082	Selenium, (Dissd.)	9	11	11	1.000	
	1083	Selenium, (Dissd.)	9	11	11	1.000	
			totals	108	109		
			X=	0	n=	130	
			Y=	1	P=	0.00769	
			Pb=	0	nP=	1	Test of Proportions
			Pc=	0.009174	n(1-P)=	129	
			Sd=	0.020820			
			Z=	-0.44062	O. K.		
	2043	Selenium, (Dissd.)		11	11	1.000	
	2066	Selenium, (Dissd.)		10	10	1.000	
			totals	21	21		
	2010	Selenium, (Dissd.)	9	11	11	1.000	
	2013	Selenium, (Dissd.)	9	11	11	1.000	
	2019	Selenium, (Dissd.)	9	12	12	1.000	
	2021	Selenium, (Dissd.)	9	11	11	1.000	
	2027	Selenium, (Dissd.)	9	12	12	1.000	
	2037	Selenium, (Dissd.)	9	12	12	1.000	
	2051	Selenium, (Dissd.)	9	8	8	1.000	
	2055	Selenium, (Dissd.)	9	9	9	1.000	
	2084	Selenium, (Dissd.)	9	10	11	0.909	
			totals	96	97		
			X=	0	n=	118	
			Y=	1	P=	0.00847	
			Pb=	0	nP=	1	Test of Proportions
			Pc=	0.010309	n(1-P)=	117	
			Sd=	0.022062			
			Z=	-0.46727	O. K.		

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	3043	Selenium, (Dissd.)			11	11	1.000
	3066	Selenium, (Dissd.)			10	10	1.000
				totals	21	21	
	3001	Selenium, (Dissd.)	15		11	11	1.000
	3008	Selenium, (Dissd.)	15		11	11	1.000
	3010	Selenium, (Dissd.)	15		11	11	1.000
	3013	Selenium, (Dissd.)	15		11	11	1.000
	3019	Selenium, (Dissd.)	15		12	12	1.000
	3024	Selenium, (Dissd.)	15		8	8	1.000
	3037	Selenium, (Dissd.)	15		12	12	1.000
	3055	Selenium, (Dissd.)	15		11	11	1.000
	3084	Selenium, (Dissd.)	15		11	11	1.000
	4001	Selenium, (Dissd.)	15		11	11	1.000
	4008	Selenium, (Dissd.)	15		10	10	1.000
	4010	Selenium, (Dissd.)	15		9	9	1.000
	4013	Selenium, (Dissd.)	15		9	9	1.000
				totals	137	137	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1024	Silver			7	8	0.875	
	1052	Silver			8	8	1.000	
				totals	15	16		
	1025	Silver	9		8	8	1.000	
	1027	Silver	9		8	8	1.000	
	1028	Silver	9		1	1	1.000	
	1031	Silver	9		8	8	1.000	
	1038	Silver	9		8	8	1.000	
	1074	Silver	9		7	8	0.875	
	1079	Silver	9		8	8	1.000	
	1080	Silver	9		8	8	1.000	
	1081	Silver	9		8	8	1.000	
	1082	Silver	9		8	8	1.000	
	1083	Silver	9		8	8	1.000	
				totals	80	81		
				X=	1	n=	97	
				Y=	1	P=	0.020618	
				Pb=	0.0625	nP=	2	Test of Proportions
				Pc=	0.01234	n(1-P)=	95	
				Sd=	0.03887			
				Z=	1.29008	O. K.		
	2043	Silver			8	8	1.000	
	2066	Silver			8	8	1.000	
				totals	16	16		
	2010	Silver	9		8	8	1.000	
	2013	Silver	9		7	8	0.875	
	2019	Silver	9		8	8	1.000	
	2021	Silver	9		7	8	0.875	
	2027	Silver	9		8	8	1.000	
	2037	Silver	9		8	8	1.000	
	2051	Silver	9		8	8	1.000	
	2055	Silver	9		7	8	0.875	
	2084	Silver	9		8	8	1.000	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
				totals	69	72		
				X=	0	n=	88	
				Y=	3	P=	0.034090	
				Pb=	0	nP=	3	Test of Proportions
				Pc=	0.04166	n(1-P)=	85	
				Sd=	0.05015			
				Z=	-0.8307	O. K.		
	3043	Silver			7	8	0.875	
	3066	Silver			8	8	1.000	
				totals	15	16		
	3001	Silver	9		7	8	0.875	
	3008	Silver	9		8	8	1.000	
	3010	Silver	9		8	8	1.000	
	3013	Silver	9		7	8	0.875	
	3019	Silver	9		7	8	0.875	
	3024	Silver	9		8	8	1.000	
	3037	Silver	9		8	8	1.000	
	3051	Silver	9		1	1	1.000	
	3055	Silver	9		8	8	1.000	
	3084	Silver	9		8	8	1.000	
	4001	Silver	9		8	8	1.000	
	4008	Silver	9		7	8	0.875	
	4010	Silver	9		7	8	0.875	
	4013	Silver	9		8	8	1.000	
				totals	100	105		
				X=	1	n=	121	
				Y=	5	P=	0.049586	
				Pb=	0.0625	nP=	6	Test of Proportions
				Pc=	0.04761	n(1-P)=	115	
				Sd=	0.05826			
				Z=	0.25541	O. K.		
	1024	Silver, Dissd.			13	15	0.867	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

347 042

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1052	Silver, Dissd.			13	15	0.867	
				totals	26	30		
	1025	Silver, Dissd.	9		14	14	1.000	
	1027	Silver, Dissd.	9		13	15	0.867	
	1028	Silver, Dissd.	9		2	2	1.000	
	1030	Silver, Dissd.	9		1	2	0.500	
	1031	Silver, Dissd.	9		12	13	0.923	
	1038	Silver, Dissd.	9		13	15	0.867	
	1074	Silver, Dissd.	9		12	15	0.800	
	1079	Silver, Dissd.	9		13	15	0.867	
	1080	Silver, Dissd.	9		13	15	0.867	
	1081	Silver, Dissd.	9		13	15	0.867	
	1082	Silver, Dissd.	9		12	14	0.857	
	1083	Silver, Dissd.	9		13	15	0.867	
				totals	131	150		
				X=	4	n=	180	
				Y=	19	P=	0.127777	
				Pb=	0.13333	nP=	23	Test of Proportions
				Pc=	0.12666	n(1-P)=	157	
				Sd=	0.06676			
				Z=	0.09984	O. K.		
	2043	Silver, Dissd.			13	15	0.867	
	2066	Silver, Dissd.			14	15	0.933	
				totals	27	30		
	2010	Silver, Dissd.	9		13	15	0.867	
	2013	Silver, Dissd.	9		12	14	0.857	
	2019	Silver, Dissd.	9		13	15	0.867	
	2021	Silver, Dissd.	9		13	15	0.867	
	2027	Silver, Dissd.	9		14	15	0.933	
	2037	Silver, Dissd.	9		12	14	0.857	
	2051	Silver, Dissd.	9		13	15	0.867	
	2055	Silver, Dissd.	9		9	11	0.818	

** Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	2084	Silver, Dissd.	9		12	15	0.800	
				totals	111	129		
				X=	3	n=	159	
				Y=	18	P=	0.132075	
				Pb=	0.1	nP=	21	Test of Proportions
				Pc=	0.13953	n(1-P)=	138	
				Sd=	0.06862			
				Z=	-0.5760	O. K.		
	3043	Silver, Dissd.			14	15	0.933	
	3066	Silver, Dissd.			13	15	0.867	
				totals	27	30		
	3001	Silver, Dissd.	9		13	15	0.867	
	3008	Silver, Dissd.	9		14	15	0.933	
	3010	Silver, Dissd.	9		11	14	0.786	
	3013	Silver, Dissd.	9		12	14	0.857	
	3019	Silver, Dissd.	9		13	15	0.867	
	3024	Silver, Dissd.	9		13	15	0.867	
	3037	Silver, Dissd.	9		12	14	0.857	
	3051	Silver, Dissd.	9		6	8	0.750	
	3055	Silver, Dissd.	9		13	15	0.867	
	3084	Silver, Dissd.	9		12	15	0.800	
	4001	Silver, Dissd.	9		13	15	0.867	
	4008	Silver, Dissd.	9		13	14	0.929	
	4010	Silver, Dissd.	9		10	12	0.833	
	4013	Silver, Dissd.	9		10	12	0.833	
				totals	165	193		
				X=	3	n=	223	
				Y=	28	P=	0.139013	
				Pb=	0.1	nP=	31	Test of Proportions
				Pc=	0.14507	n(1-P)=	192	
				Sd=	0.06789			
				Z=	-0.6639	O. K.		

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	1024	Sodium		0	8	0.00	15.888	4.529	20.5098	0.2851				
	1052	Sodium		0	8	0.00	48.788	62.846	3949.5822	1.2882	32.338	46.489	2161.231	1.4376
*	1025	Sodium	21	0	8	0.00	206.375	34.380	1181.9821	0.1666				
	1027	Sodium	15	0	8	0.00	35.088	32.788	1075.0487	0.9345				
	1028	Sodium	17	0	1	0.00	354.000							
*	1031	Sodium	21	0	8	0.00	237.375	92.008	8465.4107	0.3876				
	1038	Sodium	15	0	8	0.00	9.764	4.192	17.5694	0.4293				
	1074	Sodium	15	0	8	0.00	21.113	5.074	25.7412	0.2403				
	1079	Sodium	15	0	8	0.00	23.925	10.771	116.0193	0.4502				
	1080	Sodium	15	0	8	0.00	21.287	9.741	94.8955	0.4576				
	1081	Sodium	20	0	8	0.00	59.163	15.004	225.1312	0.2536				
	1082	Sodium	15	0	8	0.00	21.713	3.276	10.7298	0.1509				
	1083	Sodium	15	0	8	0.00	27.800	3.225	10.4029	0.1160				
	2043	Sodium		0	8	0.00	32.038	10.318	106.4712	0.3221				
	2066	Sodium		0	8	0.00	72.125	44.465	1977.1079	0.6165	52.081	37.428	1400.872	0.7187
	2010	Sodium	1	0	8	0.00	18.250	8.918	79.5371	0.4887	T.L. =	146.513	n=16	
	2013	Sodium	1	0	8	0.00	17.913	5.140	26.4155	0.2869				
	2019	Sodium	1	0	8	0.00	54.213	9.055	81.9898	0.1670				
	2021	Sodium	1	0	8	0.00	34.012	10.532	110.9155	0.3096				
	2027	Sodium	1	0	8	0.00	33.213	10.121	102.4384	0.3047				
	2037	Sodium	1	0	8	0.00	17.350	2.818	7.9429	0.1624				
	2051	Sodium	1	0	8	0.00	18.278	16.530	273.2503	0.9044				
	2055	Sodium	1	0	8	0.00	19.238	5.280	27.8827	0.2745				
	2084	Sodium	1	0	8	0.00	64.775	8.569	73.4221	0.1323				
	3043	Sodium		0	8	0.00	24.925	3.801	14.4479	0.1525				
?	3066	Sodium		0	8	0.00	244.750	118.939	14146.5000	0.4860	134.838	139.623	19494.58	1.0355
	3001	Sodium	15	0	8	0.00	9.746	2.058	4.2354	0.2112				
	3008	Sodium	15	0	8	0.00	12.675	3.450	11.8993	0.2722				
	3010	Sodium	15	0	8	0.00	71.513	16.315	266.1698	0.2281				
	3013	Sodium	15	0	8	0.00	28.787	13.845	191.6784	0.4809				
	3019	Sodium	15	0	8	0.00	36.775	23.118	534.4307	0.6286				
	3024	Sodium	15	0	8	0.00	16.575	4.332	18.7679	0.2614				

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3037	Sodium	15	0	8	0.00	74.288	24.784	614.2470	0.3336				
	3051	Sodium	15	0	1	0.00	45.800							
	3055	Sodium	15	0	8	0.00	51.988	7.322	53.6184	0.1409				
	3084	Sodium	15	0	8	0.00	61.313	24.155	583.4441	0.3940				
	4001	Sodium	15	0	8	0.00	20.200	3.145	9.8886	0.1557				
	4008	Sodium	15	0	8	0.00	14.712	7.731	59.7670	0.5255				
	4010	Sodium	15	0	8	0.00	31.575	6.536	42.7193	0.2070				
	4013	Sodium	15	0	8	0.00	98.000	20.681	427.7143	0.2110				
	1024	Sodium, Dissd.		0	13	0.00	15.438	5.960	35.5159	0.3860				
	1052	Sodium, Dissd.		0	14	0.00	40.635	55.501	3080.3235	1.3658	28.503	41.685	1737.660	1.4625
*	1025	Sodium, Dissd.	21	0	13	0.00	184.538	38.045	1447.4359	0.2062				
	1027	Sodium, Dissd.	15	0	13	0.00	24.379	19.633	385.4377	0.8053				
	1028	Sodium, Dissd.	17	0	1	0.00	344.000							
	1030	Sodium, Dissd.	17	0	1	0.00	57.000							
•	1031	Sodium, Dissd.	21	0	12	0.00	234.250	113.846	12960.9318	0.4860				
	1038	Sodium, Dissd.	15	0	13	0.00	9.258	3.536	12.5067	0.3820				
	1074	Sodium, Dissd.	15	0	14	0.00	18.964	4.573	20.9086	0.2411				
	1079	Sodium, Dissd.	15	0	14	0.00	20.439	8.046	64.7334	0.3937				
	1080	Sodium, Dissd.	15	0	14	0.00	22.007	11.079	122.7499	0.5034				
	1081	Sodium, Dissd.	20	0	13	0.00	62.277	41.325	1707.7319	0.6636				
	1082	Sodium, Dissd.	15	0	13	0.00	19.623	6.293	39.6069	0.3207				
	1083	Sodium, Dissd.	15	0	13	0.00	21.769	6.547	42.8640	0.3007				
	2043	Sodium, Dissd.		0	14	0.00	31.643	10.718	114.8842	0.3387				
	2066	Sodium, Dissd.		0	13	0.00	49.508	5.515	30.4191	0.1114	40.244	12.419	154.2249	0.3086
	2010	Sodium, Dissd.	1	0	13	0.00	15.269	2.819	7.9473	0.1846	T.L. =	68.311	n=27	
	2013	Sodium, Dissd.	1	0	12	0.00	15.517	3.881	15.0633	0.2501				
	2019	Sodium, Dissd.	1	0	13	0.00	41.834	14.331	205.3809	0.3426				
	2021	Sodium, Dissd.	1	0	14	0.00	39.786	11.727	137.5213	0.2948				
	2027	Sodium, Dissd.	1	0	14	0.00	34.820	9.747	94.9961	0.2799				
	2037	Sodium, Dissd.	1	0	13	0.00	15.546	4.866	23.6810	0.3130				
	2051	Sodium, Dissd.	1	0	13	0.00	11.600	3.732	13.9283	0.3217				
	2055	Sodium, Dissd.	1	1	9	0.11	16.722	5.794	33.5694	0.3465				
•	2084	Sodium, Dissd.	2b	0	14	0.00	62.336	11.331	128.3825	0.1818				

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3043	Sodium, Dissd.		0	14	0.00	20.586	5.553	30.8305	0.2697				
?	3066	Sodium, Dissd.		0	13	0.00	261.231	92.483	8553.1923	0.3540	136.452	137.756	18976.76	1.0096
	3001	Sodium, Dissd.	15	0	13	0.00	10.823	4.589	21.0633	0.4240				
	3008	Sodium, Dissd.	15	0	13	0.00	11.915	3.822	14.6097	0.3208				
	3010	Sodium, Dissd.	15	0	12	0.00	74.100	16.953	287.4036	0.2288				
	3013	Sodium, Dissd.	15	0	12	0.00	32.150	15.093	227.8027	0.4695				
	3019	Sodium, Dissd.	15	0	14	0.00	42.000	16.955	287.4769	0.4037				
	3024	Sodium, Dissd.	15	0	13	0.00	17.882	9.742	94.9009	0.5448				
	3037	Sodium, Dissd.	15	0	13	0.00	58.323	17.327	300.2369	0.2971				
	3051	Sodium, Dissd.	15	0	6	0.00	64.617	83.206	6923.2746	1.2877				
	3055	Sodium, Dissd.	15	0	13	0.00	57.369	23.533	553.8056	0.4102				
	3084	Sodium, Dissd.	15	0	14	0.00	60.129	15.515	240.7145	0.2580				
	4001	Sodium, Dissd.	15	0	13	0.00	17.615	3.114	9.6947	0.1768				
	4008	Sodium, Dissd.	15	0	12	0.00	12.818	7.737	59.8579	0.6036				
	4010	Sodium, Dissd.	15	0	10	0.00	25.950	4.160	17.3050	0.1603				
	4013	Sodium, Dissd.	15	0	10	0.00	91.670	23.187	0.0000	0.2529				

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VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2
	1024	Sulfate		0	15	0.00	60.787	25.004	625.22	0.4113			
	1052	Sulfate		1	15	0.07	91.493	60.437	3652.61	0.6606	76.14	47.682	2273.6196
*	1025	Sulfate	3	0	13	0.00	387.231	135.463	18350.19	0.3498	T.L. =	181.995	n=30
	1027	Sulfate	20	0	15	0.00	145.713	93.735	8786.22	0.6433			
	1028	Sulfate	7k	0	2	0.00	604.000	55.154	3042.00	0.0913			
	1030	Sulfate	7b	0	1	0.00	153.000						
*	1031	Sulfate	21	0	13	0.00	228.600	92.726	8598.15	0.4056			
*	1038	Sulfate	2b	0	15	0.00	160.600	21.876	478.54	0.1362			
	1074	Sulfate	20	0	15	0.00	100.313	89.993	8098.76	0.8971			
*	1079	Sulfate	3	0	15	0.00	271.133	182.318	33240.03	0.6724			
*	1080	Sulfate	2b	0	15	0.00	193.447	36.129	1305.32	0.1868			
*	1081	Sulfate	3	0	15	0.00	483.733	144.007	20738.07	0.2977			
*	1082	Sulfate	3	0	14	0.00	227.543	119.990	14397.51	0.5273			
*	1083	Sulfate	2b	0	15	0.00	142.933	15.021	225.64	0.1051			
	2043	Sulfate		0	14	0.00	78.879	66.472	4418.48	0.8427			
	2066	Sulfate		3	15	0.20	15.596	30.551	933.36	1.9589	46.14620	58.932	3472.9287
*	2010	Sulfate	21	0	15	0.00	261.240	202.141	40860.86	0.7738			
	2013	Sulfate	2a	0	15	0.00	105.882	39.947	1595.78	0.3773			
	2019	Sulfate	2a	0	15	0.00	86.393	32.415	1050.75	0.3752			
	2021	Sulfate	2a	0	15	0.00	100.060	55.463	3076.17	0.5543			
*	2027	Sulfate	21	0	15	0.00	373.200	193.985	37630.31	0.5198			
*	2037	Sulfate	2b	0	15	0.00	173.613	94.377	8907.01	0.5436			
*	2051	Sulfate	21	0	14	0.00	228.571	184.161	33915.34	0.8057			
	2055	Sulfate	2a	0	11	0.00	118.273	23.200	538.22	0.1962			
*	2084	Sulfate	21	0	15	0.00	481.933	207.960	43247.35	0.4315			
	3043	Sulfate		1	15	0.07	20.48333	44.604	1989.49	2.1776			
	3066	Sulfate		1	15	0.07	34.78866	29.722	883.39	0.8544	27.636	37.861	1433.4217
	3001	Sulfate	20	0	15	0.00	57.360	49.829	2482.88	0.8687			
	3008	Sulfate	20	1	15	0.07	45.733	28.522	813.49	0.6237			
*	3010	Sulfate	21	0	15	0.00	447.200	172.638	29803.89	0.3860			
*	3013	Sulfate	21	0	15	0.00	218.600	85.033	7230.54	0.3890			
*	3019	Sulfate	21	0	15	0.00	289.913	159.850	25552.01	0.5514			

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RCRA Groundwater Data as of 12-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2
*	3024	Sulfate	21	0	15	0.00	95.067	35.961	1293.21	0.3783			
*	3037	Sulfate	21	0	15	0.00	440.267	64.380	4144.78	0.1462			
*	3051	Sulfate	2b	0	8	0.00	111.875	48.816	2382.98	0.4363			
*	3055	Sulfate	21	0	15	0.00	335.933	97.773	9559.64	0.2911			
*	3084	Sulfate	21	0	15	0.00	379.667	79.116	6259.38	0.2084			
	4001	Sulfate	20	0	15	0.00	37.620	63.377	4016.63	1.6847			
	4008	Sulfate	15	2	14	0.14	9.414	10.091	101.84	1.0719			
*	4010	Sulfate	2b	0	12	0.00	74.883	27.602	761.86	0.3686			
*	4013	Sulfate	21	0	12	0.00	301.500	83.944	7046.64	0.2784			

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	1024	Thallium			7	7	1.000
	1052	Thallium			7	7	1.000
				totals	14	14	
	1025	Thallium	15		7	7	1.000
	1027	Thallium	15		7	7	1.000
	1028	Thallium	15		1	1	1.000
	1031	Thallium	15		7	7	1.000
	1038	Thallium	15		7	7	1.000
	1074	Thallium	15		7	7	1.000
	1079	Thallium	15		7	7	1.000
	1080	Thallium	15		7	7	1.000
	1081	Thallium	15		7	7	1.000
	1082	Thallium	15		7	7	1.000
	1083	Thallium	15		7	7	1.000
				totals	71	71	
	2043	Thallium			7	7	1.000
	2066	Thallium			7	7	1.000
				totals	14	14	
	2010	Thallium	15		7	7	1.000
	2013	Thallium	15		7	7	1.000
	2019	Thallium	15		7	7	1.000
	2021	Thallium	15		7	7	1.000
	2027	Thallium	15		7	7	1.000
	2037	Thallium	15		7	7	1.000
	2051	Thallium	15		7	7	1.000
	2055	Thallium	15		7	7	1.000
	2084	Thallium	15		7	7	1.000
				totals	63	63	
	3043	Thallium			7	7	1.000
	3066	Thallium			7	7	1.000

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
				totals	14	14	
	3001	Thallium	15		7	7	1.000
	3008	Thallium	15		7	7	1.000
	3010	Thallium	15		7	7	1.000
	3013	Thallium	15		7	7	1.000
	3019	Thallium	15		7	7	1.000
	3024	Thallium	15		6	6	1.000
	3037	Thallium	15		7	7	1.000
	3055	Thallium	15		7	7	1.000
	3084	Thallium	15		7	7	1.000
	4001	Thallium	15		7	7	1.000
	4008	Thallium	15		7	7	1.000
	4010	Thallium	15		7	7	1.000
	4013	Thallium	15		7	7	1.000
				totals	90	90	
	1024	Thallium, (Dissd.)			7	7	1.000
	1052	Thallium, (Dissd.)			8	8	1.000
				totals	15	15	
	1025	Thallium, (Dissd.)	15		9	9	1.000
	1027	Thallium, (Dissd.)	15		7	7	1.000
	1028	Thallium, (Dissd.)	15		1	1	1.000
	1031	Thallium, (Dissd.)	15		8	8	1.000
	1038	Thallium, (Dissd.)	15		7	7	1.000
	1074	Thallium, (Dissd.)	15		9	9	1.000
	1079	Thallium, (Dissd.)	15		8	8	1.000
	1080	Thallium, (Dissd.)	15		8	8	1.000
	1081	Thallium, (Dissd.)	15		7	7	1.000
	1082	Thallium, (Dissd.)	15		8	8	1.000
	1083	Thallium, (Dissd.)	15		8	8	1.000
				totals	80	80	

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

10356

3713

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	2043	Thallium, (Dissd.)			8	8	1.000
	2066	Thallium, (Dissd.)			7	7	1.000
				totals	15	15	
	2010	Thallium, (Dissd.)	15		8	8	1.000
	2013	Thallium, (Dissd.)	15		7	7	1.000
	2019	Thallium, (Dissd.)	15		9	9	1.000
	2021	Thallium, (Dissd.)	15		8	8	1.000
	2027	Thallium, (Dissd.)	15		9	9	1.000
	2037	Thallium, (Dissd.)	15		9	9	1.000
	2051	Thallium, (Dissd.)	15		7	7	1.000
	2055	Thallium, (Dissd.)	15		7	7	1.000
	2084	Thallium, (Dissd.)	15		8	8	1.000
				totals	72	72	
	3043	Thallium, (Dissd.)			8	8	1.000
	3066	Thallium, (Dissd.)			7	7	1.000
				totals	15	15	
	3001	Thallium, (Dissd.)	15		8	8	1.000
	3008	Thallium, (Dissd.)	15		7	7	1.000
	3010	Thallium, (Dissd.)	15		7	7	1.000
	3013	Thallium, (Dissd.)	15		7	7	1.000
	3019	Thallium, (Dissd.)	15		8	8	1.000
	3024	Thallium, (Dissd.)	15		6	6	1.000
	3037	Thallium, (Dissd.)	15		8	8	1.000
	3055	Thallium, (Dissd.)	15		7	7	1.000
	3084	Thallium, (Dissd.)	15		8	8	1.000
	4001	Thallium, (Dissd.)	15		7	7	1.000
	4008	Thallium, (Dissd.)	15		7	7	1.000
	4010	Thallium, (Dissd.)	15		7	7	1.000
	4013	Thallium, (Dissd.)	15		7	7	1.000
				totals	94	94	

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	1024	Total Organic Carbon		2	11	0.18	9.206	13.974	195.2784	1.5179				
	1052	Total Organic Carbon		1	11	0.09	7.063	7.988	63.8017	1.1310	8.134	11.240	126.328	1.3817
	1025	Total Organic Carbon	15	0	11	0.00	8.491	8.557	73.2159	1.0077				
	1027	Total Organic Carbon	15	1	11	0.09	7.223	7.151	51.1388	0.9901				
	1028	Total Organic Carbon	15	0	2	0.00	7.540	2.178	4.7432	0.2888				
	1030	Total Organic Carbon	15	0	1	0.00	9.000							
	1031	Total Organic Carbon	20	0	11	0.00	10.173	2.134	4.5522	0.2097				
	1038	Total Organic Carbon	20	2	11	0.18	10.451	14.287	204.1127	1.3670				
	1074	Total Organic Carbon	15	2	11	0.18	6.645	7.000	49.0008	1.0535				
	1079	Total Organic Carbon	15	2	11	0.18	6.498	6.557	42.9892	1.0091				
	1080	Total Organic Carbon	20	0	11	0.00	9.839	10.077	101.5488	1.0242				
	1081	Total Organic Carbon	20	0	11	0.00	15.291	14.683	215.5914	0.9602				
	1082	Total Organic Carbon	20	0	11	0.00	13.659	12.697	161.2079	0.9296				
	1083	Total Organic Carbon	15	1	11	0.09	7.342	6.984	48.7761	0.9513				
	2043	Total Organic Carbon		0	11	0.00	7.005	4.909	24.1010	0.7008				
	2066	Total Organic Carbon		0	11	0.00	7.819	5.260	27.6646	0.6727	7.412	4.982	24.824	0.6722
	2010	Total Organic Carbon	1	2	11	0.18	6.628	6.619	43.8102	0.9986	T.L. =	19.121	n=22	
	2013	Total Organic Carbon	1	1	11	0.09	5.174	5.154	26.5628	0.9962				
	2019	Total Organic Carbon	2a	1	11	0.09	6.993	6.161	37.9552	0.8810				
	2021	Total Organic Carbon	1	2	11	0.18	5.349	5.816	33.8250	1.0873				
	2027	Total Organic Carbon	20	0	11	0.00	8.365	8.903	79.2604	1.0643				
	2037	Total Organic Carbon	1	0	11	0.00	5.647	5.455	29.7588	0.9660				
	2051	Total Organic Carbon	1	1	10	0.10	5.457	5.395	29.1083	0.9886				
	2055	Total Organic Carbon	20	1	11	0.09	10.164	14.681	215.5300	1.4445				
	2084	Total Organic Carbon	20	1	11	0.09	10.601	10.784	116.2865	1.0172				
	3043	Total Organic Carbon		0	11	0.00	6.588	4.530	20.5199	0.6876				
?	3066	Total Organic Carbon		1	11	0.09	13.129	9.361	87.6268	0.7130	9.859	7.787	60.644	0.7899
	3001	Total Organic Carbon	15	0	11	0.00	6.134	2.047	4.1883	0.3336				
	3008	Total Organic Carbon	15	4	11	0.36	3.401	2.808	7.8839	0.8256				
	3010	Total Organic Carbon	15	1	11	0.09	5.094	4.495	20.2088	0.8824				
	3013	Total Organic Carbon	15	1	11	0.09	6.367	5.479	30.0217	0.8605				
	3019	Total Organic Carbon	15	0	11	0.00	7.767	6.620	43.8201	0.8523				

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3024	Total Organic Carbon	15	1	11	0.09	7.133	5.900	34.8091	0.8272				
	3037	Total Organic Carbon	15	0	11	0.00	9.315	7.316	53.5274	0.7855				
	3051	Total Organic Carbon	15	1	4	0.25	3.655	3.998	15.9836	1.0938				
	3055	Total Organic Carbon	15	0	10	0.00	6.576	7.008	49.1110	1.0657				
	3084	Total Organic Carbon	15	2	11	0.18	9.695	8.218	67.5360	0.8477				
	4001	Total Organic Carbon	15	0	11	0.00	8.775	6.099	37.2030	0.6951				
	4008	Total Organic Carbon	15	1	11	0.09	5.302	4.232	17.9065	0.7981				
	4010	Total Organic Carbon	15	1	11	0.09	8.652	7.205	51.9104	0.8327				
	4013	Total Organic Carbon	15	0	11	0.00	10.256	7.063	49.8868	0.6887				

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL
	1024	Total Organic Halides			9	13	0.692
	1052	Total Organic Halides			11	13	0.846
				totals	20	26	0.769
	1025	Total Organic Halides	12		3	13	0.231
	1027	Total Organic Halides	10		10	13	0.769
	1028	Total Organic Halides	12		0	2	0.000
	1030	Total Organic Halides	10		1	1	1.000
•	1031	Total Organic Halides	12		0	13	0.000
	1038	Total Organic Halides	12		8	14	0.571
	1074	Total Organic Halides	12		8	14	0.571
	1079	Total Organic Halides	10		10	13	0.769
	1080	Total Organic Halides	12		5	13	0.385
	1081	Total Organic Halides	12		7	14	0.500
	1082	Total Organic Halides	12		6	13	0.462
	1083	Total Organic Halides	12		8	14	0.571
				totals	66	137	
				X=	6	n=	163
				Y=	71	P=	0.472392
				Pb=	0.230769	nP=	77
				Pc=	0.518248	n(1-P)=	86
				Sd=	0.106795		
				Z=	-2.69185	Statistically Significant	
	2043	Total Organic Halides			7	12	0.583
	2066	Total Organic Halides			7	13	0.538
				totals	14	25	
	2010	Total Organic Halides	9		10	14	0.714
	2013	Total Organic Halides	9		8	14	0.571
	2019	Total Organic Halides	9		11	14	0.786
	2021	Total Organic Halides	9		11	14	0.786
	2027	Total Organic Halides	9		7	13	0.538
	2037	Total Organic Halides	9		12	14	0.857
	2051	Total Organic Halides	9		7	13	0.538
	2055	Total Organic Halides	9		9	11	0.818

Test of Proportions

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	2084	Total Organic Halides	9		9	14	0.643	
				totals	84	121		
				X=	11	n=	146	
				Y=	37	P=	0.328767	
				Pb=	0.44	nP=	48	Test of Proportions
				Pc=	0.305785	n(1-P)=	98	
				Sd=	0.103203			
				Z=	1.300487	O. K.		
	3043	Total Organic Halides			10	13	0.769	
?	3066	Total Organic Halides			4	13	0.308	
				totals	14	26		
	3001	Total Organic Halides	9		12	14	0.857	
	3008	Total Organic Halides	9		9	14	0.643	
	3010	Total Organic Halides	8		6	14	0.429	
	3013	Total Organic Halides	9		7	13	0.538	
	3019	Total Organic Halides	9		8	14	0.571	
	3024	Total Organic Halides	9		10	12	0.833	
	3037	Total Organic Halides	8		5	14	0.357	
	3051	Total Organic Halides	9		5	6	0.833	
	3055	Total Organic Halides	9		6	11	0.545	
	3084	Total Organic Halides	9		7	14	0.500	
	4001	Total Organic Halides	9		9	13	0.692	
	4008	Total Organic Halides	9		11	13	0.846	
	4010	Total Organic Halides	9		6	12	0.500	
	4013	Total Organic Halides	8		4	11	0.364	
				totals	105	175		
				X=	12	n=	201	
				Y=	70	P=	0.407960	
				Pb=	0.461538	nP=	82	Test of Proportions
				Pc=	0.4	n(1-P)=	119	
				Sd=	0.103294			
				Z=	0.595758	O. K.		

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1024	Vanadium			7	8	0.875	
	1052	Vanadium			6	8	0.750	
				totals	13	16		
	1025	Vanadium	9		5	8	0.625	
	1027	Vanadium	9		8	8	1.000	
	1028	Vanadium	8		0	1	0.000	
	1031	Vanadium	9		7	8	0.875	
*	1038	Vanadium	8		2	8	0.250	
	1074	Vanadium	9		8	8	1.000	
	1079	Vanadium	9		7	8	0.875	
	1080	Vanadium	9		5	8	0.625	
	1081	Vanadium	9		8	8	1.000	
	1082	Vanadium	9		7	8	0.875	
	1083	Vanadium	9		5	8	0.625	
				totals	62	81		
				X=	3	n=	97	
				Y=	19	P=	0.22680	
				Pb=	0.1875	nP=	22	Test of Proportions
				Pc=	0.23456	n(1-P)=	75	
				Sd=	0.11456			
				Z=	-0.4108	O. K.		
	2043	Vanadium			8	8	1.000	
	2066	Vanadium			8	8	1.000	
				totals	16	16		
	2010	Vanadium	9		8	8	1.000	
	2013	Vanadium	9		8	8	1.000	
	2019	Vanadium	9		8	8	1.000	
	2021	Vanadium	9		8	8	1.000	
	2027	Vanadium	9		8	8	1.000	
	2037	Vanadium	9		8	8	1.000	
	2051	Vanadium	9		8	8	1.000	
	2055	Vanadium	9		8	8	1.000	
	2084	Vanadium	9		7	8	0.875	

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3713

0362

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
				totals	71	72		
				X=	0	n=	88	
				Y=	1	P=	0.01136	
				Pb=	0	nP=	1	Test of Proportions
				Pc=	0.01388	n(1-P)=	87	
				Sd=	0.02929			
				Z=	-0.4741	O. K.		
	3043	Vanadium	11		7	8	0.875	
	3066	Vanadium	11		8	8	1.000	
				totals	15	16		
	3001	Vanadium	11		8	8	1.000	
	3008	Vanadium	11		8	8	1.000	
	3010	Vanadium	11		8	8	1.000	
	3013	Vanadium	11		8	8	1.000	
	3019	Vanadium	11		8	8	1.000	
	3024	Vanadium	11		8	8	1.000	
	3037	Vanadium	11		8	8	1.000	
	3051	Vanadium	11		1	1	1.000	
	3055	Vanadium	11		8	8	1.000	
	3084	Vanadium	11		8	8	1.000	
	4001	Vanadium	11		8	8	1.000	
	4008	Vanadium	11		8	8	1.000	
	4010	Vanadium	11		8	8	1.000	
	4013	Vanadium	11		8	8	1.000	
				totals	105	105		
				X=	1	n=	121	
				Y=	0	P=	0.00826	
				Pb=	0.0625	nP=	1	Test of Proportions
				Pc=	0	n(1-P)=	120	
				Sd=	0.02429			
				Z=	2.57238	Statistically Significant		
	1024	Vanadium, Dissd.			9	11	0.818	

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RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	1052	Vanadium, Dissd.			9	11	0.818	
				totals	18	22		
	1025	Vanadium, Dissd.	9		9	11	0.818	
	1027	Vanadium, Dissd.	9		9	11	0.818	
	1028	Vanadium, Dissd.	9		1	2	0.500	
	1030	Vanadium, Dissd.	9		1	2	0.500	
	1031	Vanadium, Dissd.	9		9	11	0.818	
	1038	Vanadium, Dissd.	9		9	11	0.818	
	1074	Vanadium, Dissd.	9		9	11	0.818	
	1079	Vanadium, Dissd.	9		9	11	0.818	
	1080	Vanadium, Dissd.	9		9	11	0.818	
	1081	Vanadium, Dissd.	9		9	11	0.818	
	1082	Vanadium, Dissd.	9		9	11	0.818	
	1083	Vanadium, Dissd.	9		9	11	0.818	
				totals	92	114		
				X=	4	n=	136	
				Y=	22	P=	0.19117	
				Pb=	0.18181	nP=	26	Test of Proportions
				Pc=	0.19298	n(1-P)=	110	
				Sd=	0.09156			
				Z=	-0.1219	O. K.		
	2043	Vanadium, Dissd.			9	11	0.818	
	2066	Vanadium, Dissd.			9	11	0.818	
				totals	18	22		
	2010	Vanadium, Dissd.	9		10	12	0.833	
	2013	Vanadium, Dissd.	9		9	11	0.818	
	2019	Vanadium, Dissd.	9		9	12	0.750	
	2021	Vanadium, Dissd.	9		9	11	0.818	
	2027	Vanadium, Dissd.	9		8	10	0.800	
	2037	Vanadium, Dissd.	9		9	11	0.818	
	2051	Vanadium, Dissd.	9		9	11	0.818	
	2055	Vanadium, Dissd.	9		9	11	0.818	

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VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	
	2084	Vanadium, Dissd.	9		9	11	0.818	
				totals	81	100		
				X=	4	n=	122	
				Y=	19	P=	0.18852	
				Pb=	0.18181	nP=	23	Test of Proportions
				Pc=	0.19	n(1-P)=	99	
				Sd=	0.09210			
				Z=	-0.0888	O. K.		
	3043	Vanadium, Dissd.			9	11	0.818	
	3066	Vanadium, Dissd.			9	11	0.818	
				totals	18	22		
	3001	Vanadium, Dissd.	9		10	11	0.909	
	3008	Vanadium, Dissd.	9		9	11	0.818	
	3010	Vanadium, Dissd.	9		9	11	0.818	
	3013	Vanadium, Dissd.	9		9	11	0.818	
	3019	Vanadium, Dissd.	9		9	11	0.818	
	3024	Vanadium, Dissd.	9		9	11	0.818	
	3037	Vanadium, Dissd.	9		9	11	0.818	
	3051	Vanadium, Dissd.	9		2	4	0.500	
	3055	Vanadium, Dissd.	9		9	11	0.818	
	3084	Vanadium, Dissd.	9		9	11	0.818	
	4001	Vanadium, Dissd.	9		9	11	0.818	
	4008	Vanadium, Dissd.	9		9	11	0.818	
	4010	Vanadium, Dissd.	9		9	11	0.818	
	4013	Vanadium, Dissd.	9		9	11	0.818	
				totals	120	147		
				X=	4	n=	169	
				Y=	27	P=	0.18343	
				Pb=	0.18181	nP=	31	Test of Proportions
				Pc=	0.18367	n(1-P)=	138	
				Sd=	0.08847			
				Z=	-0.0209	O. K.		

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RCRA Groundwater Data as of 07-Feb-92

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	1024	Zinc			4	8	0.500								
	1052	Zinc			4	8	0.500								
				totals	8	16									
	1025	Zinc	8		1	8	0.125								
	1027	Zinc	9		6	8	0.750								
	1028	Zinc	9		1	1	1.000								
	1031	Zinc	9		5	8	0.625								
*	1038	Zinc	8		0	8	0.000								
	1074	Zinc	9		4	8	0.500								
	1079	Zinc	8		2	8	0.250								
	1080	Zinc	8		1	8	0.125								
	1081	Zinc	8		3	8	0.375								
	1082	Zinc	8		2	8	0.250								
	1083	Zinc	8		2	8	0.250								
				totals	27	81									
				X=	8	n=	97								
				Y=	54	P=	0.63917								
				Pb=	0.5	nP=	62	Test of Proportions							
				Pc=	0.66666	n(1-P)=	35								
				Sd=	0.13138										
				Z=	-1.2685	O. K.									
?	2043	Zinc			1	8	0.125	0.0878	0.0604	0.0037	0.6885				
	2066	Zinc			6	8	0.750	0.0320	0.0255	0.0006	0.7953	0.059875	0.0511	0.0026	0.8528
	2010	Zinc	1		2	8	0.250	0.0405	0.0213	0.0005	0.5256	T.L. =	0.18870	n=16	
	2013	Zinc	1		5	8	0.625	0.0371	0.0310	0.0010	0.8350				
	2019	Zinc	1		7	8	0.875	0.0237	0.0149	0.0002	0.6276				
	2021	Zinc	1		2	8	0.250	0.0351	0.0214	0.0005	0.6086				
	2027	Zinc	15		0	8	0.000	0.0769	0.0989	0.0098	1.2868				
	2037	Zinc	1		0	8	0.000	0.0492	0.0283	0.0008	0.5746				
	2051	Zinc	1		0	8	0.000	0.0709	0.0267	0.0007	0.3761				
	2055	Zinc	1		3	8	0.375	0.0379	0.0228	0.0005	0.6021				
	2084	Zinc	1		3	8	0.375	0.0523	0.0343	0.0012	0.6569				

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RCRA Groundwater Data as of 07-Feb-92

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	3043	Zinc		2	8	0.250	0.0281	0.0196	0.0004	0.6980				
	3066	Zinc		0	8	0.000	0.0830	0.0416	0.0017	0.5010	0.055562	0.0434	0.0019	0.7806
	3001	Zinc	15	5	8	0.625	0.0510	0.0620	0.0038	1.2149	T.L. =	0.16499	n=16	
	3008	Zinc	20	0	8	0.000	0.1431	0.1488	0.0222	1.0399				
	3010	Zinc	1	3	8	0.375	0.0344	0.0222	0.0005	0.6449				
	3013	Zinc	1	4	8	0.500	0.0298	0.0182	0.0003	0.6124				
	3019	Zinc	15	6	8	0.750	0.0599	0.0903	0.0081	1.5077				
	3024	Zinc	1	4	8	0.500	0.0327	0.0203	0.0004	0.6186				
	3037	Zinc	1	1	8	0.125	0.0534	0.0345	0.0012	0.6459				
	3051	Zinc	7a	0	1	0.000	0.0290							
	3055	Zinc	1	1	8	0.125	0.0445	0.0159	0.0003	0.3579				
	3084	Zinc	1	4	8	0.500	0.0363	0.0237	0.0006	0.6532				
	4001	Zinc	20	1	8	0.125	0.2071	0.2142	0.0459	1.0340				
	4008	Zinc	2a	1	8	0.125	0.1917	0.1297	0.0168	0.6765				
	4010	Zinc	20	3	8	0.375	0.1895	0.3071	0.0943	1.6204				
	4013	Zinc	15	1	8	0.125	0.0386	0.0186	0.0003	0.4810				
	1024	Zinc, Dissd.		5	11	0.455								
	1052	Zinc, Dissd.		6	11	0.545								
			totals	11	22									
	1025	Zinc, Dissd.	8	3	12	0.250								
	1027	Zinc, Dissd.	9	8	11	0.727								
	1028	Zinc, Dissd.	9	1	2	0.500								
	1030	Zinc, Dissd.	8	0	2	0.000								
	1031	Zinc, Dissd.	9	8	10	0.800								
	1038	Zinc, Dissd.	9	6	11	0.545								
	1074	Zinc, Dissd.	9	6	12	0.500								
	1079	Zinc, Dissd.	8	4	11	0.364								
	1080	Zinc, Dissd.	8	5	11	0.455								
	1081	Zinc, Dissd.	8	5	11	0.455								
	1082	Zinc, Dissd.	8	5	11	0.455								
	1083	Zinc, Dissd.	9	7	12	0.583								

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***		TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
				totals	58	116									
				X=	11	n=	138								
				Y=	58	P=	0.5								
				Pb=	0.5	nP=	69	Test of Proportions							
				Pc=	0.5	n(1-P)=	69								
				Sd=	0.11627										
				Z=	0	O. K.									
	2043	Zinc, Dissd.			6	11	0.545								
	2066	Zinc, Dissd.			7	11	0.636								
				totals	13	22									
	2010	Zinc, Dissd.	8		4	12	0.333								
	2013	Zinc, Dissd.	9		8	11	0.727								
	2019	Zinc, Dissd.	9		7	12	0.583								
	2021	Zinc, Dissd.	9		7	12	0.583								
	2027	Zinc, Dissd.	9		6	12	0.500								
	2037	Zinc, Dissd.	9		6	12	0.500								
	2051	Zinc, Dissd.	8		5	11	0.455								
	2055	Zinc, Dissd.	8		4	11	0.364								
	2084	Zinc, Dissd.	8		5	11	0.455								
				totals	52	104									
				X=	9	n=	126								
				Y=	52	P=	0.48412								
				Pb=	0.40909	nP=	61	Test of Proportions							
				Pc=	0.5	n(1-P)=	65								
				Sd=	0.11727										
				Z=	-0.7751	O. K.									
	3043	Zinc, Dissd.			5	11	0.455	0.0249	0.0167	0.0003	0.6689				
	3066	Zinc, Dissd.			1	11	0.091	0.0450	0.0312	0.0010	0.6922	0.034963	0.0264	0.0007	0.7540
	3001	Zinc, Dissd.	15		7	12	0.583	0.0386	0.0343	0.0012	0.8885	T.L. =	0.09692	n=22	
	3008	Zinc, Dissd.	20		8	11	0.727	0.0416	0.0436	0.0019	1.0486				
	3010	Zinc, Dissd.	1		5	11	0.455	0.0314	0.0209	0.0004	0.6661				

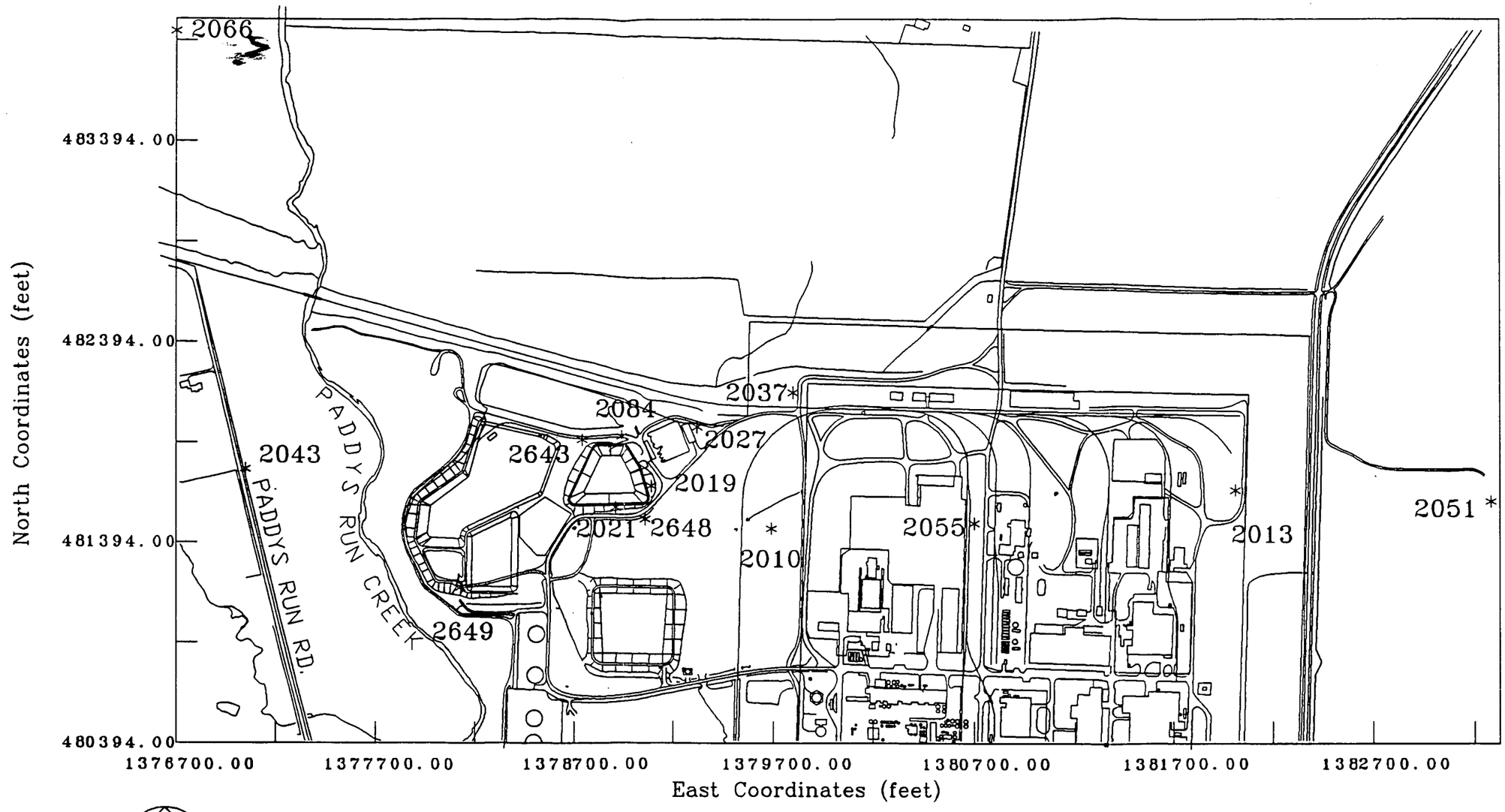
* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

RCRA Groundwater Data as of 07-Feb-92

VER-DICT	WELL #	CONSTITUENT	STAT. METH. AND CONCL. ***	TOTAL NON-DETECTS	TOTAL SAMPLES TAKEN	NON-DETECTS OVER TOTAL	BACKGROUND AND COMPLIANCE WELLS AVG.	S	S**2	S/AVG.	BOTH BACKGROUND WELLS AVG.	S	S**2	S/AVG.
	3013	Zinc, Dissd.	1	8	11	0.727	0.0266	0.0163	0.0003	0.6121				
	3019	Zinc, Dissd.	1	6	11	0.545	0.0275	0.0154	0.0002	0.5613				
	3024	Zinc, Dissd.	15	7	11	0.636	0.0368	0.0321	0.0010	0.8705				
	3037	Zinc, Dissd.	20	1	11	0.091	0.0625	0.0689	0.0047	1.1035				
	3051	Zinc, Dissd.	20	2	4	0.500	0.0404	0.0424	0.0018	1.0497				
	3055	Zinc, Dissd.	2a	2	11	0.182	0.0514	0.0412	0.0017	0.8016				
	3084	Zinc, Dissd.	1	4	11	0.364	0.0289	0.0151	0.0002	0.5227				
	4001	Zinc, Dissd.	1	8	11	0.727	0.0229	0.0137	0.0002	0.6005				
	4008	Zinc, Dissd.	1	4	11	0.364	0.0347	0.0228	0.0005	0.6558				
	4010	Zinc, Dissd.	1	5	11	0.455	0.0310	0.0197	0.0004	0.6338				
	4013	Zinc, Dissd.	15	6	11	0.545	0.0362	0.0285	0.0008	0.7886				

* Constituent found in statistically significant amount(s) *** See Cross Reference listing number ? Background well with relatively high values

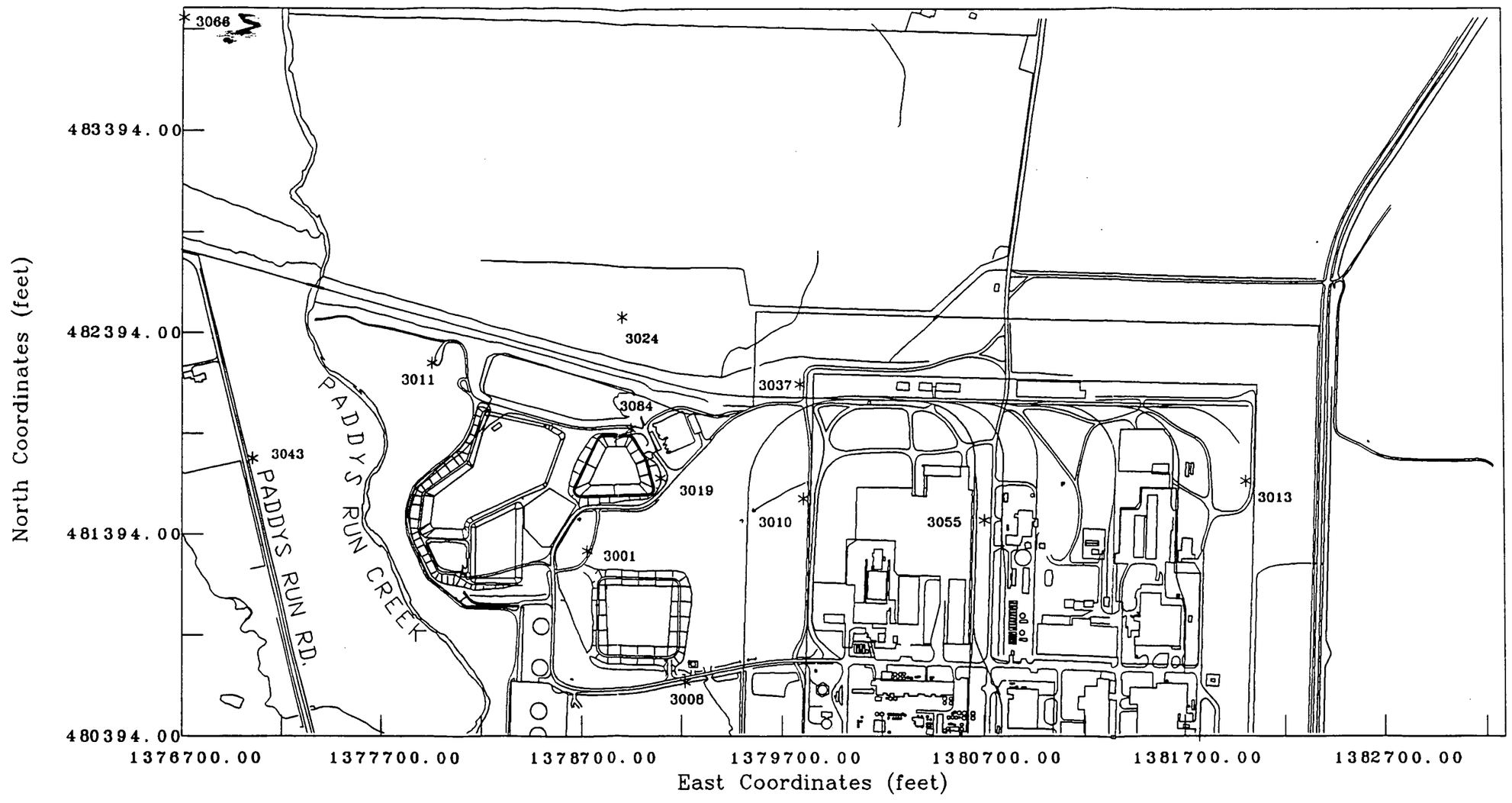
APPENDIX D



Scale (in feet)
0 250 500 1000

FIGURE D-1

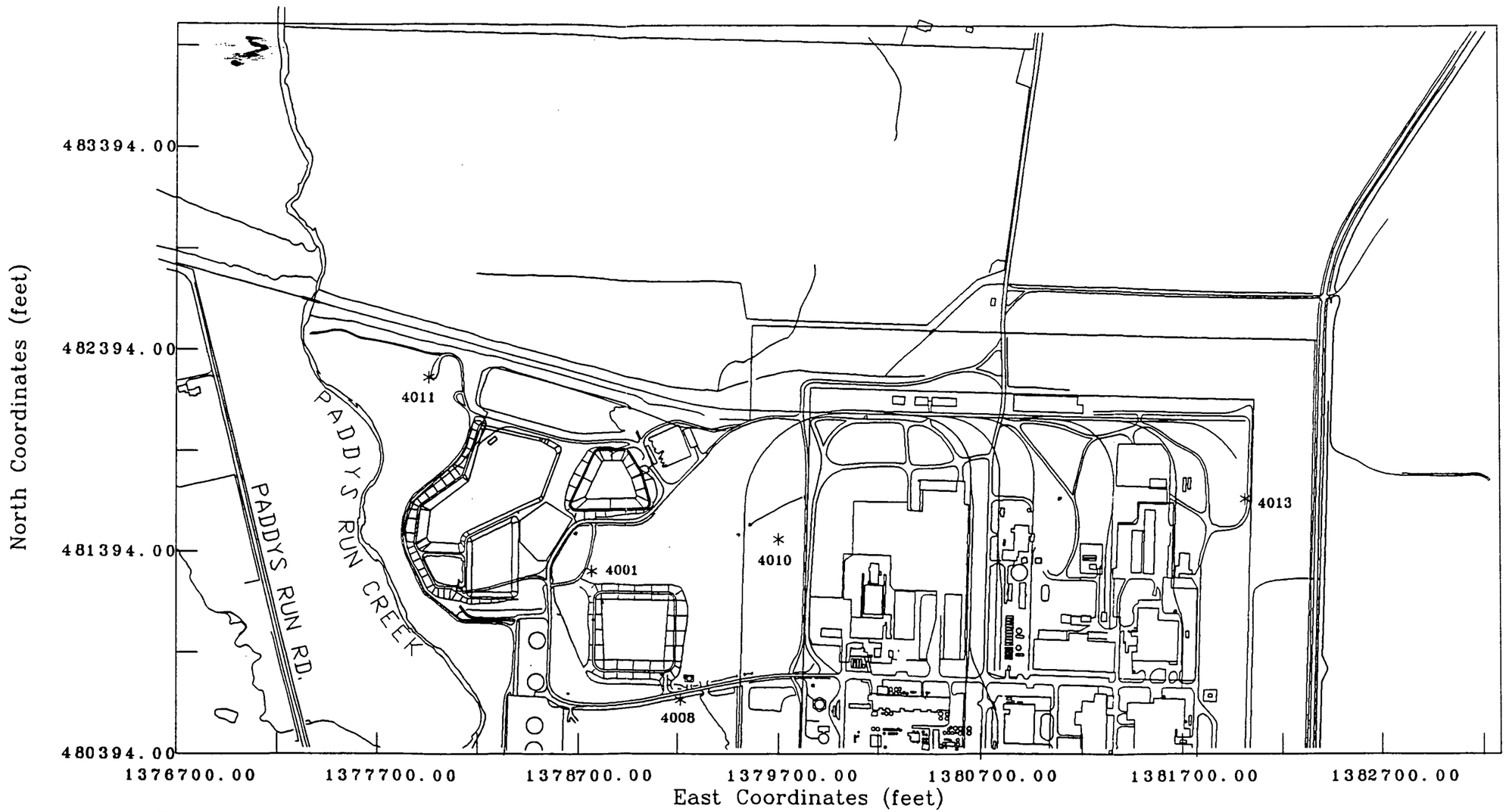
2000 Series Monitoring Well Key



Scale (in feet)
0 250 500 1000

FIGURE D-2

3000 Series Monitoring Well Key

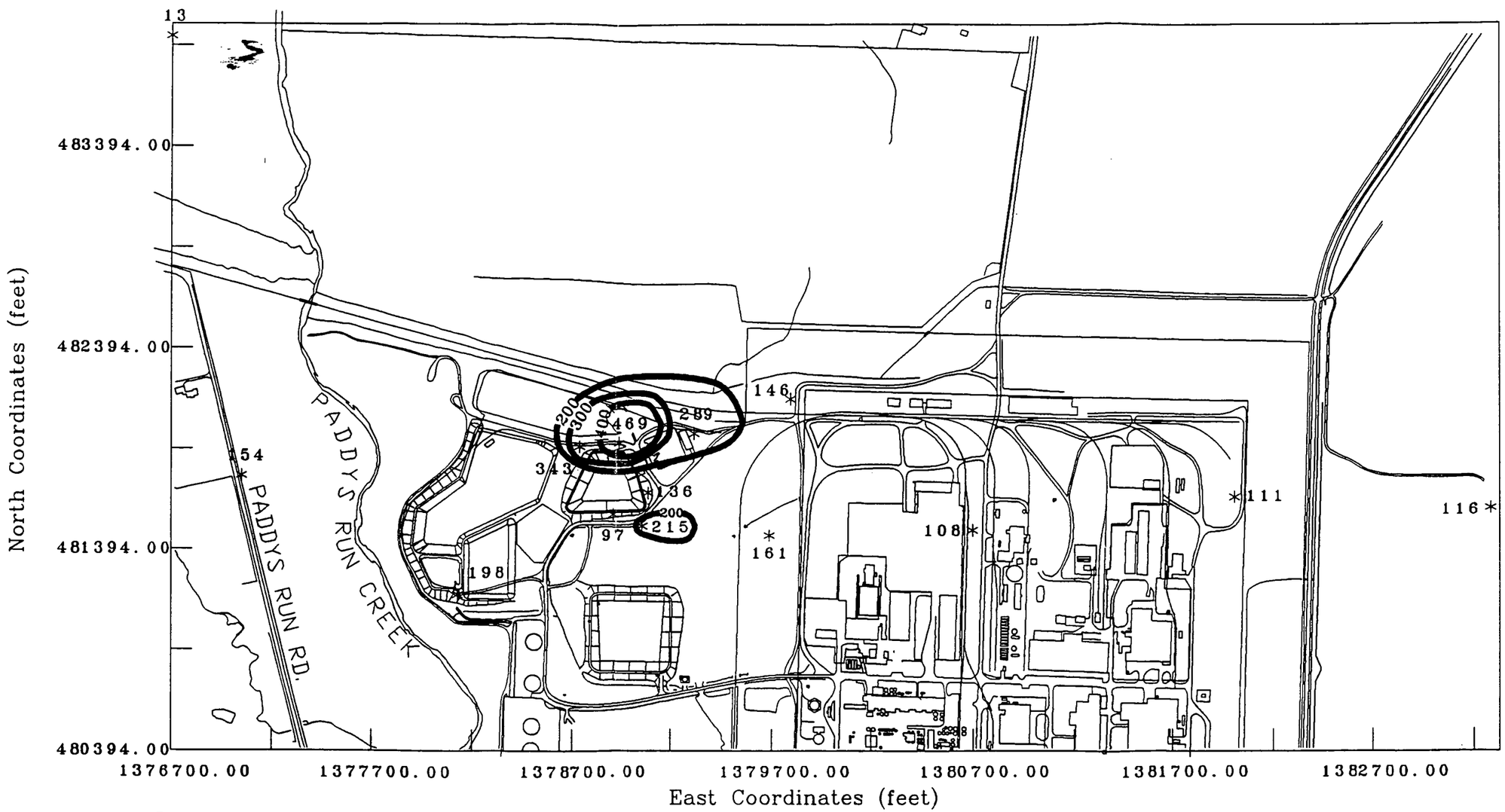


Scale (in feet)
0 250 500 1000

FIGURE D-3

4000 Series Monitoring Well Key

RCRA Groundwater Report For 1991



Legend

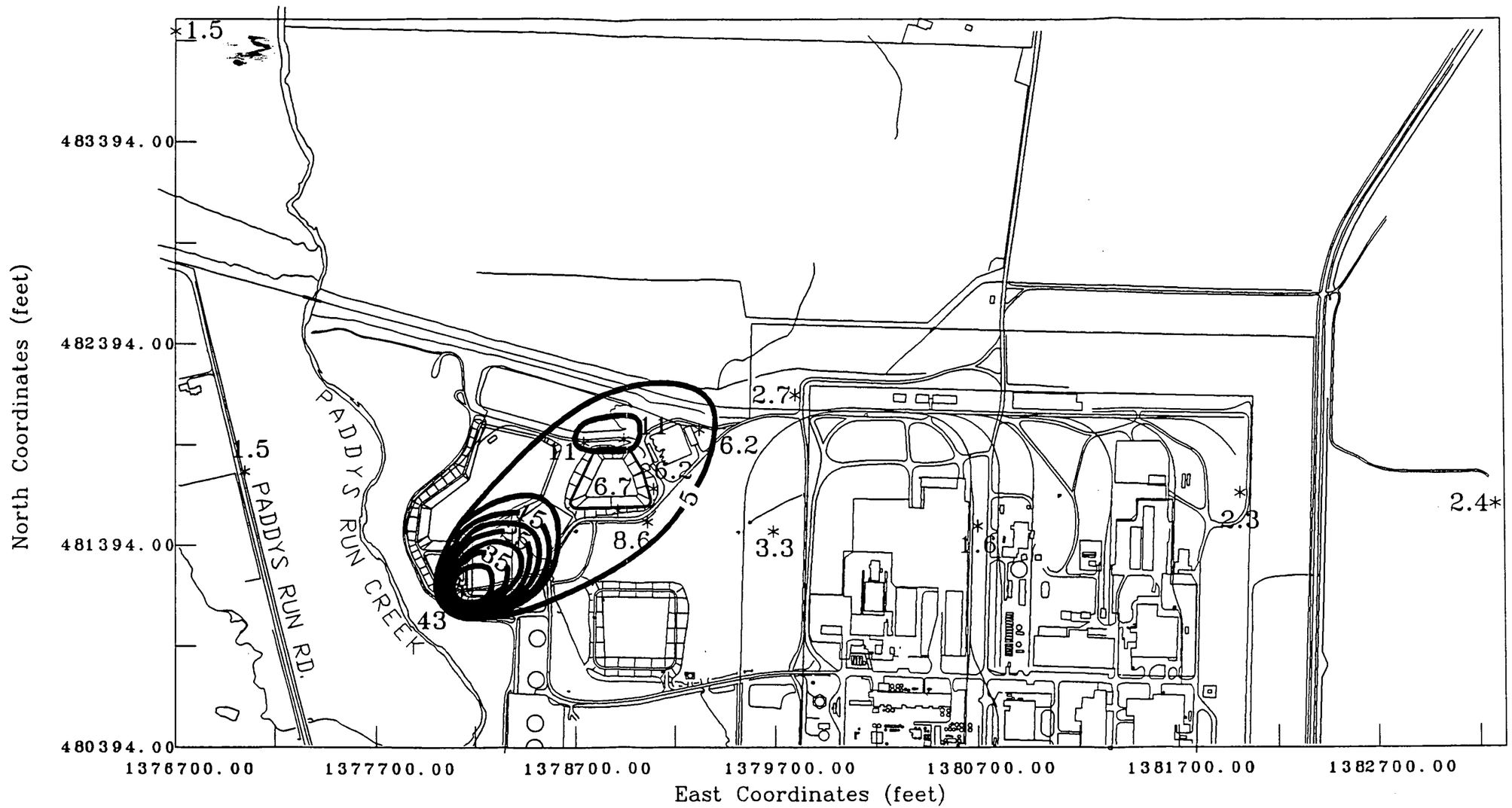
142.6 • Numbered Locations Indicate Concentrations At Specific Wells

Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 100 ppm Intervals

Scale (in feet)
0 250 500 1000

FIGURE D-4

Sulfate Contour Map For 2000 Series Wells Sampled In October, 1991



Legend

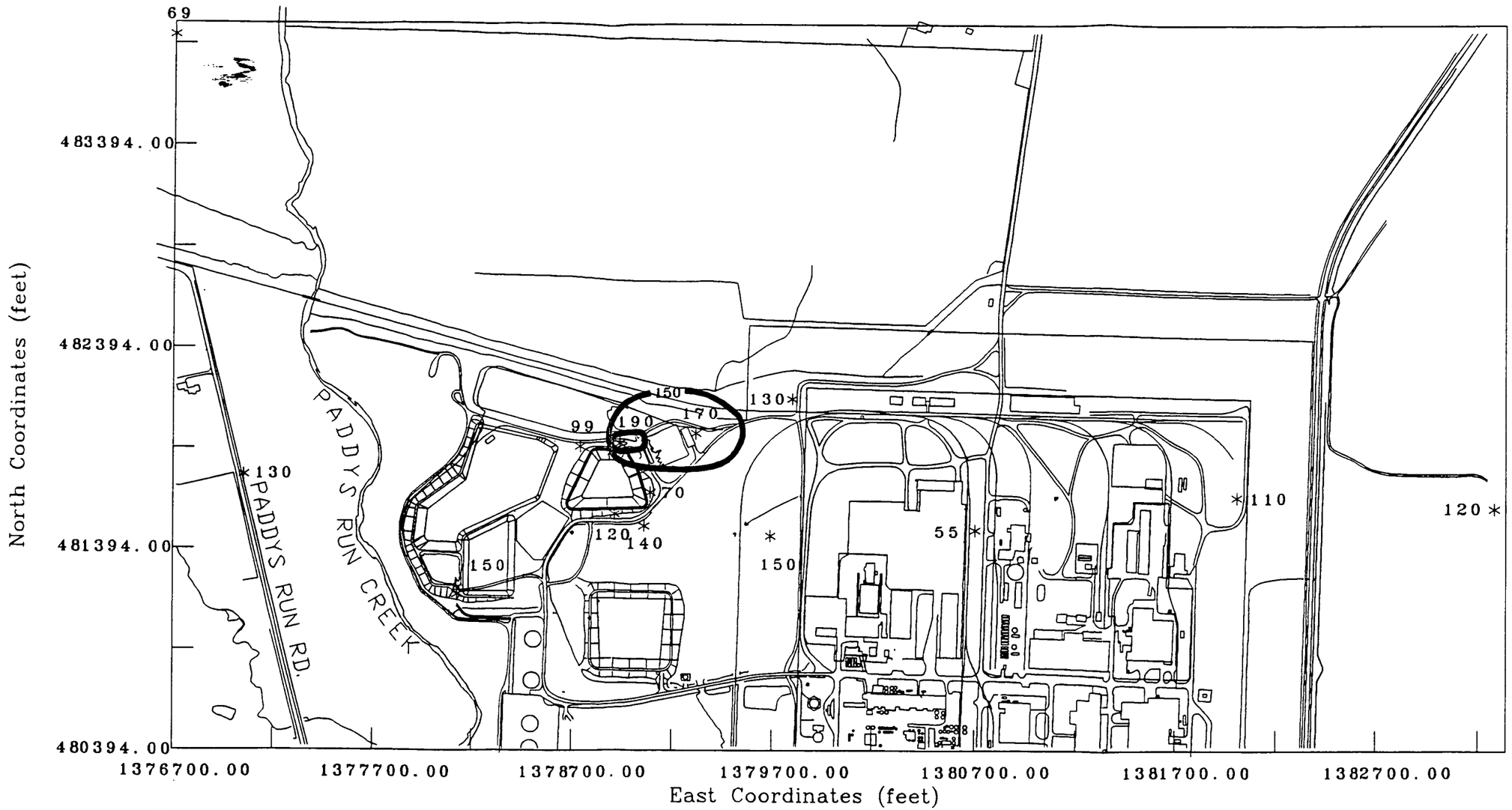
142.6 • Numbered Locations Indicate Concentrations At Specific Wells

Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 5 ppm Intervals

Scale (in feet)
0 250 500 1000

FIGURE D-5

Potassium Contour Map For 2000 Series Wells Sampled In October, 1991



Legend

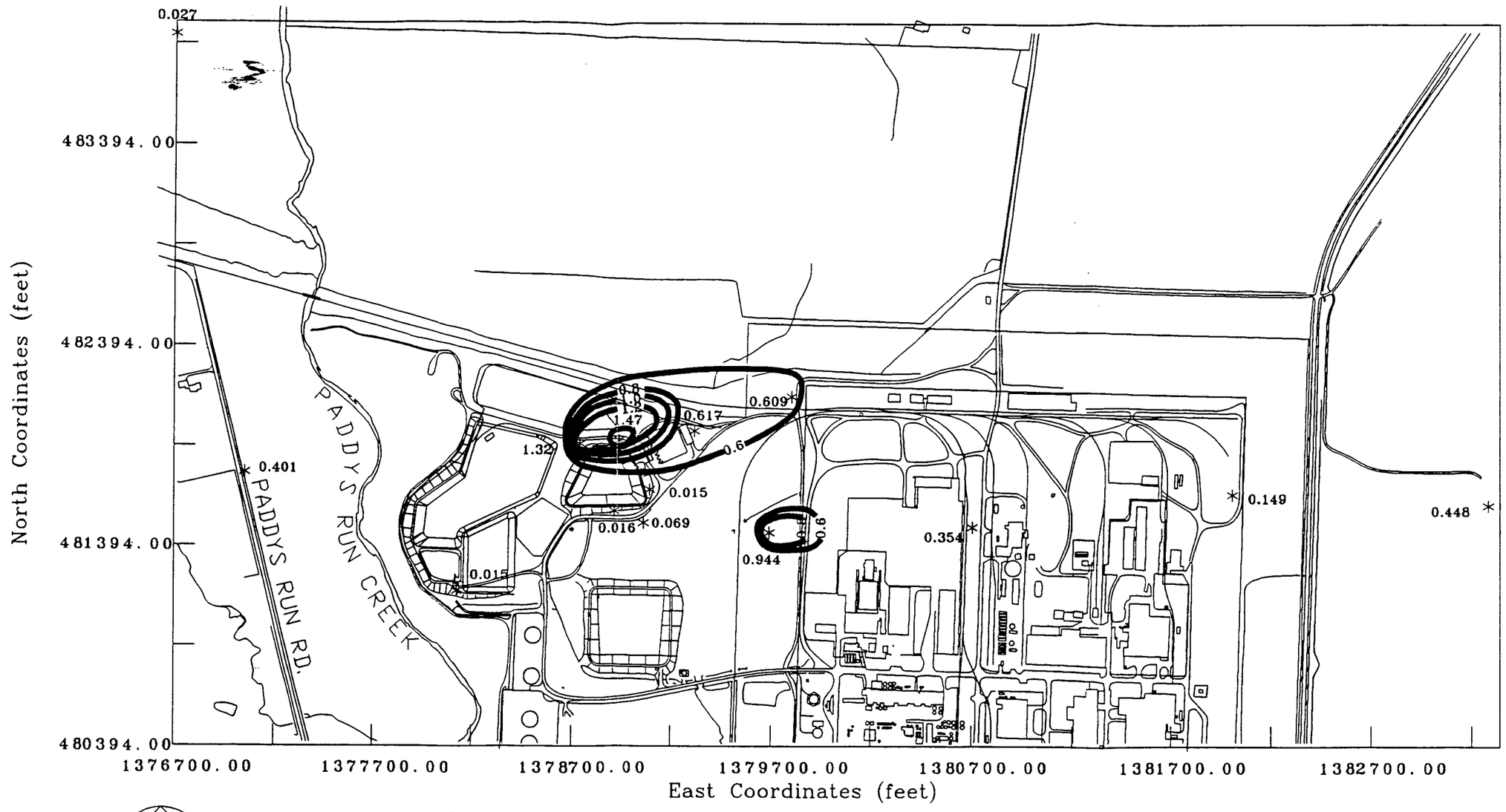
142.6 • Numbered Locations Indicate Concentrations At Specific Wells

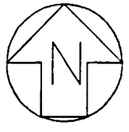
Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced on 25 ppm Intervals

Scale (in feet)
0 250 500 1000

FIGURE D-6

Calcium (Dissd.) Contour Map For 2000 Series Wells Sampled In October, 1991





Legend

142.6 • Numbered Locations Indicate Concentrations At Specific Wells

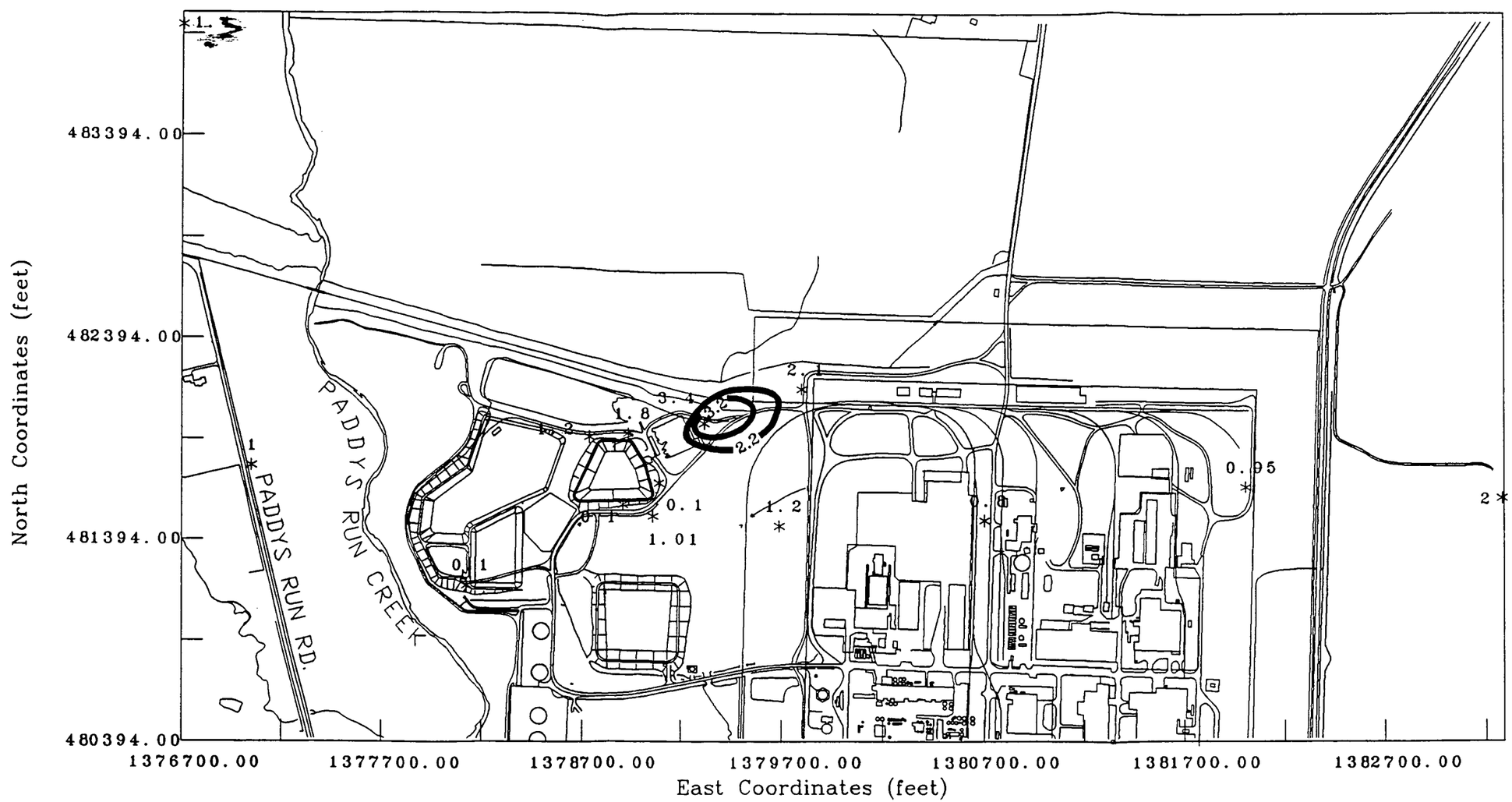
Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced on 0.2 ppm Intervals

Scale (in feet)
0 250 500 1000

FIGURE D-7

Manganese (Dissd.) Contour Map For 2000 Series Wells Sampled In October, 1991

RCRA Groundwater Report For 1991



Scale (in feet)
0 250 500 1000

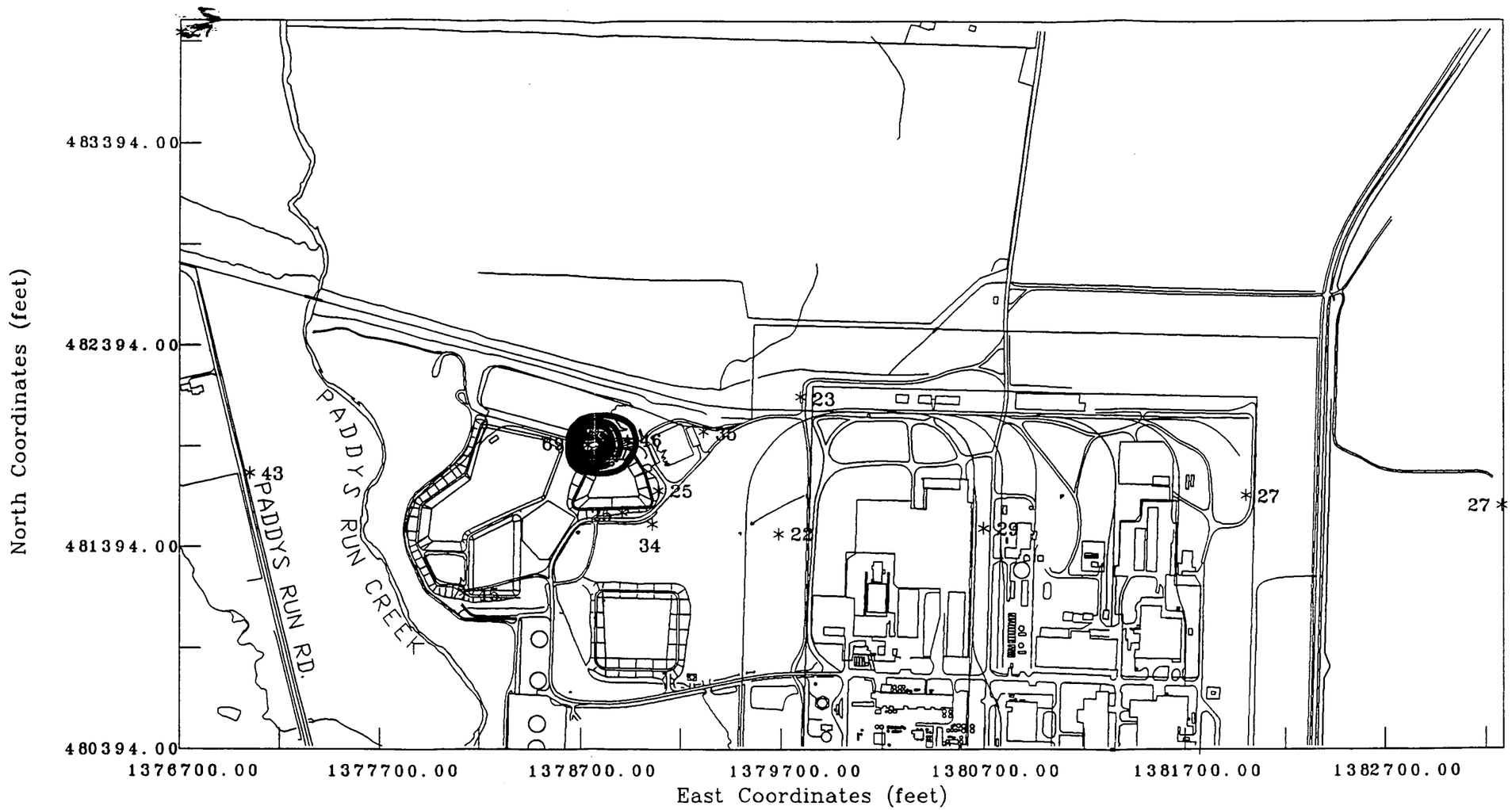
Legend

142.6 • Numbered Locations Indicate Concentrations At Specific Wells

Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 1 ppm Intervals

FIGURE D-8

Iron (Dissd.) Contour Map For 2000 Series Wells Sampled In October, 1991



Scale (in feet)
0 250 500 1000

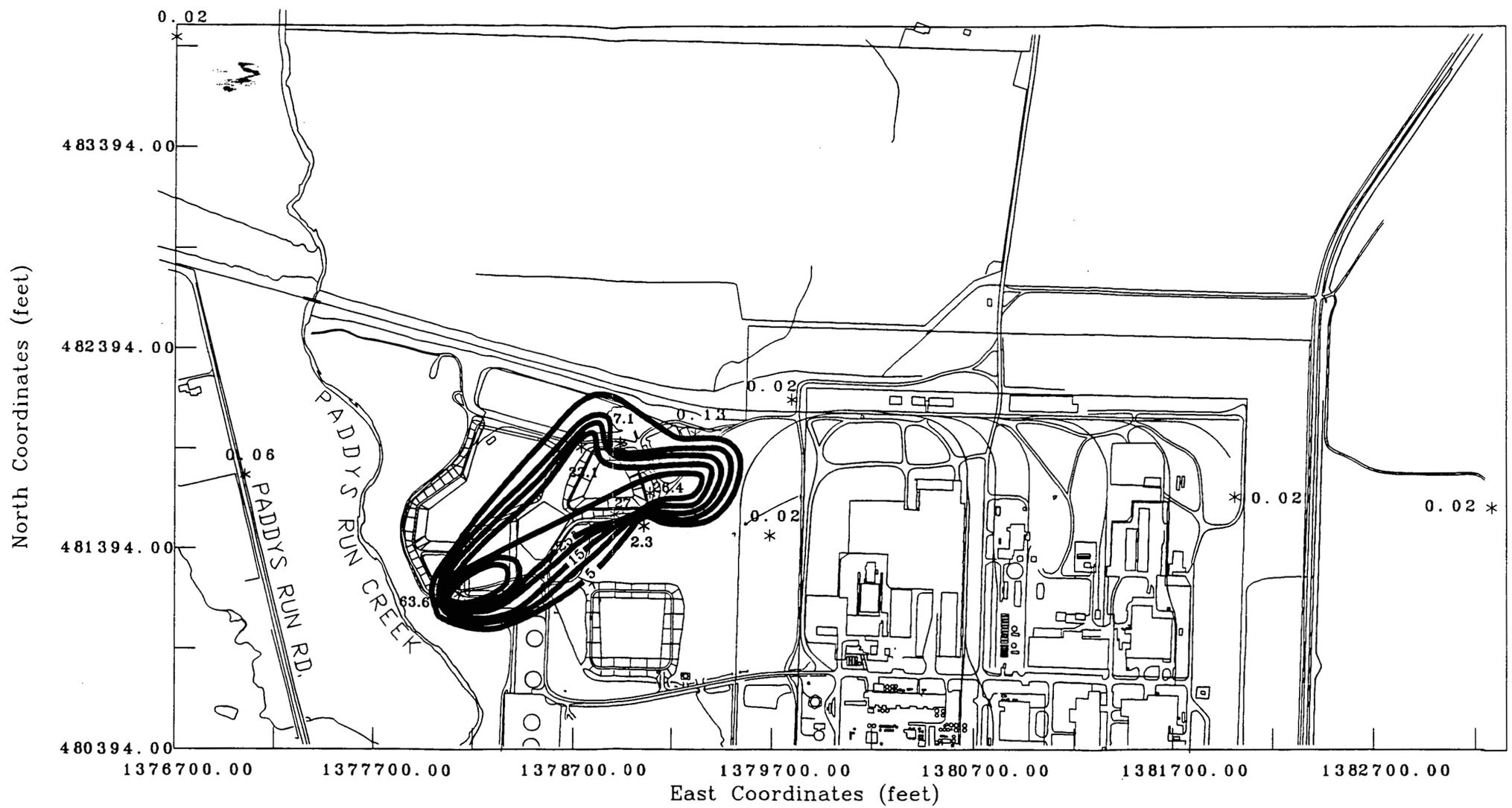
Legend

142.6 • Numbered Locations Indicate Concentrations At Specific Wells

< Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 5 ppm Intervals

FIGURE D-9

Magnesium (Dissd.) Contour Map For 2000 Series Wells Sampled In October, 1991



Legend

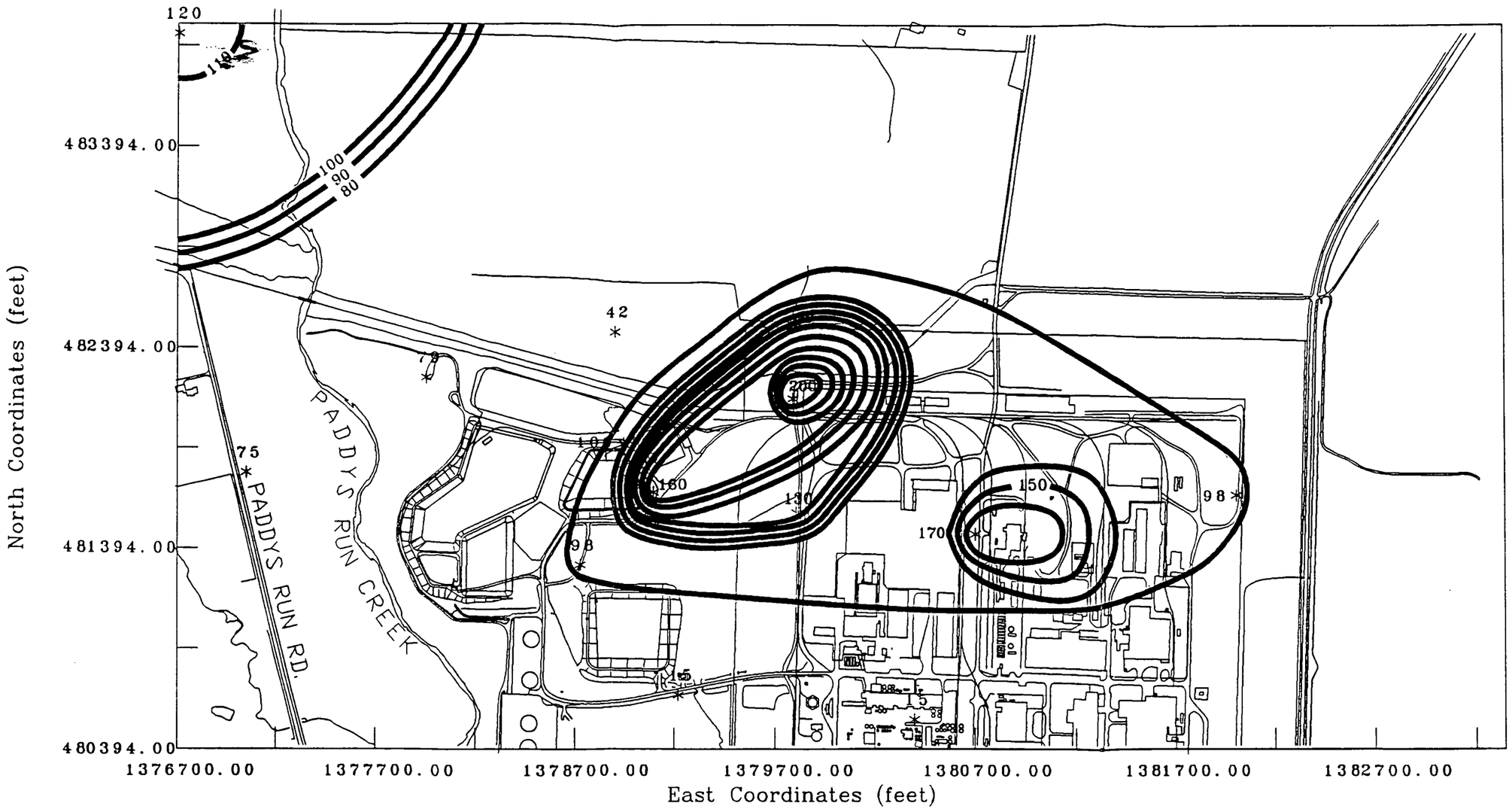
142.6 • Numbered Locations Indicate Concentrations At Specific Wells

Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 5 ppm Intervals

Scale (in feet)
0 250 500 1000

FIGURE D-10

Nitrate Contour Map For 2000 Series Wells Sampled In October, 1991



Legend

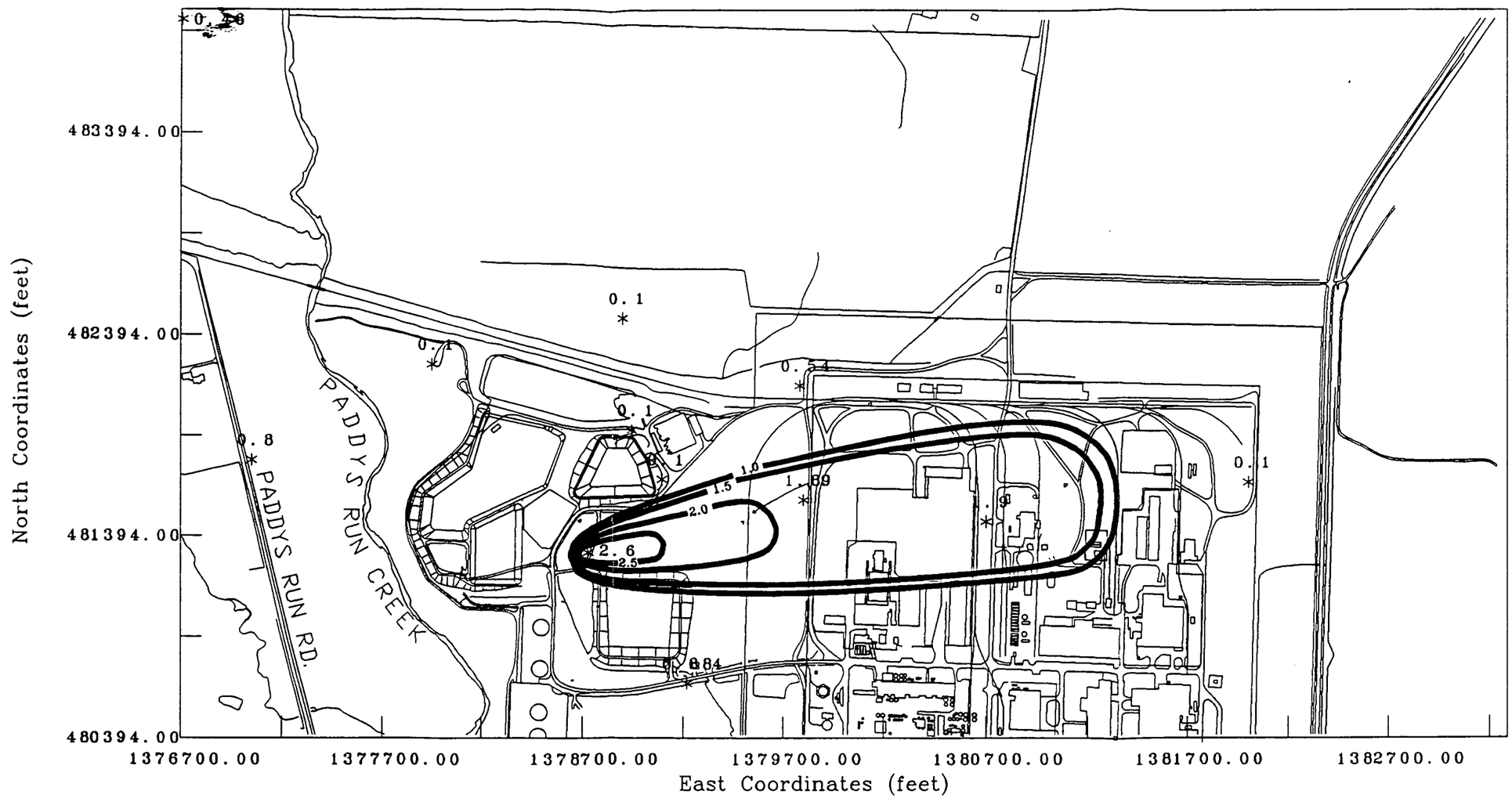
142.6 • Numbered Locations Indicate Concentrations At Specific Wells

Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And are Spaced On 10 ppm Intervals

Scale (in feet)
0 250 500 1000

FIGURE D-11

Calcium Contour Map For 3000 Series Wells Sampled In October, 1991



Scale (in feet)
0 250 500 1000

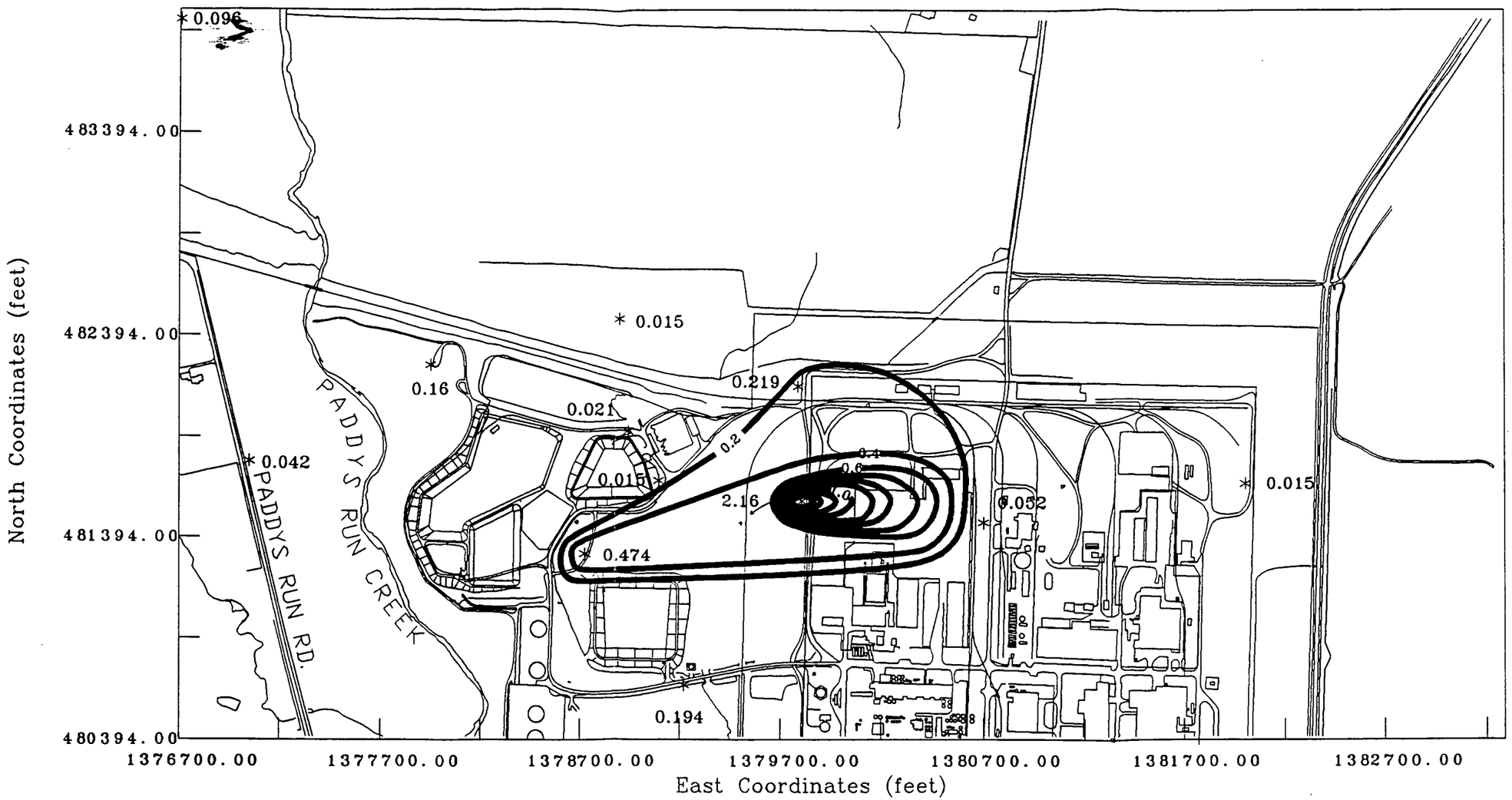
Legend

142.6 • Numbered Locations Indicate Concentrations At Specific Wells

Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 0.5 ppm Intervals

FIGURE D-12

Iron (Dissd.) Contour Map For 3000 Series Wells Sampled in October, 1991



Scale (in feet)
0 250 500 1000

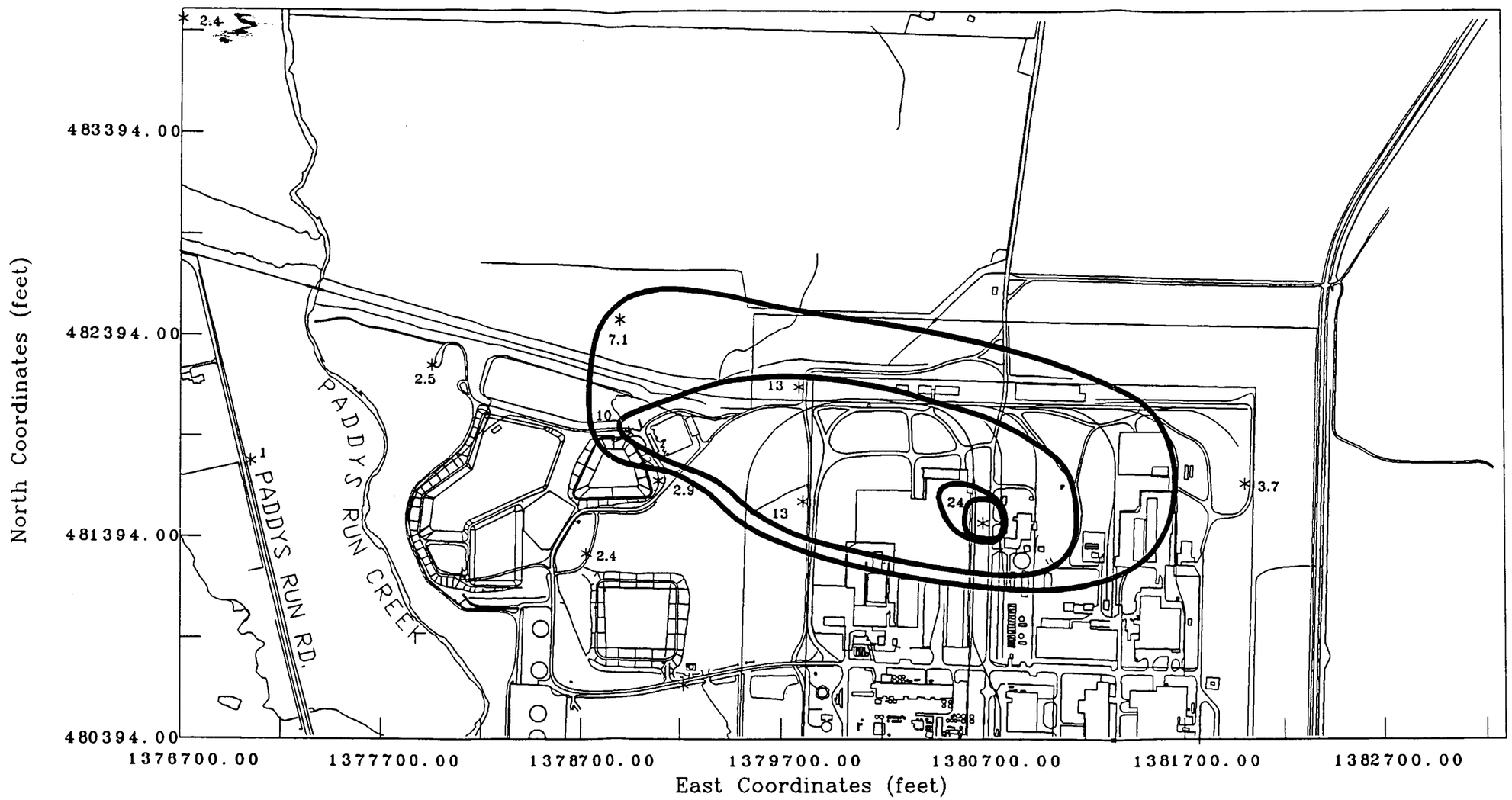
Legend

142.6 • Numbered Locations Indicate Concentrations At Specific Wells

Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 0.2 ppm Intervals

FIGURE D-13

Manganese (Dissd.) Contour Map For 3000 Series Wells Sampled in October, 1991



Scale (in feet)
0 250 500 1000

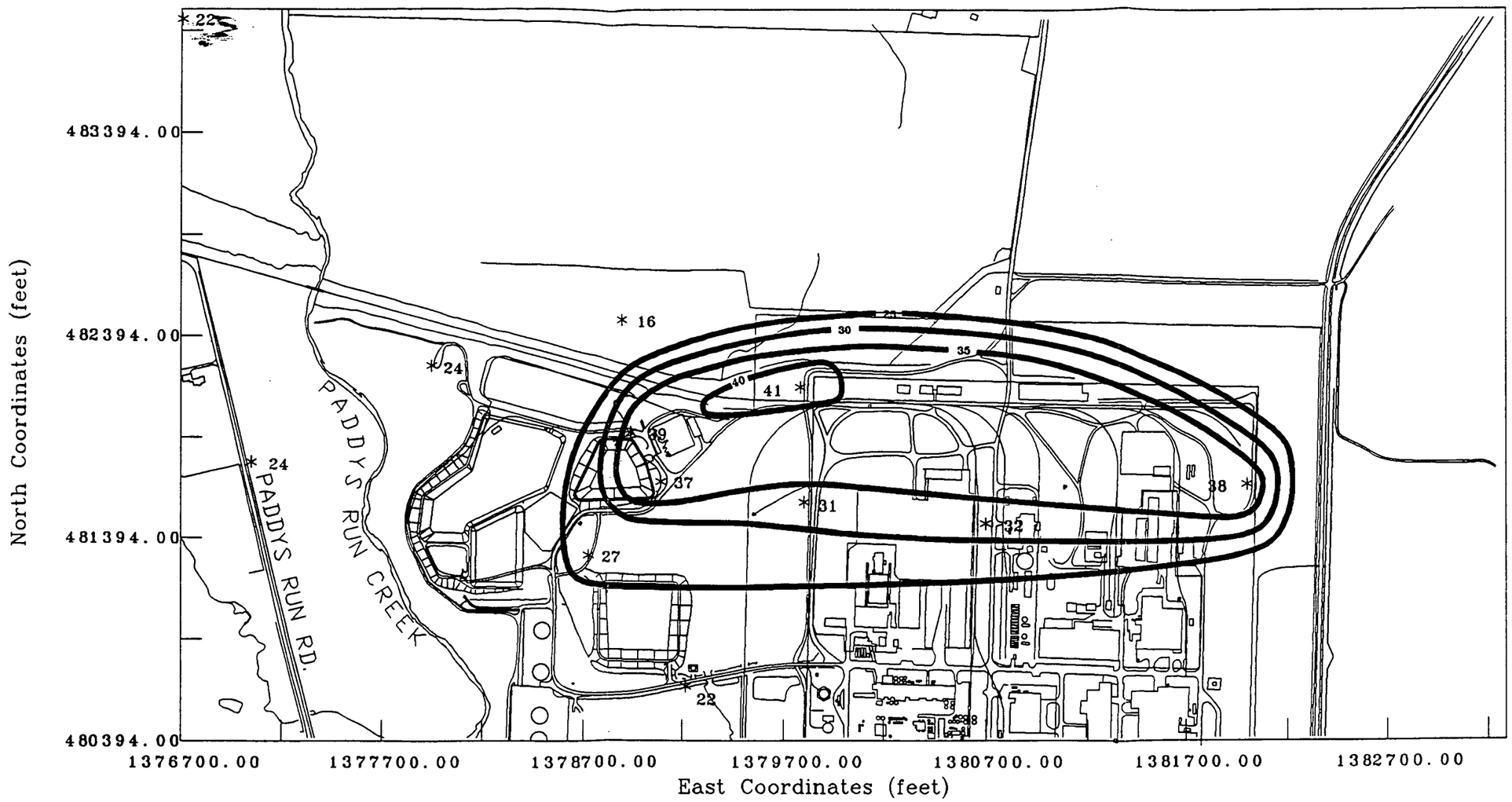
Legend

142.6 • Numbered Locations Indicate Concentrations At Specific Wells

< Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 5 ppm Intervals

FIGURE D-14

Potassium Contour Map For 3000 Series Wells Sampled in October, 1991



Scale (in feet)
0 250 500 1000

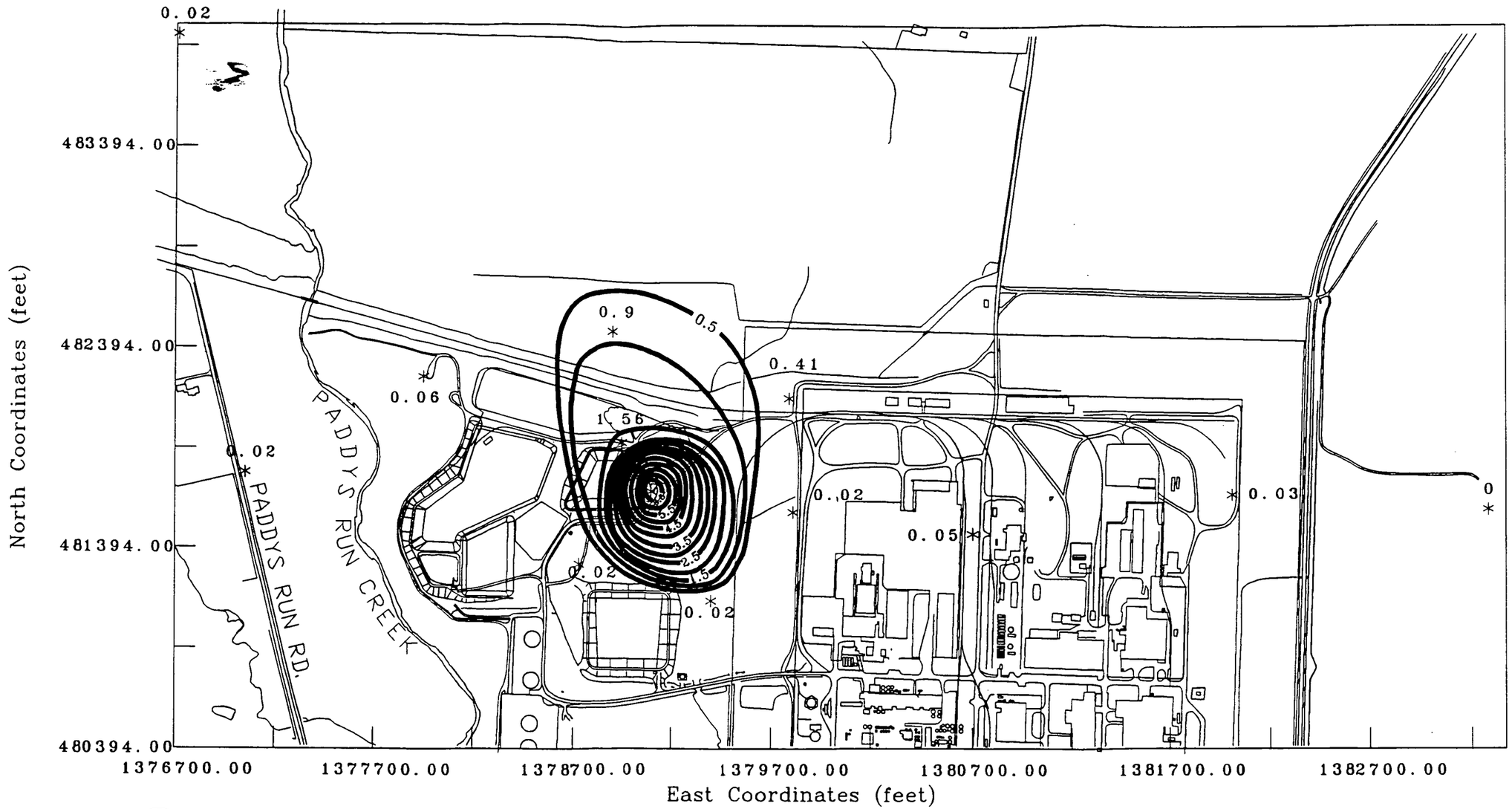
Legend

142.6 • Numbered Locations Indicate Concentrations At Specific Wells

< Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 5 ppm Intervals

FIGURE D-15

Magnesium (Dissd.) Contour Map For 3000 Series Wells Sampled in October, 1991



Legend

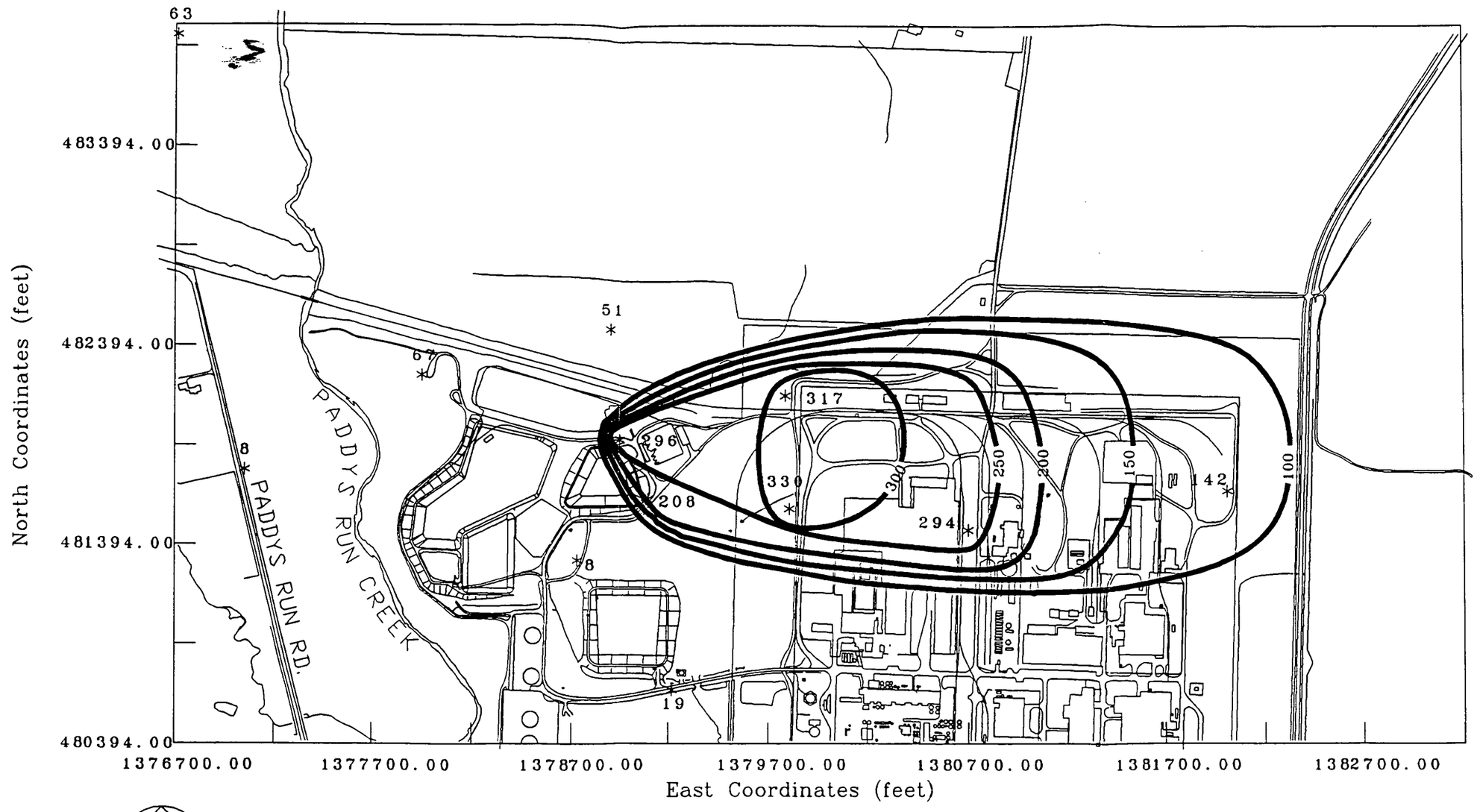
142.6 • Numbered Locations Indicate Concentrations At Specific Wells

Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 0.5 ppm Intervals

Scale (in feet)
0 250 500 1000

FIGURE D-16

Nitrate Contour Map for 3000 Series Wells Sampled In October, 1991



Legend

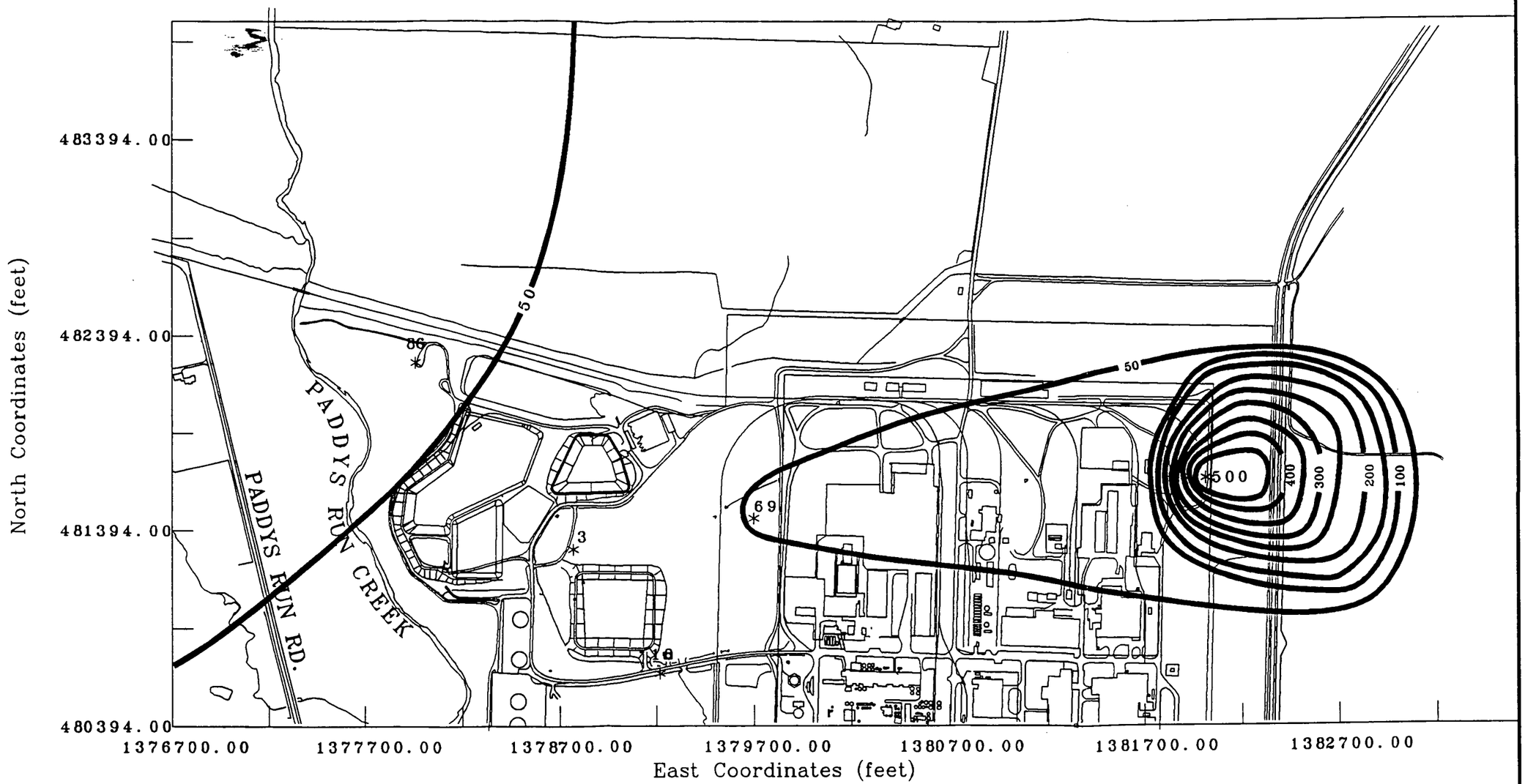
142.6 Numbered Locations Indicate Concentrations At Specific Wells

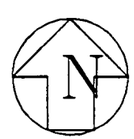
Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 25 ppm Intervals

Scale (in feet)
0 250 500 1000

FIGURE D-17

Sulfate Contour Map For 3000 Series Wells Sampled In October, 1991





Legend

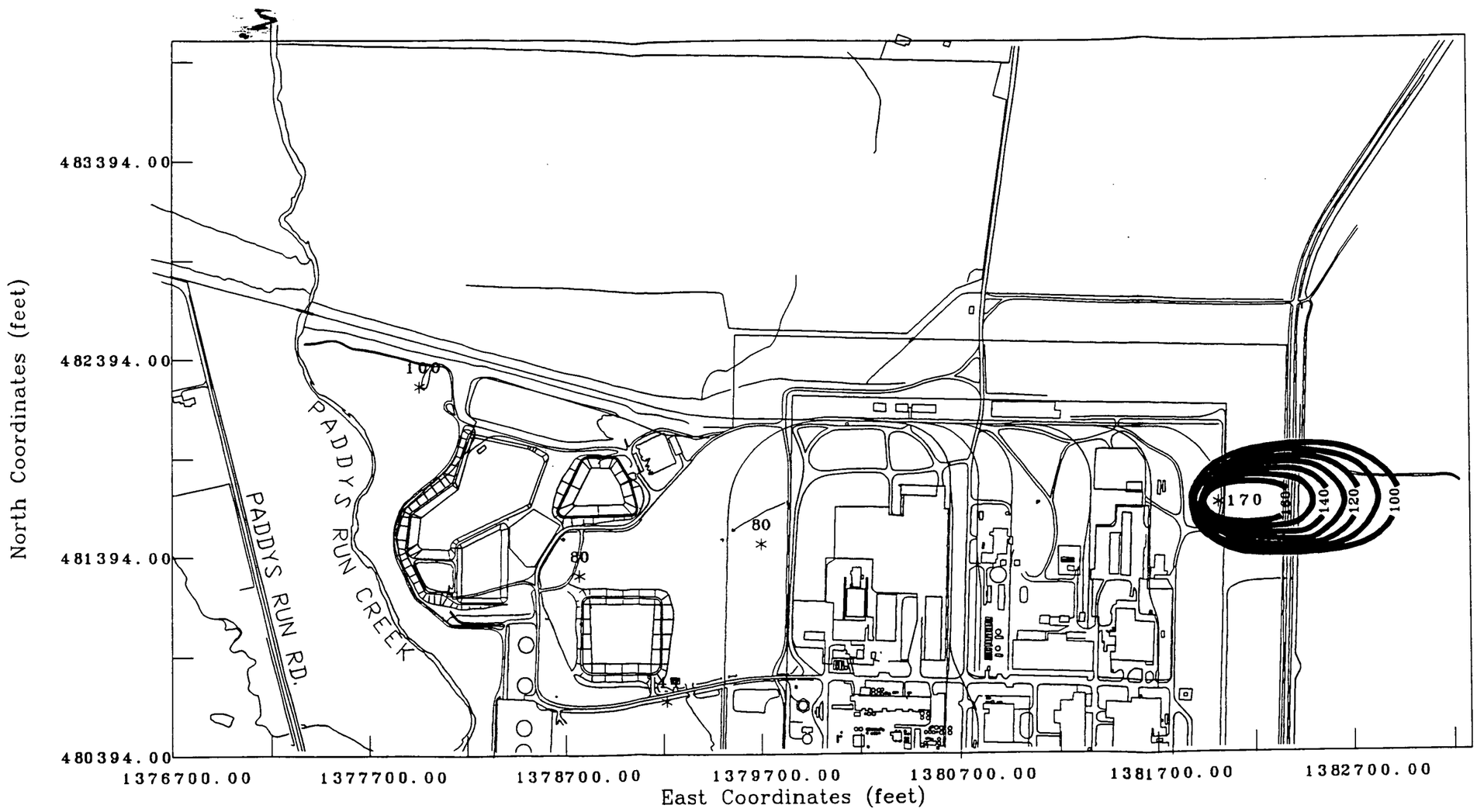
142.6 • Numbered Locations Indicate Concentrations At Specific Wells

< Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced on 50 ppm Intervals

Scale (in feet)
0 250 500 1000

FIGURE D-18

Sulfate Contour Map for 4000 Series Wells Sampled In October, 1991



Legend

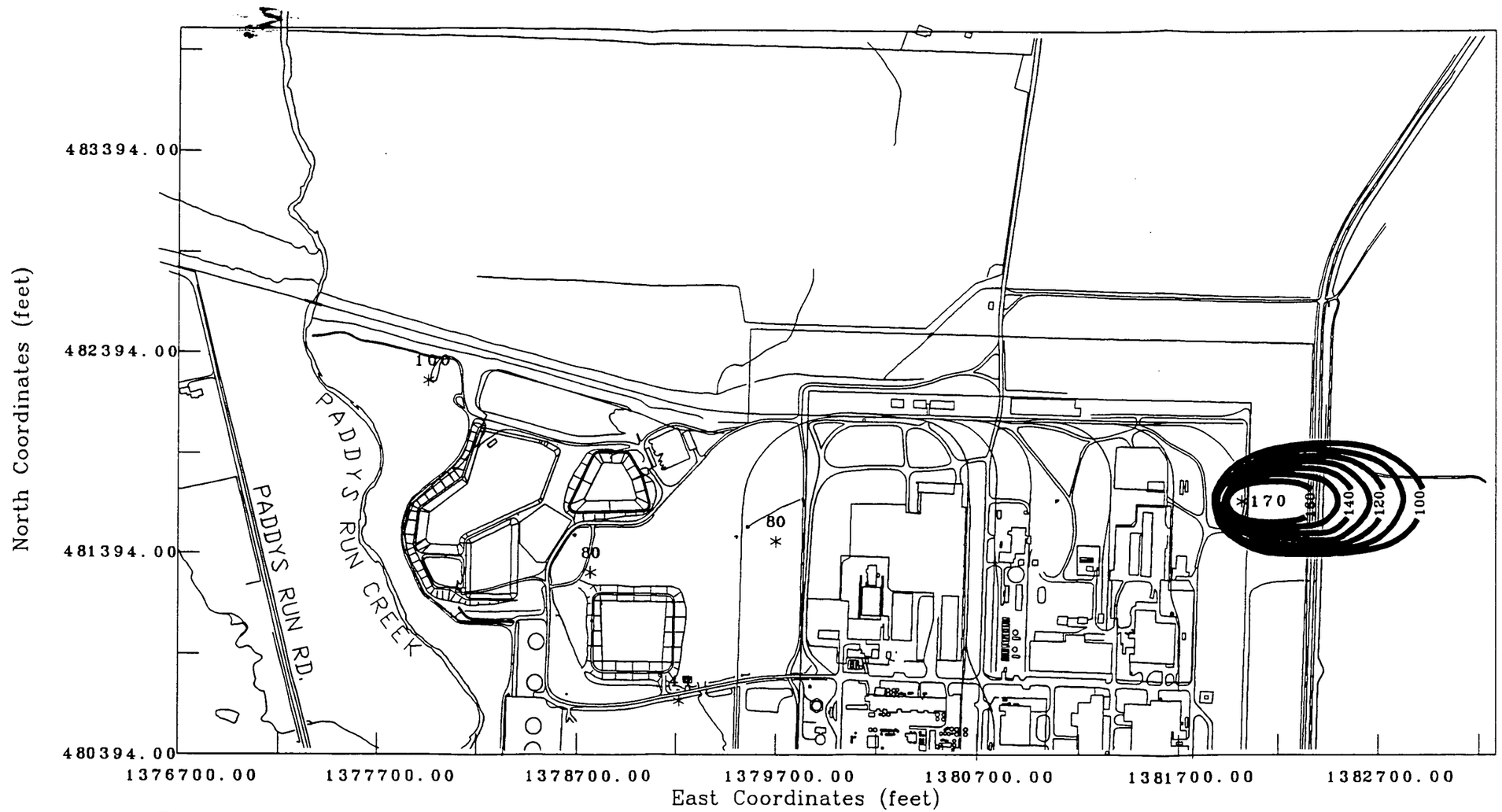
142.6 • Numbered Locations Indicate Concentrations At Specific Wells

Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 10 ppm Intervals

Scale (in feet)
0 250 500 1000

FIGURE D-19

Calcium (Dissd.) Contour Map For 4000 Series Wells Sampled In October, 1991



Legend

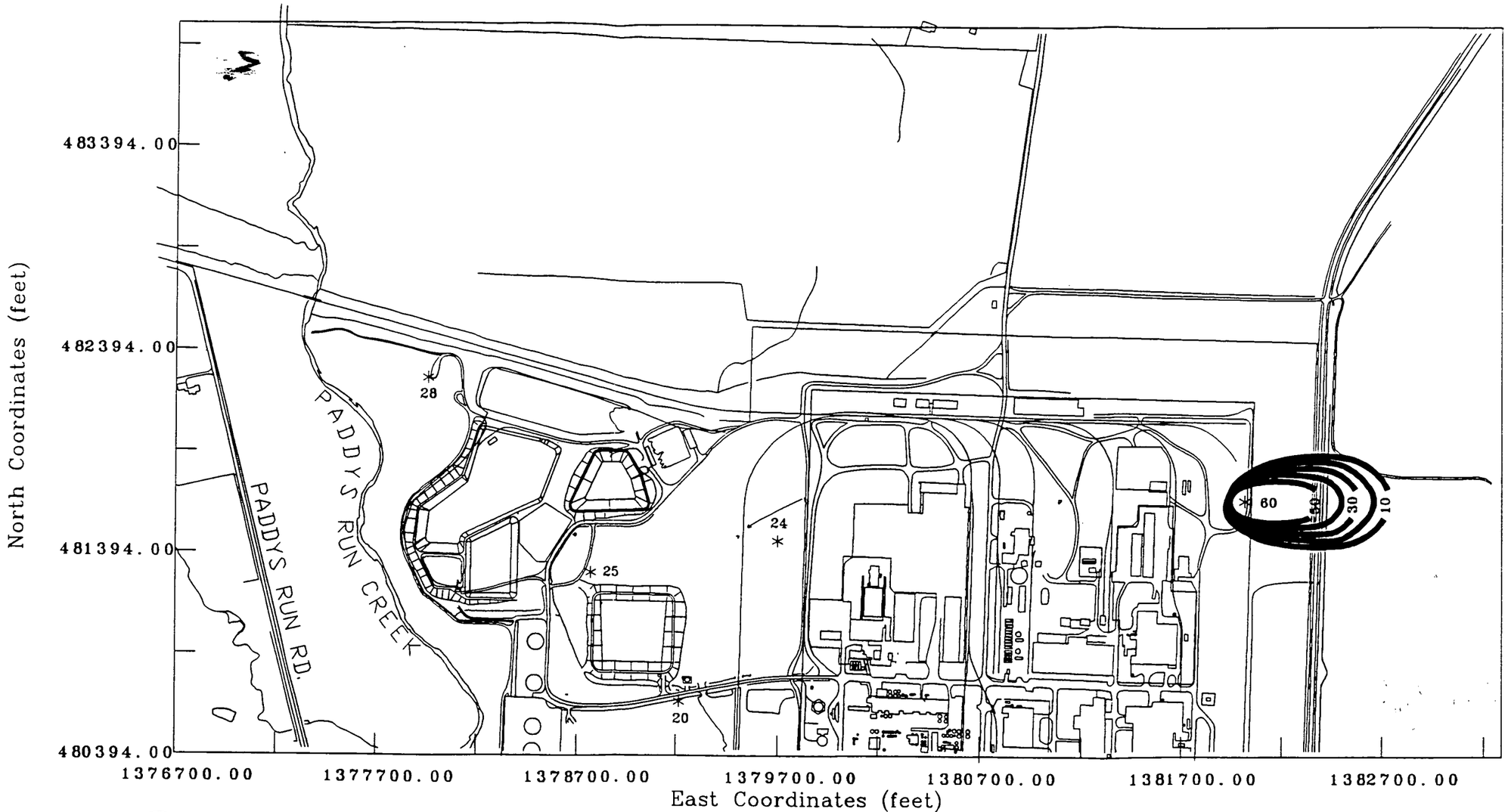
142.6 • Numbered Locations Indicate Concentrations At Specific Wells

Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 10 ppm Intervals

Scale (in feet)
0 250 500 1000

FIGURE D-20

Calcium (Dissd.) Contour Map For 4000 Series Wells Sampled In October, 1991



Legend

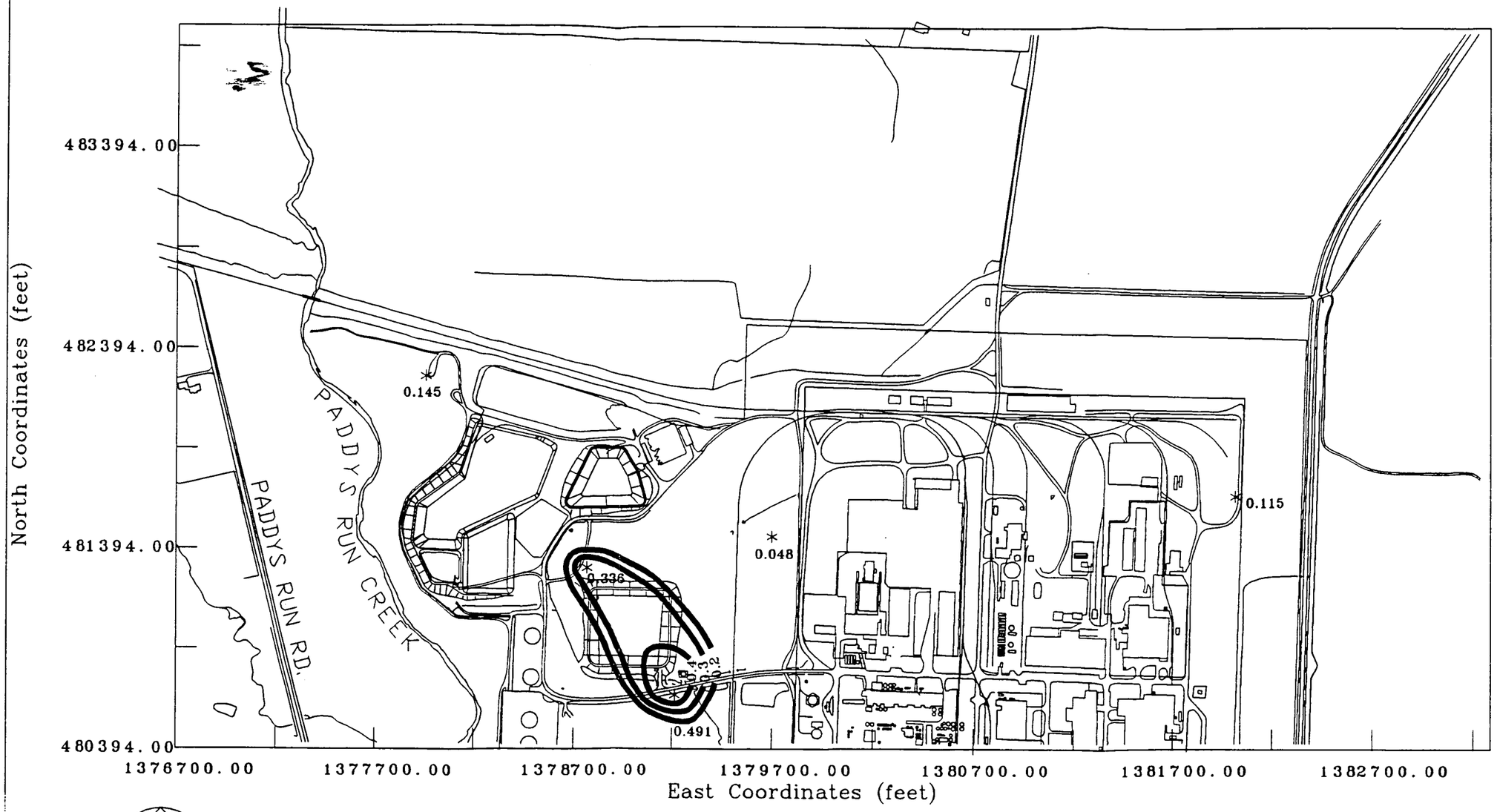
Scale (in feet)
0 250 500 1000

142.6 • Numbered Locations Indicate Concentrations At Specific Wells

Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 10 ppm Intervals

FIGURE D-21

Magnesium (Dissd.) Contour Map For 4000 Series Wells Sampled In October, 1991



Legend

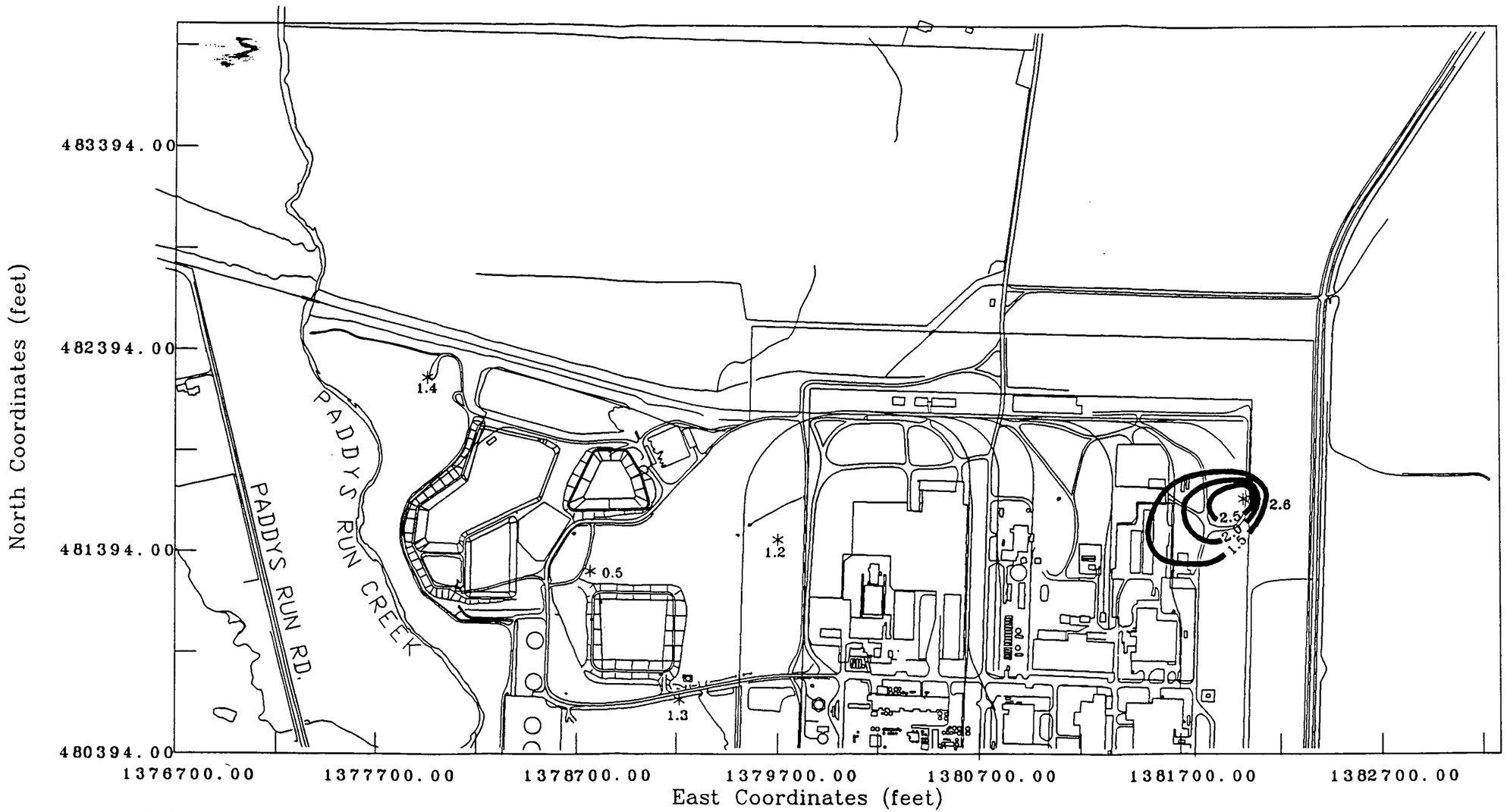
142.6 • Numbered Locations Indicate Concentrations At Specific Wells

< Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 0.1 ppm Intervals

Scale (in feet)
0 250 500 1000

FIGURE D-22

Manganese (Dissd.) Contour Map For 4000 Series Wells Sampled In October, 1991



Legend

142.6 • Numbered Locations Indicate Concentrations At Specific Wells

Dark Lines Represent Locations Of Equal Concentration. Contour Lines Were Developed From Approximation Methods And Are Spaced On 0.5 ppm Intervals

Scale (in feet)
0 250 500 1000

FIGURE D-23

Potassium Contour Map For 4000 Series Wells Sampled In October, 1991

FIGURE D-24

Aquifer Cross Section Orientation

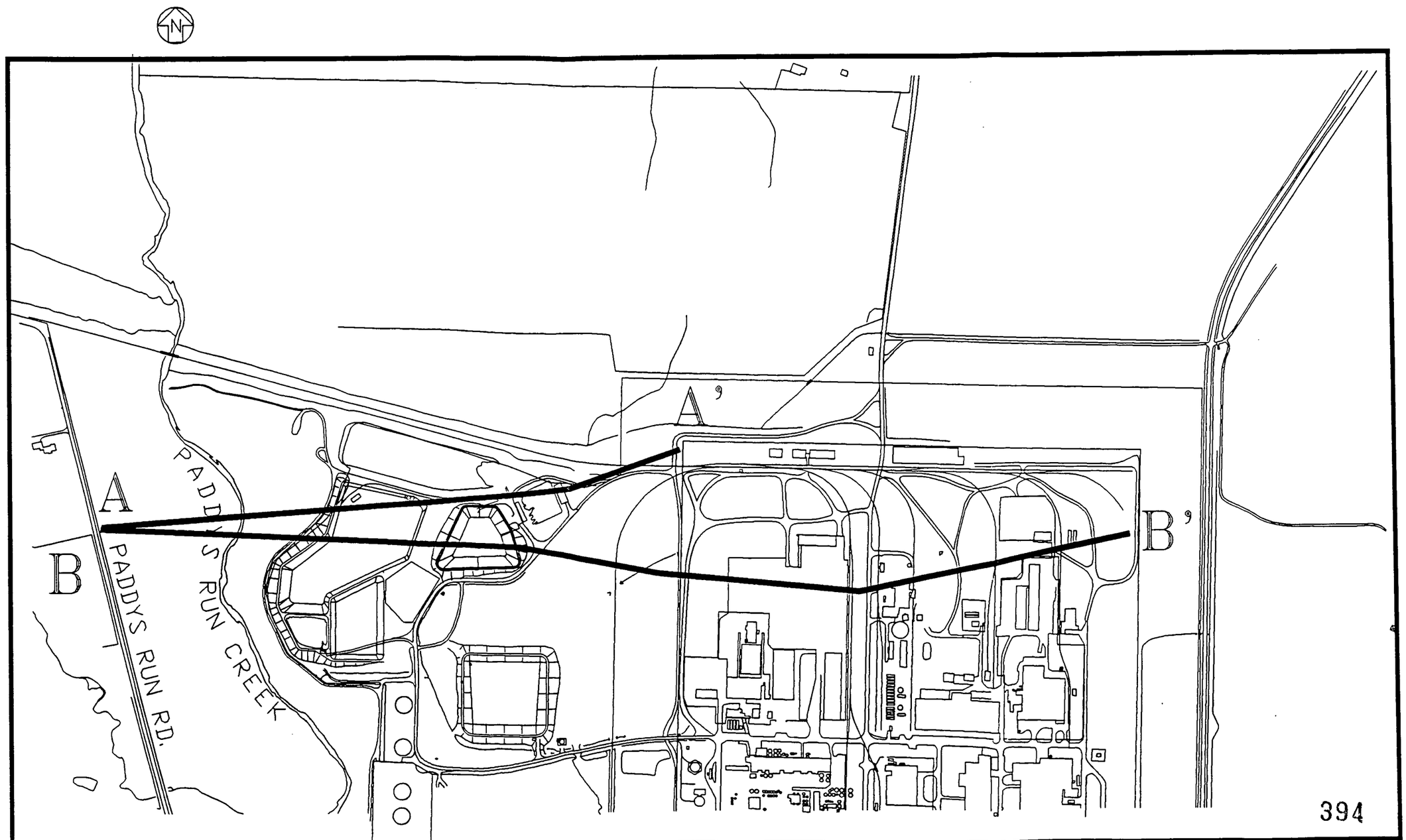


FIGURE D-25

Vertical Cross Section Of Aquifer

Showing Sulfate Concentrations In ppm

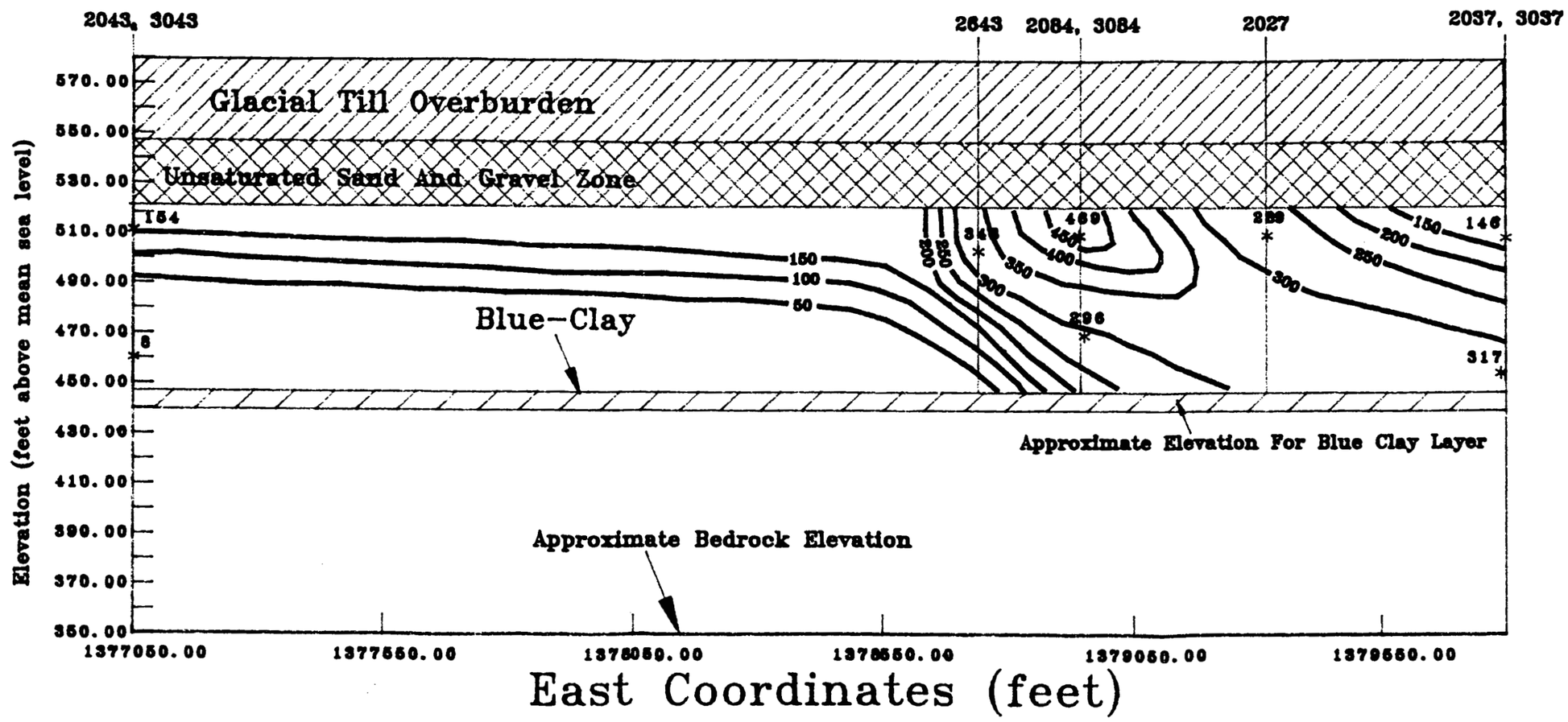


FIGURE D-26

Vertical Cross Section Of Aquifer

Showing Sulfate Concentrations In ppm

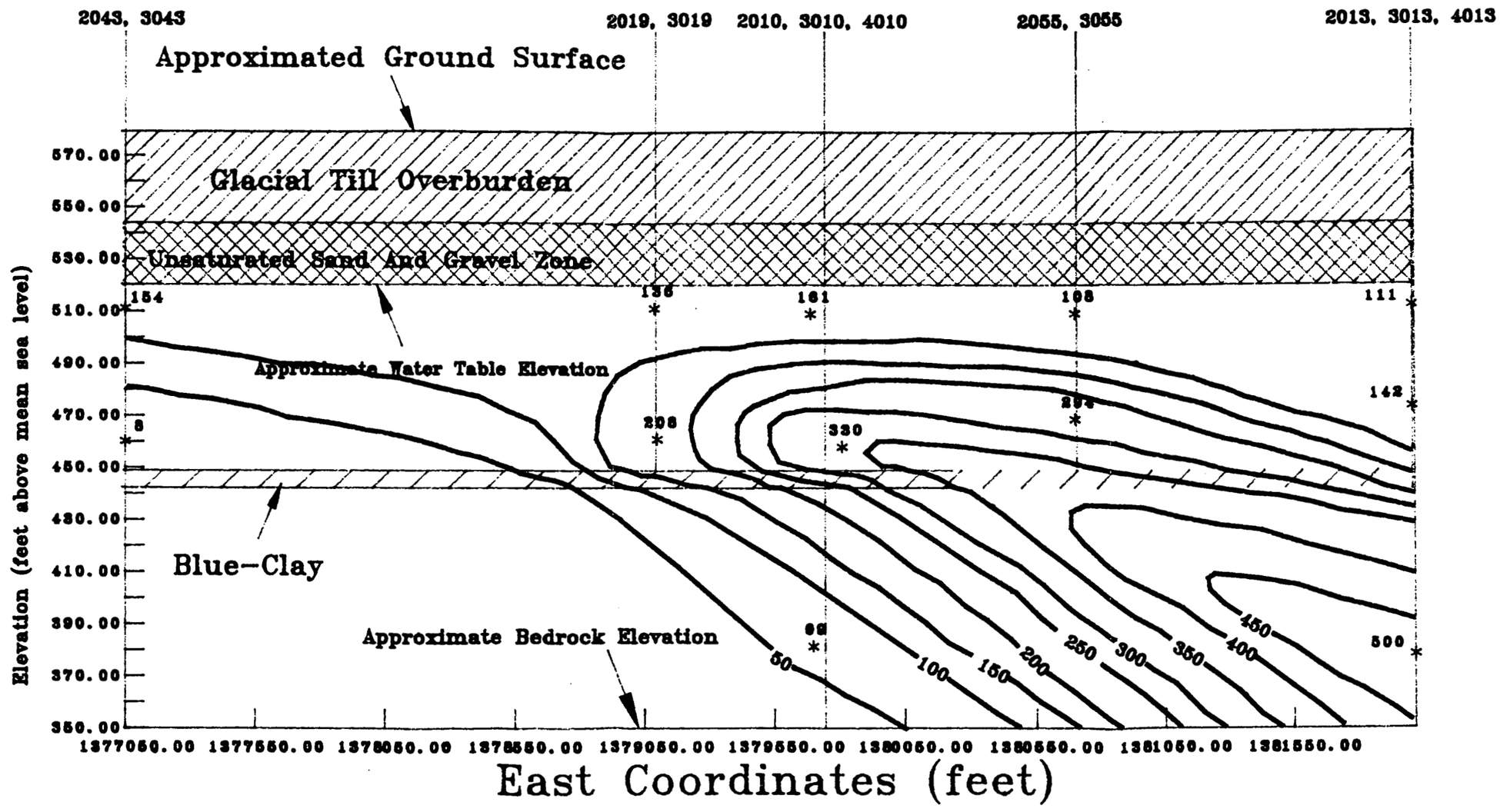


Figure D-27

Sulfate Contour Map For 2000 Series Wells As Of November, 1990

CONCENTRATION LINES EVERY 100 PPM
MAP LOCATIONS CONTAINING NUMBERS INDICATE CONCENTRATION AT WELL

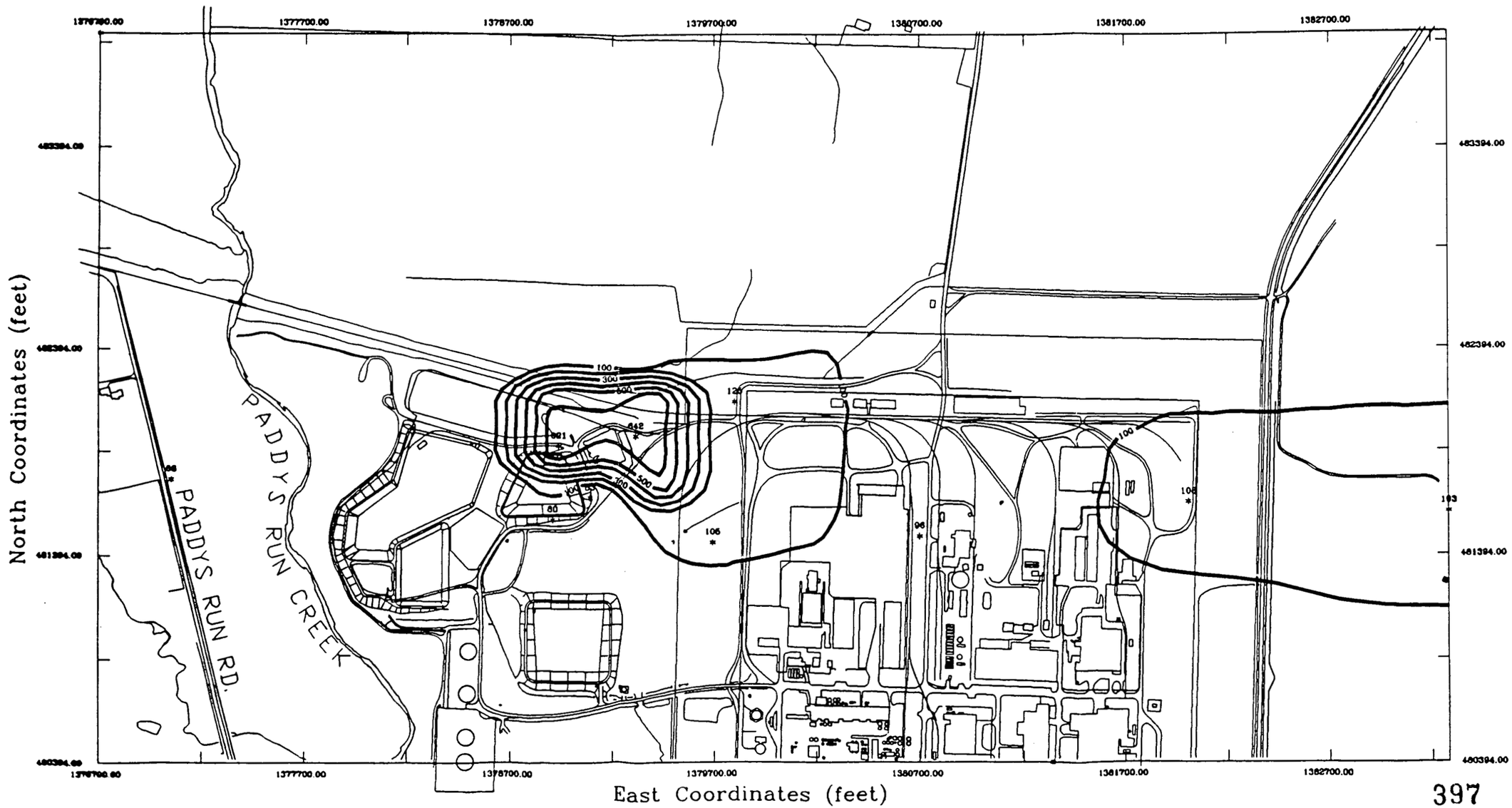
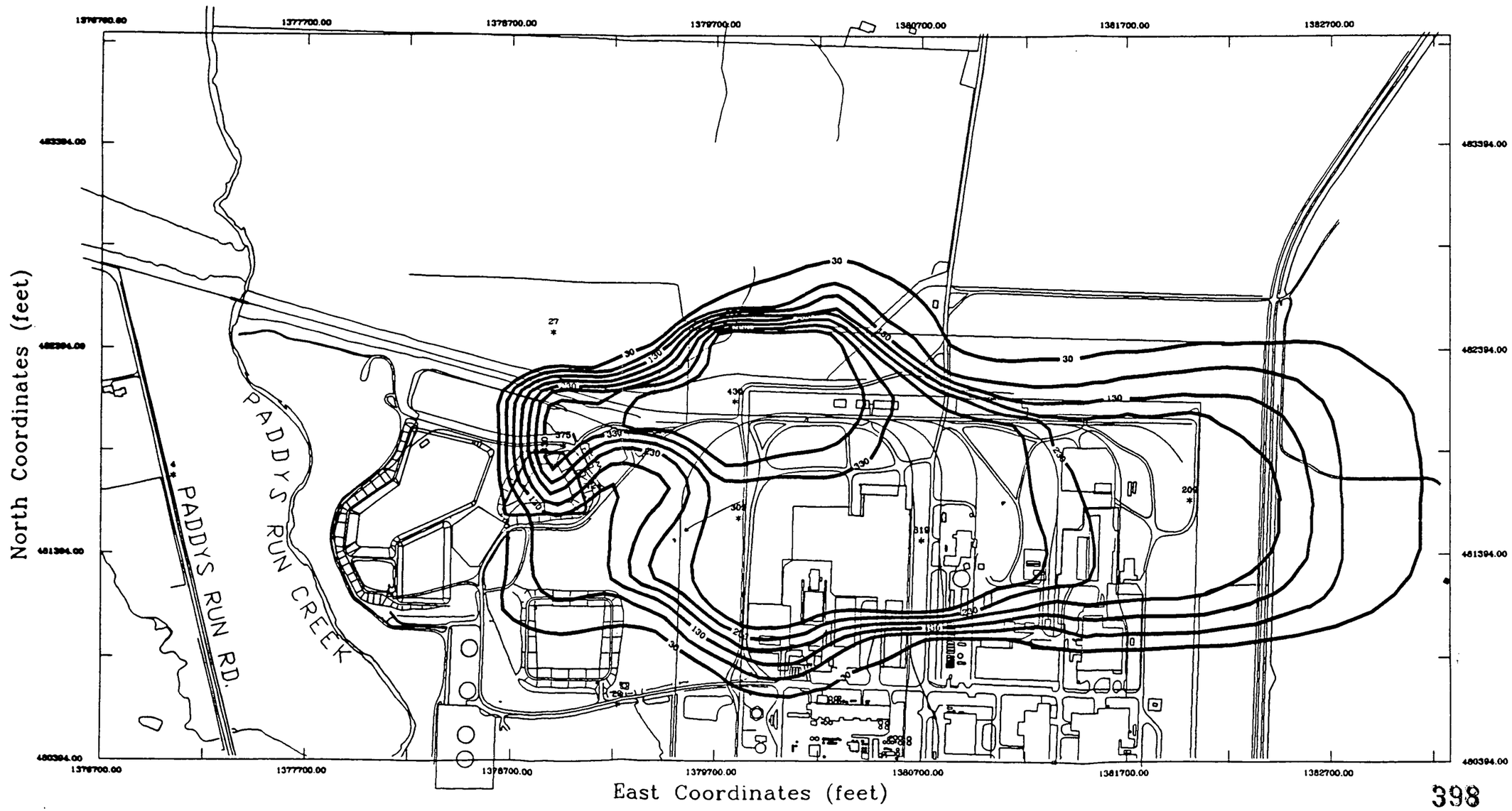


Figure D-28

Sulfate Contour Map For 3000 Series Wells As Of November, 1990

CONCENTRATION LINES EVERY 50 PPM
MAP LOCATIONS CONTAINING NUMBERS INDICATE CONCENTRATION AT WELL



Nitrate Contour Map For 2000 Series Wells As Of November, 1990

CONTOUR LINES EVERY 1 PPM
MAP LOCATIONS CONTAINING NUMBERS INDICATE CONCENTRATION AT WELL

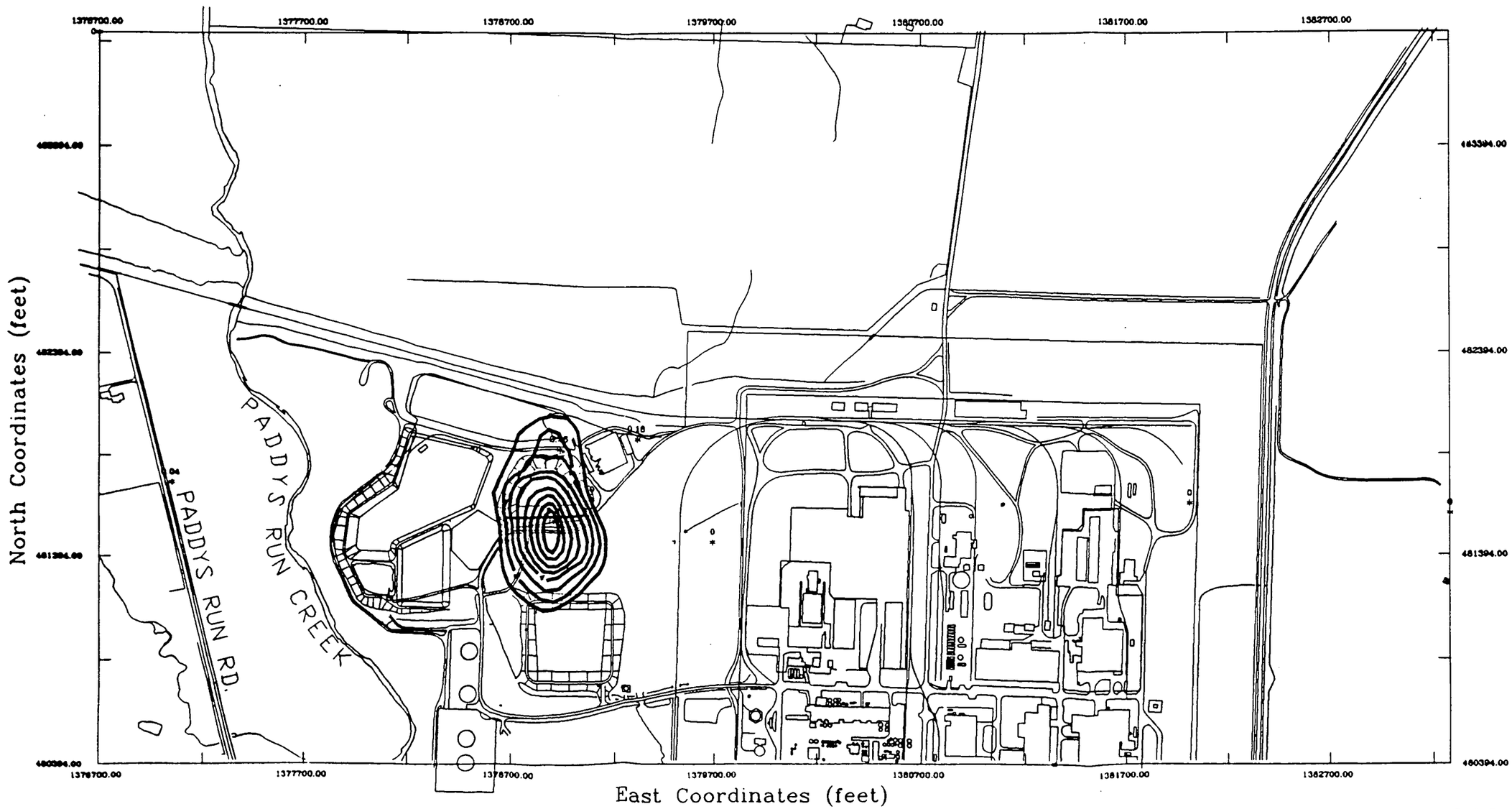
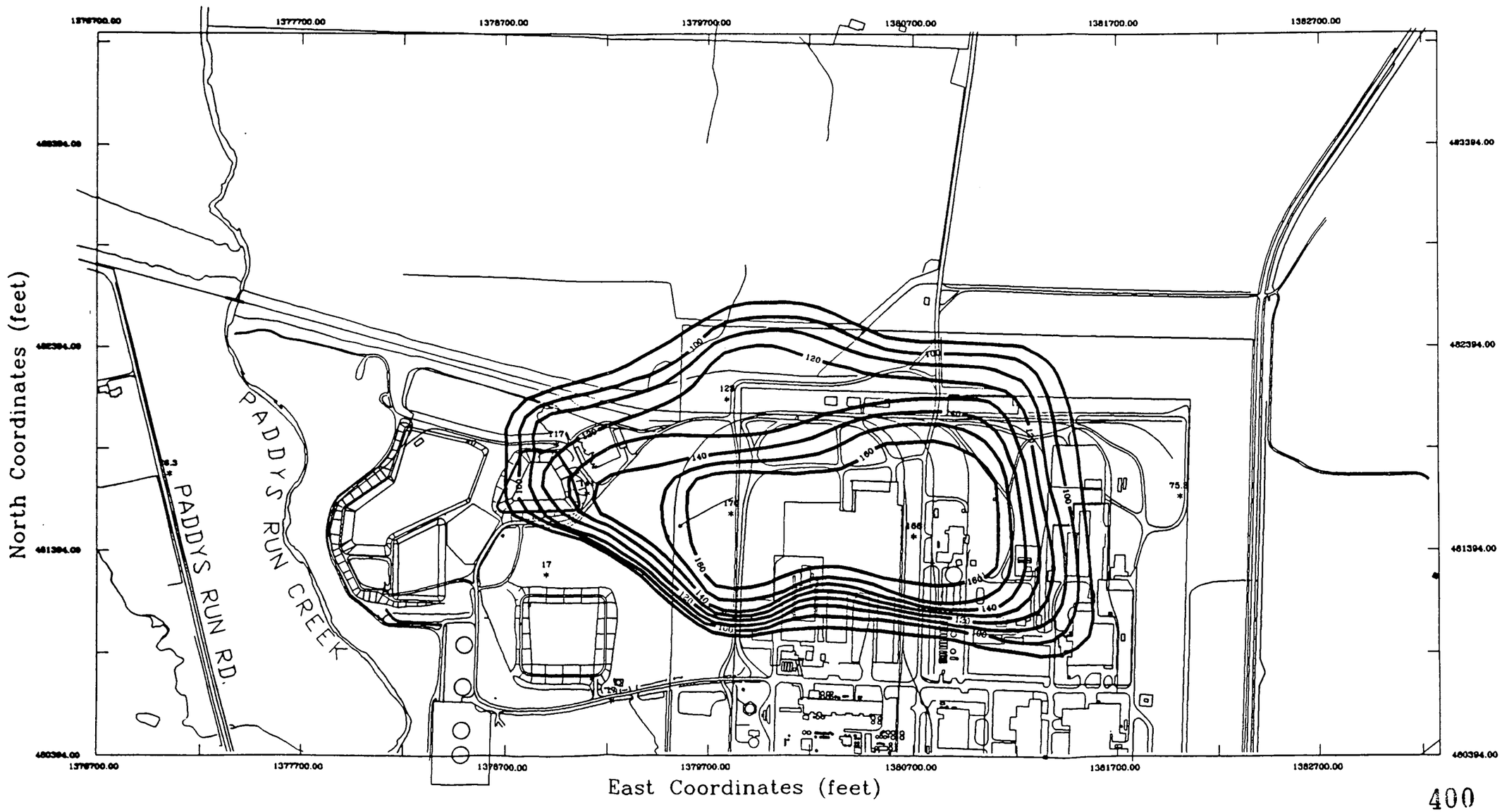


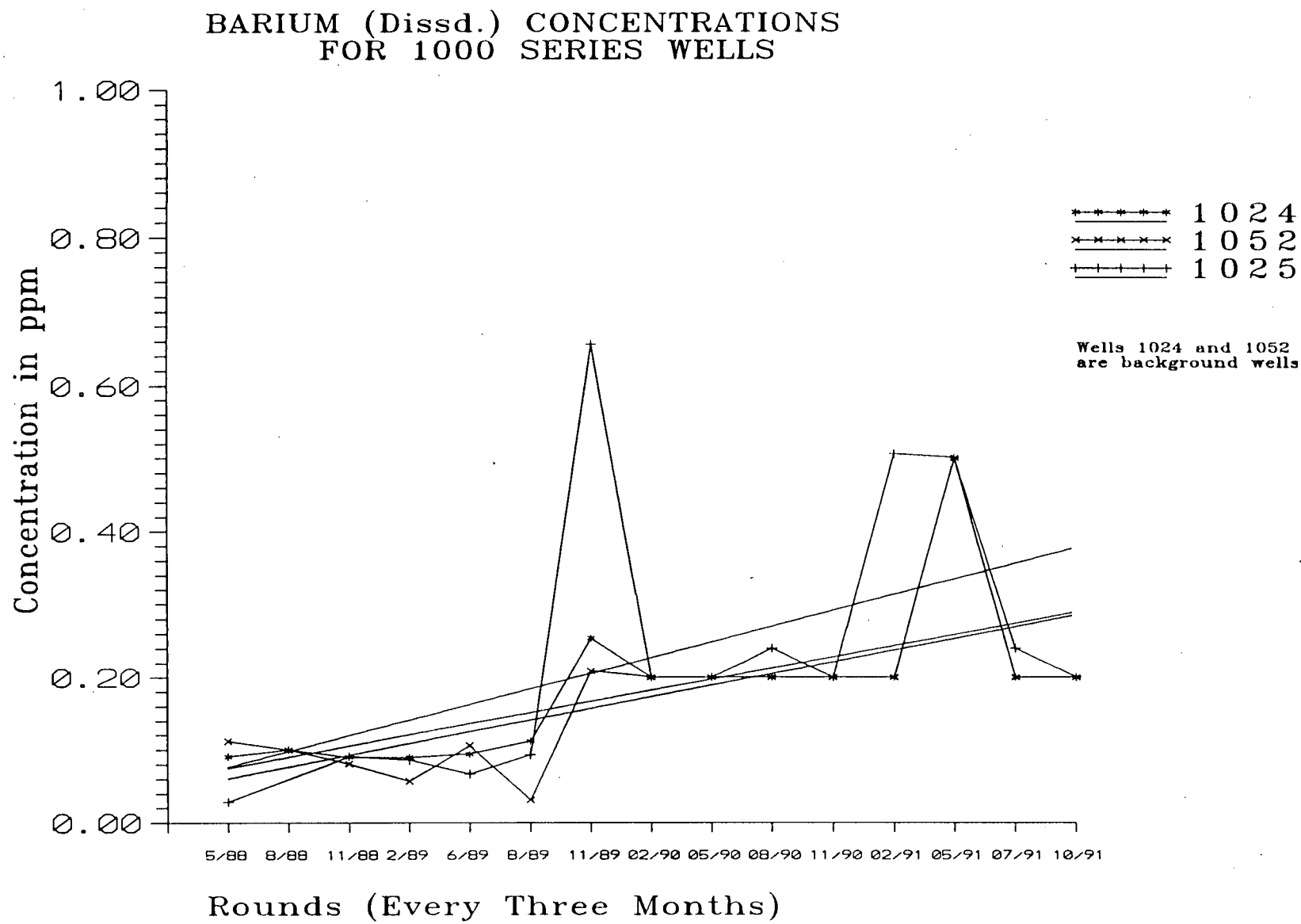
Figure D-30

Calcium Contour Map For 3000 Series Wells As Of November, 1990

CONCENTRATION LINES EVERY 10 PPM
MAP LOCATIONS CONTAINING NUMBERS INDICATE CONCENTRATION AT WELL



APPENDIX E


BARIUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS
Concentration in ppm
1.00
0.80
0.60
0.40
0.20
0.00
5/88 8/88 11/88 2/89 6/89 8/89 11/89 02/90 05/90 08/90 11/90 02/91 05/91 07/91 10/91
Rounds (Every Three Months)
1024
1052
1025
Wells 1024 and 1052
are background wells

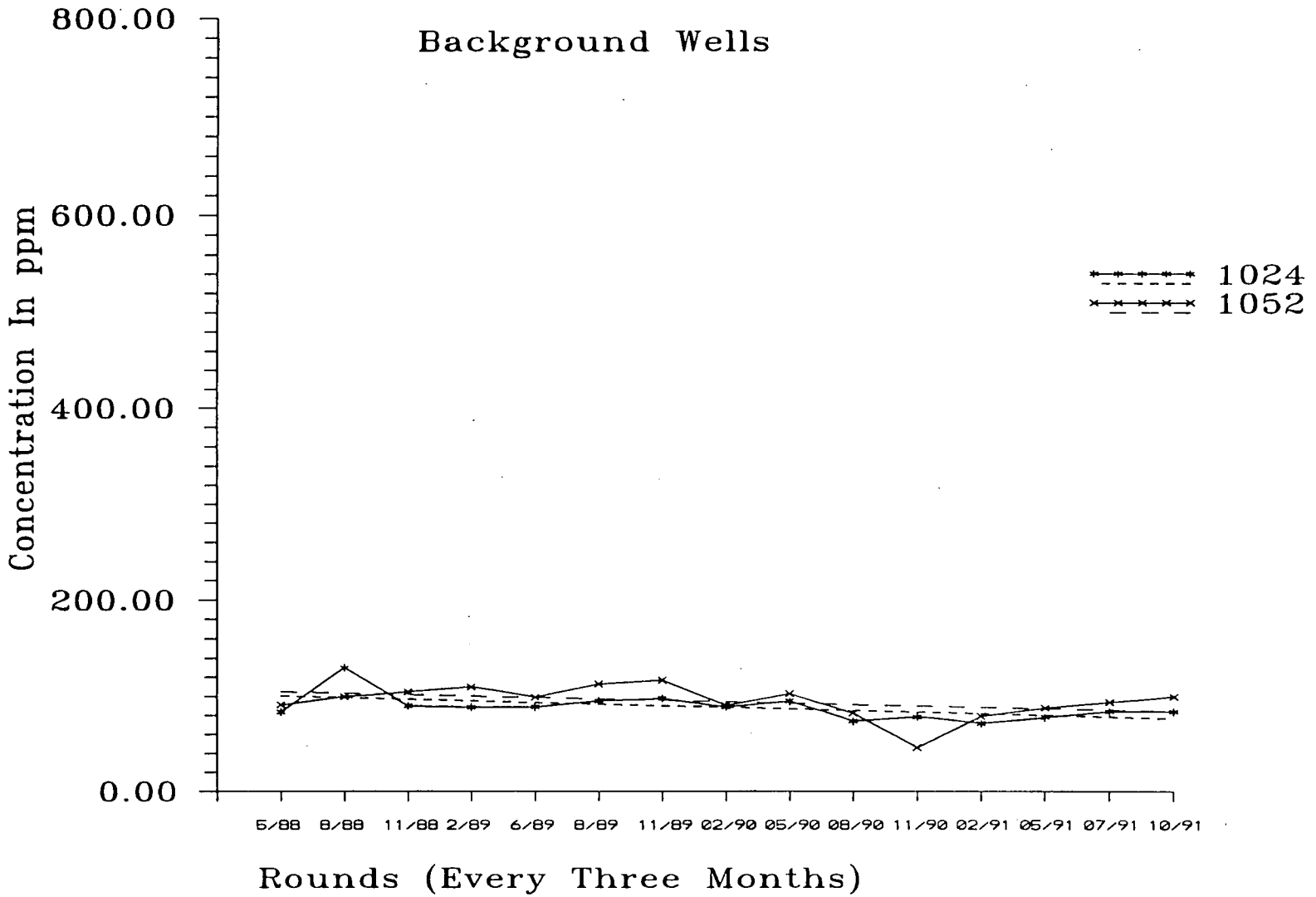
3713

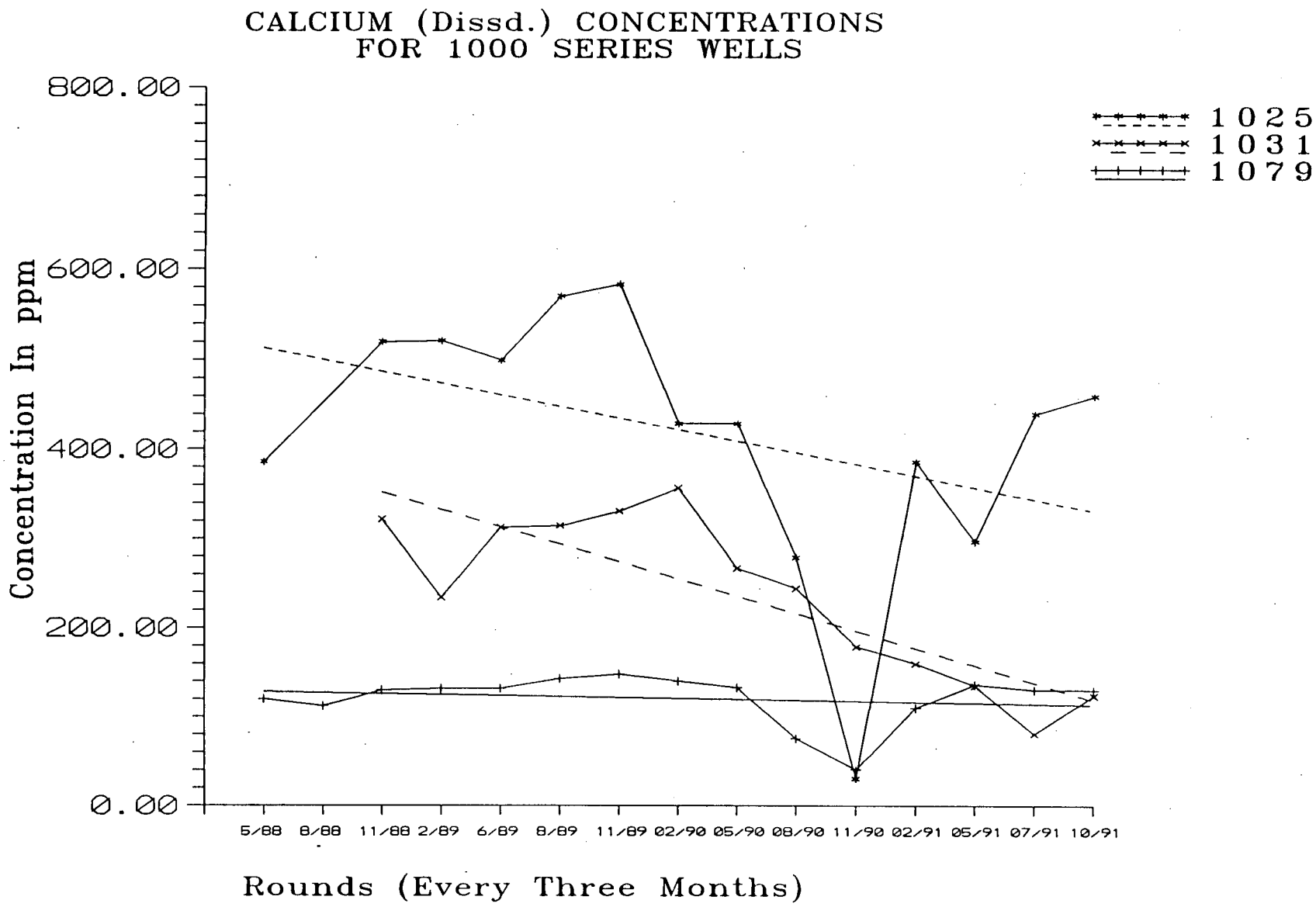
Sub 402

SITE 403

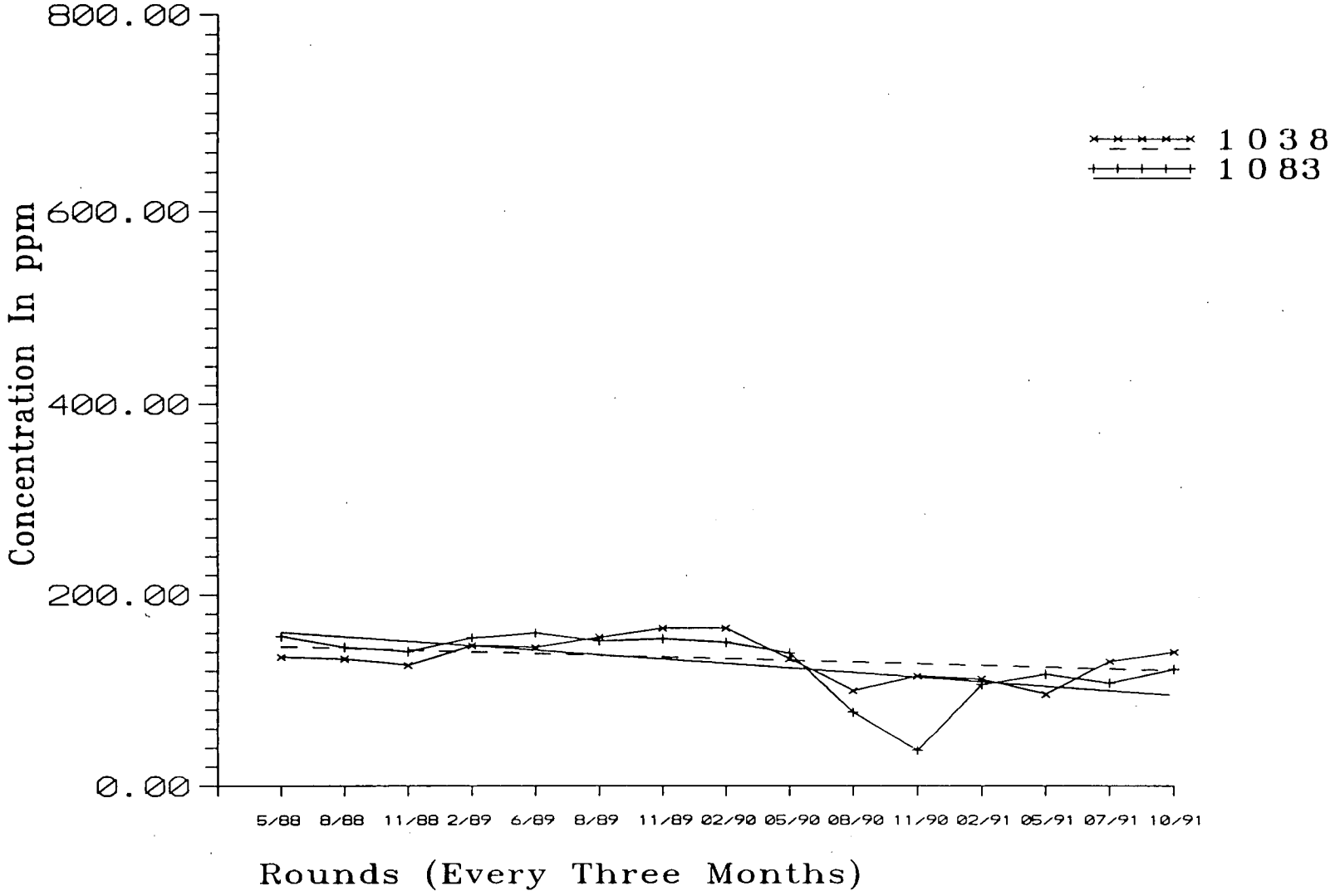
01113

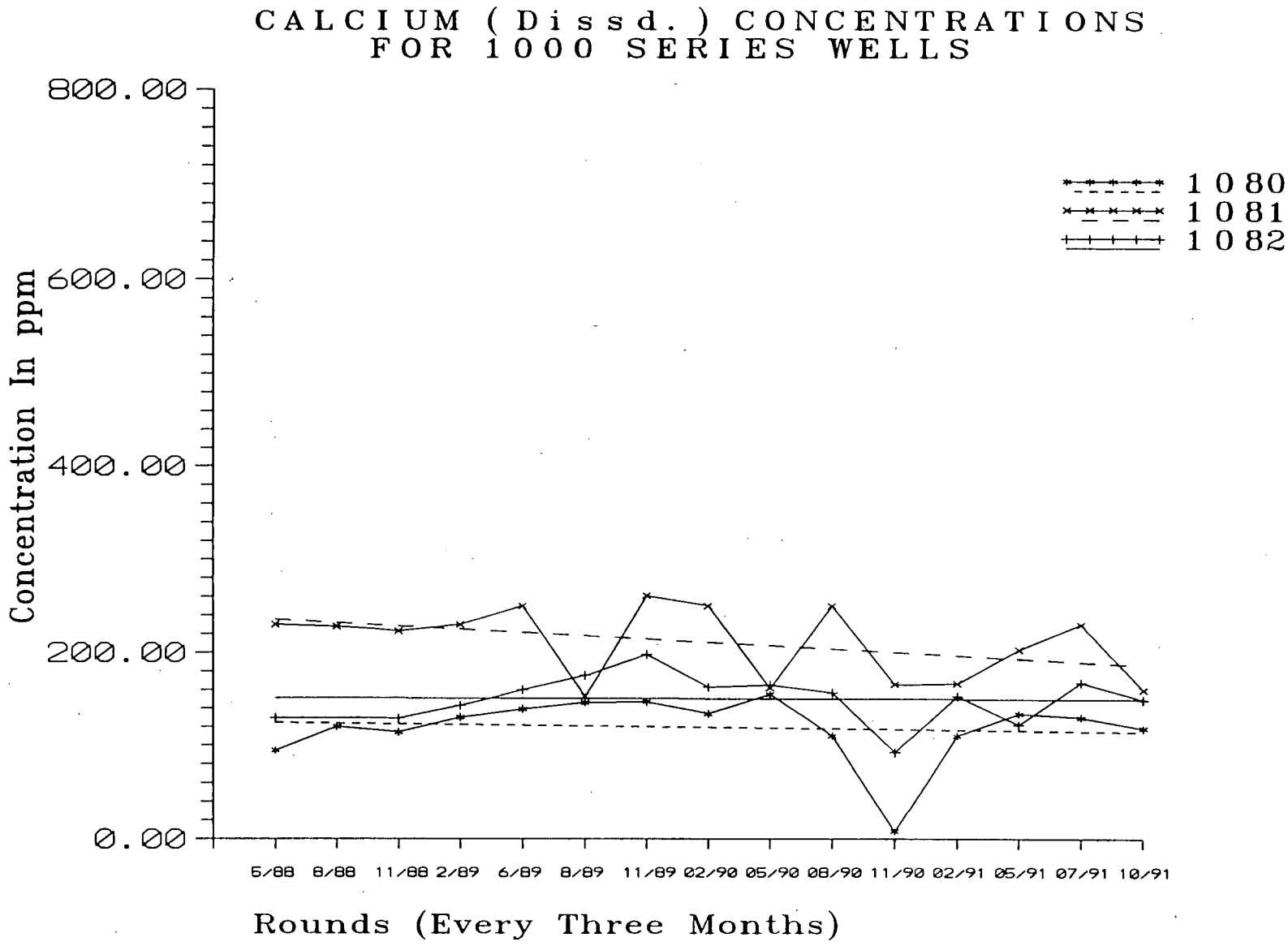
CALCIUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS

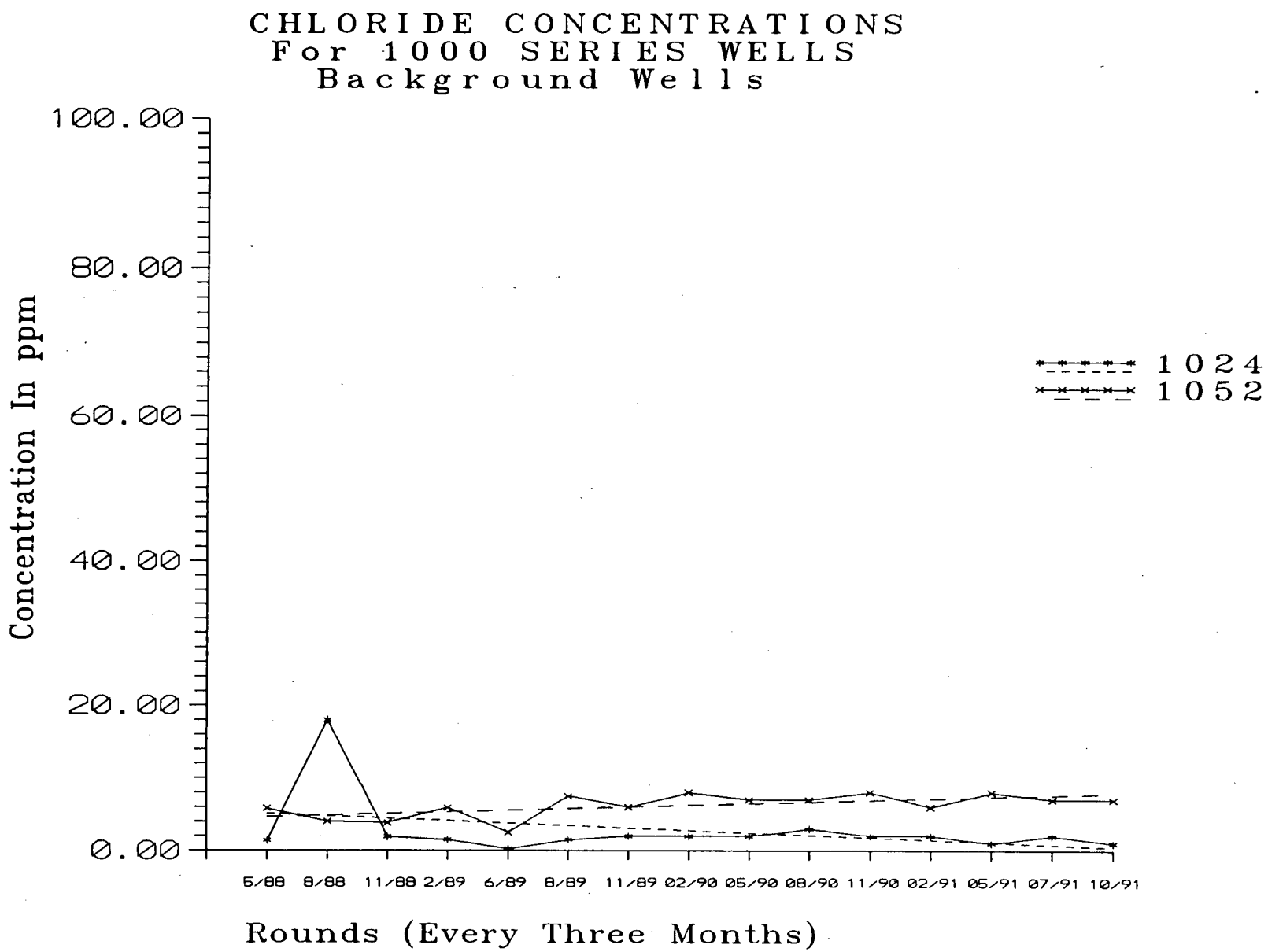


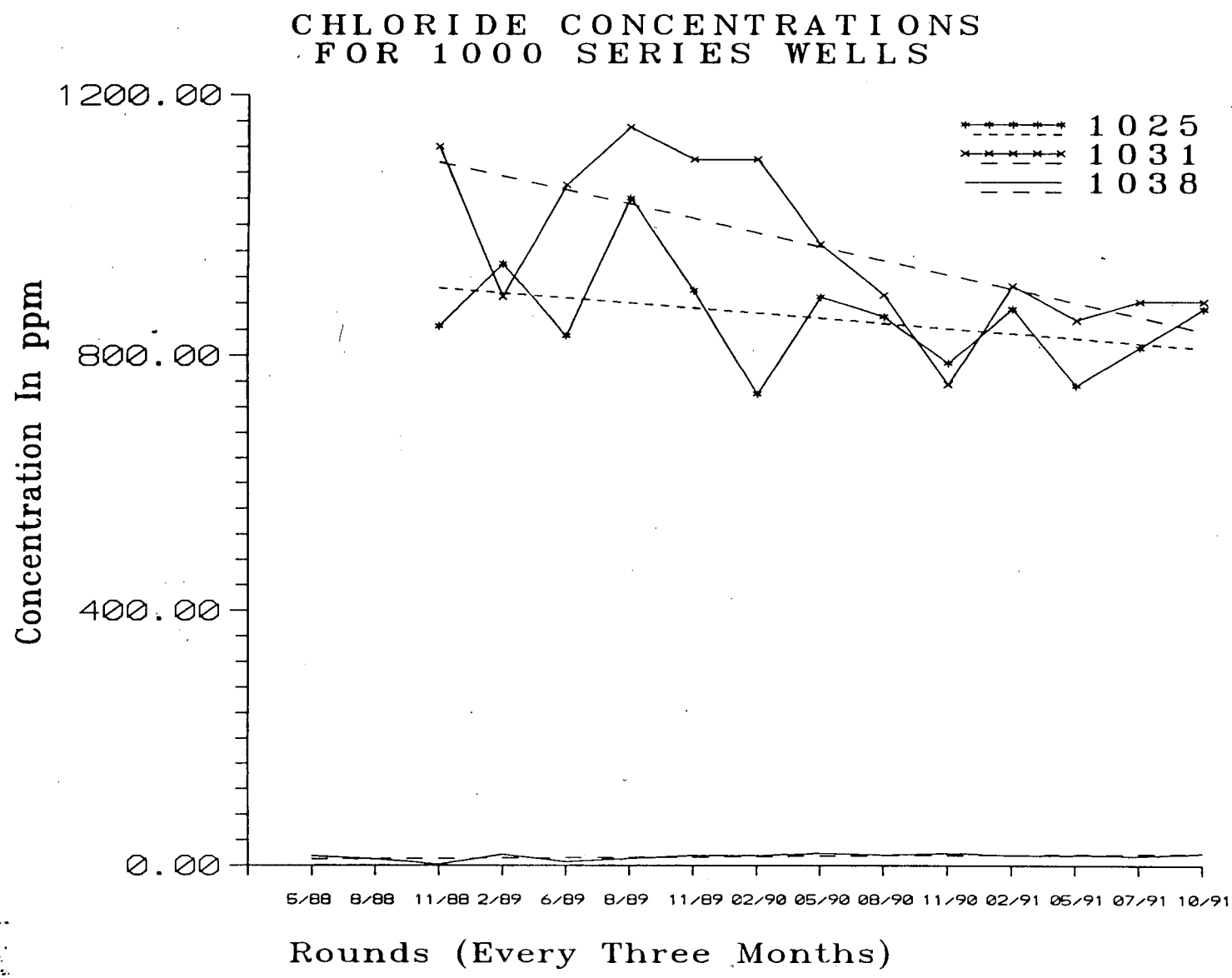

CALCIUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS
1025
1031
1079
Concentration In ppm
800.00
600.00
400.00
200.00
0.00
5/88
8/88
11/88
2/89
6/89
8/89
11/89
02/90
05/90
08/90
11/90
02/91
05/91
07/91
10/91
Rounds (Every Three Months)

CALCIUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS

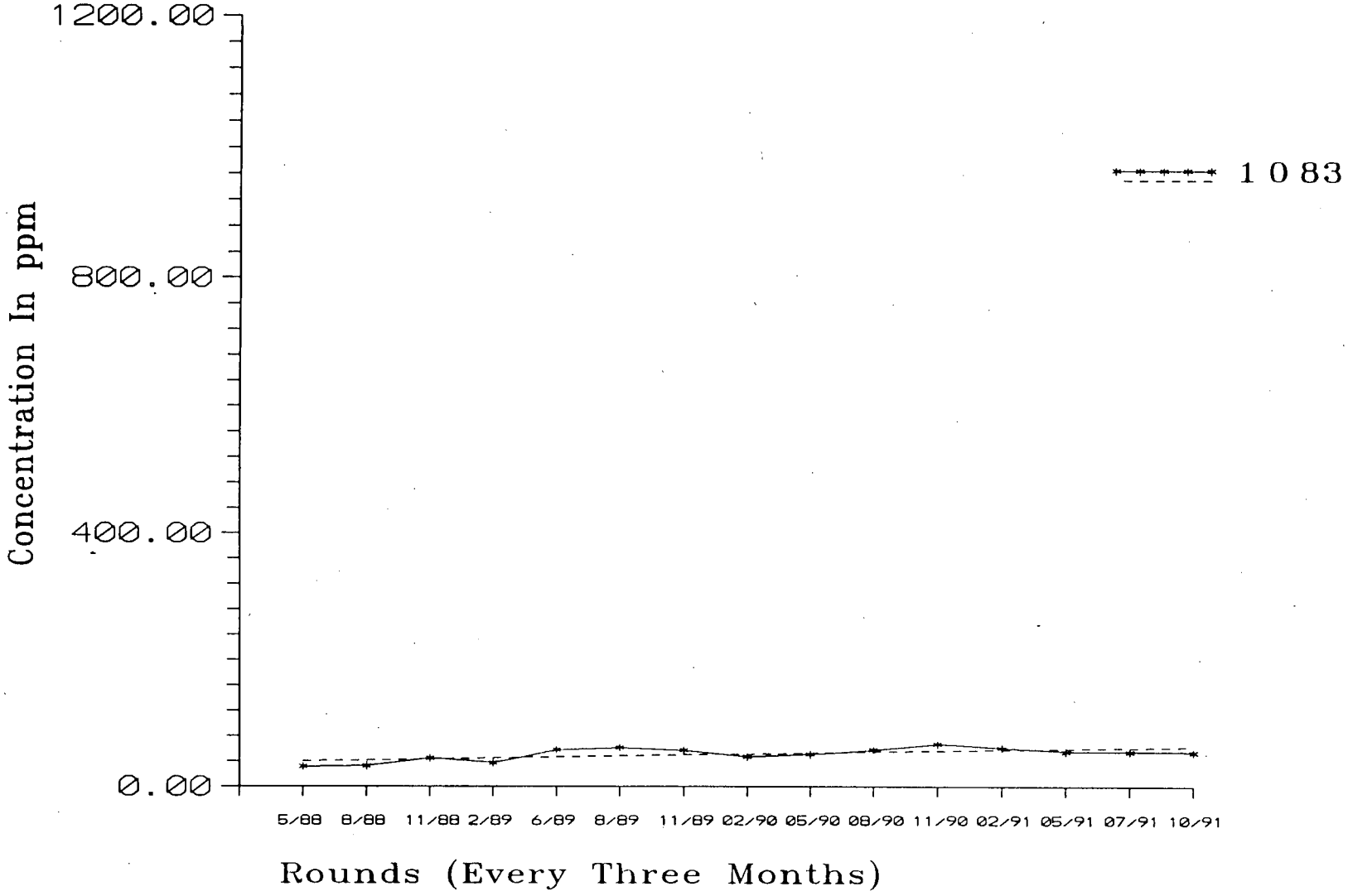


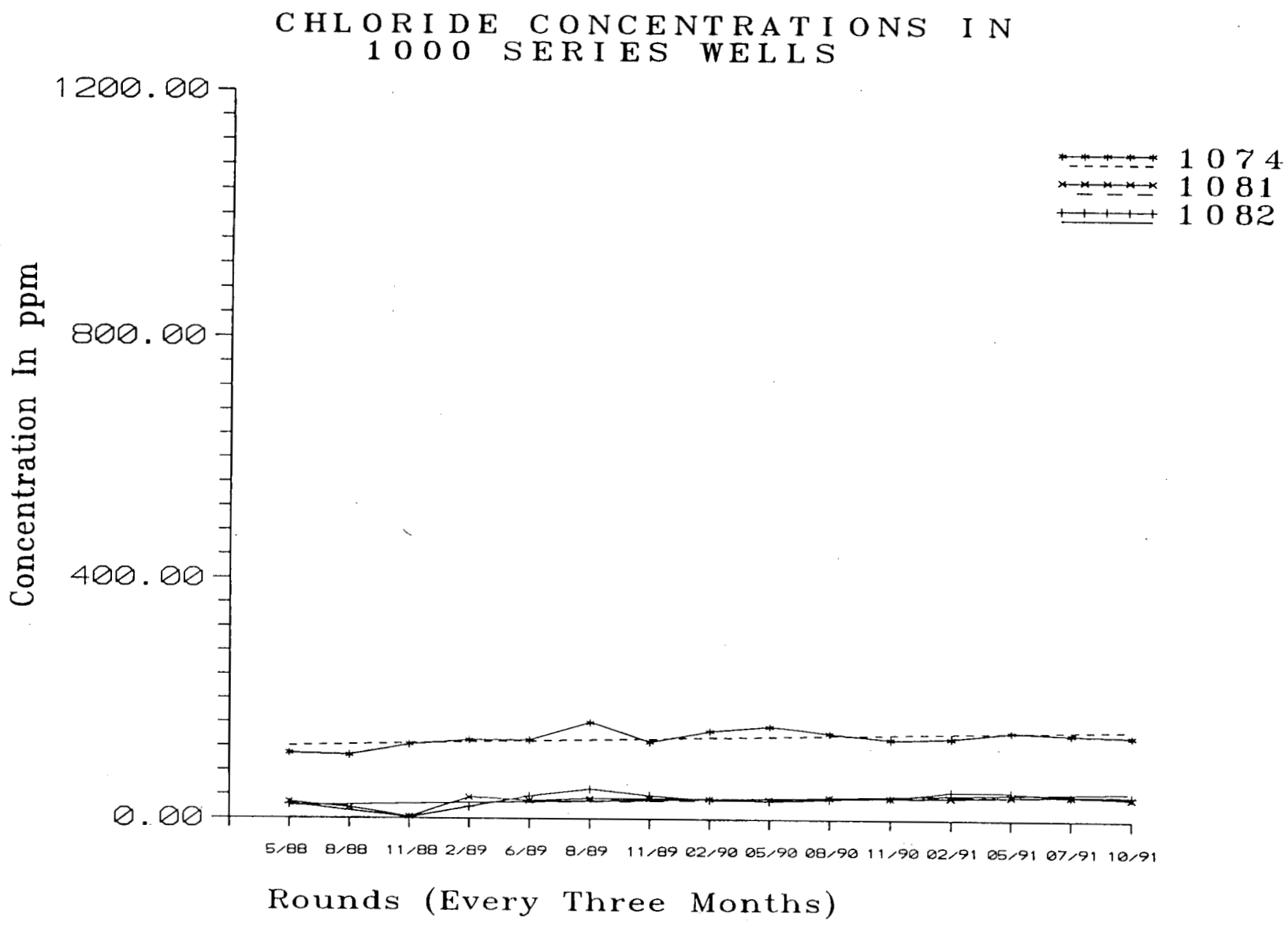

CALCIUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS
1080
1081
1082
800.00
600.00
400.00
200.00
0.00
Concentration In ppm
5/88 8/88 11/88 2/89 6/89 8/89 11/89 02/90 05/90 08/90 11/90 02/91 05/91 07/91 10/91
Rounds (Every Three Months)


CHLORIDE CONCENTRATIONS
For 1000 SERIES WELLS
Background Wells
Concentration In ppm
100.00
80.00
60.00
40.00
20.00
0.00
1024
1052
5/88 8/88 11/88 2/89 6/89 8/89 11/89 02/90 05/90 08/90 11/90 02/91 05/91 07/91 10/91
Rounds (Every Three Months)


CHLORIDE CONCENTRATIONS
FOR 1000 SERIES WELLS
1025
1031
1038
1200.00
800.00
400.00
0.00
Concentration In ppm
5/88 8/88 11/88 2/89 6/89 8/89 11/89 02/90 05/90 08/90 11/90 02/91 05/91 07/91 10/91
Rounds (Every Three Months)

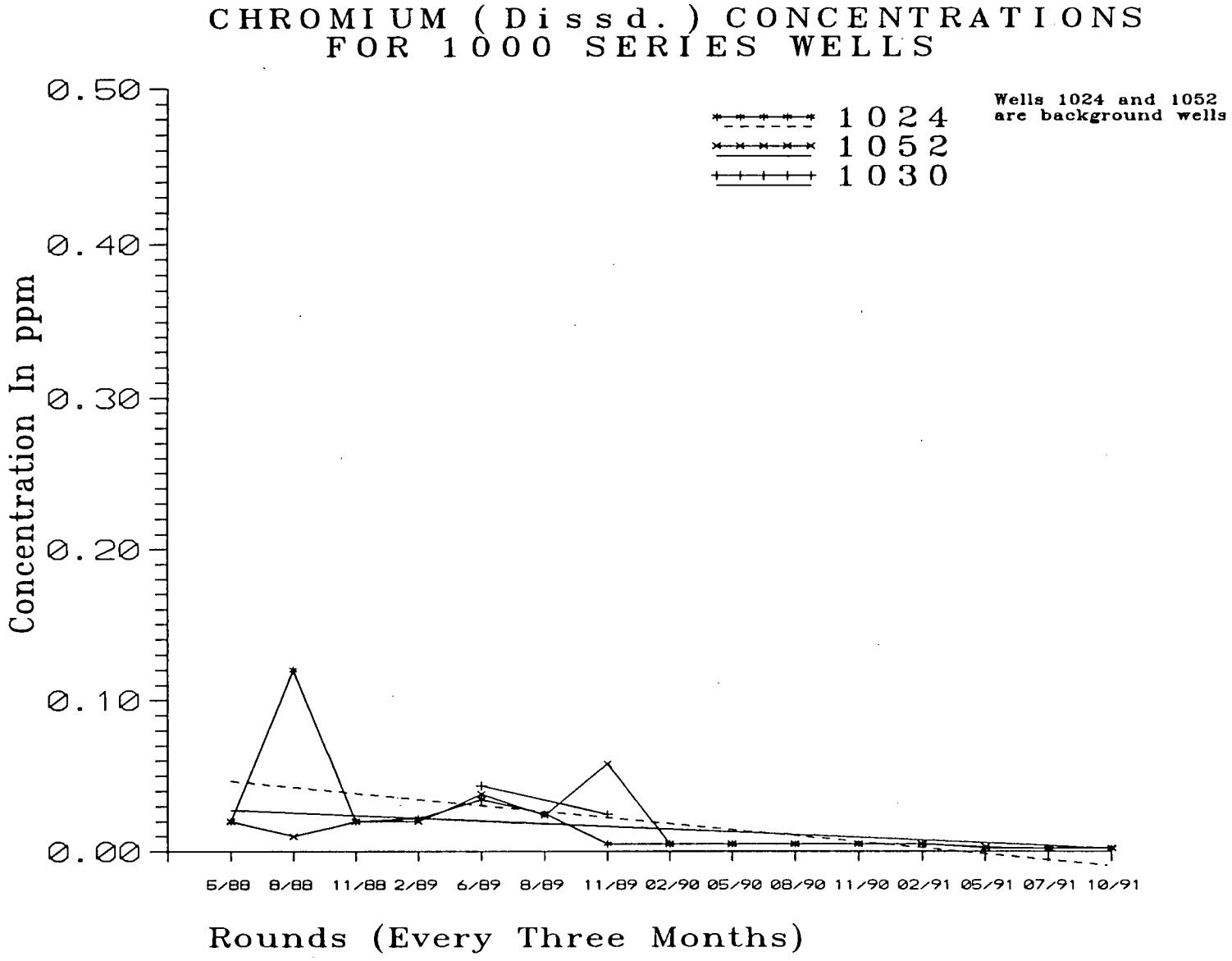
CHLORIDE CONCENTRATIONS FOR 1000 SERIES WELLS

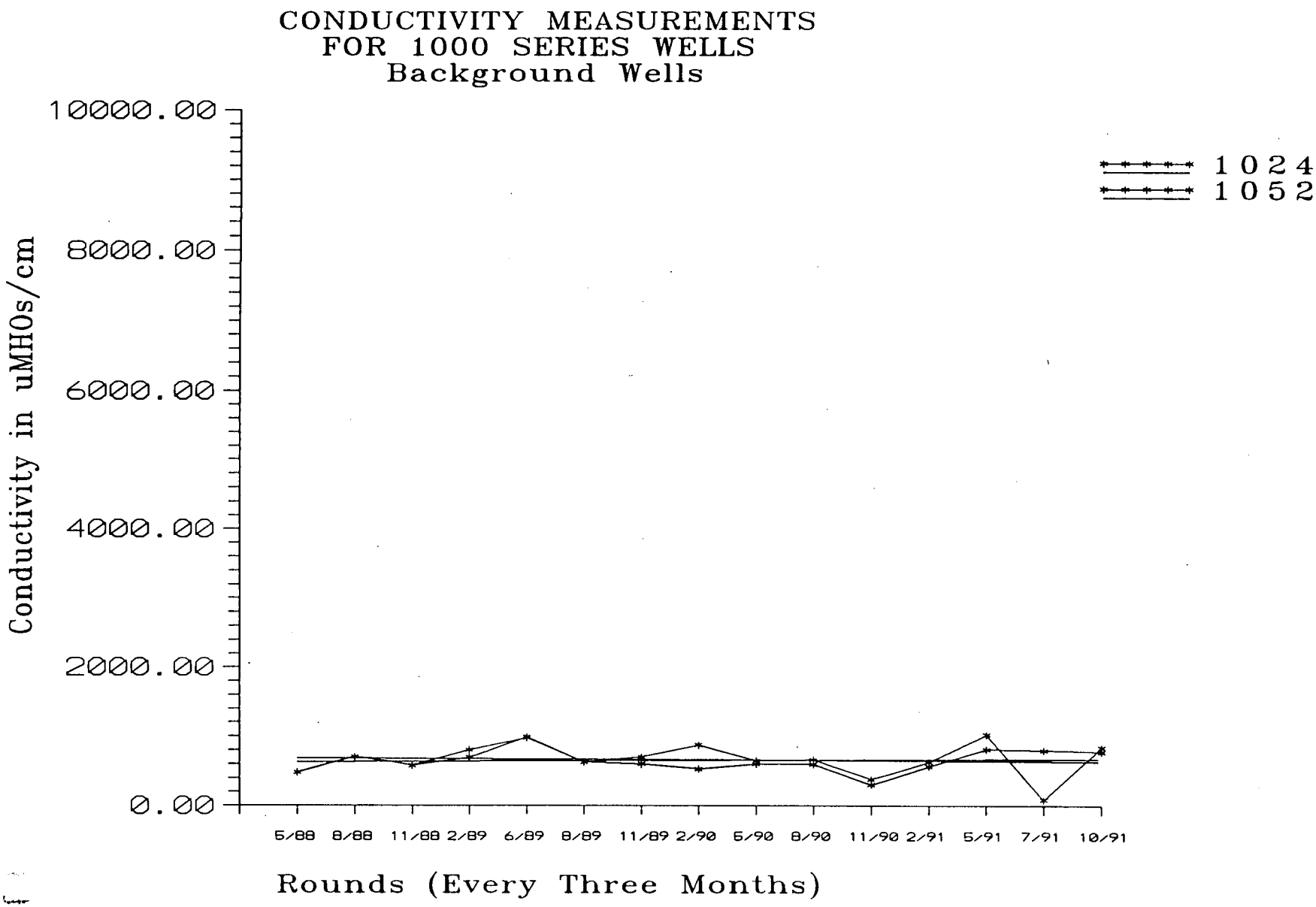



CHLORIDE CONCENTRATIONS IN
1000 SERIES WELLS
1200.00
800.00
400.00
0.00
Concentration In ppm
1074
1081
1082
5/88
8/88
11/88
2/89
6/89
8/89
11/89
02/90
05/90
08/90
11/90
02/91
05/91
07/91
10/91
Rounds (Every Three Months)

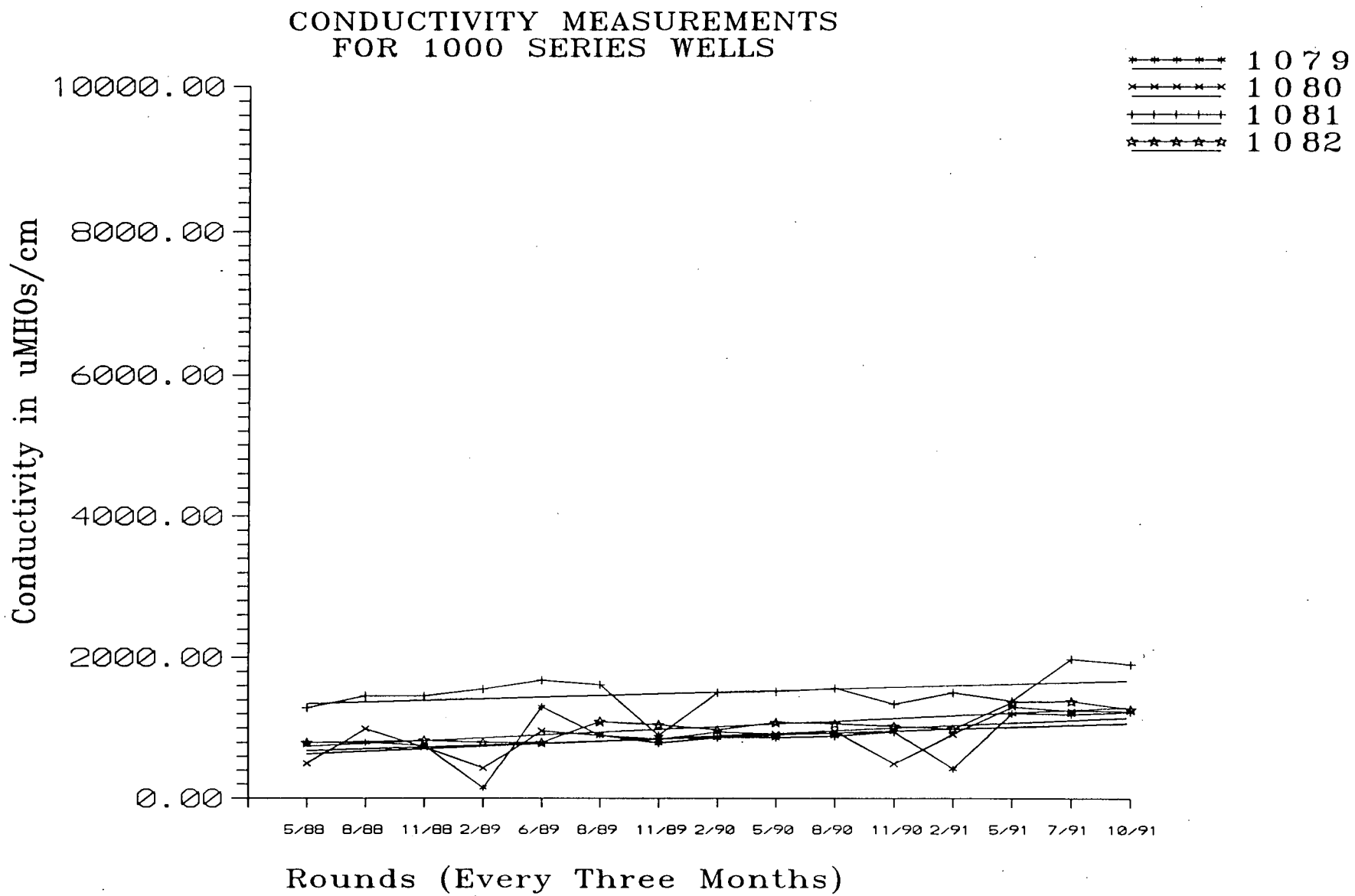
11410

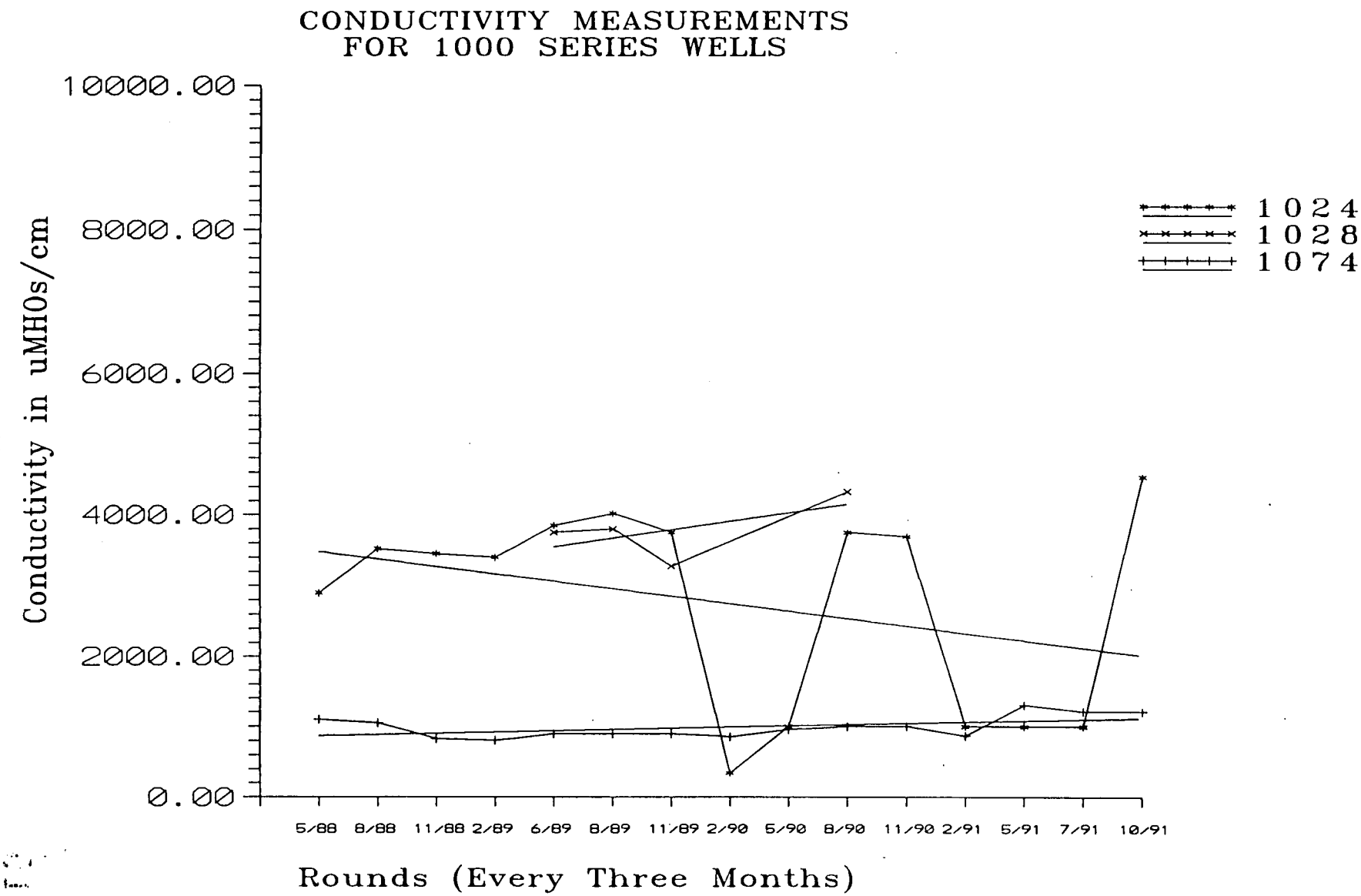
3713

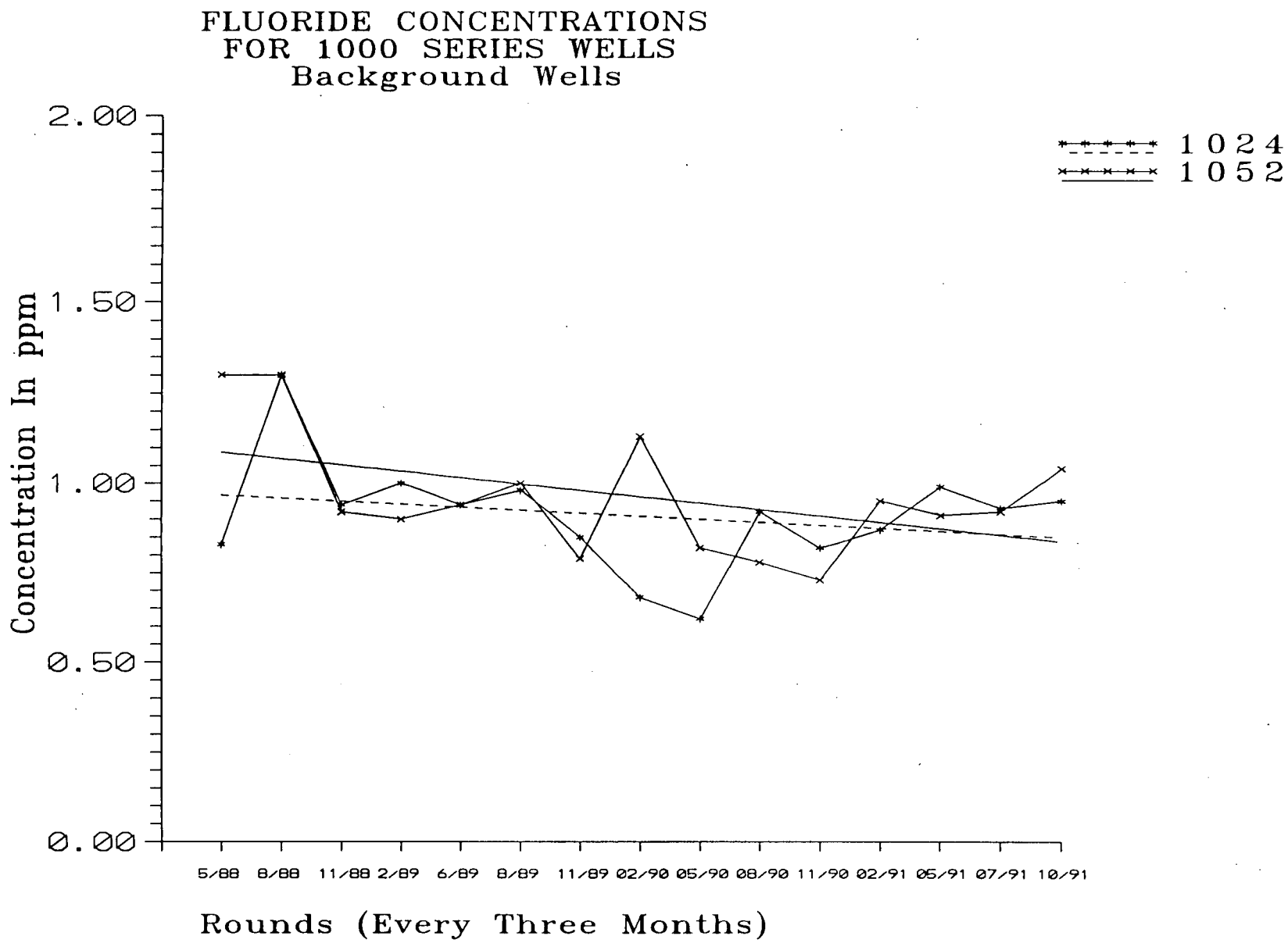

CHROMIUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS
1024
1052
1030
Wells 1024 and 1052
are background wells
Concentration In ppm
0.50
0.40
0.30
0.20
0.10
0.00
5/88 8/88 11/88 2/89 6/89 8/89 11/89 02/90 05/90 08/90 11/90 02/91 05/91 07/91 10/91
Rounds (Every Three Months)


CONDUCTIVITY MEASUREMENTS
FOR 1000 SERIES WELLS
Background Wells
1024
1052
Conductivity in uMHOs/cm
10000.00
8000.00
6000.00
4000.00
2000.00
0.00
5/88
8/88
11/88
2/89
6/89
8/89
11/89
2/90
5/90
8/90
11/90
2/91
5/91
7/91
10/91
Rounds (Every Three Months)

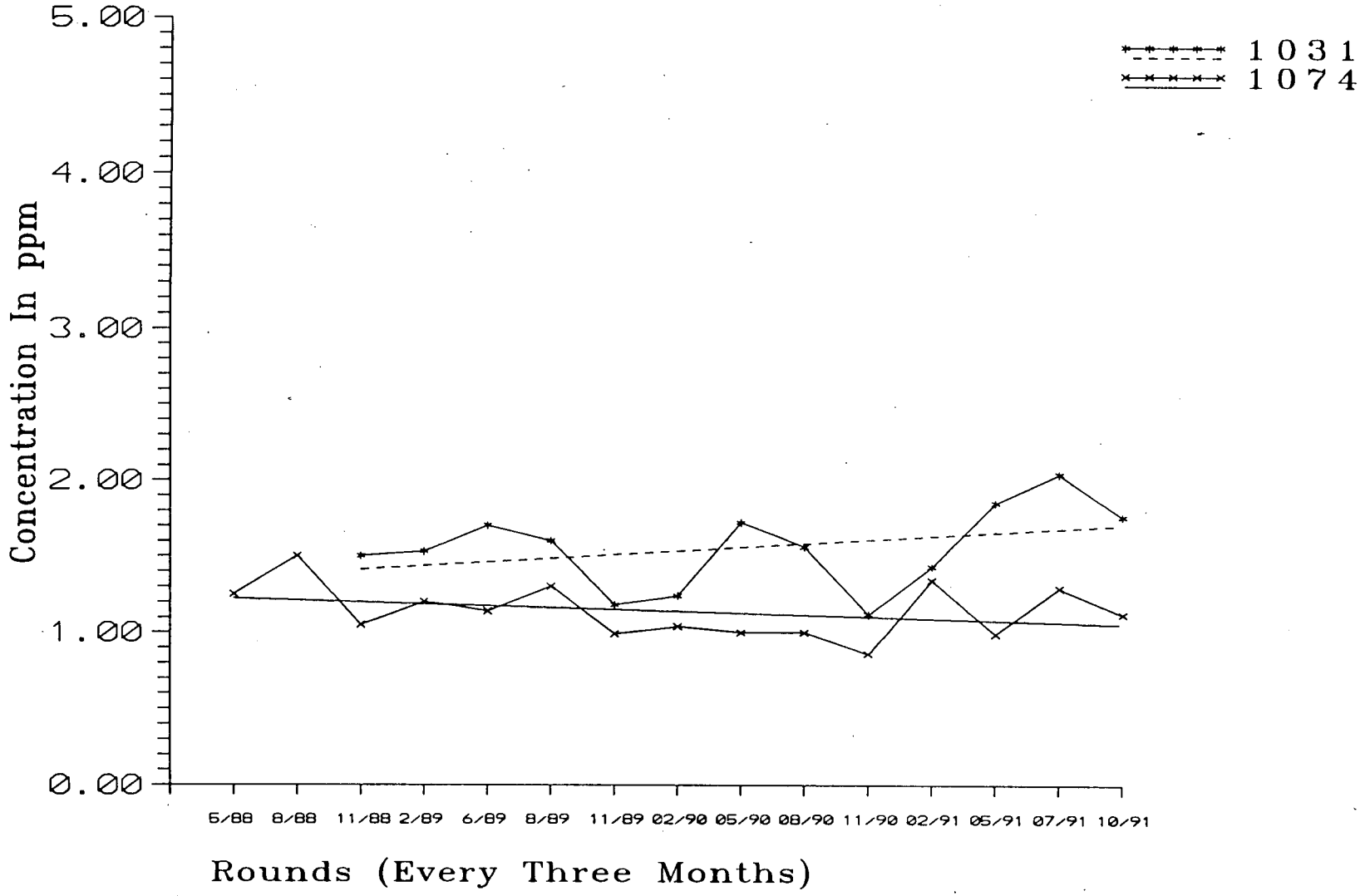
SIA413

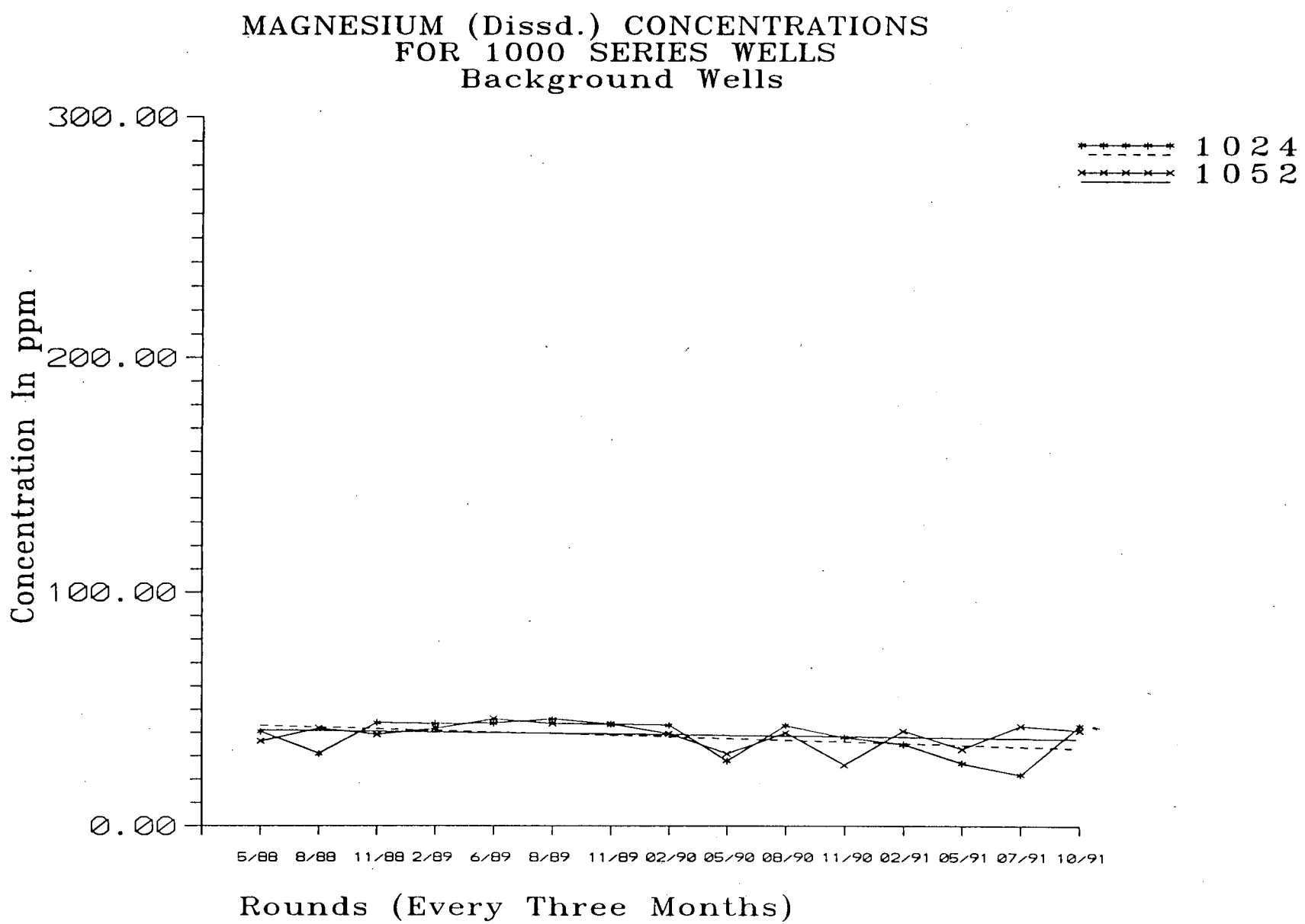

CONDUCTIVITY MEASUREMENTS
FOR 1000 SERIES WELLS
1079
1080
1081
1082
Conductivity in uMHOs/cm
10000.00
8000.00
6000.00
4000.00
2000.00
0.00
5/88
8/88
11/88
2/89
6/89
8/89
11/89
2/90
5/90
8/90
11/90
2/91
5/91
7/91
10/91
Rounds (Every Three Months)

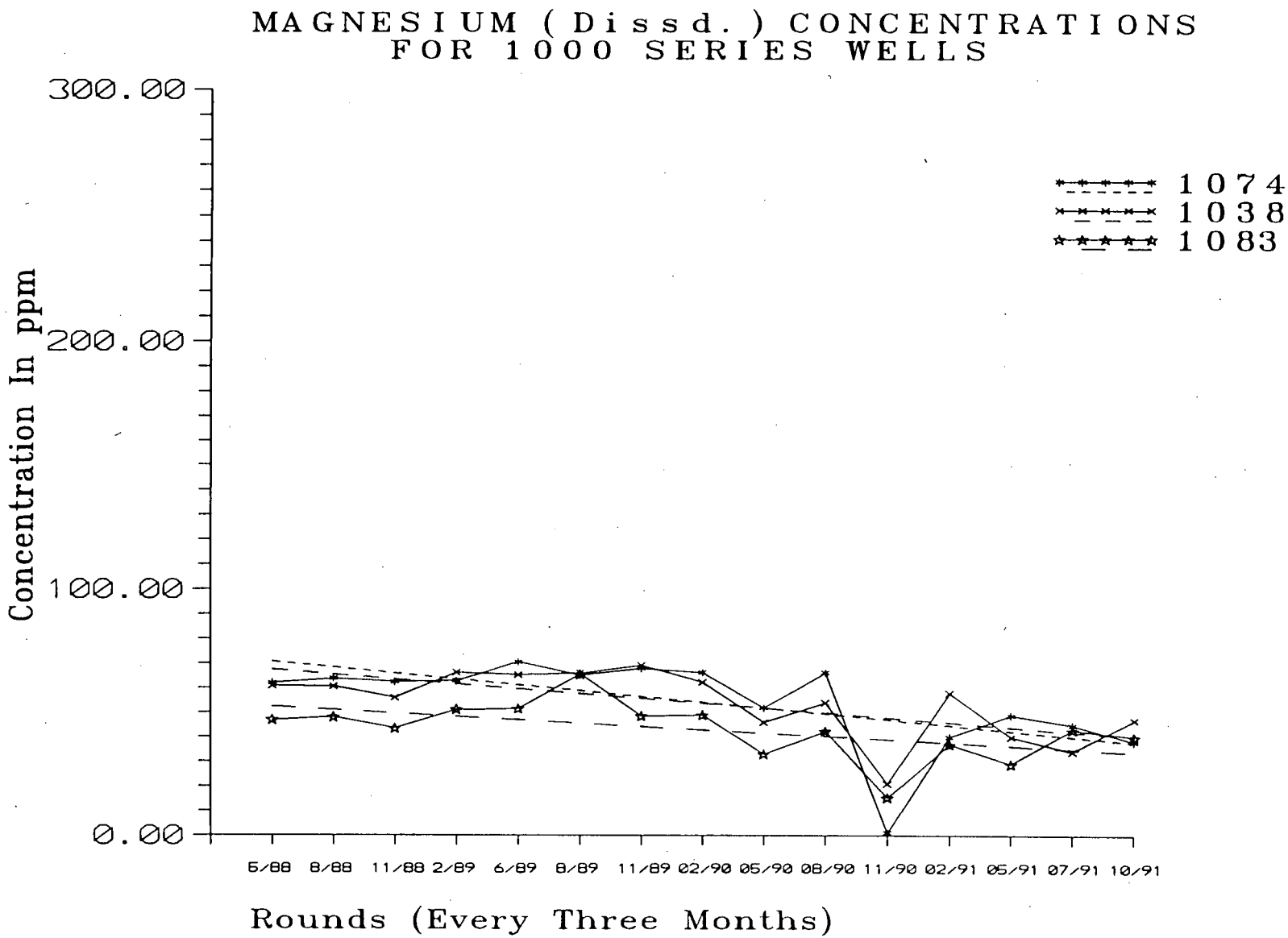

CONDUCTIVITY MEASUREMENTS
FOR 1000 SERIES WELLS
10000.00
8000.00
6000.00
4000.00
2000.00
0.00
Conductivity in uMHOs/cm
1024
1028
1074
5/88
8/88
11/88
2/89
6/89
8/89
11/89
2/90
5/90
8/90
11/90
2/91
5/91
7/91
10/91
Rounds (Every Three Months)


FLUORIDE CONCENTRATIONS
FOR 1000 SERIES WELLS
Background Wells
1024
1052
Concentration In ppm
2.00
1.50
1.00
0.50
0.00
5/88 8/88 11/88 2/89 6/89 8/89 11/89 02/90 05/90 08/90 11/90 02/91 05/91 07/91 10/91
Rounds (Every Three Months)

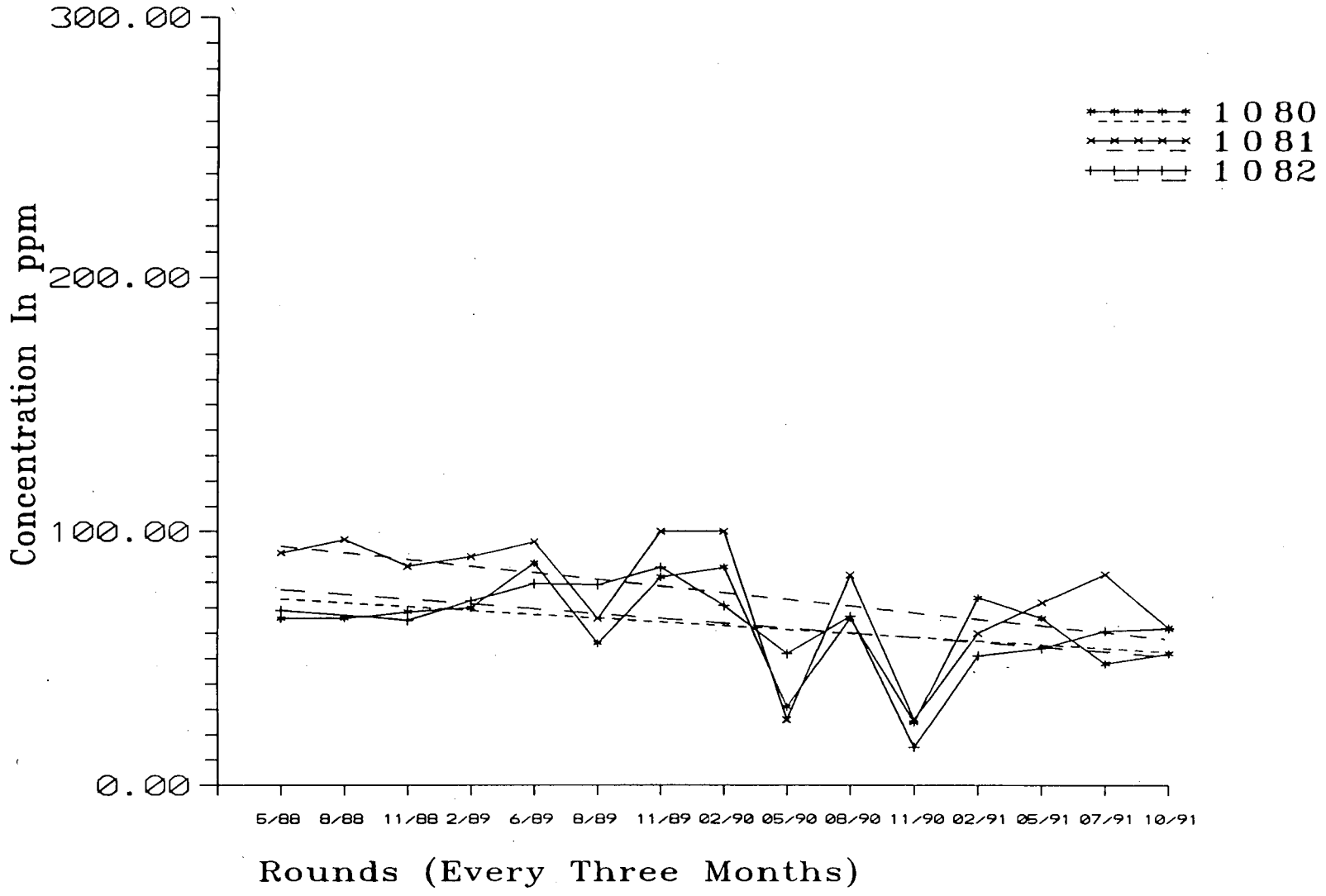
FLUORIDE CONCENTRATIONS FOR 1000 SERIES WELLS



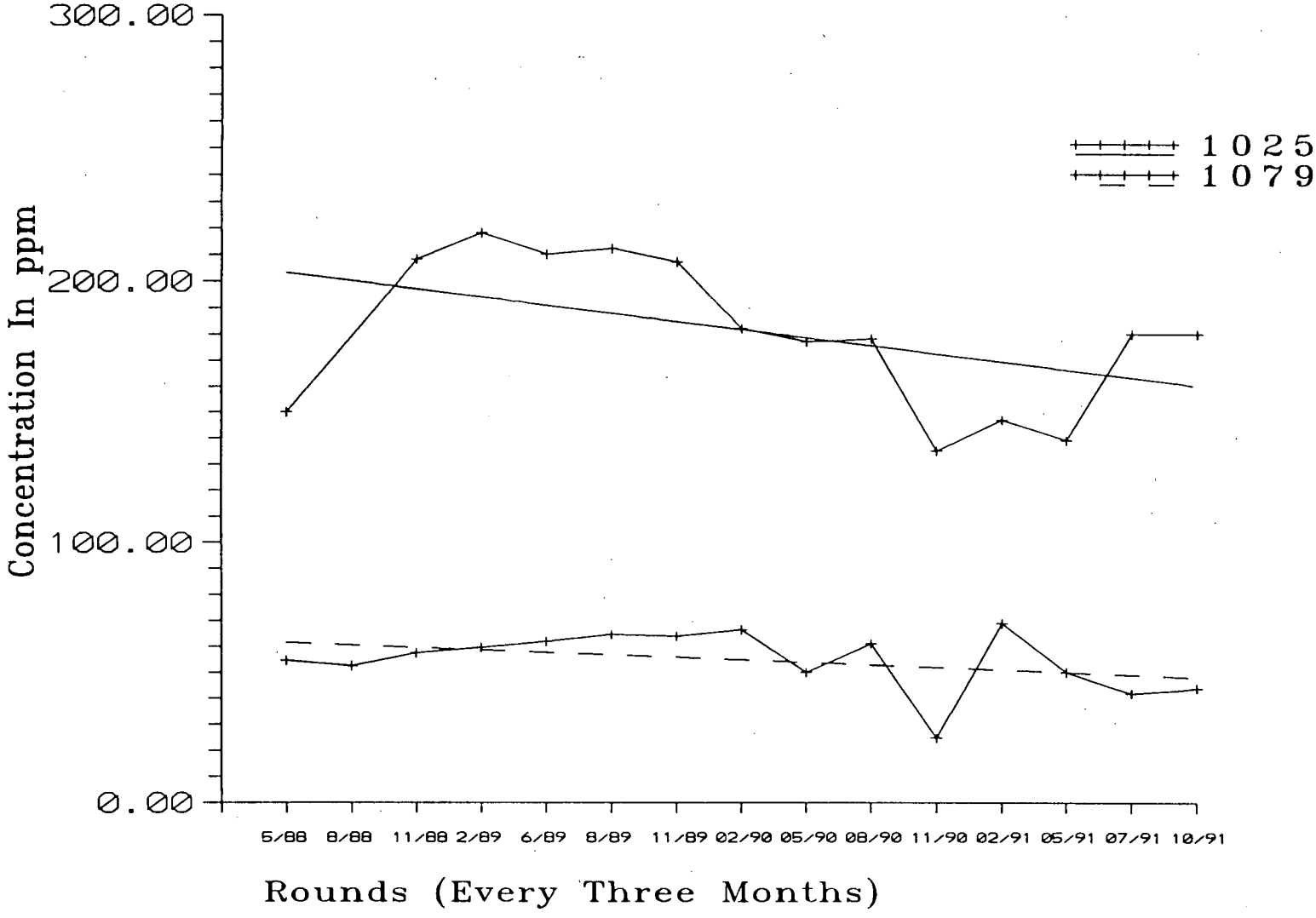

MAGNESIUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS
Background Wells
1024
1052
300.00
200.00
100.00
0.00
Concentration In ppm
5/88
8/88
11/88
2/89
6/89
8/89
11/89
02/90
05/90
08/90
11/90
02/91
05/91
07/91
10/91
Rounds (Every Three Months)


MAGNESIUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS
1074
1038
1083
Concentration In ppm
300.00
200.00
100.00
0.00
5/88
8/88
11/88
2/89
6/89
8/89
11/89
02/90
05/90
08/90
11/90
02/91
05/91
07/91
10/91
Rounds (Every Three Months)

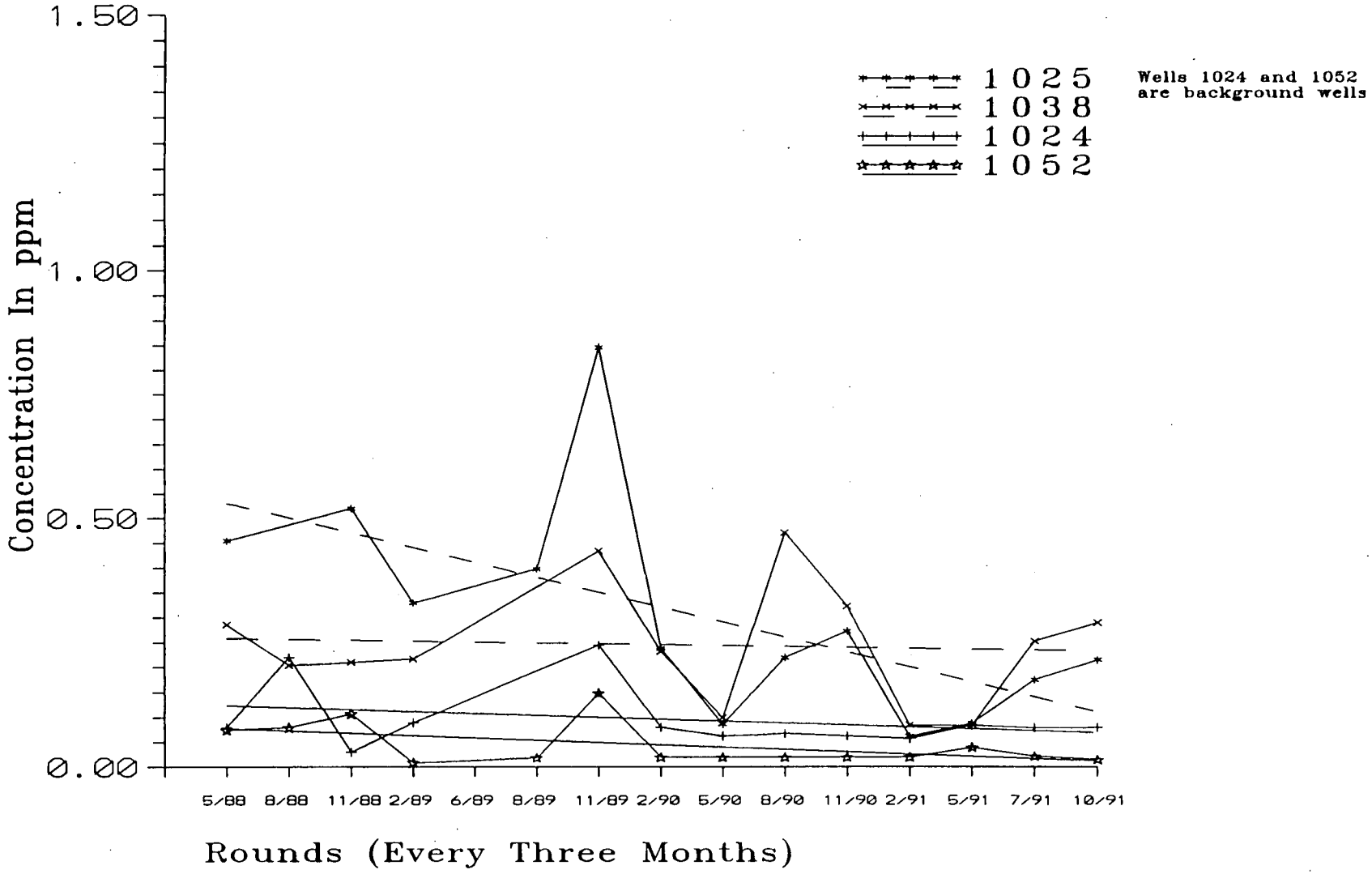
MAGNESIUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS

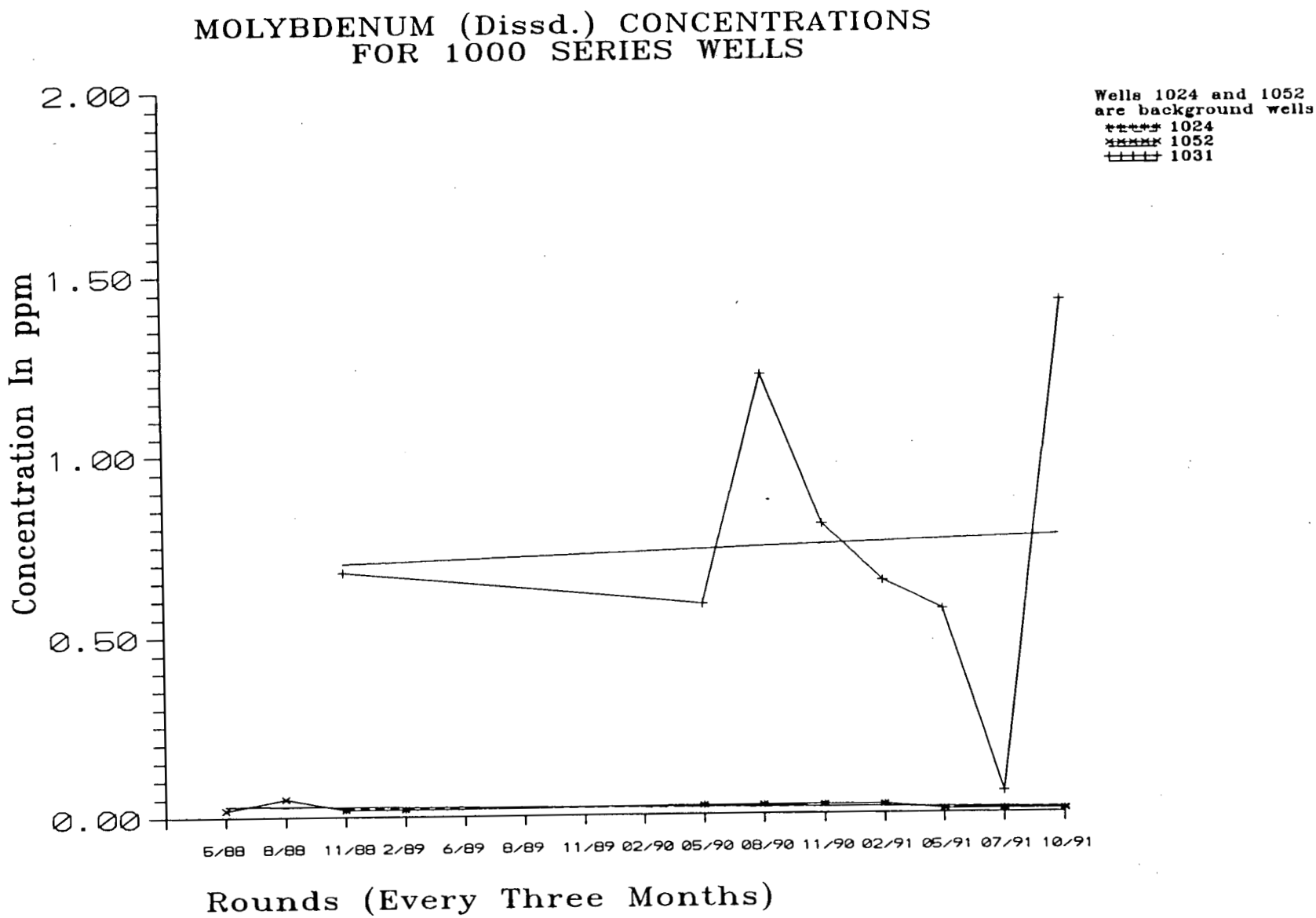


MAGNESIUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS

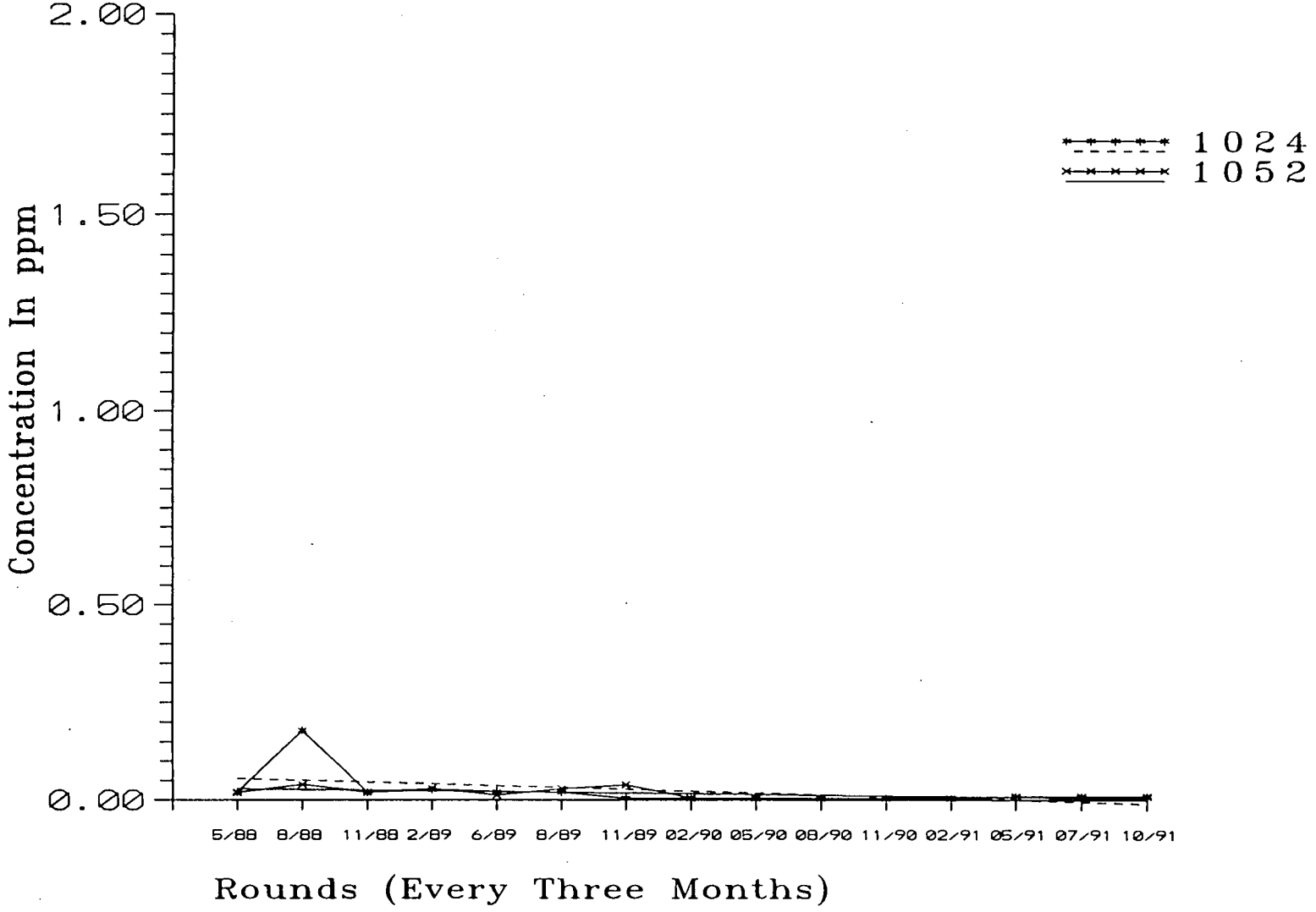


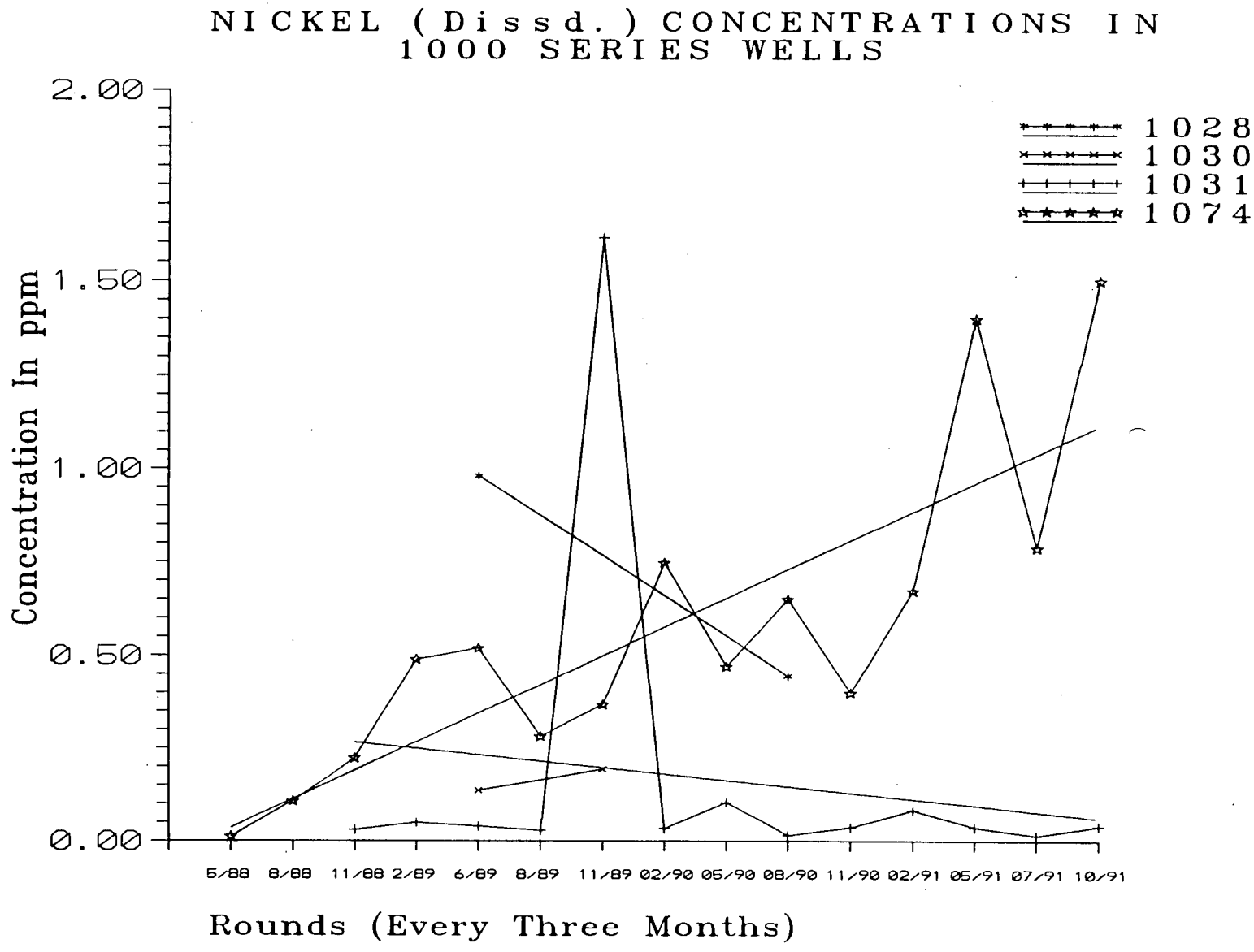
MANGANESE (Dissd.) CONCENTRATIONS FOR 1000 SERIES WELLS

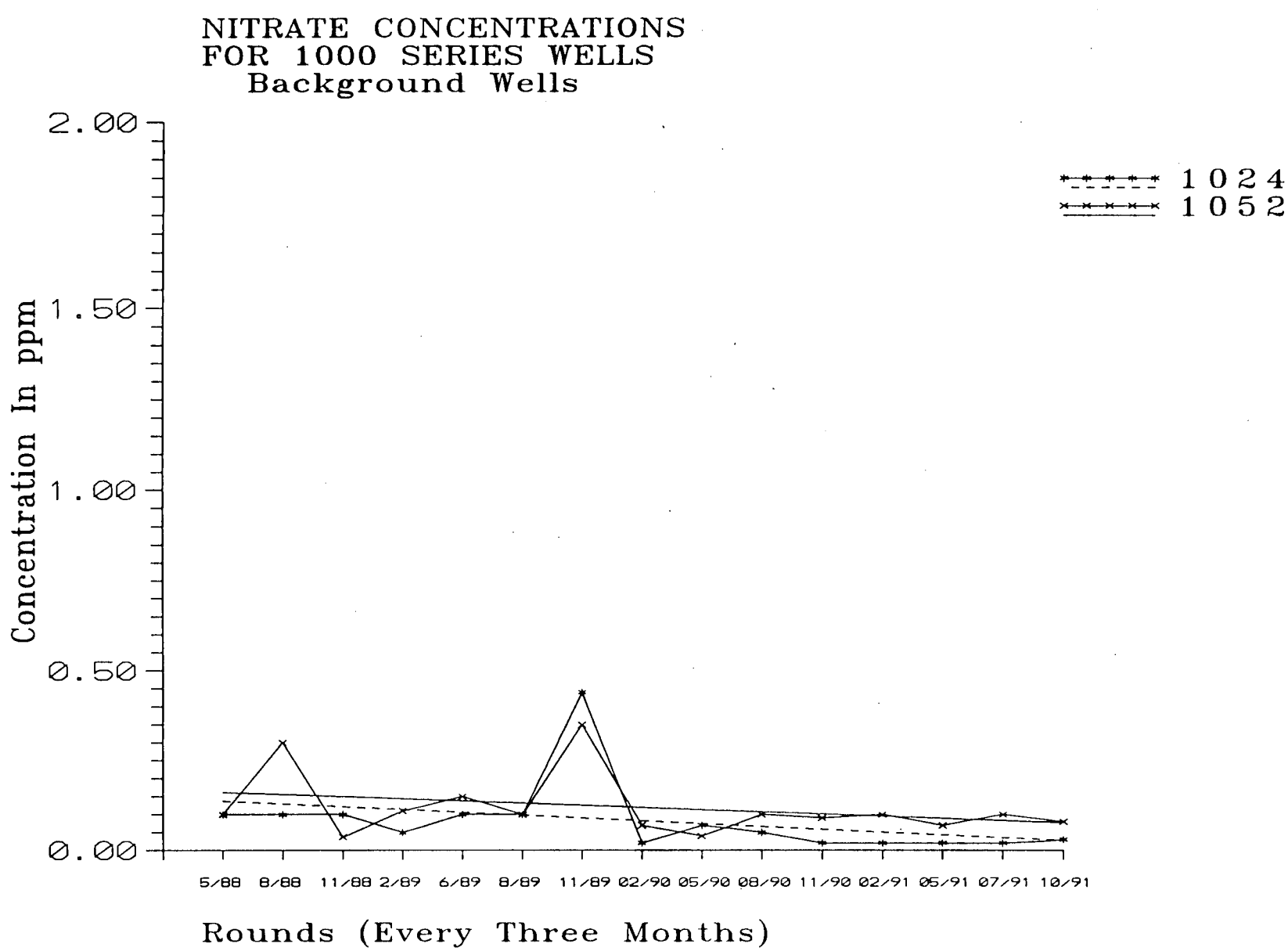


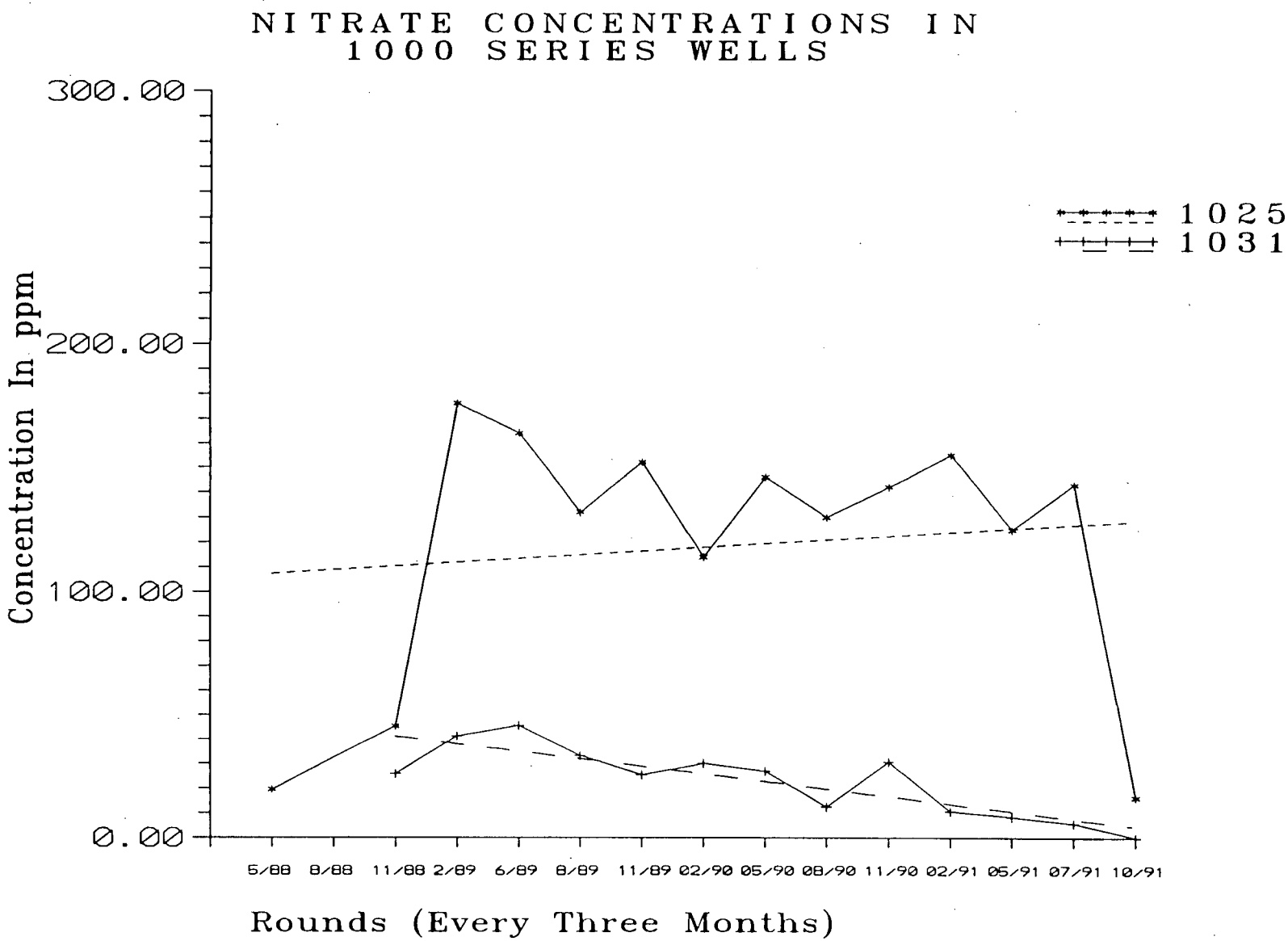

MOLYBDENUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS
Wells 1024 and 1052
are background wells
1024
1052
1031
Concentration In ppm
2.00
1.50
1.00
0.50
0.00
5/88
8/88
11/88
2/89
6/89
8/89
11/89
02/90
05/90
08/90
11/90
02/91
05/91
07/91
10/91
Rounds (Every Three Months)

NICKEL (Dissd.) CONCENTRATIONS IN
1000 SERIES WELLS
Background Wells



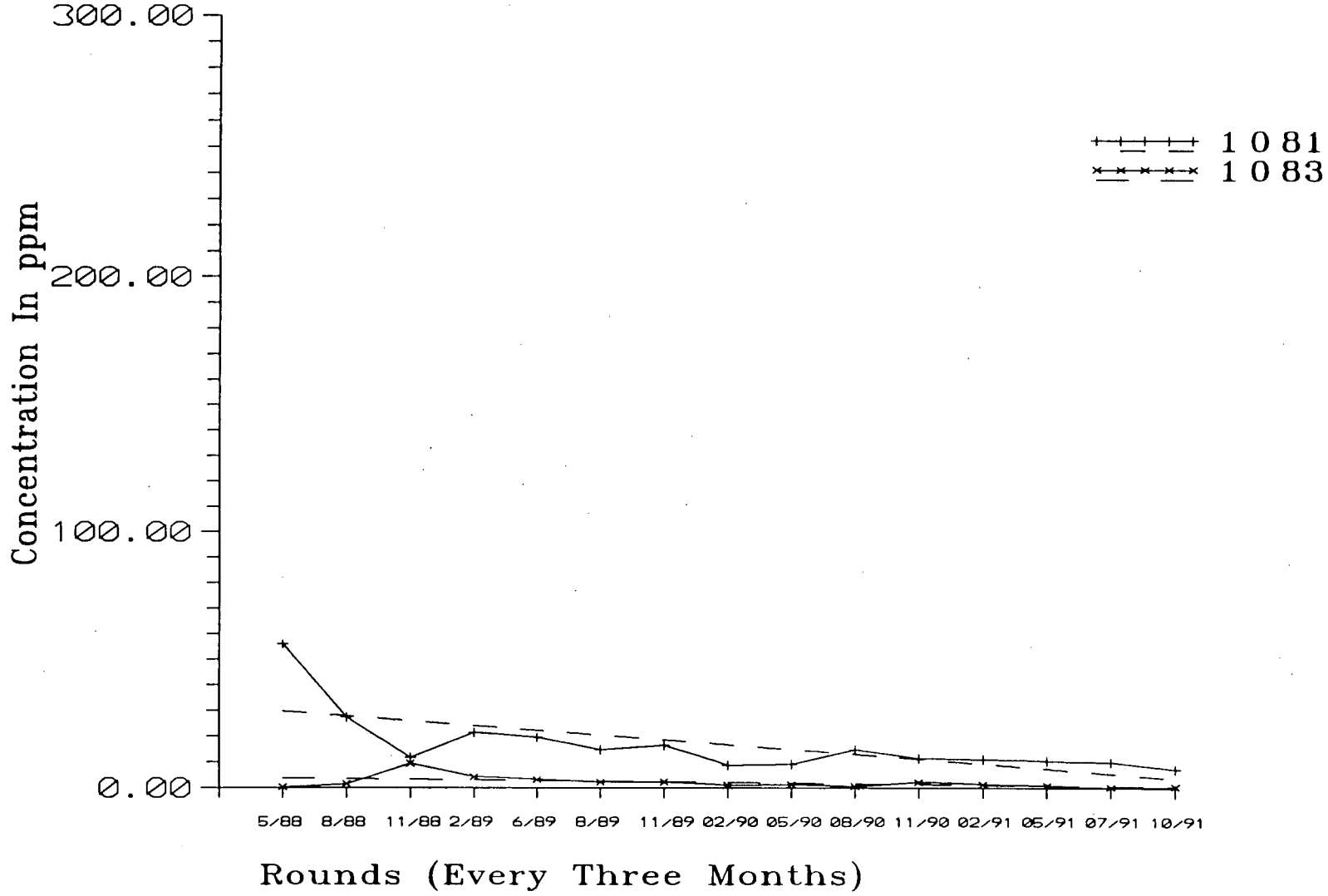

NICKEL (Dissd.) CONCENTRATIONS IN
1000 SERIES WELLS
1028
1030
1031
1074
Concentration In ppm
2.00
1.50
1.00
0.50
0.00
5/88
8/88
11/88
2/89
6/89
8/89
11/89
02/90
05/90
08/90
11/90
02/91
05/91
07/91
10/91
Rounds (Every Three Months)


NITRATE CONCENTRATIONS
FOR 1000 SERIES WELLS
Background Wells
1024
1052
Concentration In ppm
2.00
1.50
1.00
0.50
0.00
5/88
8/88
11/88
2/89
6/89
8/89
11/89
02/90
05/90
08/90
11/90
02/91
05/91
07/91
10/91
Rounds (Every Three Months)

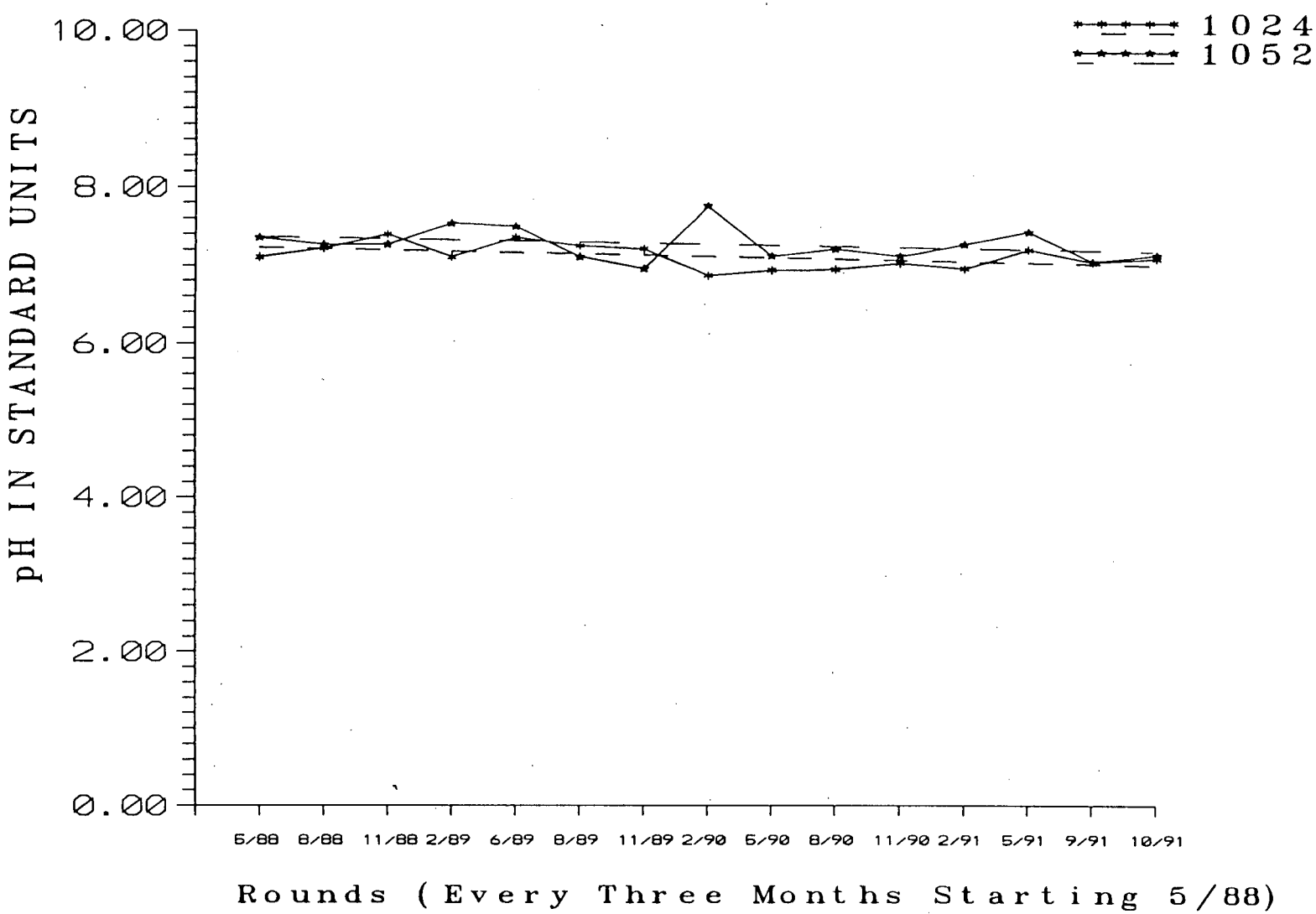

NITRATE CONCENTRATIONS IN
1000 SERIES WELLS
1025
1031
Concentration In ppm
300.00
200.00
100.00
0.00
5/88
8/88
11/88
2/89
6/89
8/89
11/89
02/90
05/90
08/90
11/90
02/91
05/91
07/91
10/91
Rounds (Every Three Months)

427
CSA

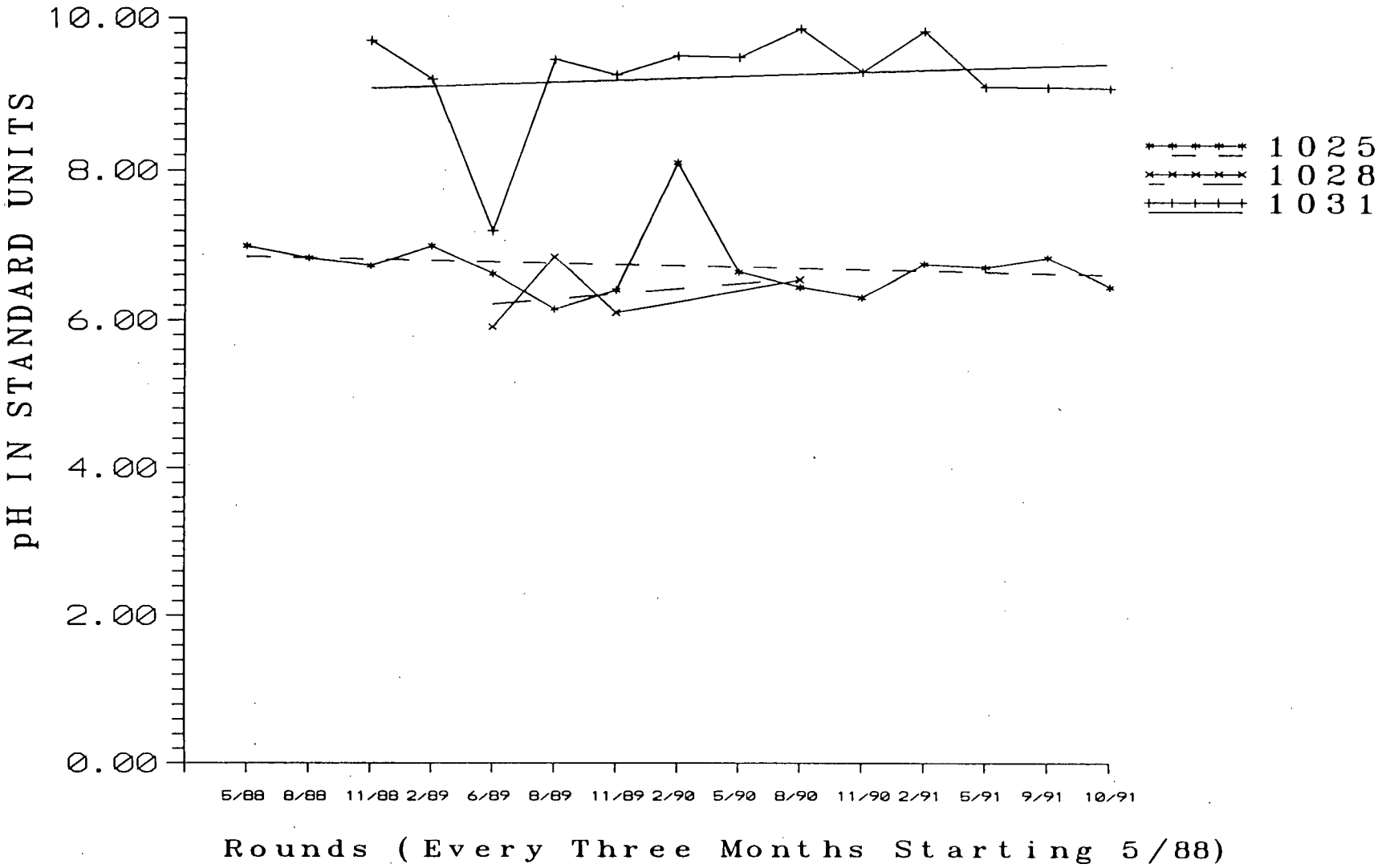
NITRATE CONCENTRATIONS IN 1000 SERIES WELLS



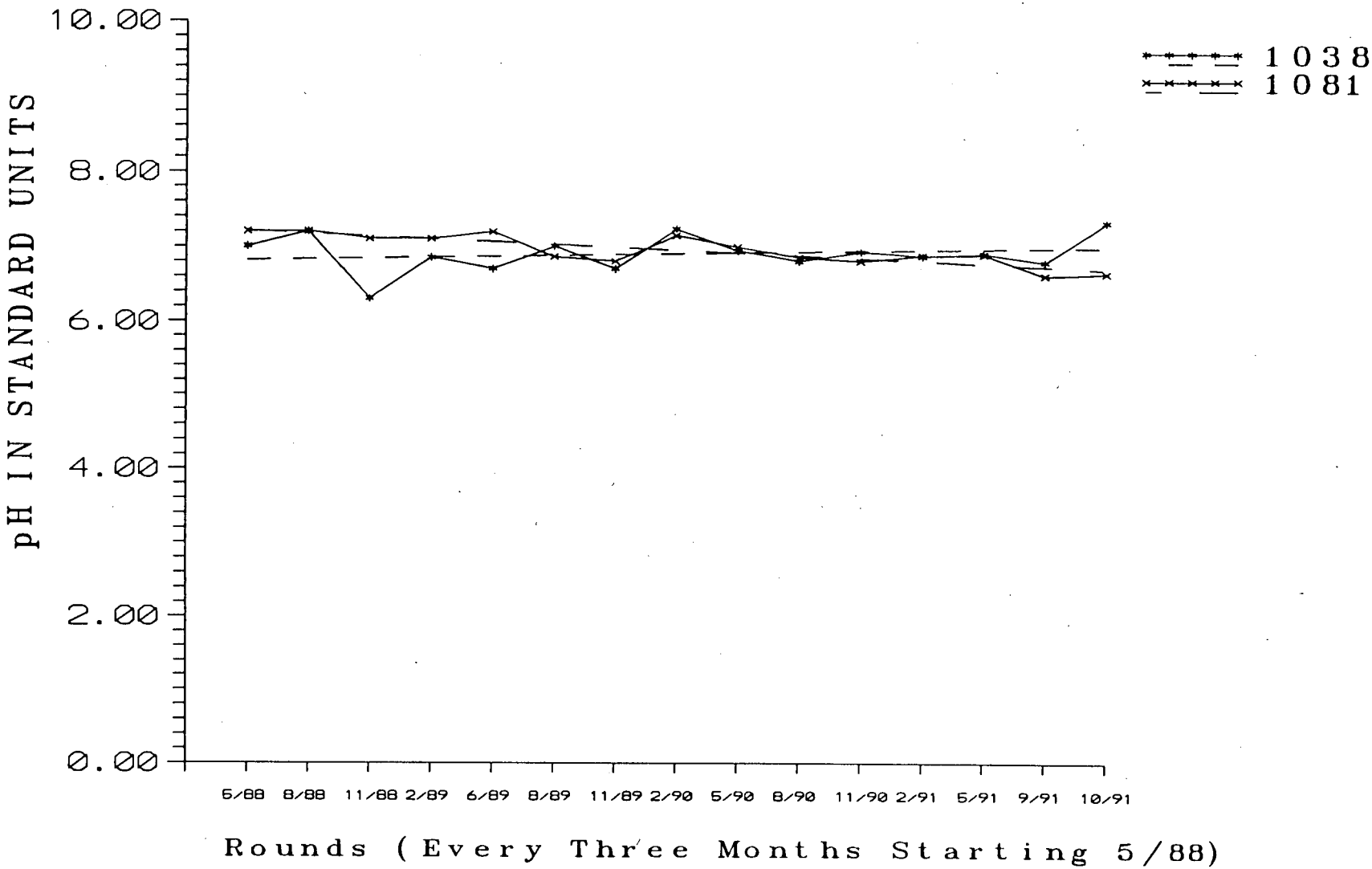
pH MEASUREMENTS IN 1000 SERIES WELLS
Background Wells



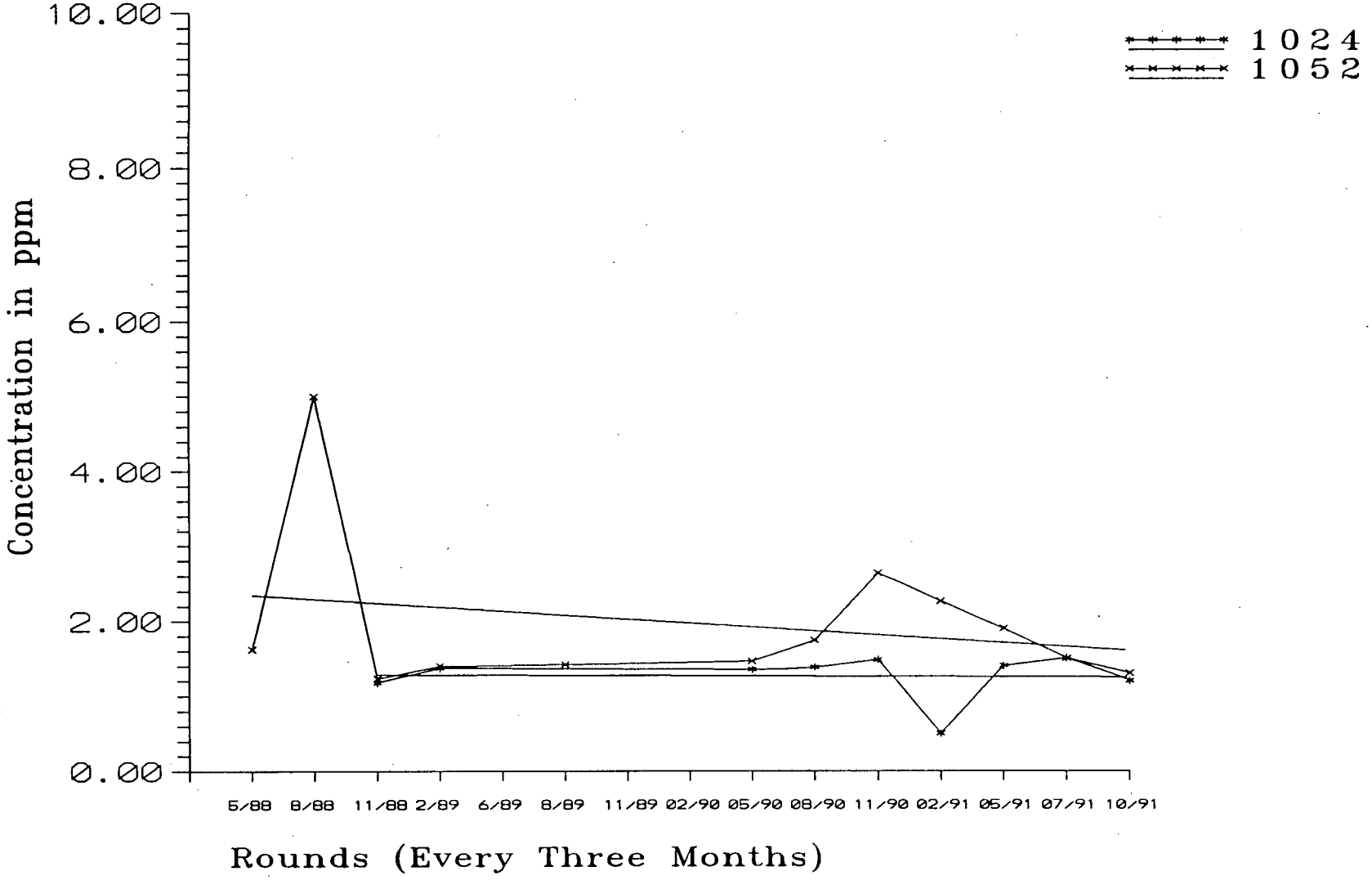
pH MEASUREMENTS IN 1000 SERIES WELLS

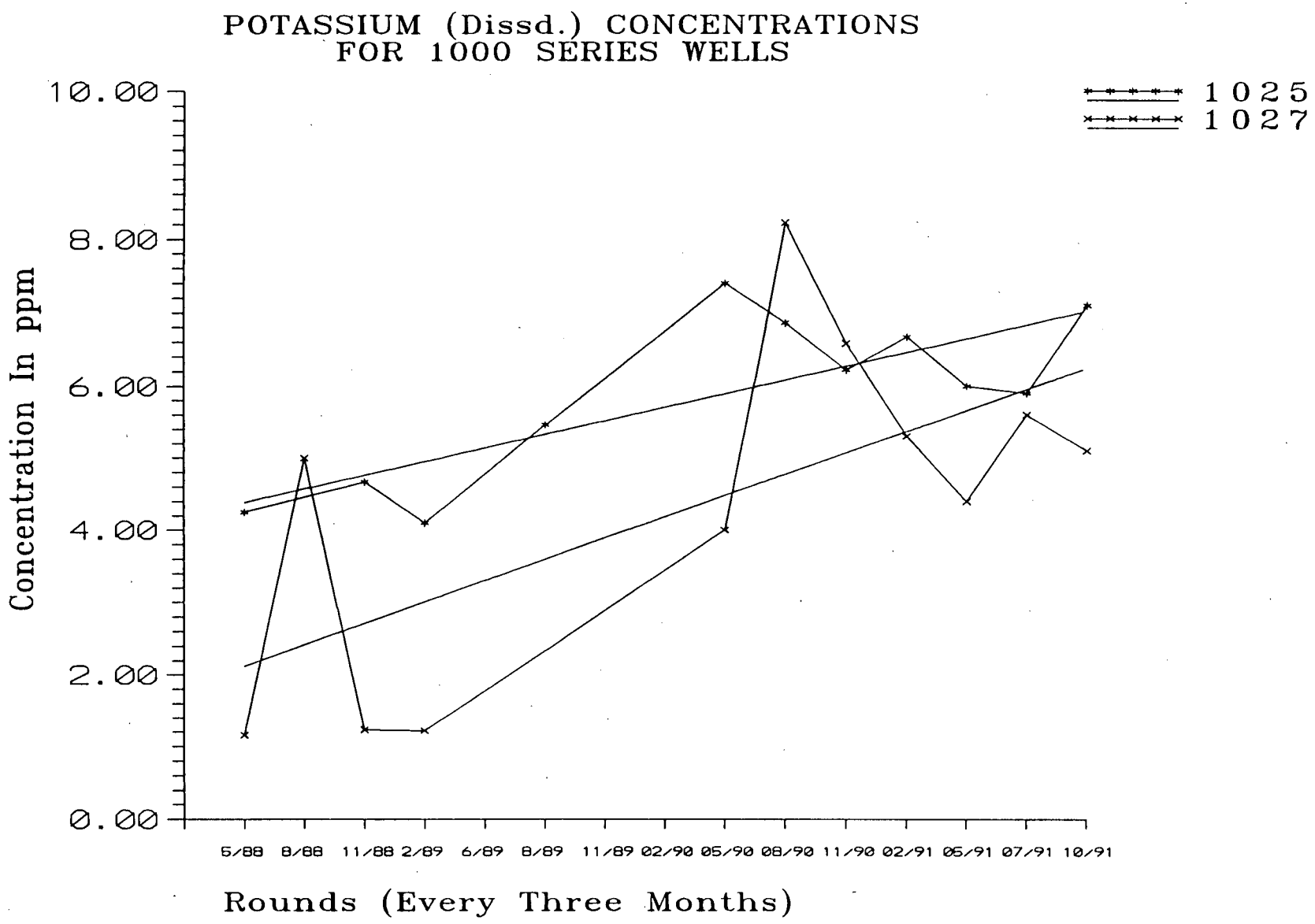


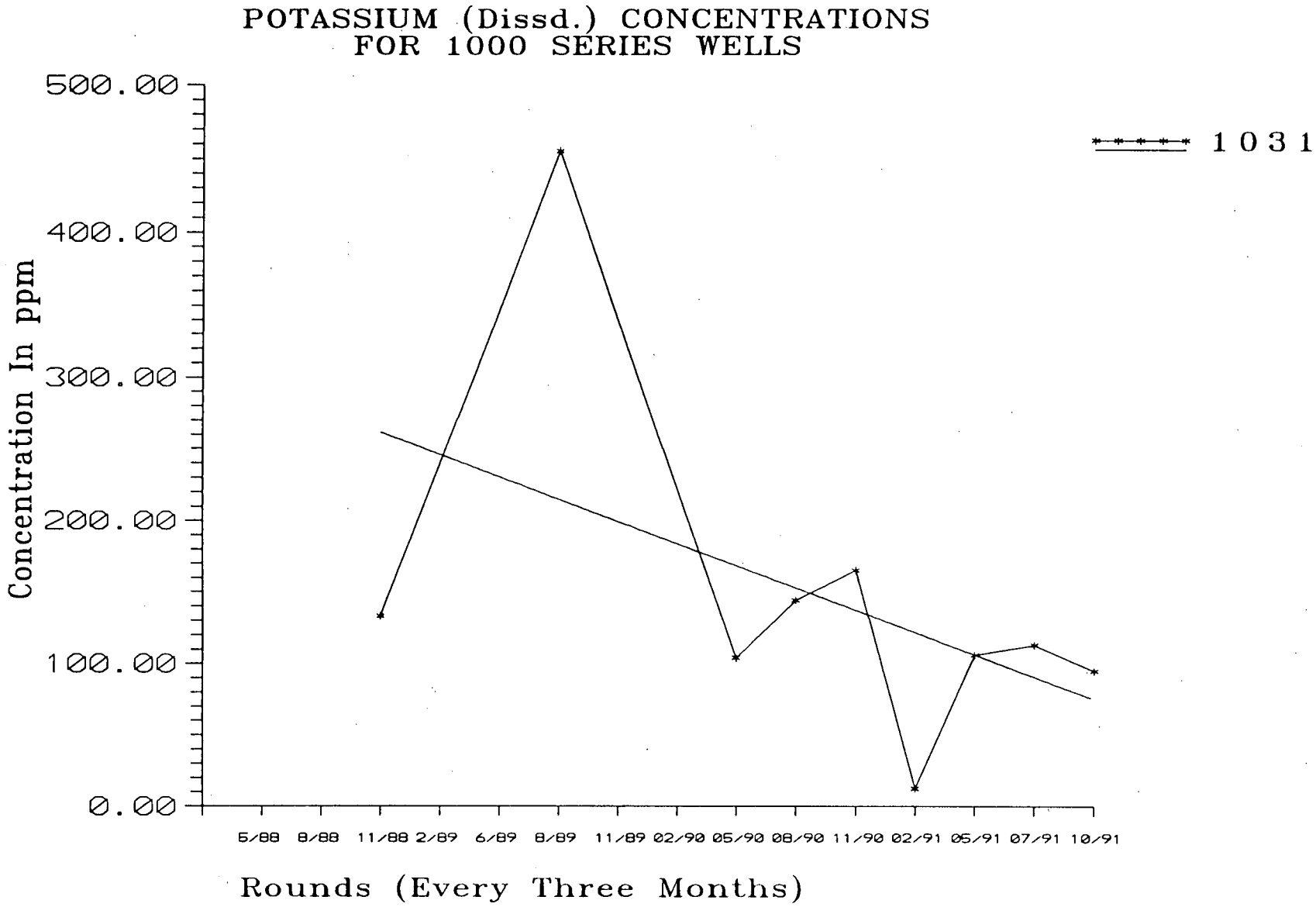
pH MEASUREMENTS IN 1000 SERIES WELLS

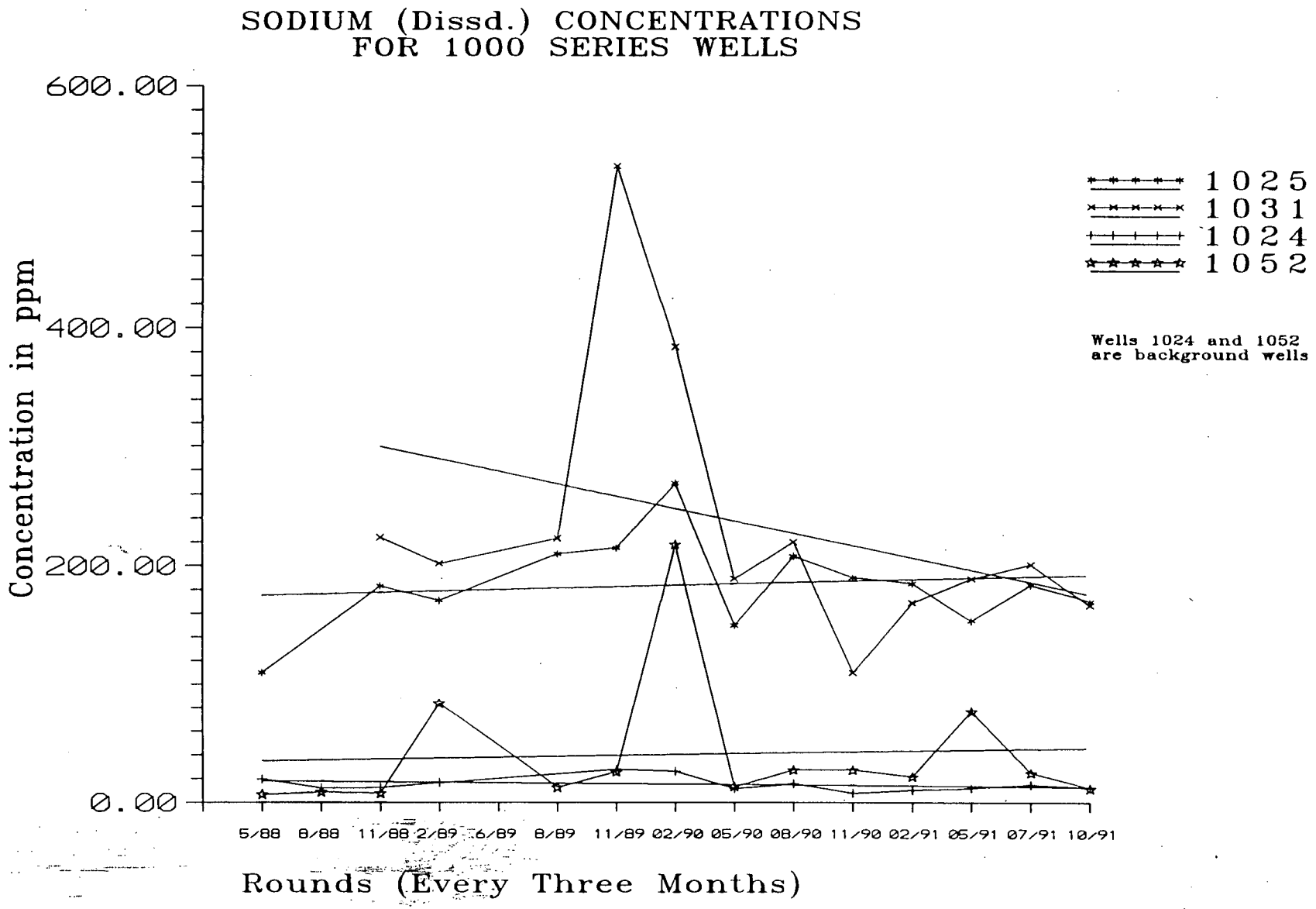


POTASSIUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS
Background Wells

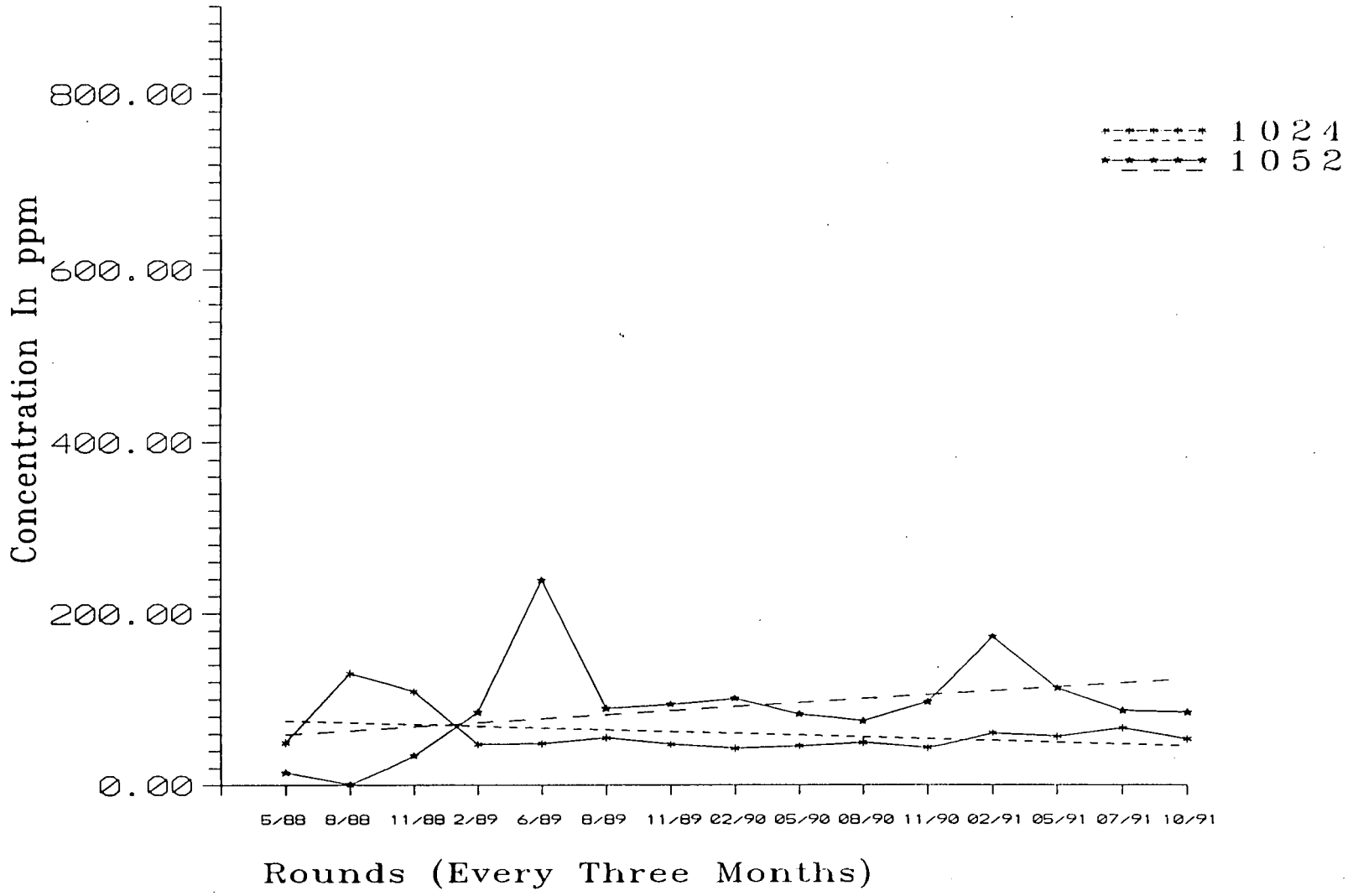



POTASSIUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS
1025
1027
Concentration In ppm
10.00
8.00
6.00
4.00
2.00
0.00
5/88 8/88 11/88 2/89 6/89 8/89 11/89 02/90 05/90 08/90 11/90 02/91 05/91 07/91 10/91
Rounds (Every Three Months)

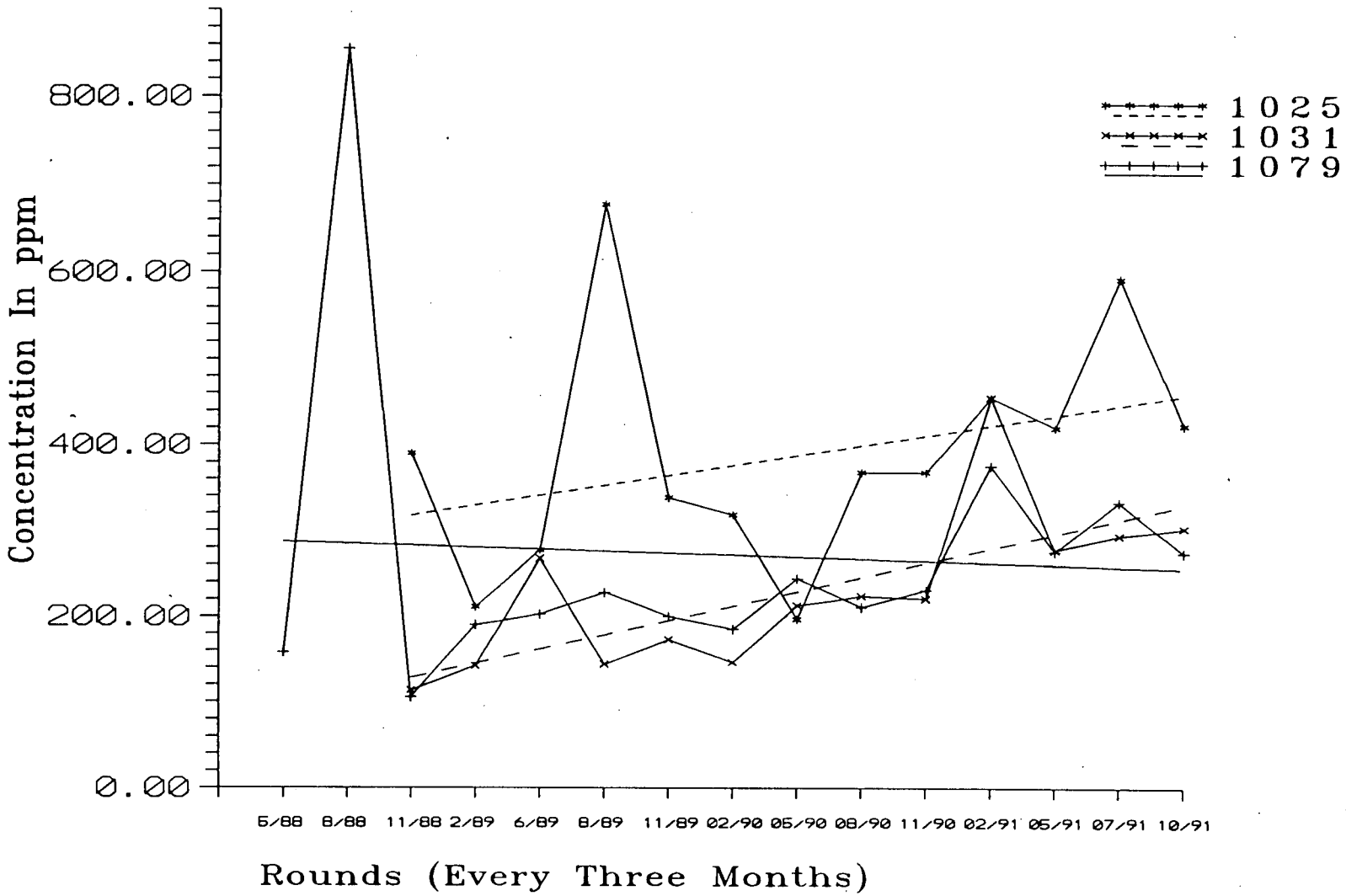

POTASSIUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS
1031
Concentration In ppm
500.00
400.00
300.00
200.00
100.00
0.00
5/88
8/88
11/88
2/89
6/89
8/89
11/89
02/90
05/90
08/90
11/90
02/91
05/91
07/91
10/91
Rounds (Every Three Months)


SODIUM (Dissd.) CONCENTRATIONS
FOR 1000 SERIES WELLS
600.00
400.00
200.00
0.00
Concentration in ppm
5/88
8/88
11/88
2/89
6/89
8/89
11/89
02/90
05/90
08/90
11/90
02/91
05/91
07/91
10/91
Rounds (Every Three Months)
1025
1031
1024
1052
Wells 1024 and 1052
are background wells

SULFATE CONCENTRATIONS IN
1000 SERIES WELLS
Background Wells



SULFATE CONCENTRATIONS IN 1000 SERIES WELLS



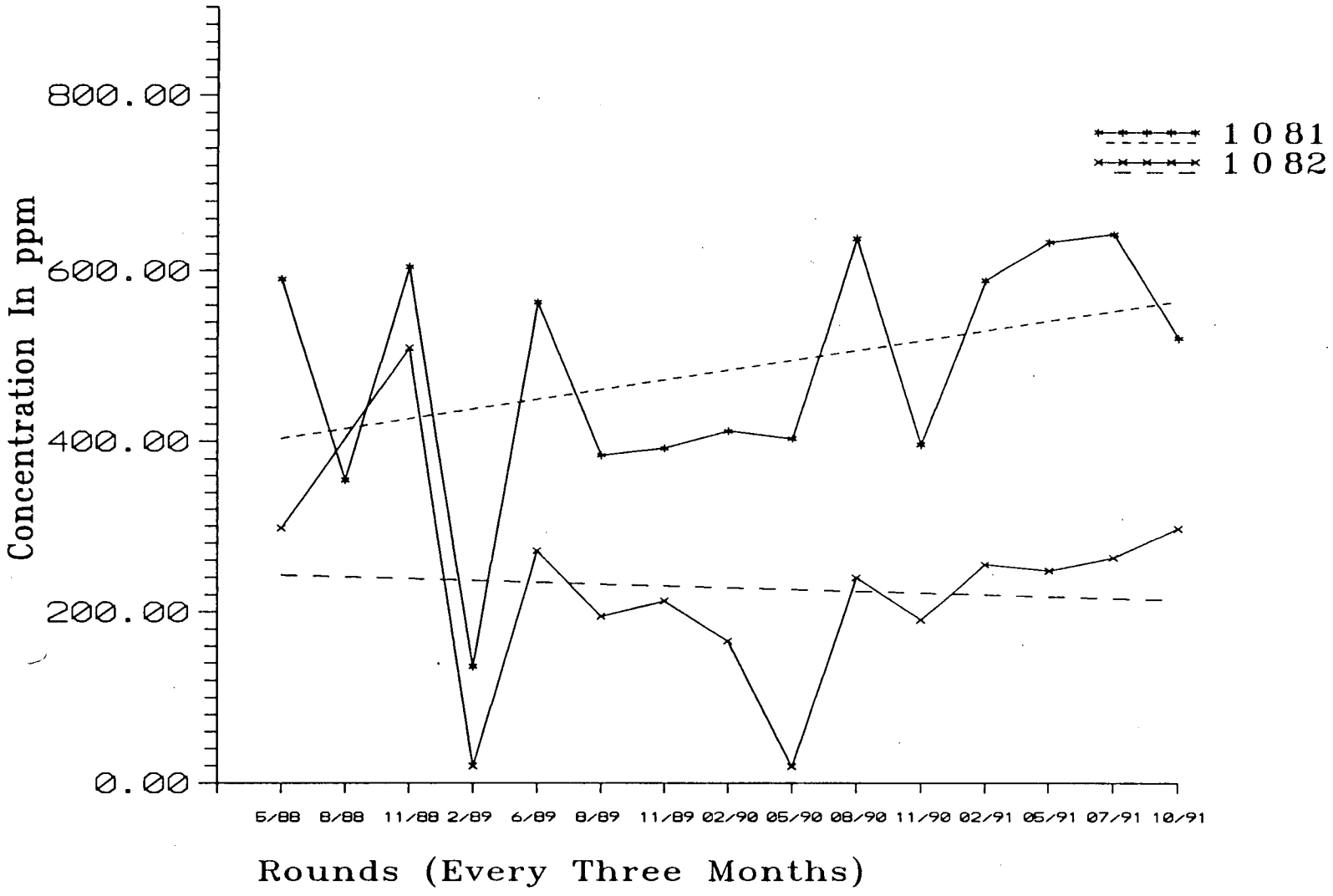
3713
3713
4.3b

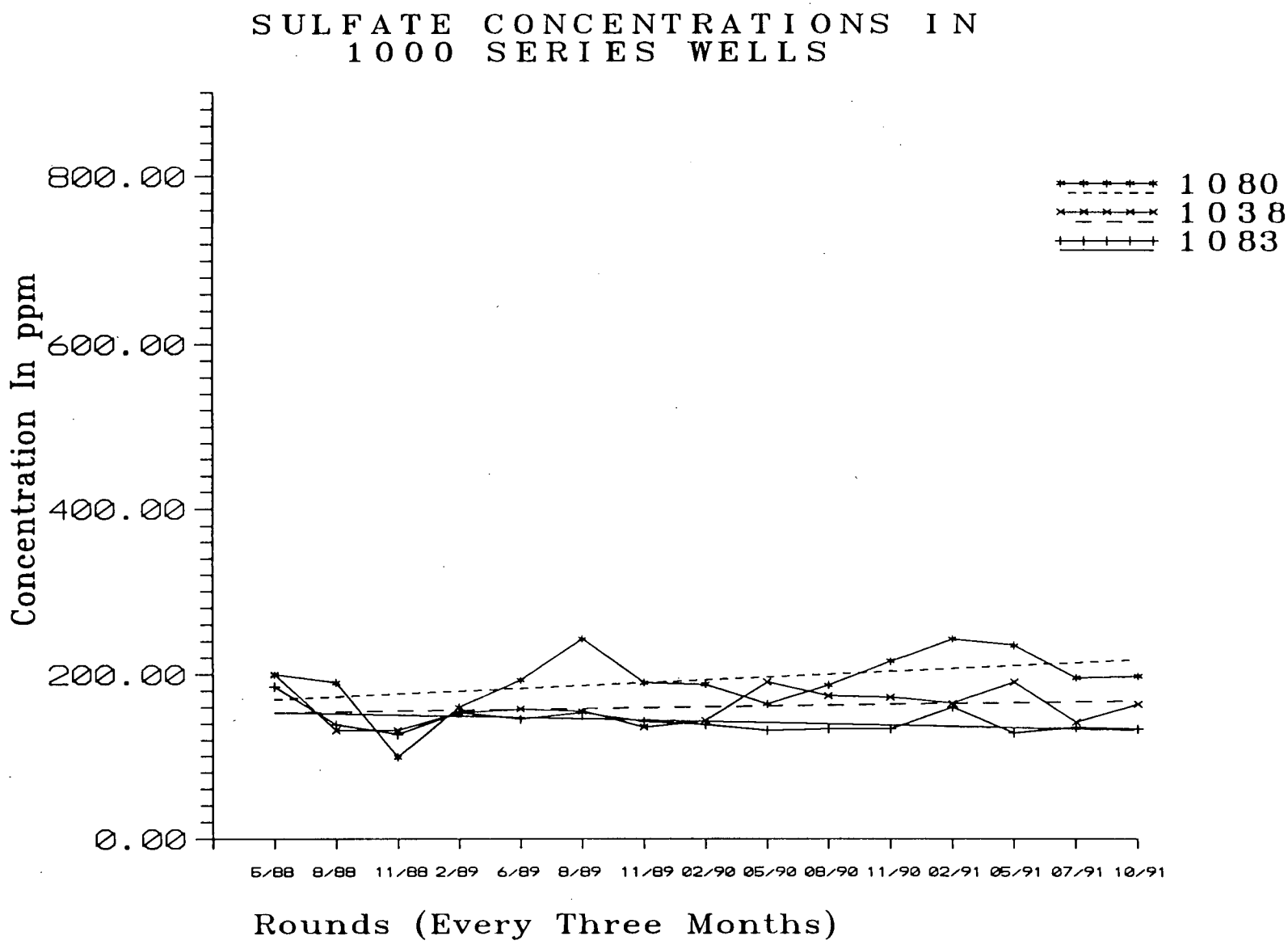
4317

0113

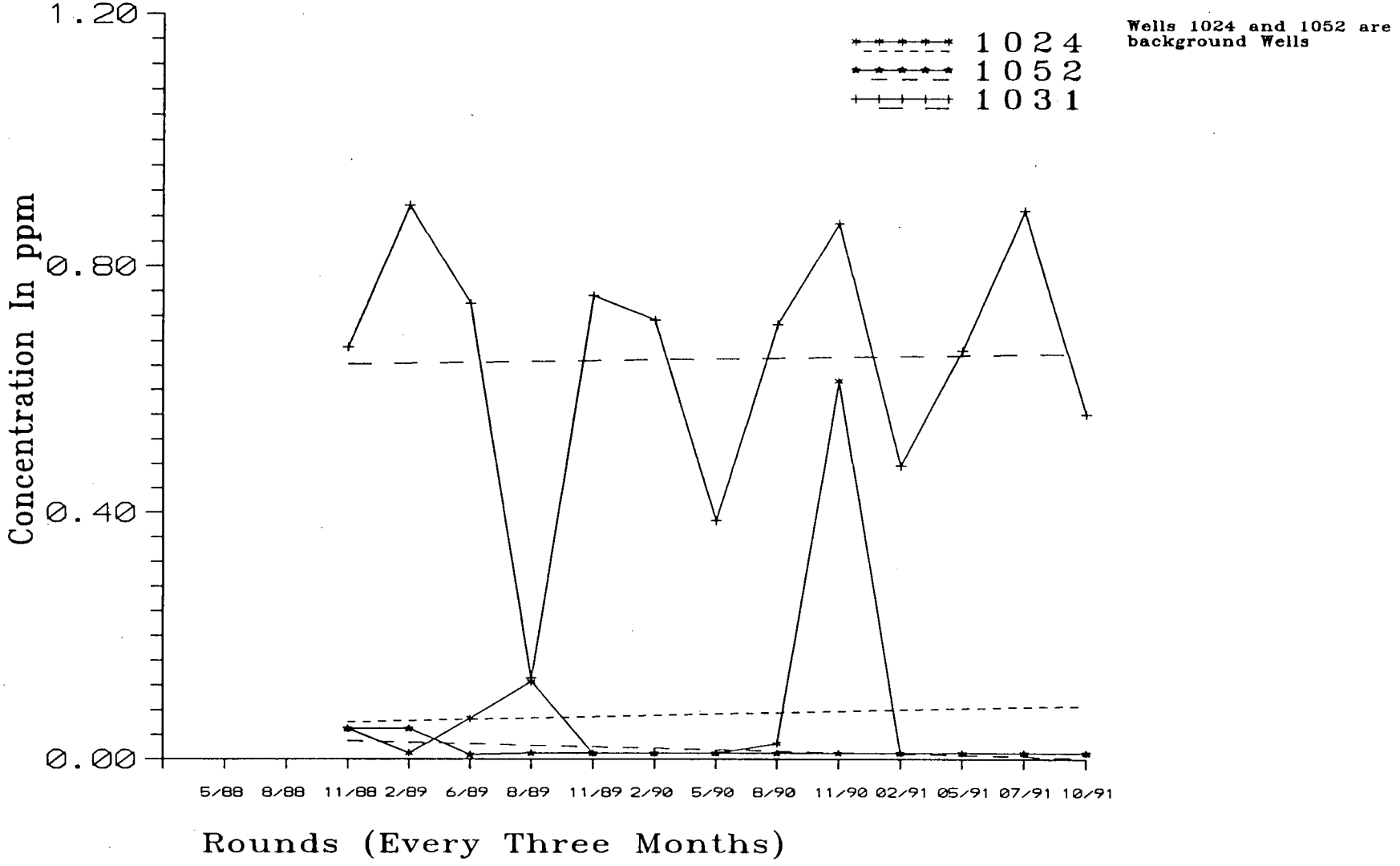
0113

SULFATE CONCENTRATIONS IN 1000 SERIES WELLS

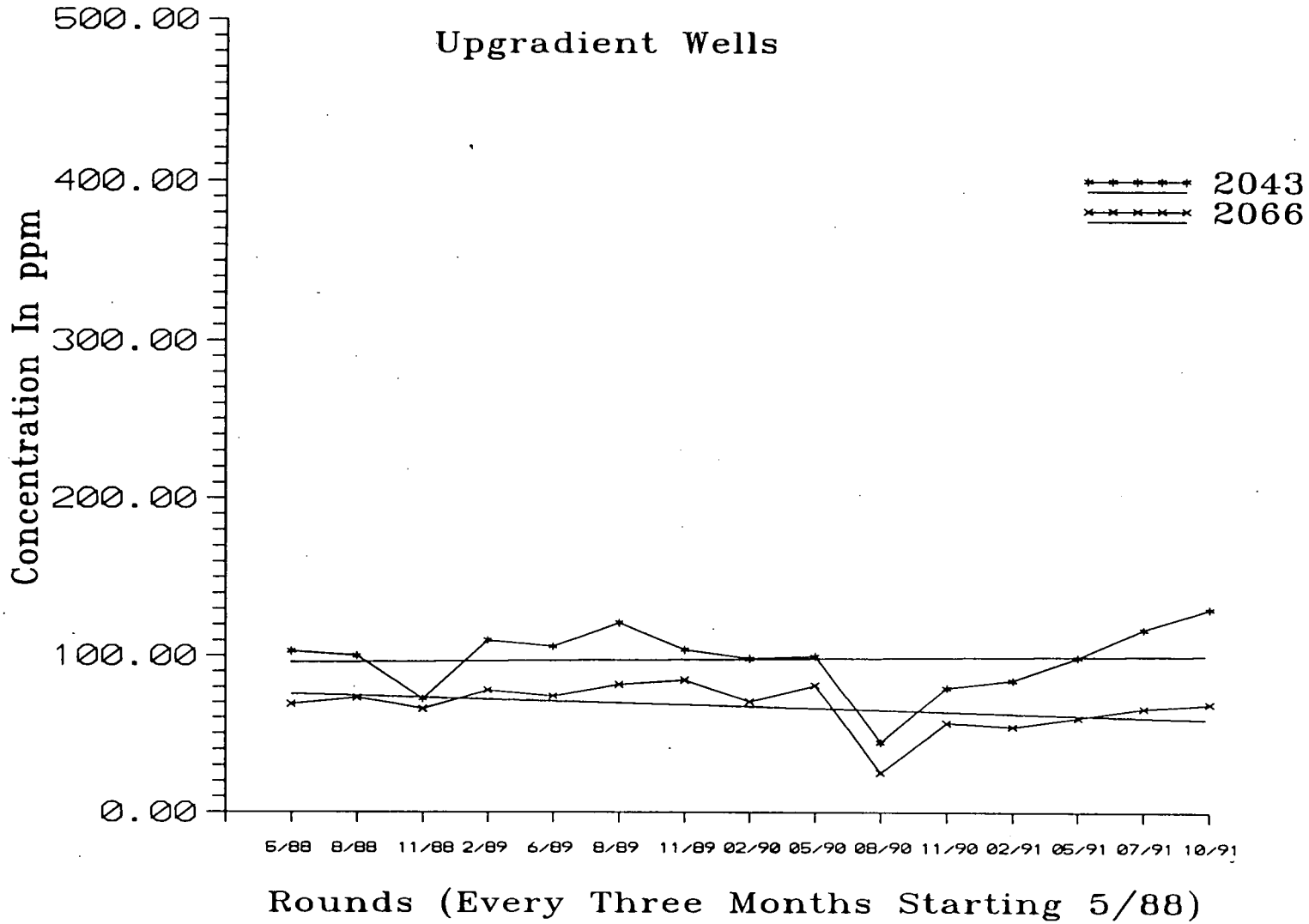



SULFATE CONCENTRATIONS IN
1000 SERIES WELLS
1080
1038
1083
Concentration In ppm
800.00
600.00
400.00
200.00
0.00
5/88 8/88 11/88 2/89 6/89 8/89 11/89 02/90 05/90 08/90 11/90 02/91 05/91 07/91 10/91
Rounds (Every Three Months)

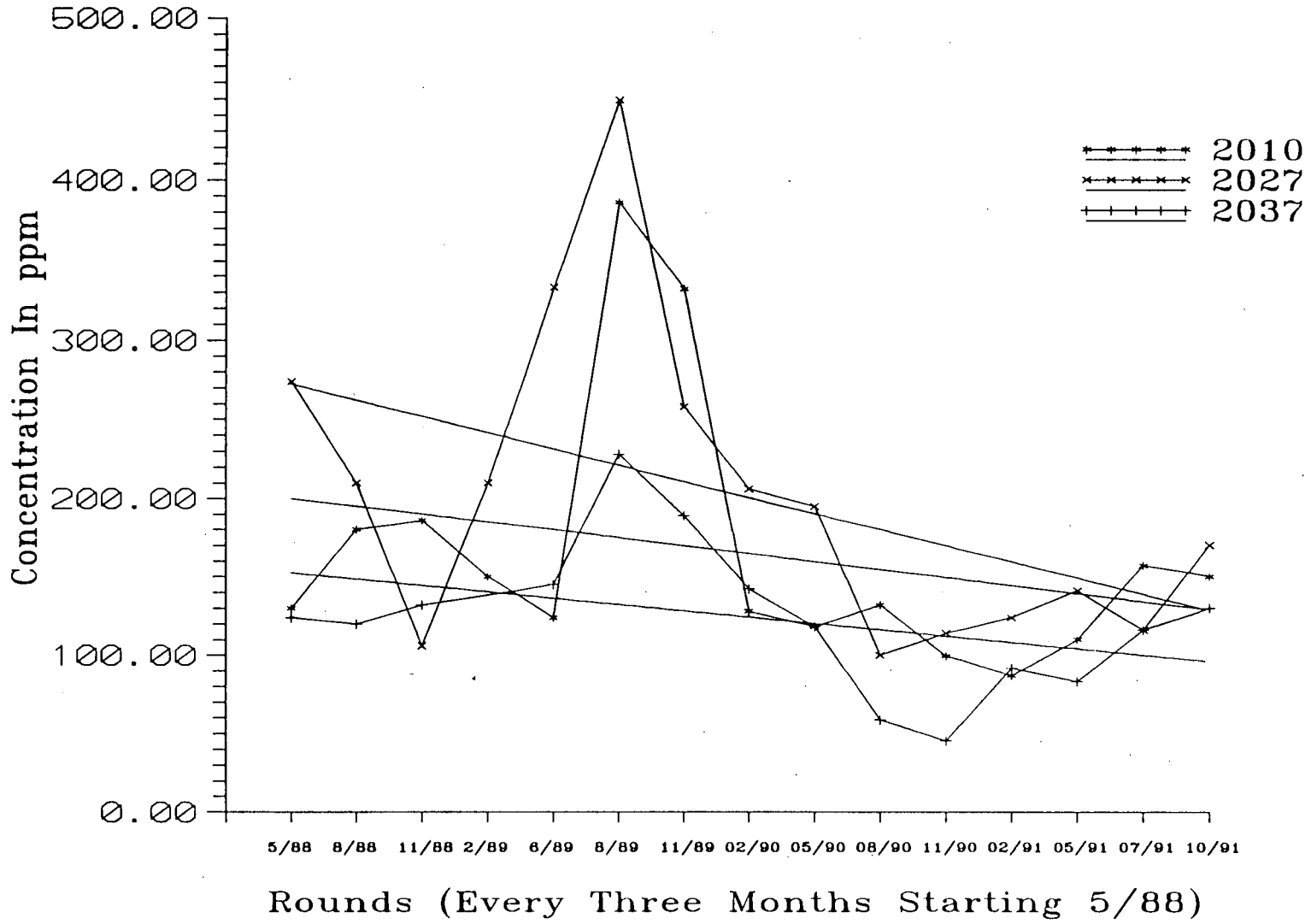
TOTAL ORGANIC HALIDE CONCENTRATIONS IN 1000 SERIES WELLS



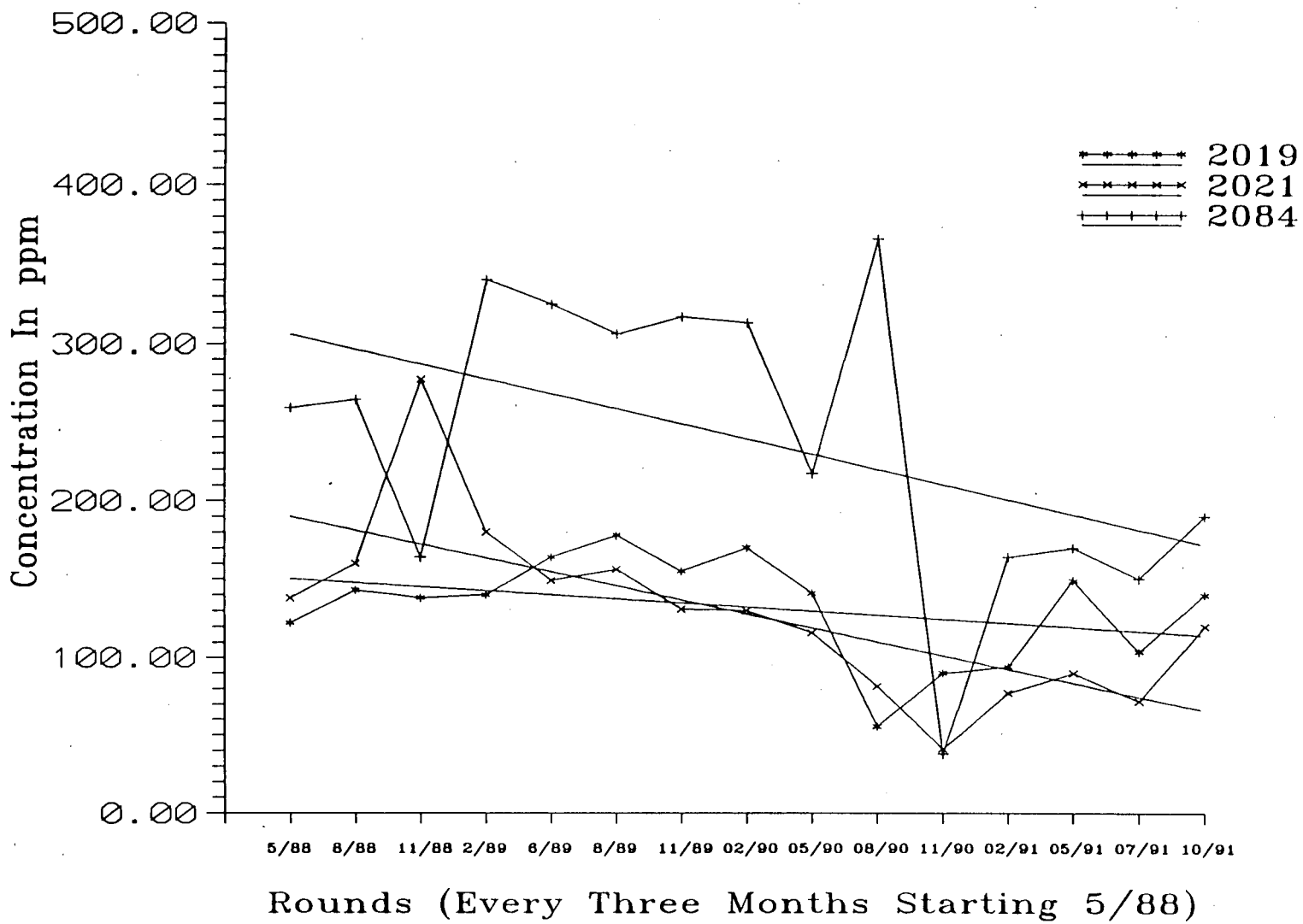
CALCIUM (Dissd.) CONCENTRATIONS
FOR 2000 SERIES WELLS



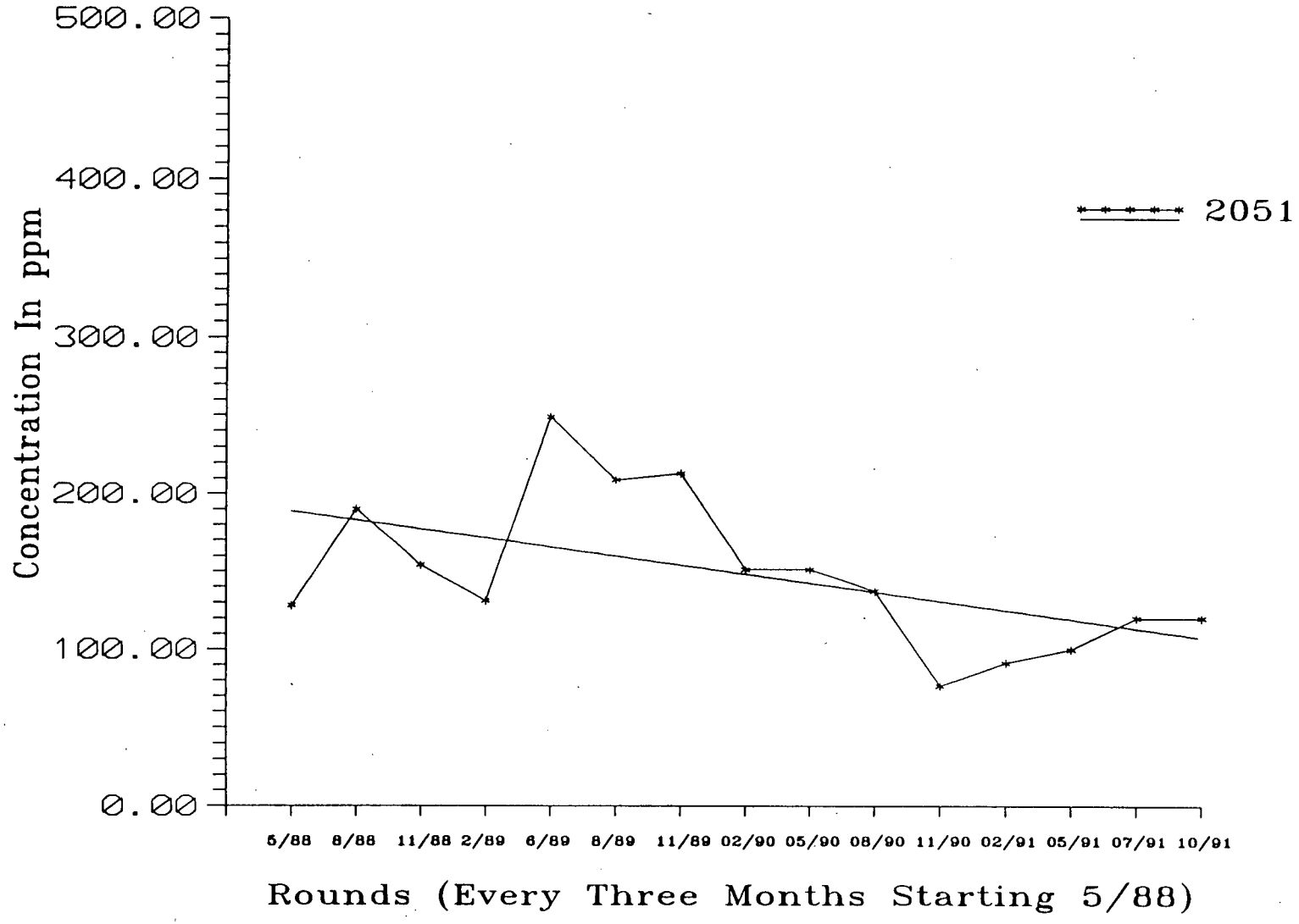
CALCIUM (Dissd.) CONCENTRATIONS FOR 2000 SERIES WELLS

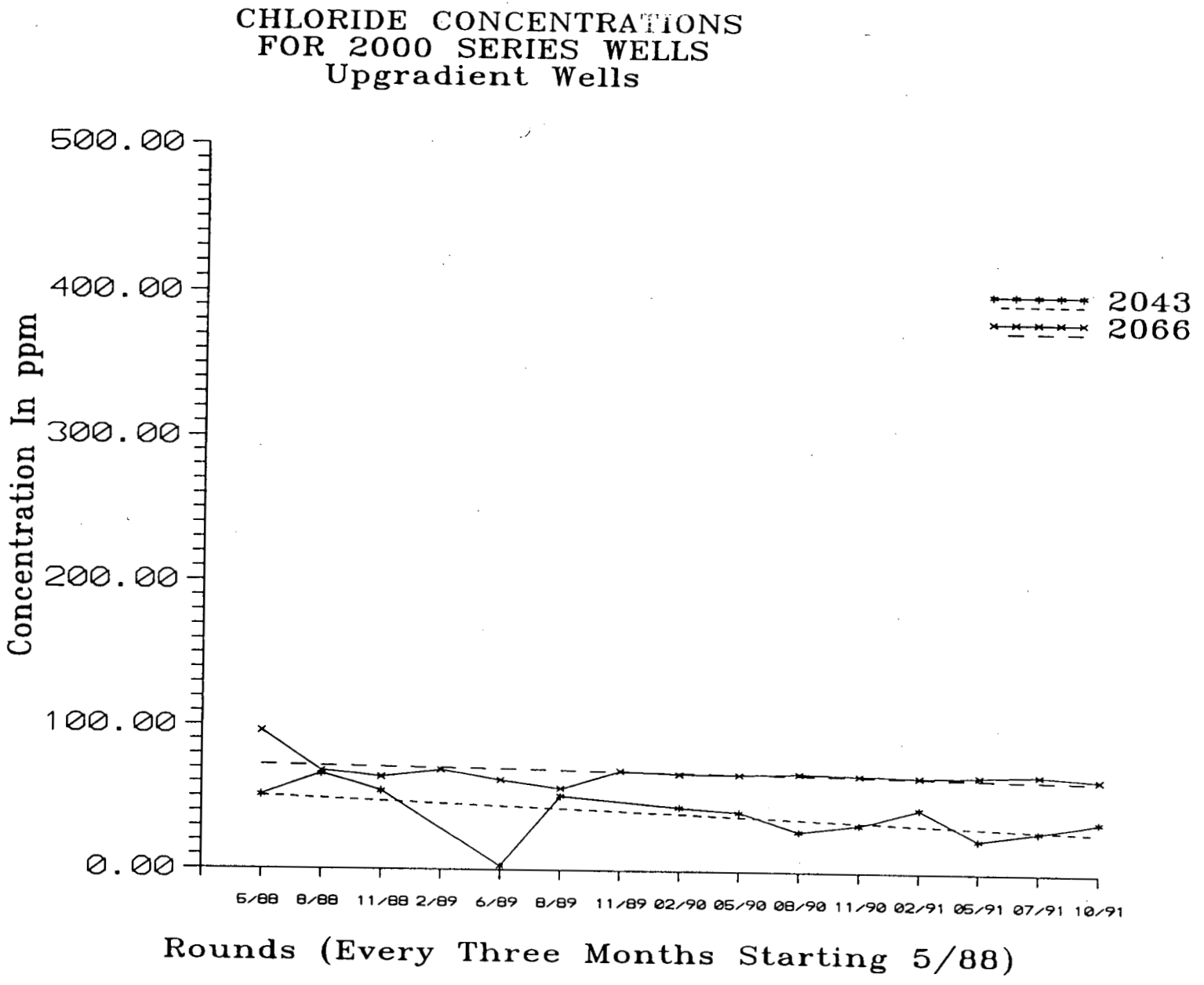


CALCIUM (Dissd.) CONCENTRATIONS
FOR 2000 SERIES WELLS

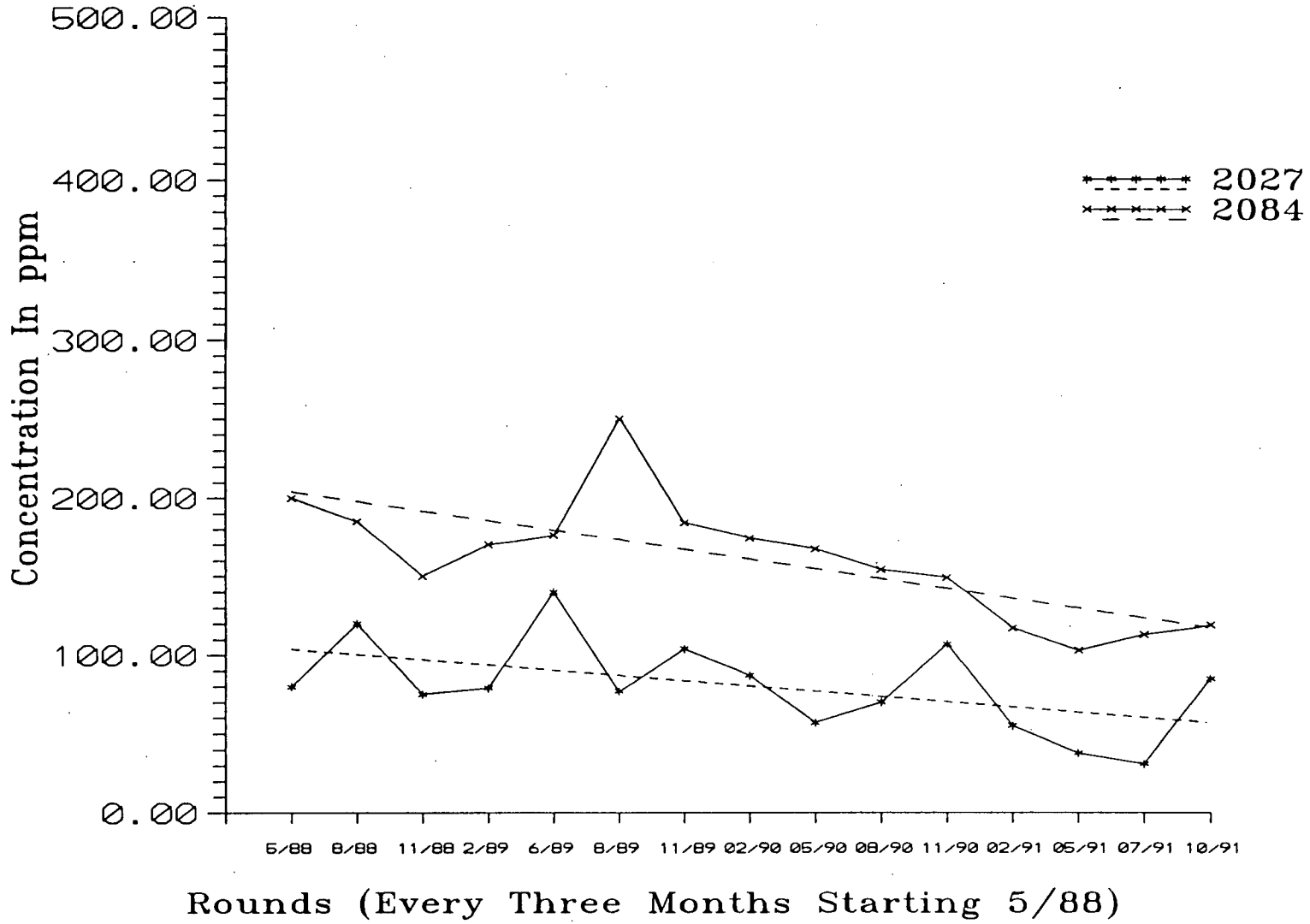


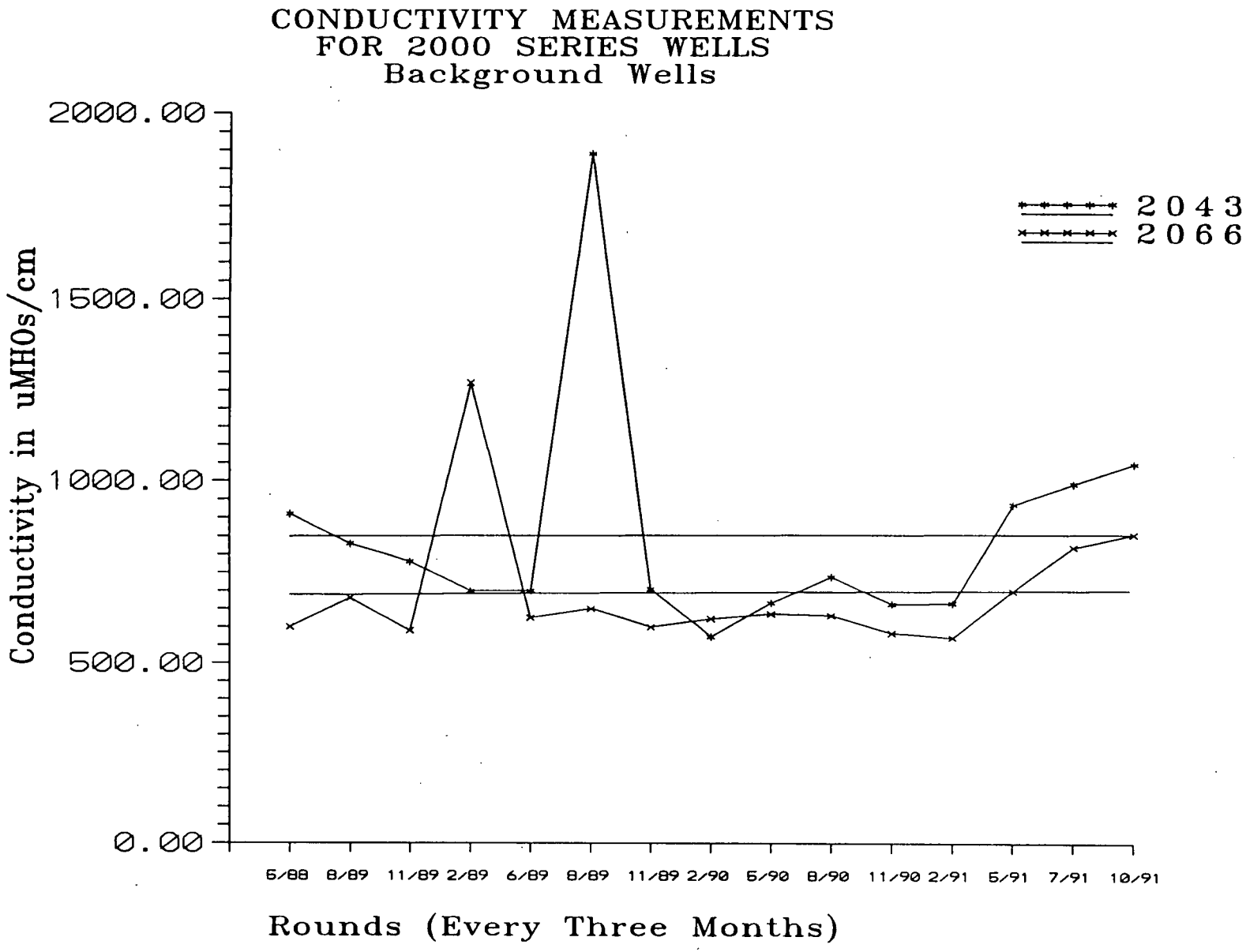
CALCIUM (Dissd.) CONCENTRATIONS
FOR 2000 SERIES WELLS

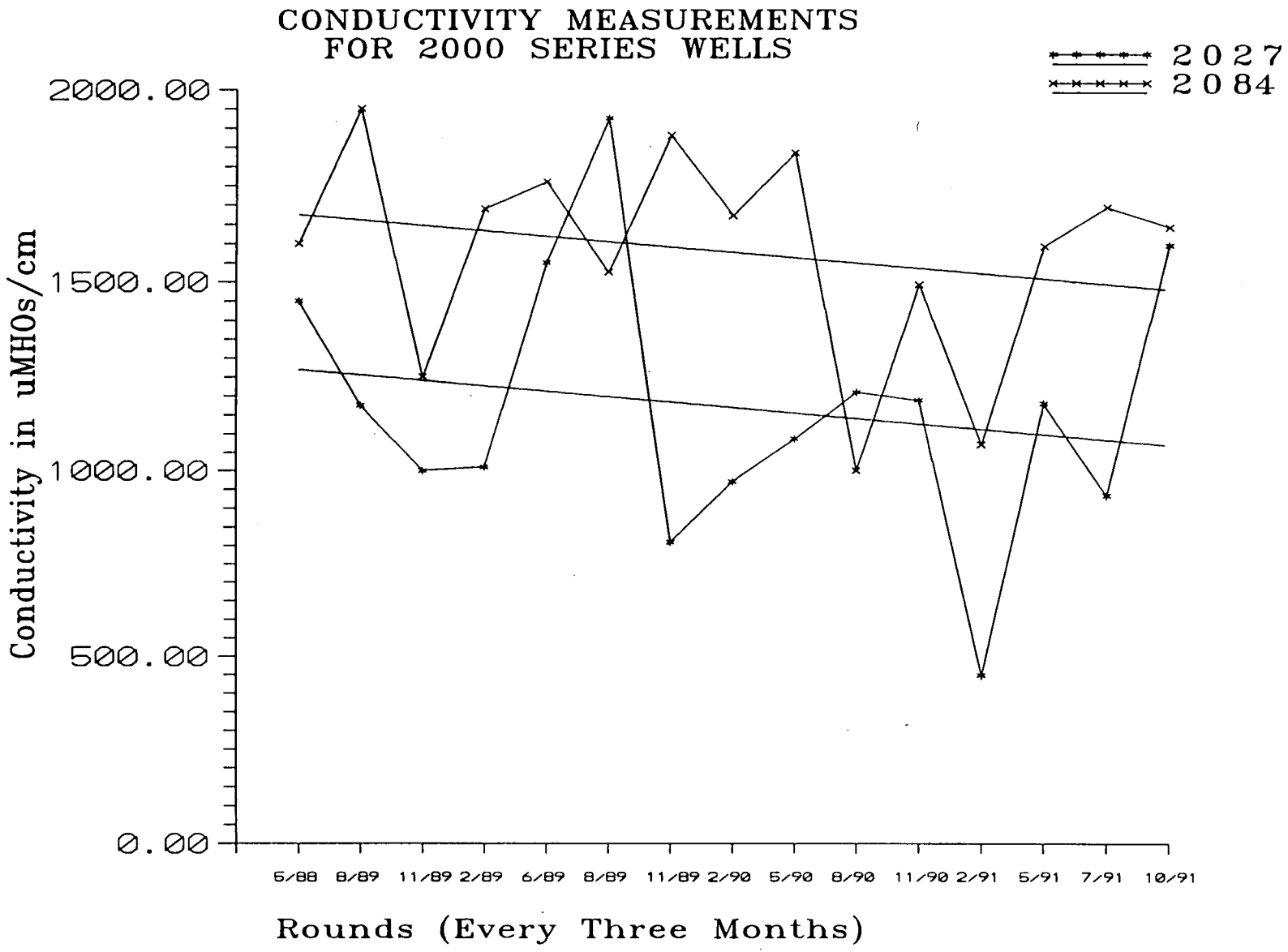



CHLORIDE CONCENTRATIONS
FOR 2000 SERIES WELLS
Upgradient Wells
Concentration In ppm
500.00
400.00
300.00
200.00
100.00
0.00
2043
2066
5/88 8/88 11/88 2/89 6/89 8/89 11/89 02/90 05/90 08/90 11/90 02/91 05/91 07/91 10/91
Rounds (Every Three Months Starting 5/88)

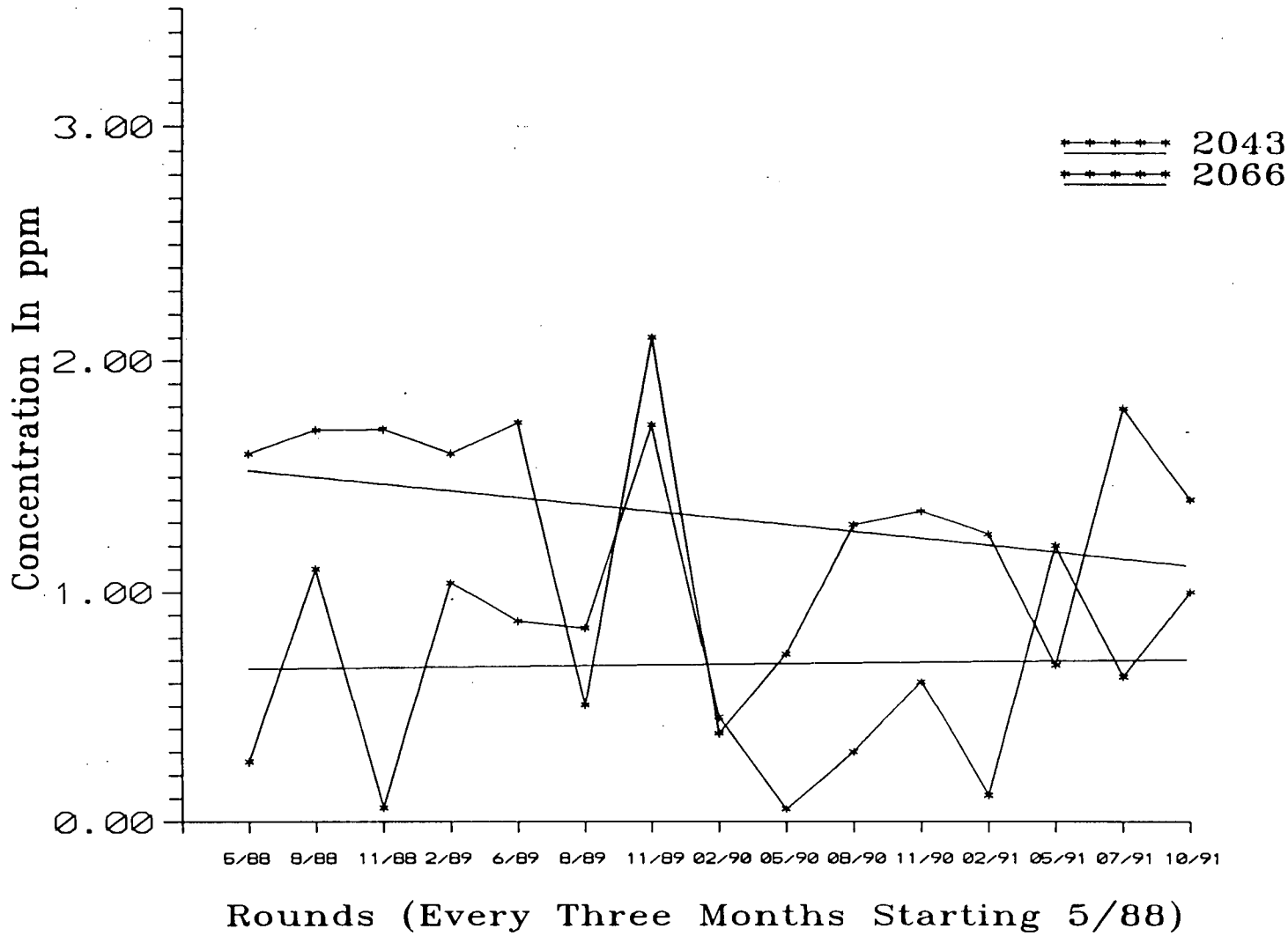
CHLORIDE CONCENTRATIONS FOR 2000 SERIES WELLS




CONDUCTIVITY MEASUREMENTS
FOR 2000 SERIES WELLS
Background Wells
2000.00
1500.00
1000.00
500.00
0.00
Conductivity in uMHOs/cm
2043
2066
5/88
8/89
11/89
2/89
6/89
8/89
11/89
2/90
5/90
8/90
11/90
2/91
5/91
7/91
10/91
Rounds (Every Three Months)

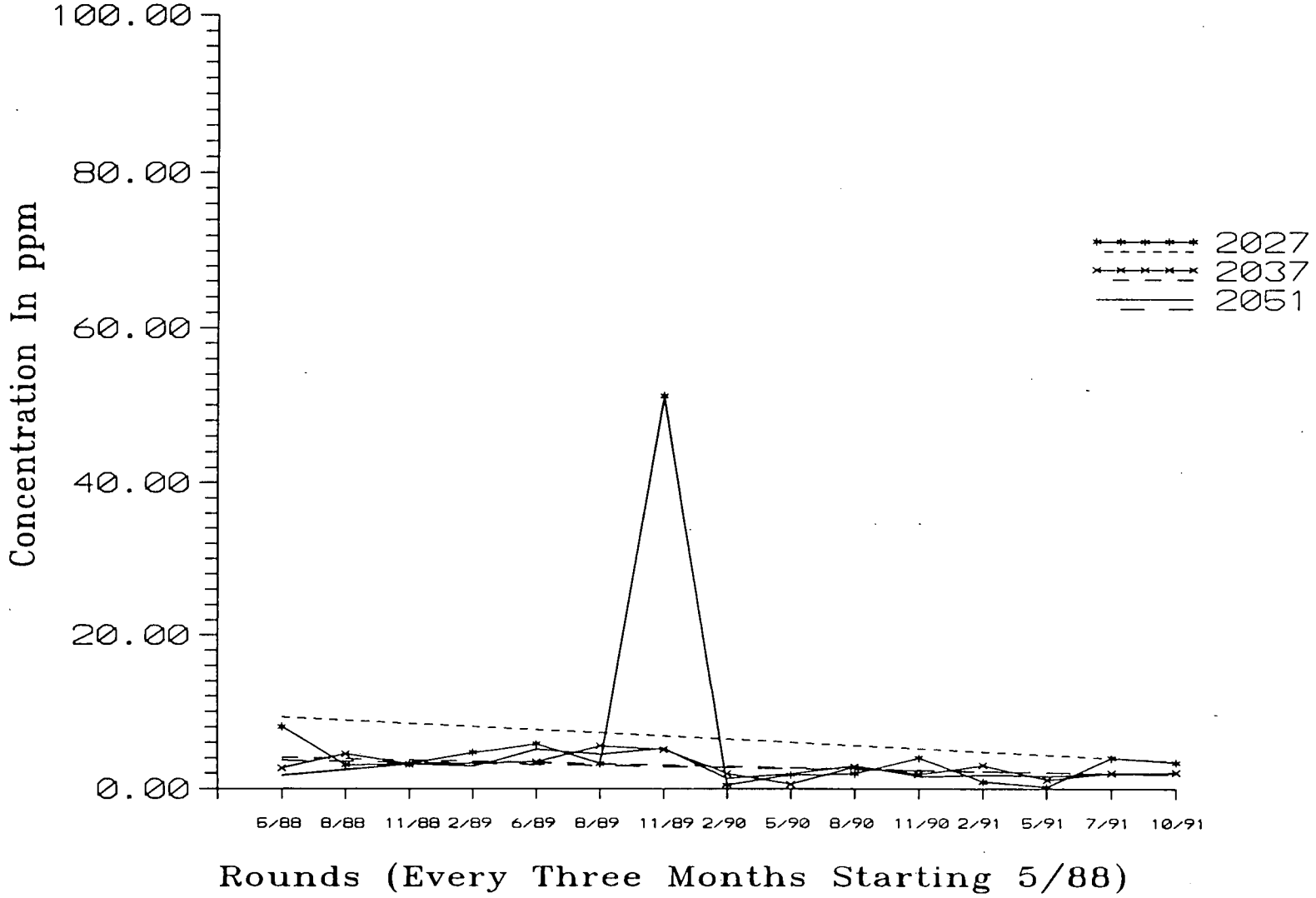

CONDUCTIVITY MEASUREMENTS
FOR 2000 SERIES WELLS
2027
2084
2000.00
1500.00
1000.00
500.00
0.00
Conductivity in uMHOs/cm
5/88
8/89
11/89
2/89
6/89
8/89
11/89
2/90
5/90
8/90
11/90
2/91
5/91
7/91
10/91
Rounds (Every Three Months)

IRON (Dissd.) CONCENTRATIONS
FOR 2000 SERIES WELLS
Background Wells

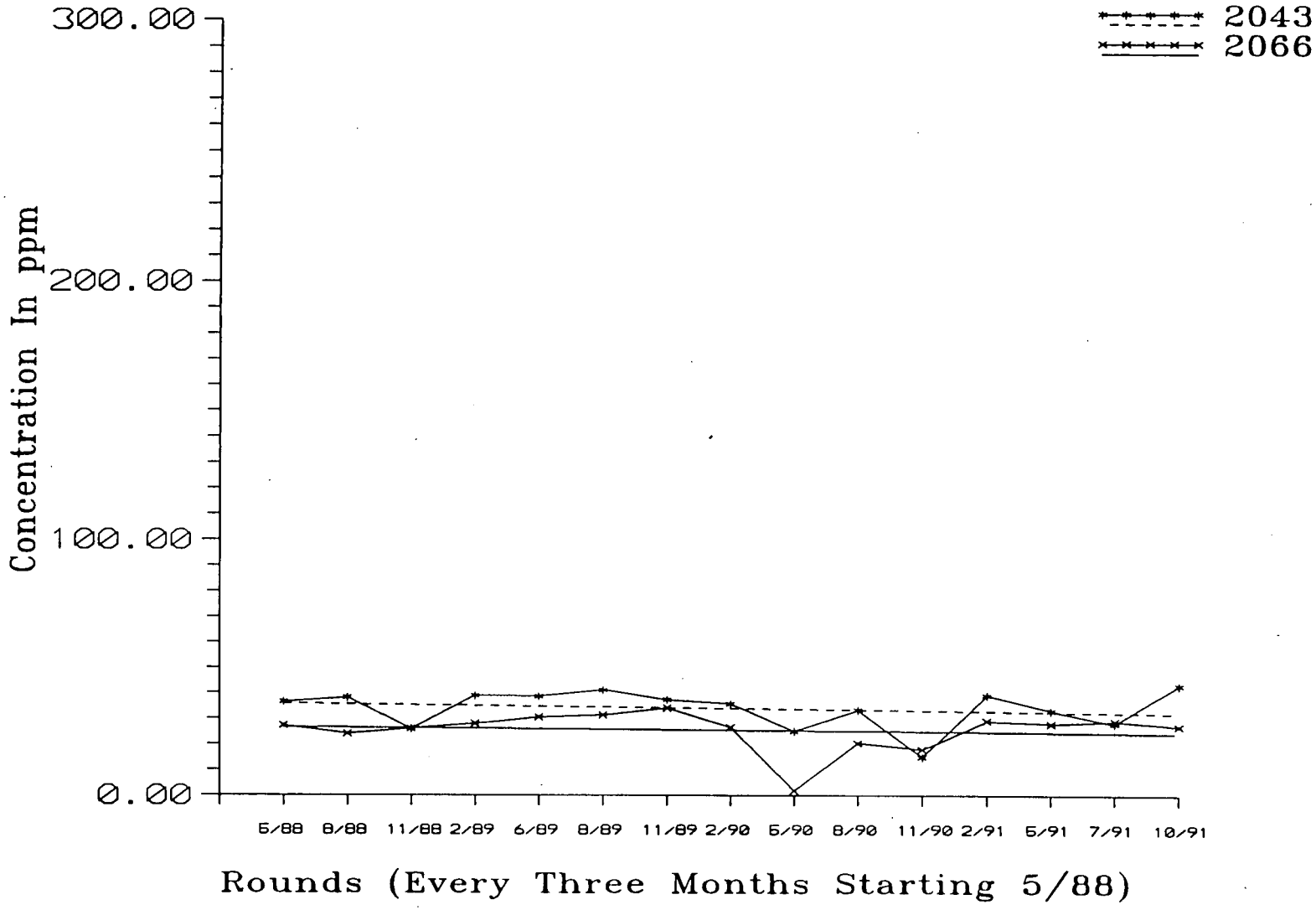


3713
448

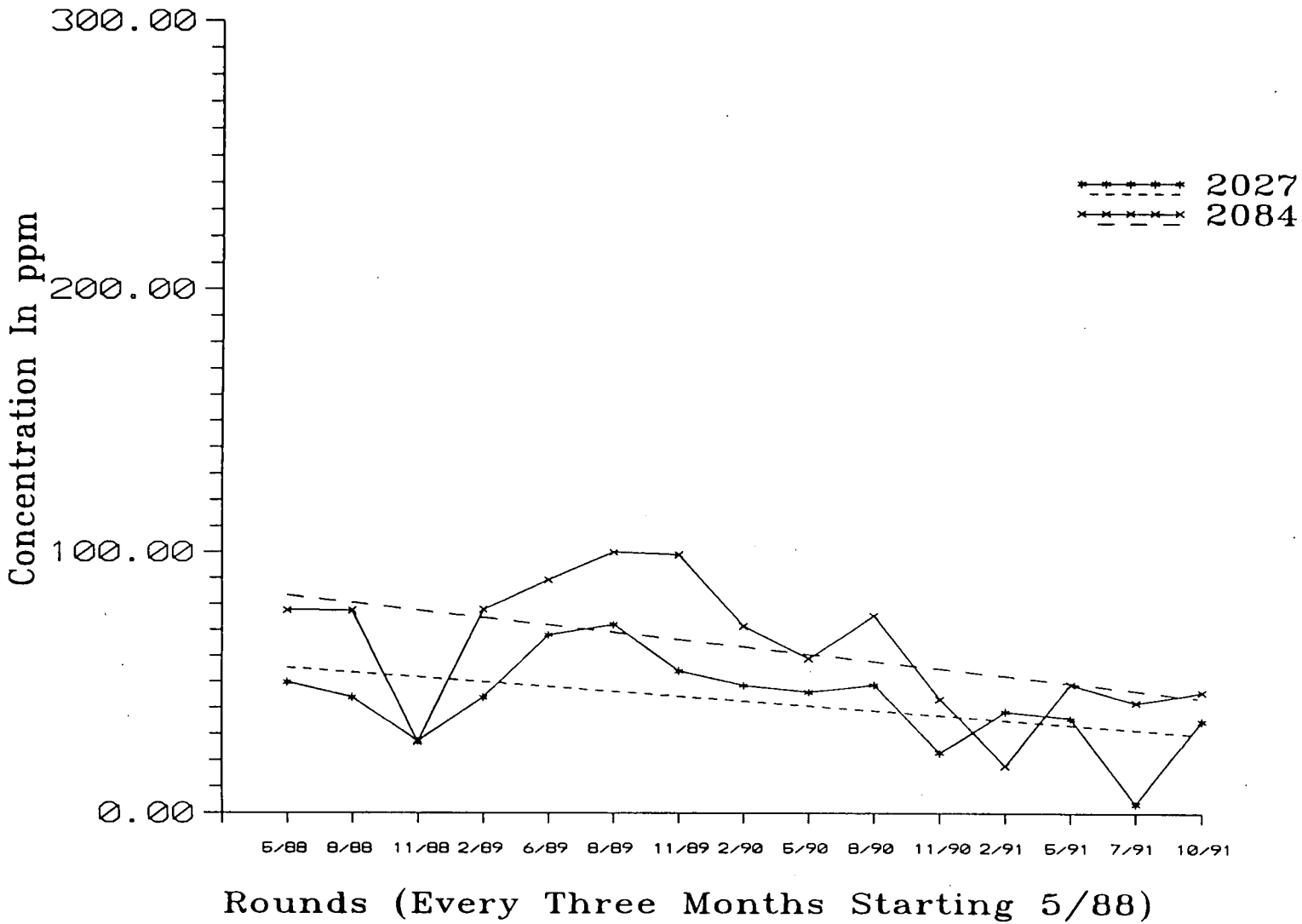
IRON (Dissd.) CONCENTRATIONS FOR 2000 SERIES WELLS



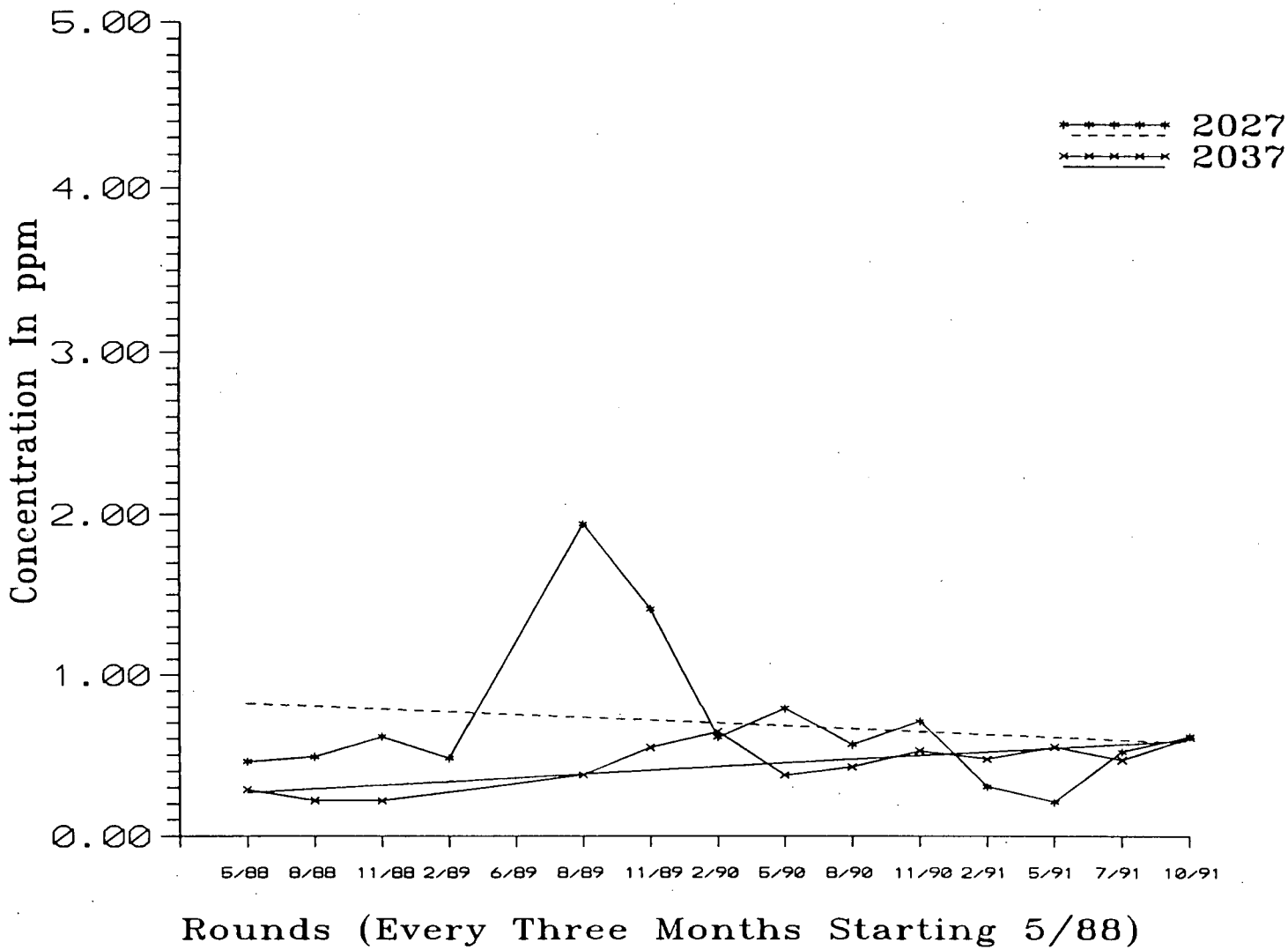
MAGNESIUM (Dissd.) CONCENTRATIONS FOR
2000 SERIES WELLS
Background Wells



MAGNESIUM (Dissd.) CONCENTRATIONS FOR 2000 SERIES WELLS

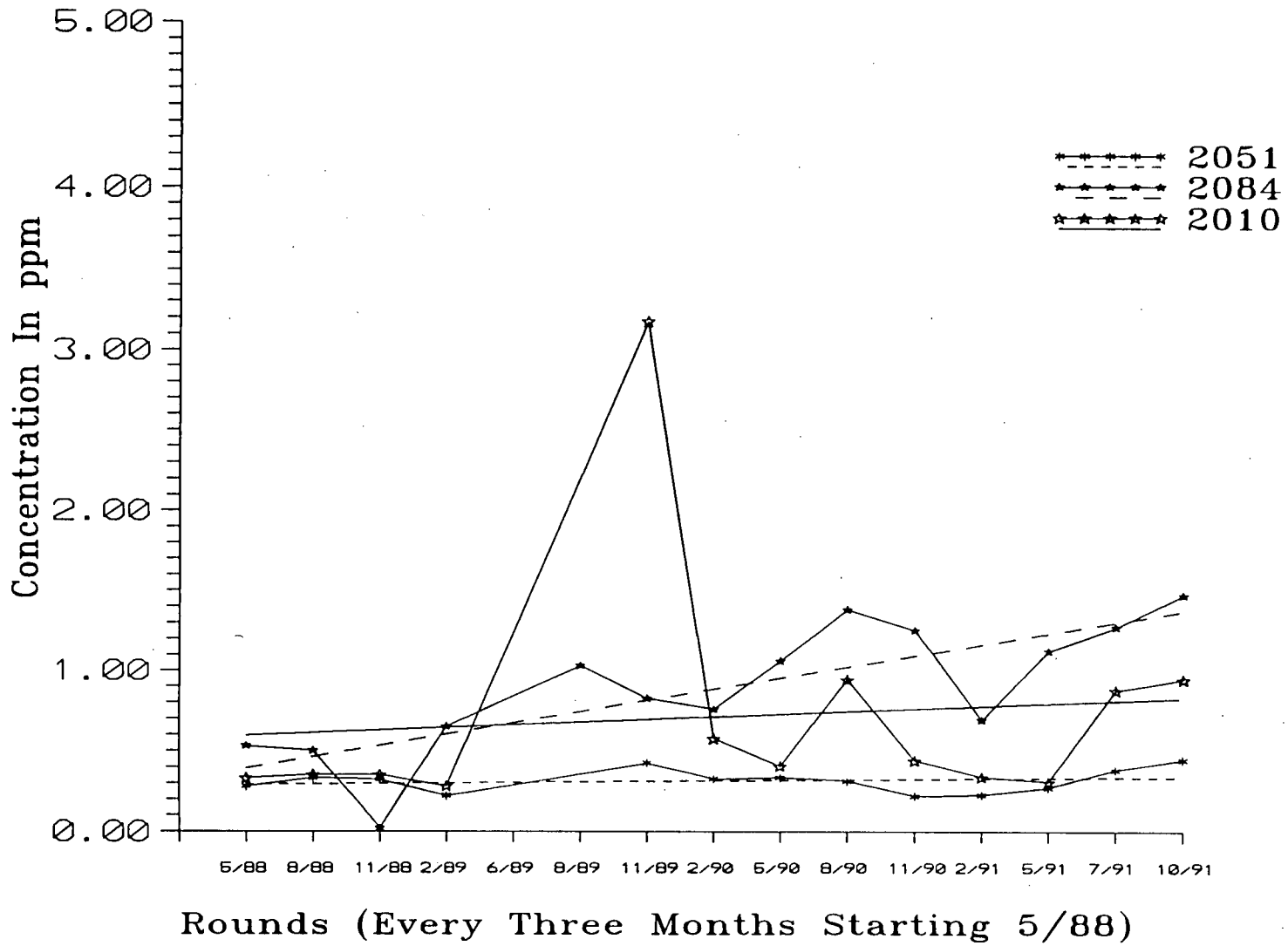


MANGANESE (Dissd.) CONCENTRATIONS FOR
2000 SERIES WELLS

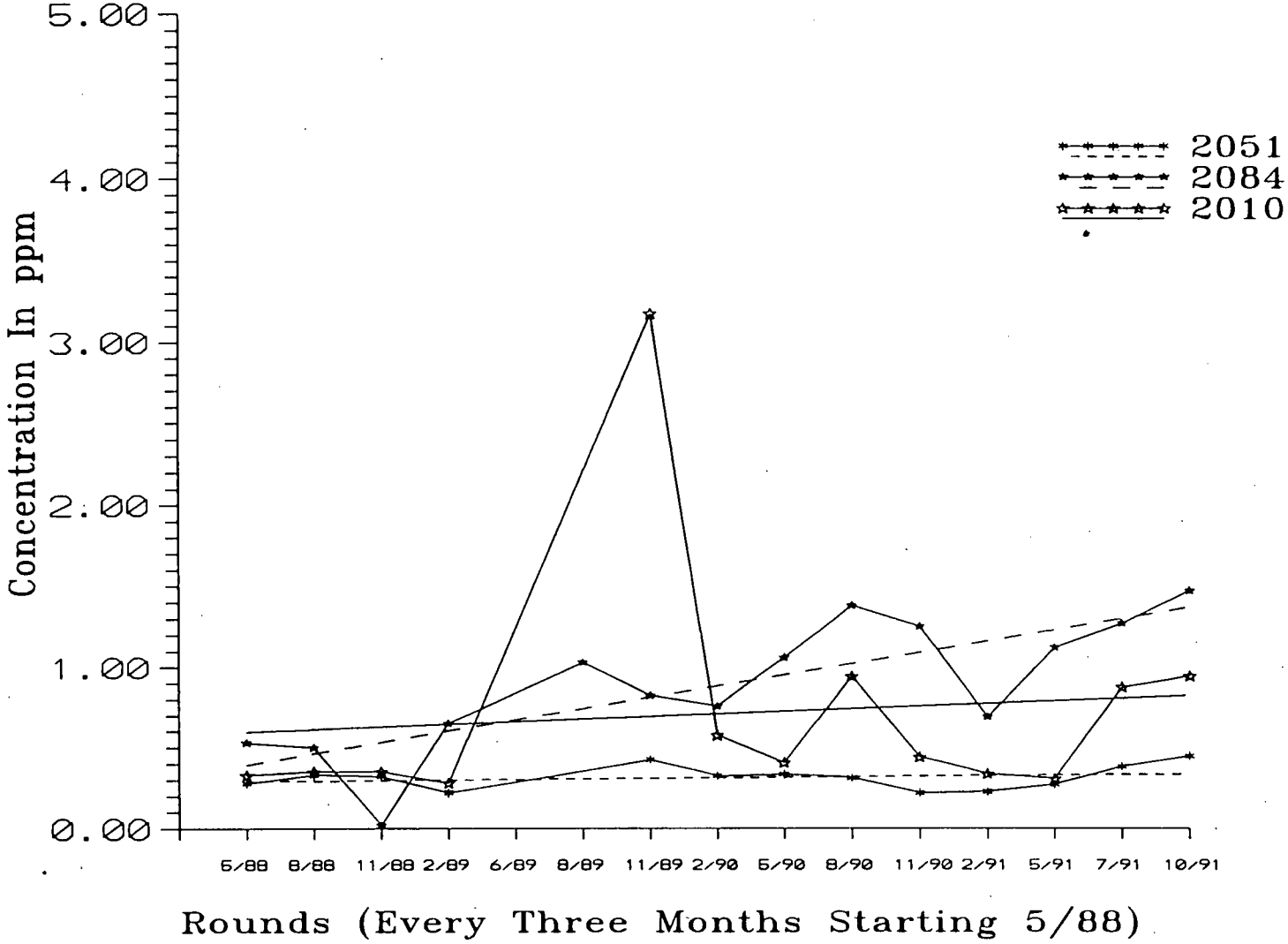


45301

MANGANESE (Dissd.) CONCENTRATIONS FOR 2000 SERIES WELLS

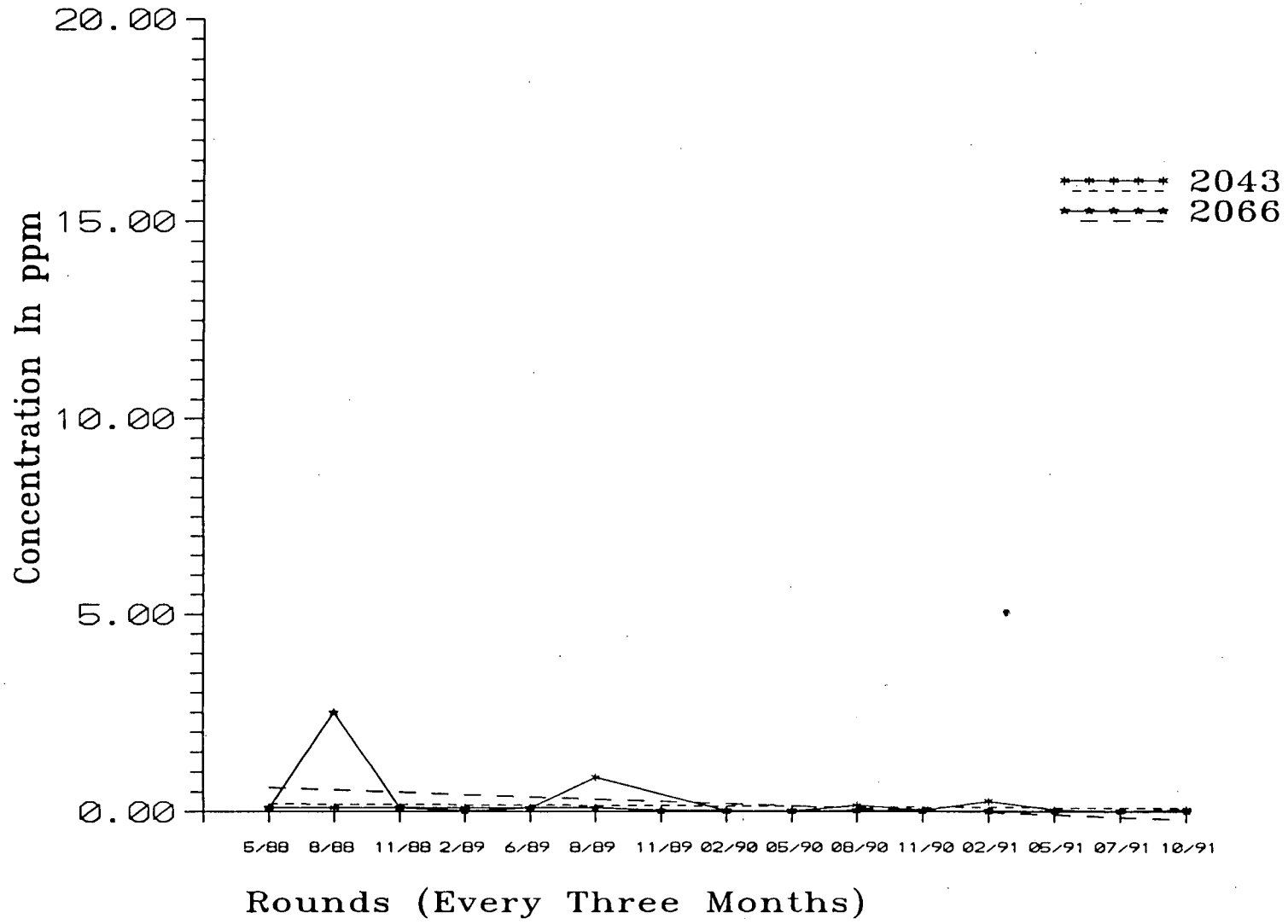


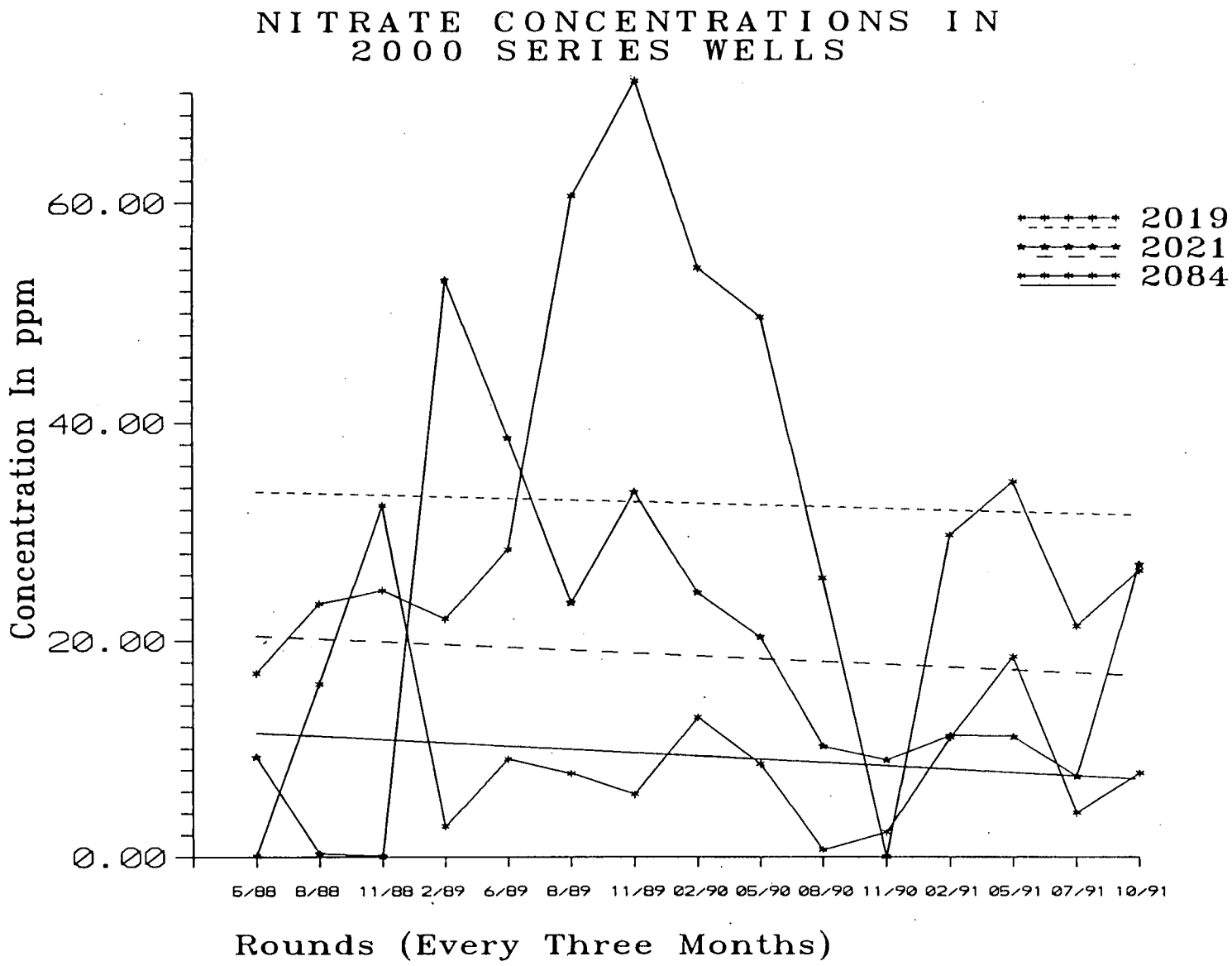
MANGANESE (Dissd.) CONCENTRATIONS
FOR 2000 SERIES WELLS



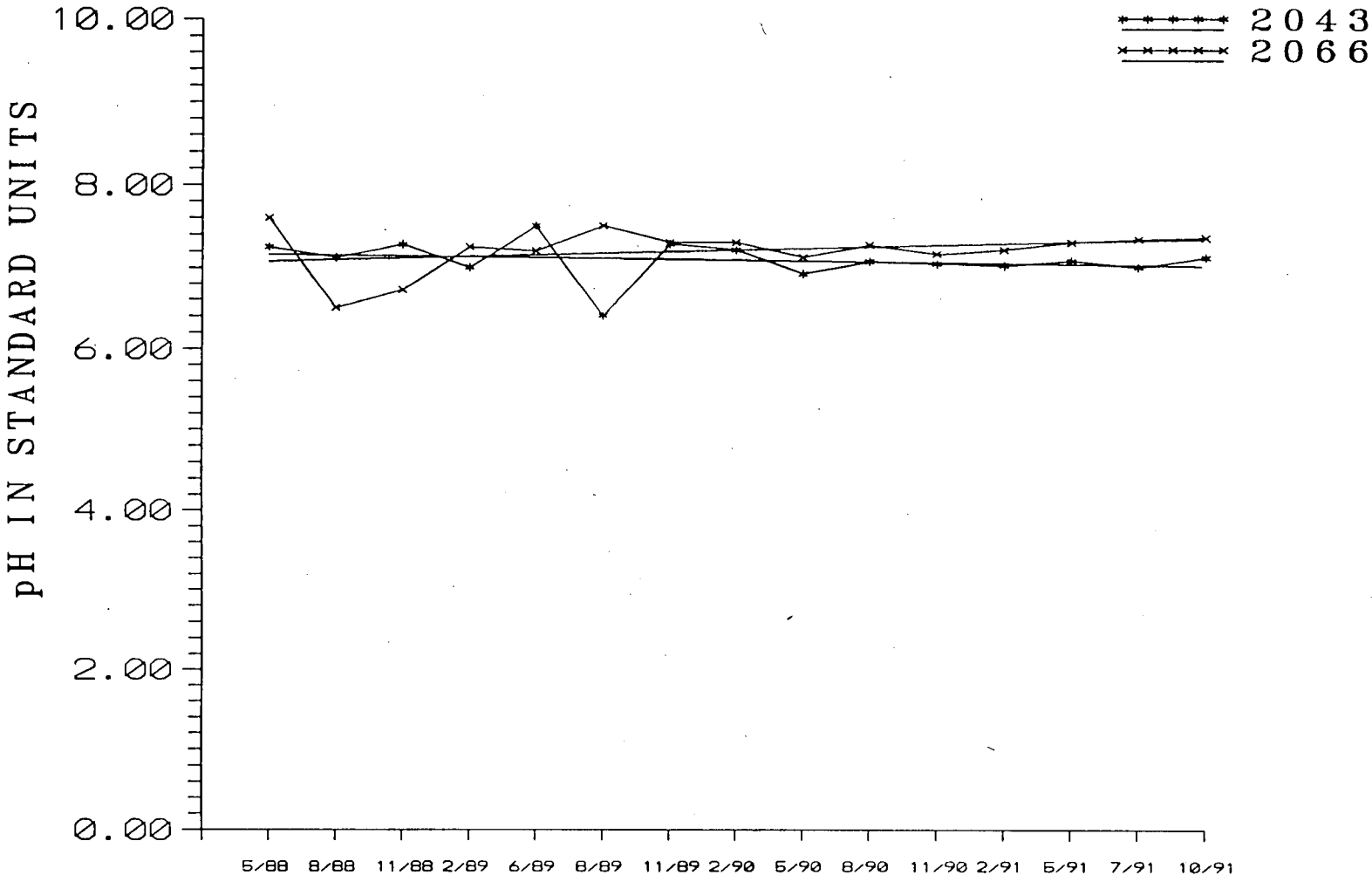
1455

NITRATE CONCENTRATIONS IN 2000 SERIES WELLS
Background Wells

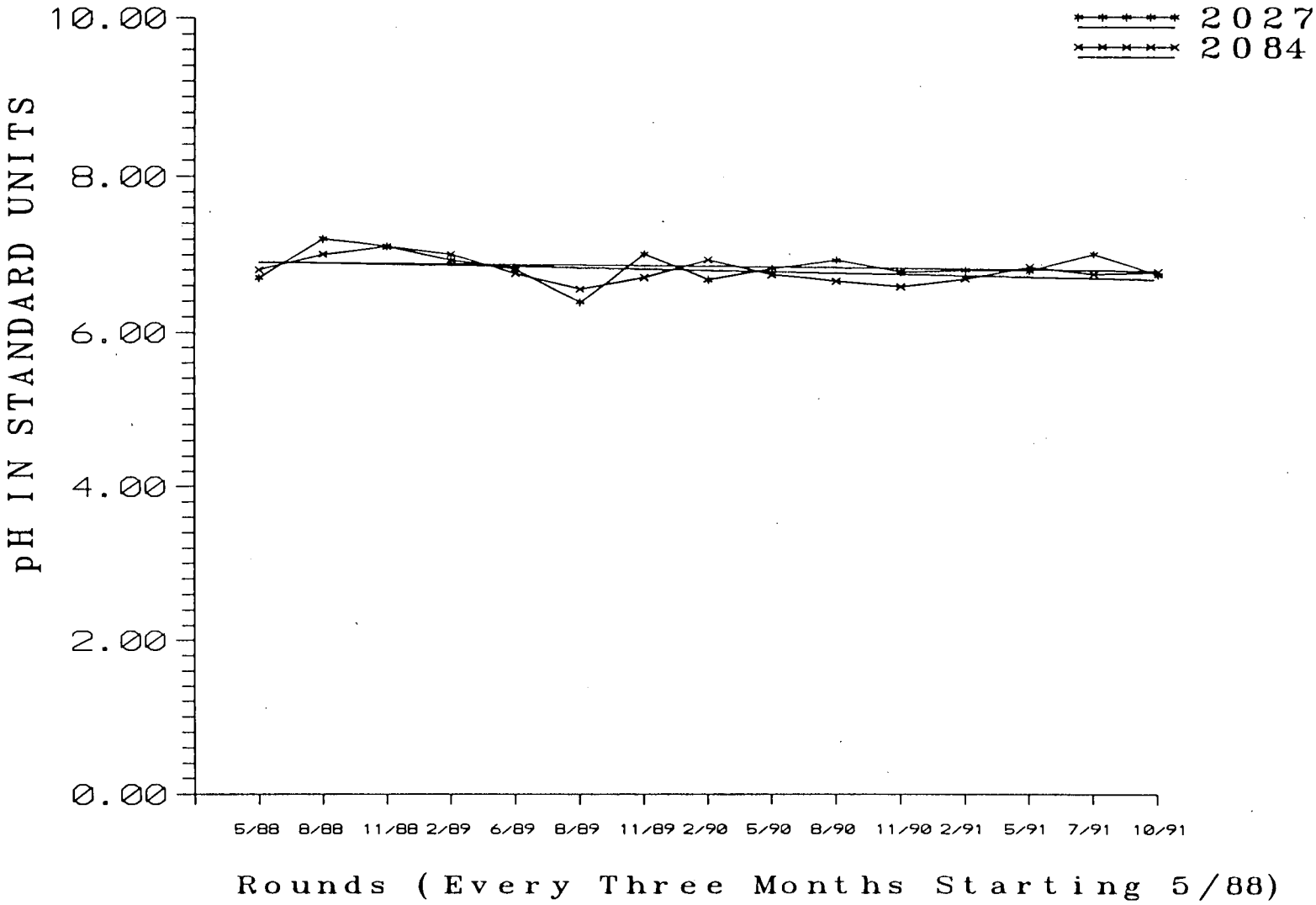



NITRATE CONCENTRATIONS IN
2000 SERIES WELLS
Concentration In ppm
60.00
40.00
20.00
0.00
2019
2021
2084
5/88 8/88 11/88 2/89 6/89 8/89 11/89 02/90 05/90 08/90 11/90 02/91 05/91 07/91 10/91
Rounds (Every Three Months)

pH MEASUREMENTS IN 2000 SERIES WELLS
Background Wells

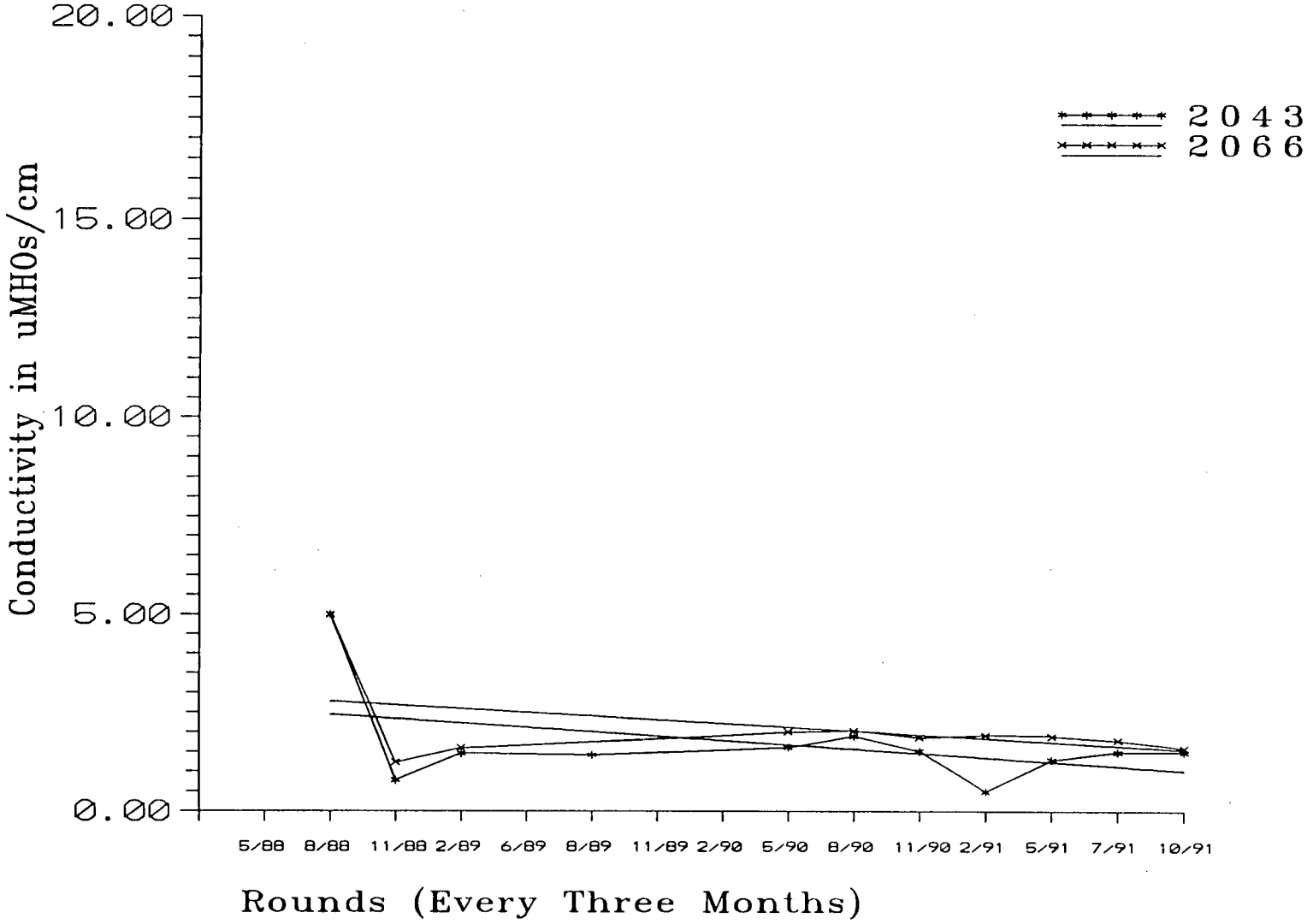


pH MEASUREMENTS IN 2000 SERIES WELLS

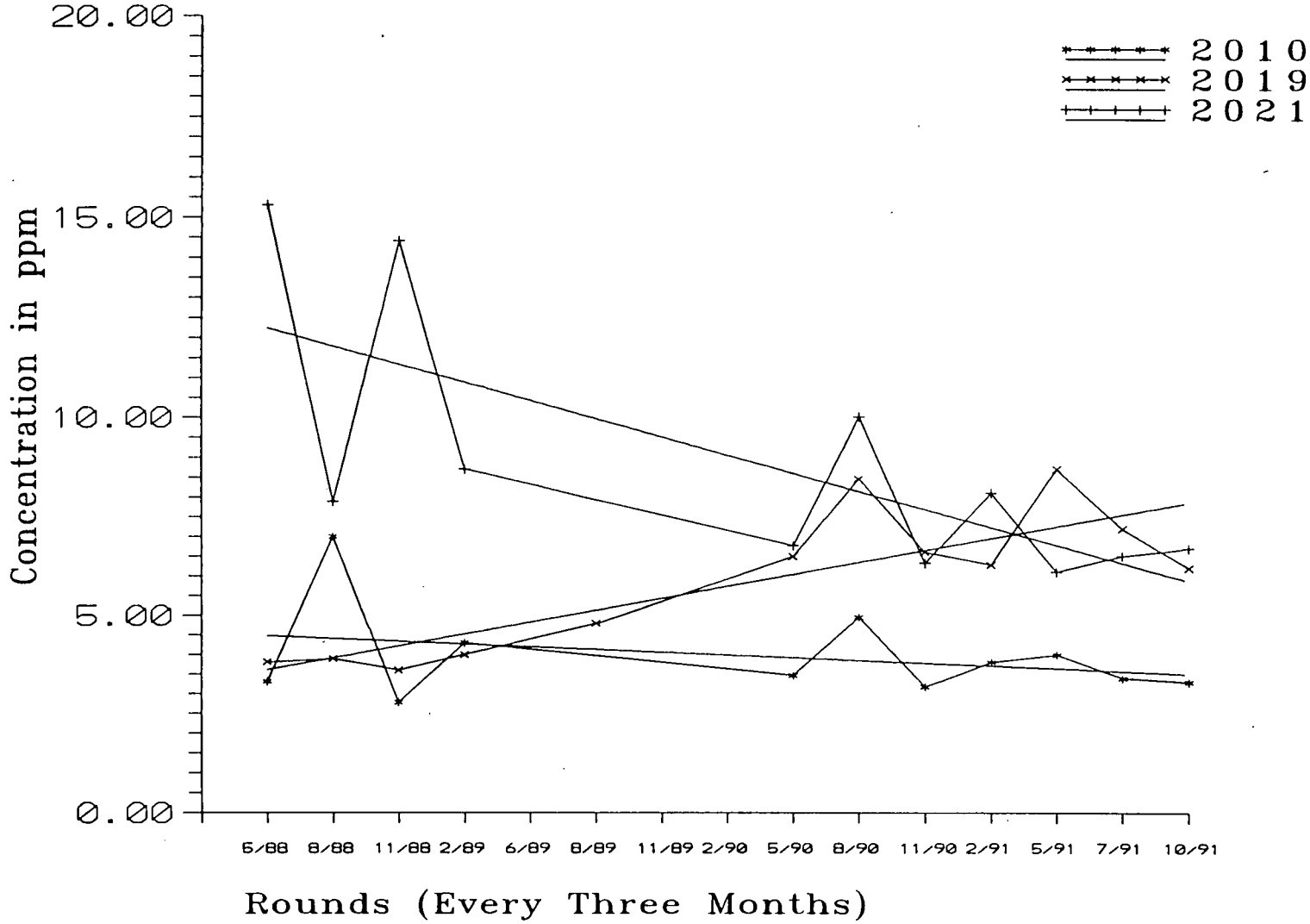


459
CCA

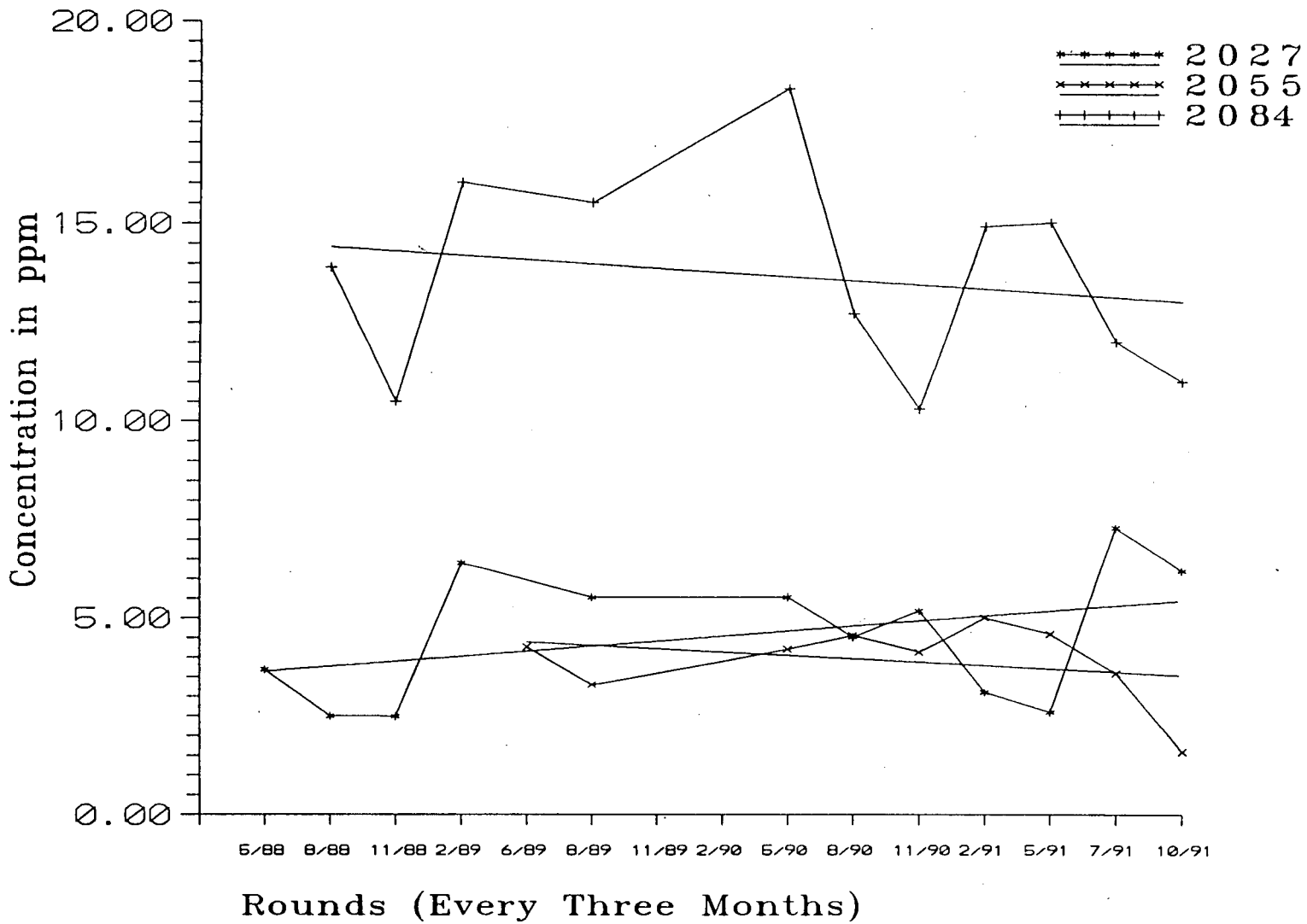
POTASSIUM (Dissd.) CONCENTRATIONS FOR 2000 SERIES WELLS
Background Wells



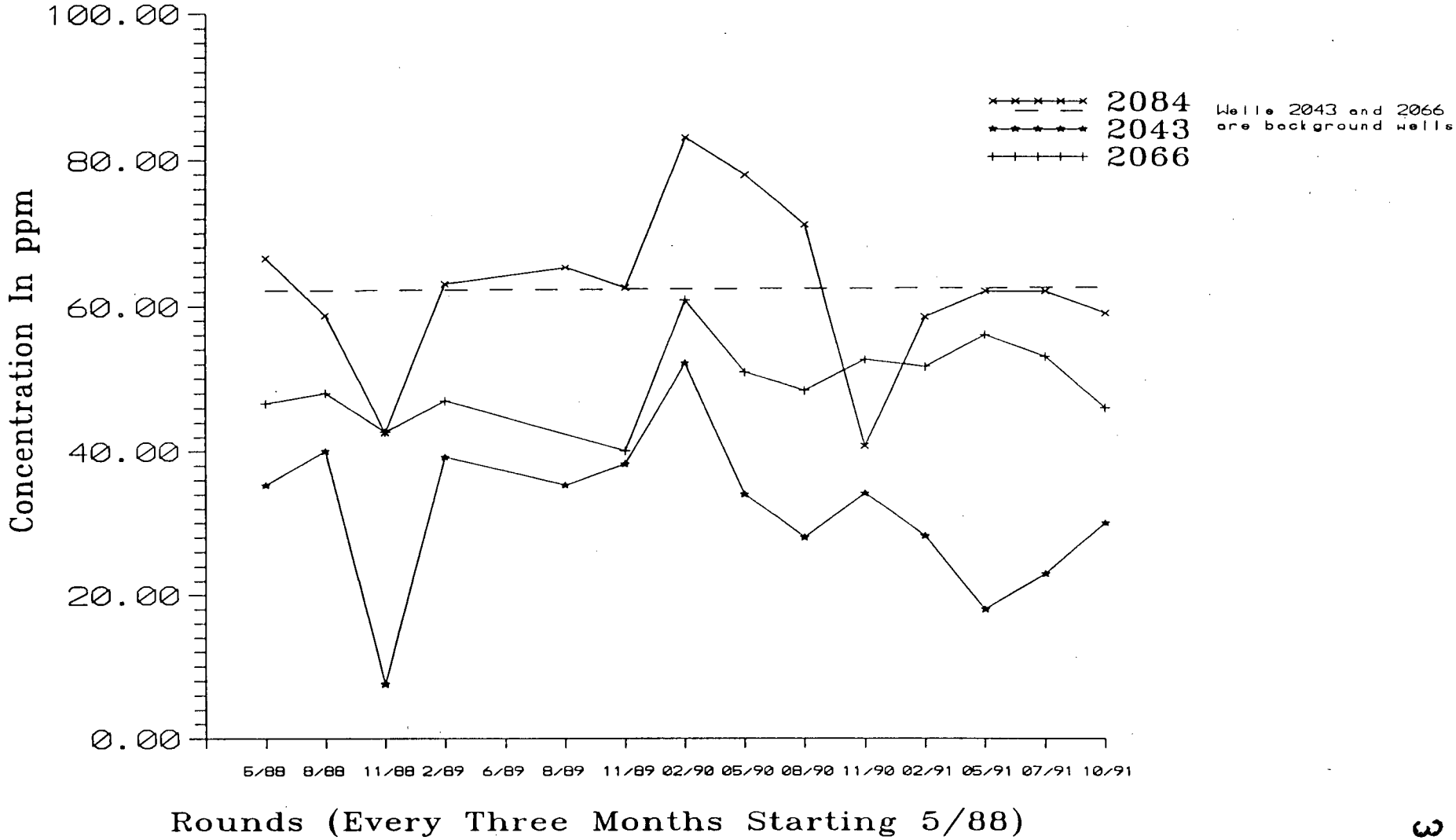
POTASSIUM (Dissd.) CONCENTRATIONS
FOR 2000 SERIES WELLS



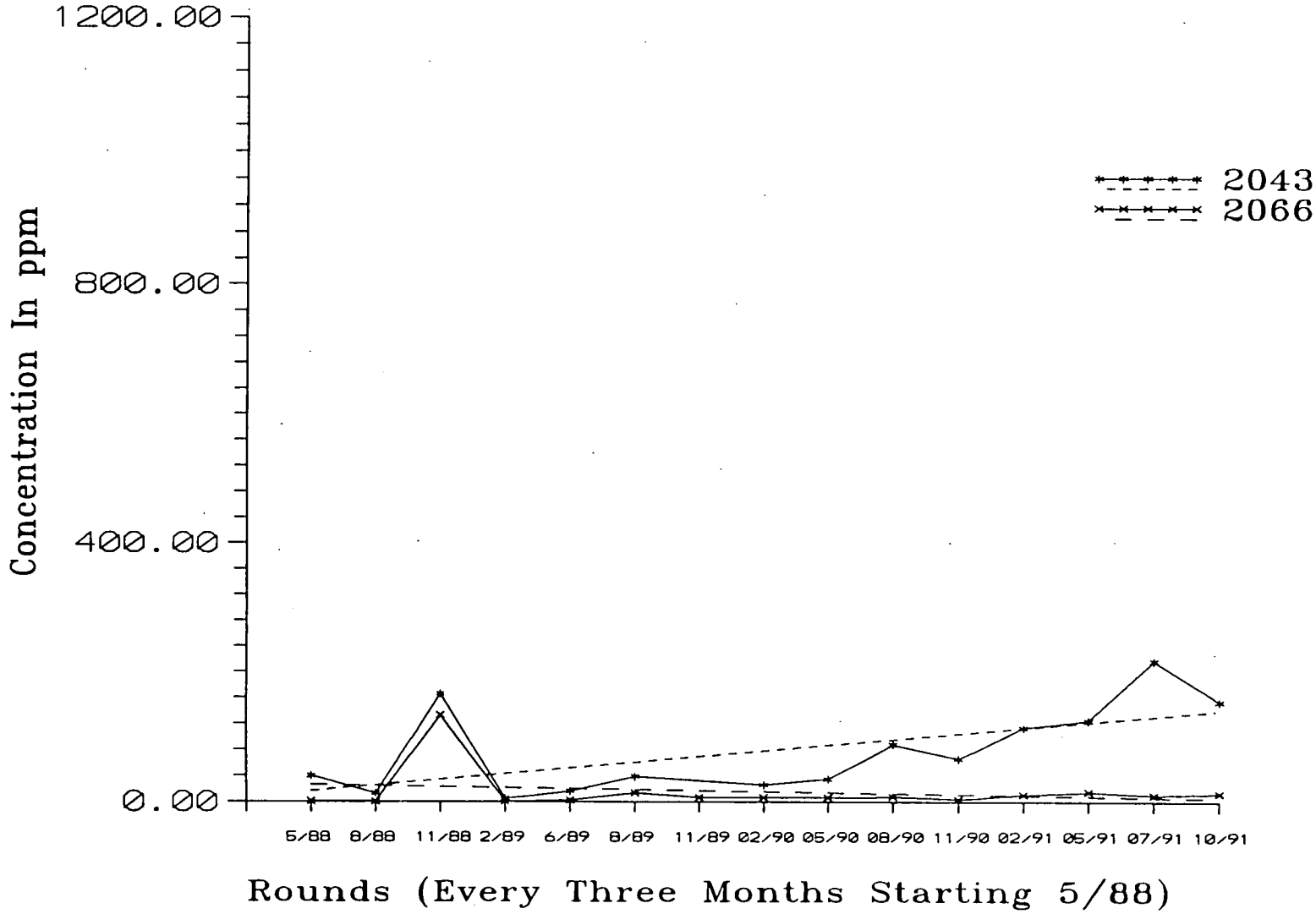
POTASSIUM (Dissd.) CONCENTRATIONS
FOR 2000 SERIES WELLS



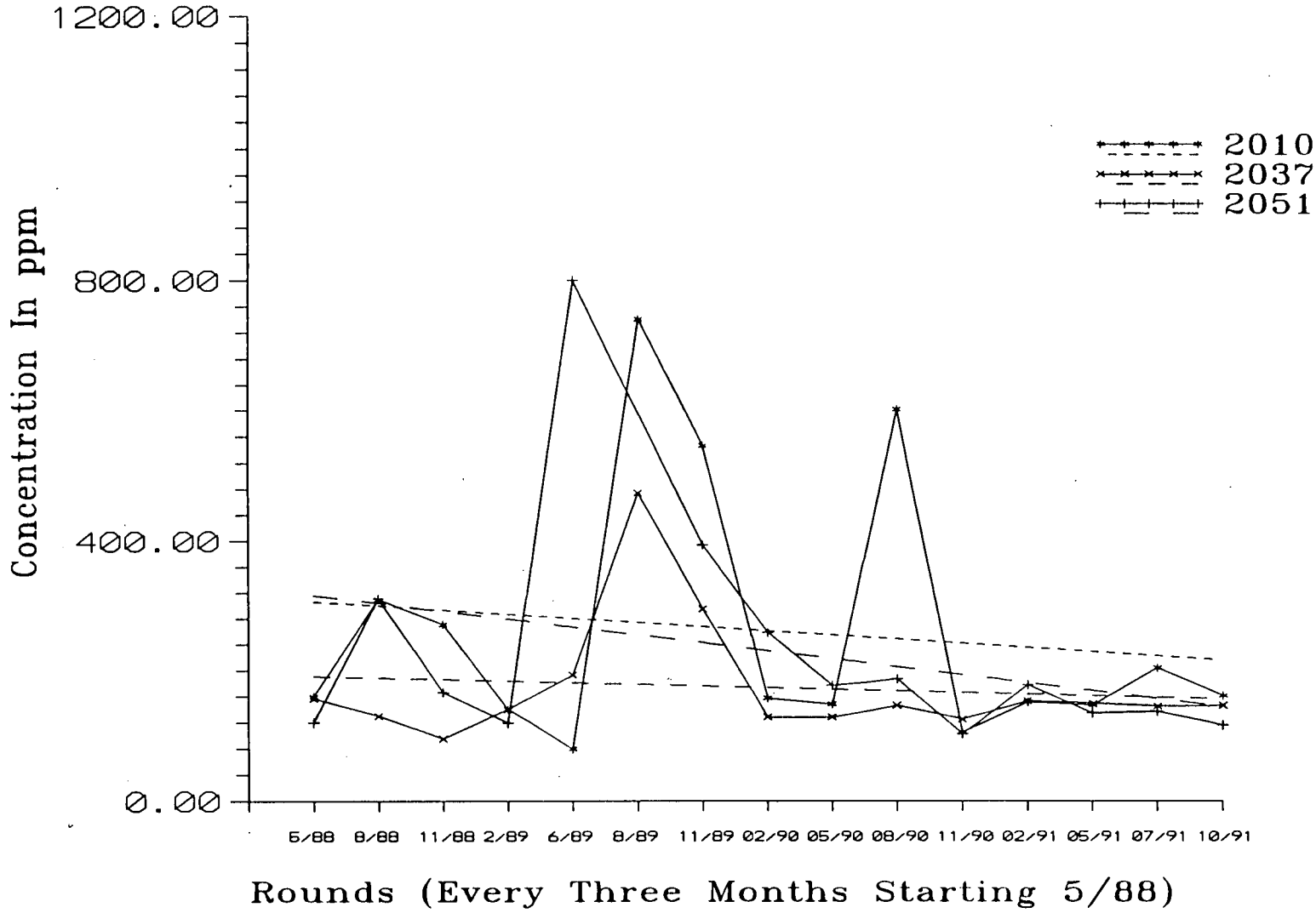
SODIUM (Dissd.) CONCENTRATIONS
FOR 2000 SERIES WELLS



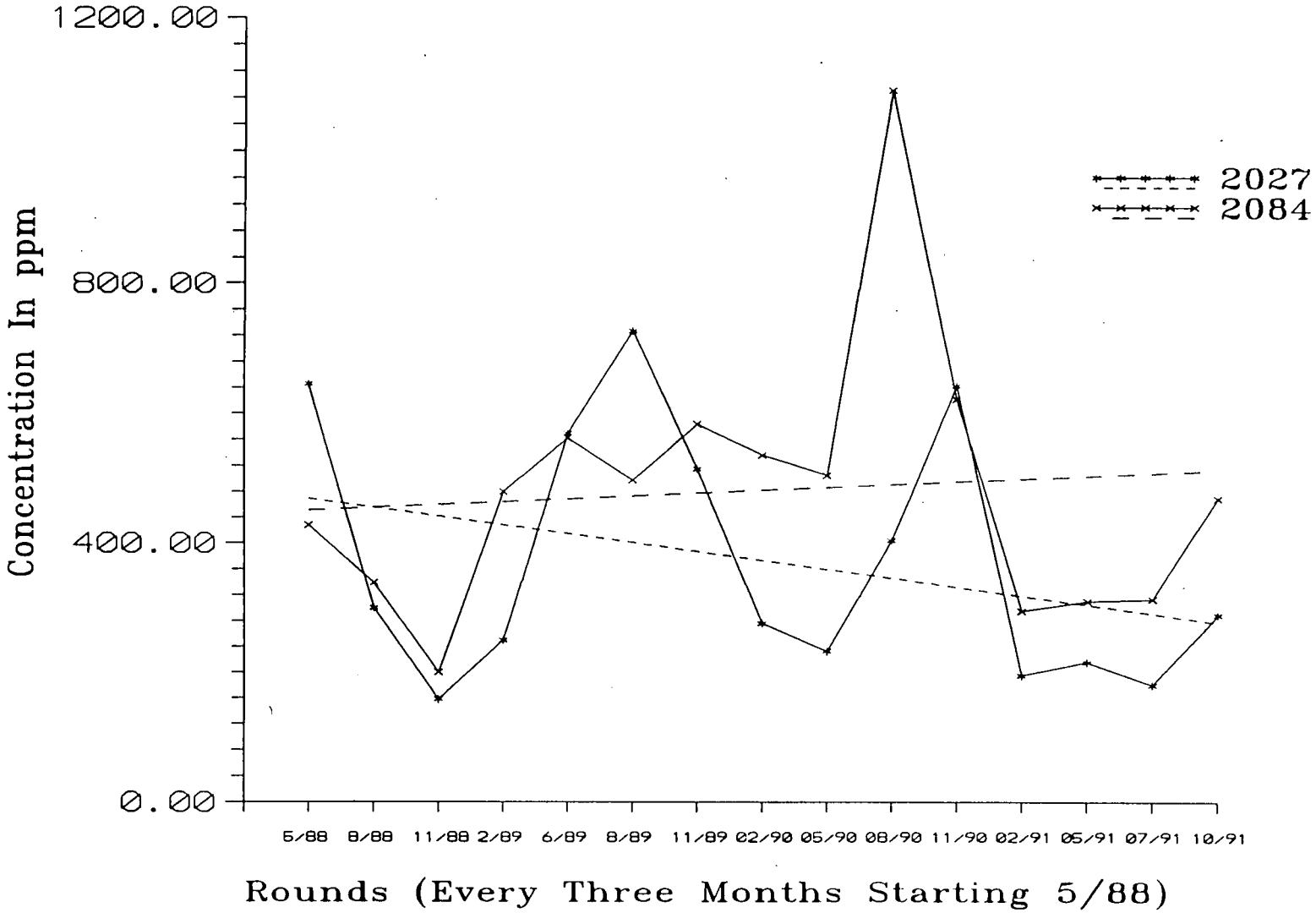
SULFATE CONCENTRATIONS
FOR 2000 SERIES WELLS
Background Wells



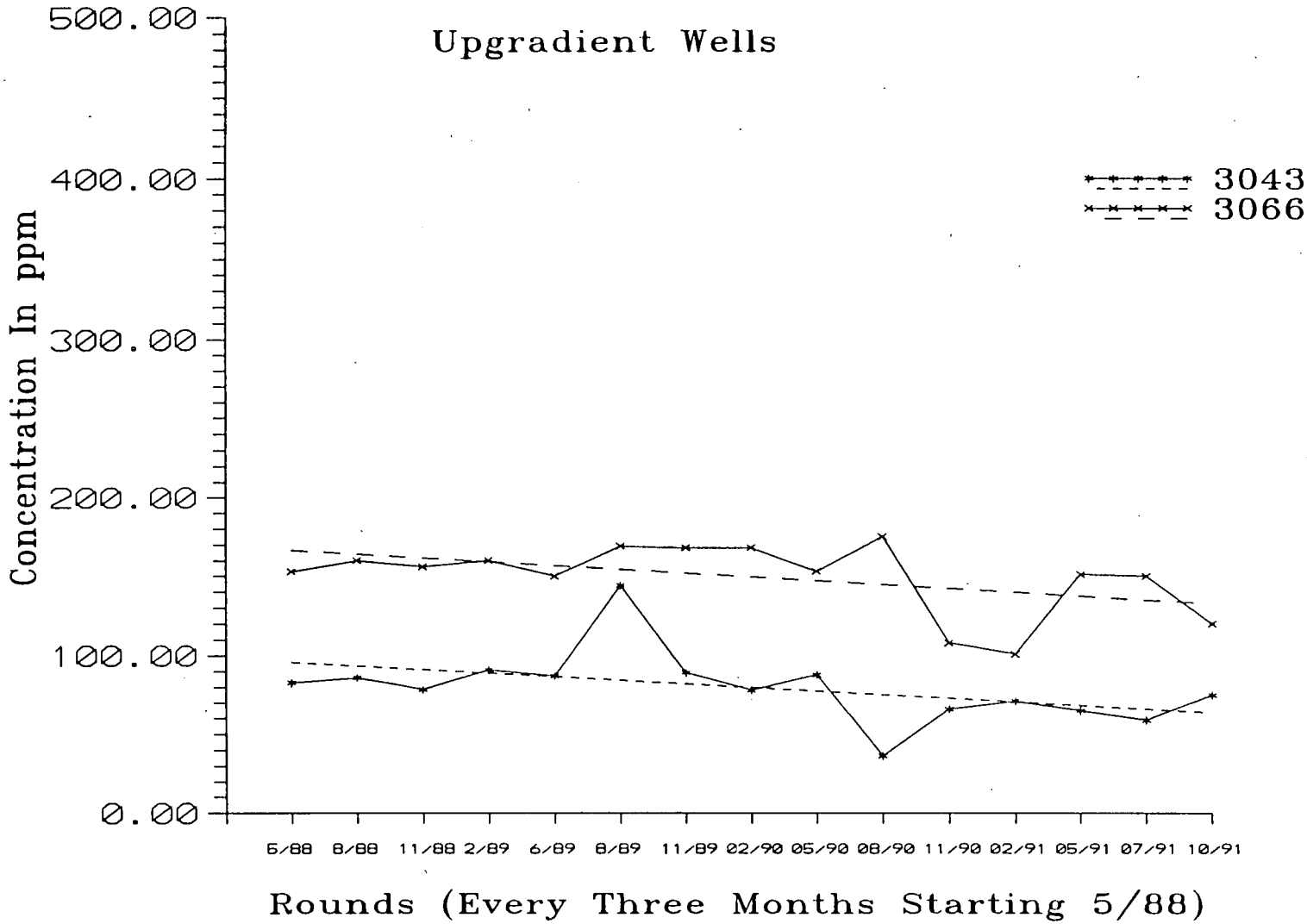
SULFATE CONCENTRATIONS FOR
2000 SERIES WELLS



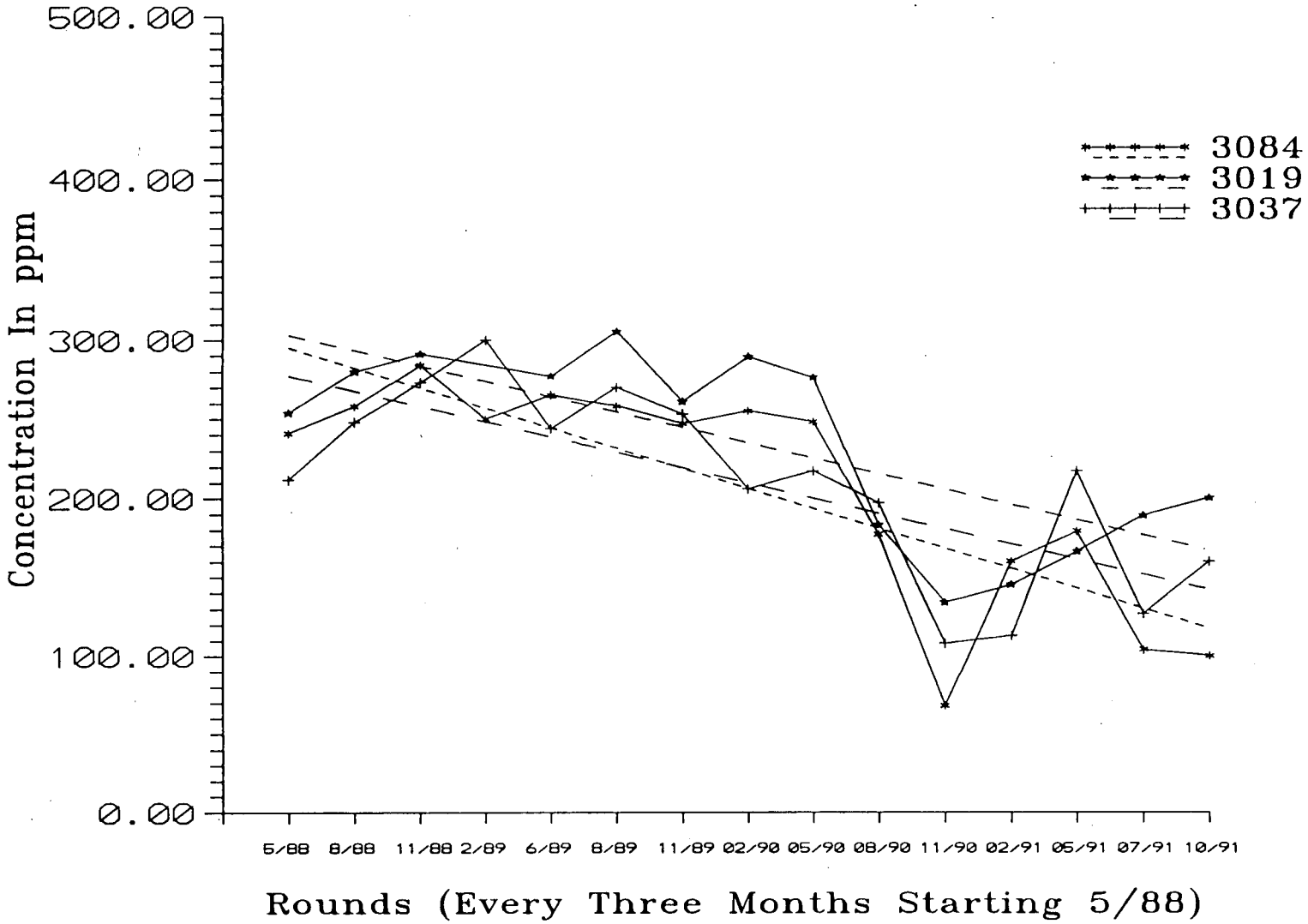
SULFATE CONCENTRATIONS FOR 2000 SERIES WELLS



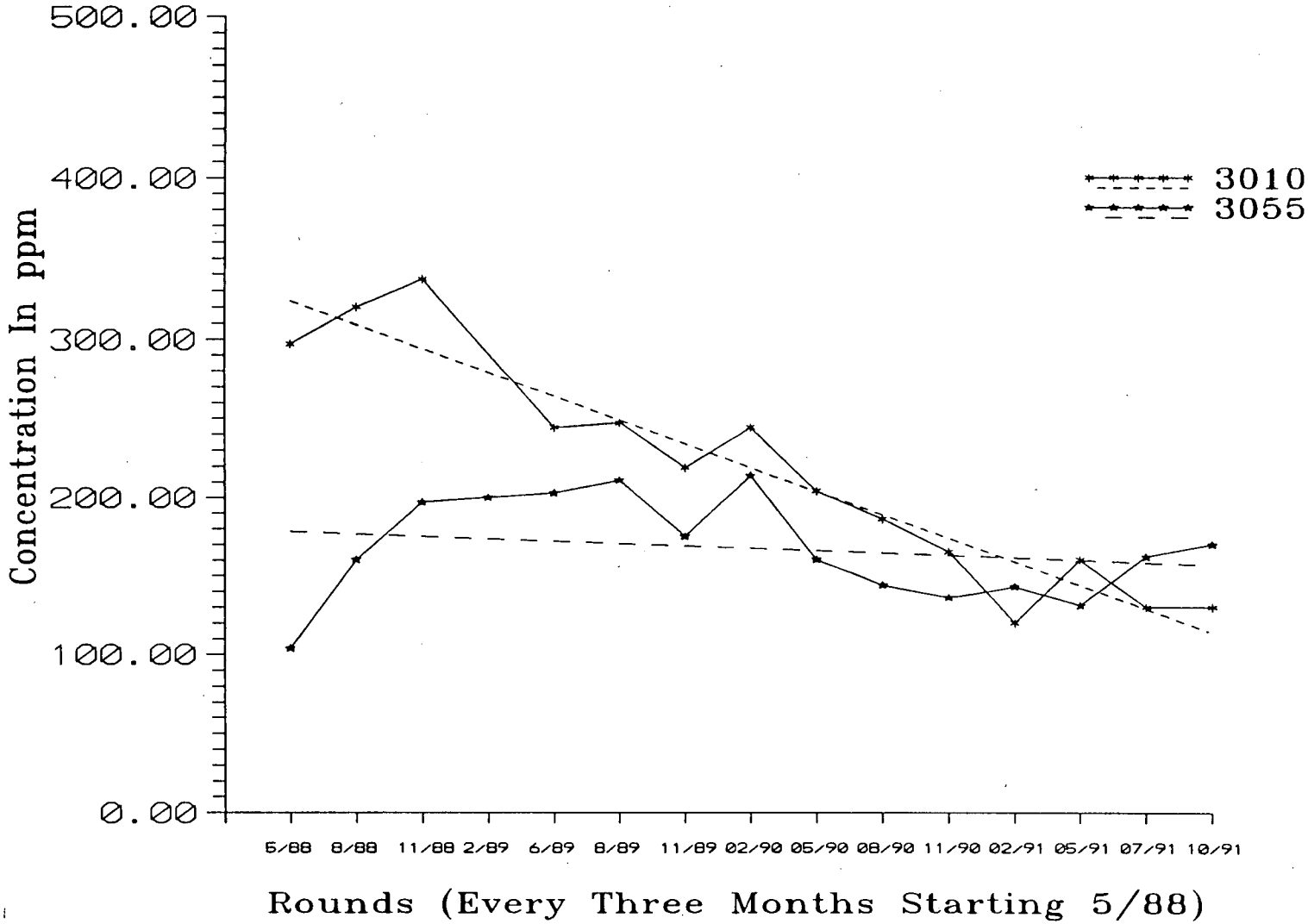
CALCIUM (Dissd.) CONCENTRATIONS
FOR 3000 SERIES WELLS

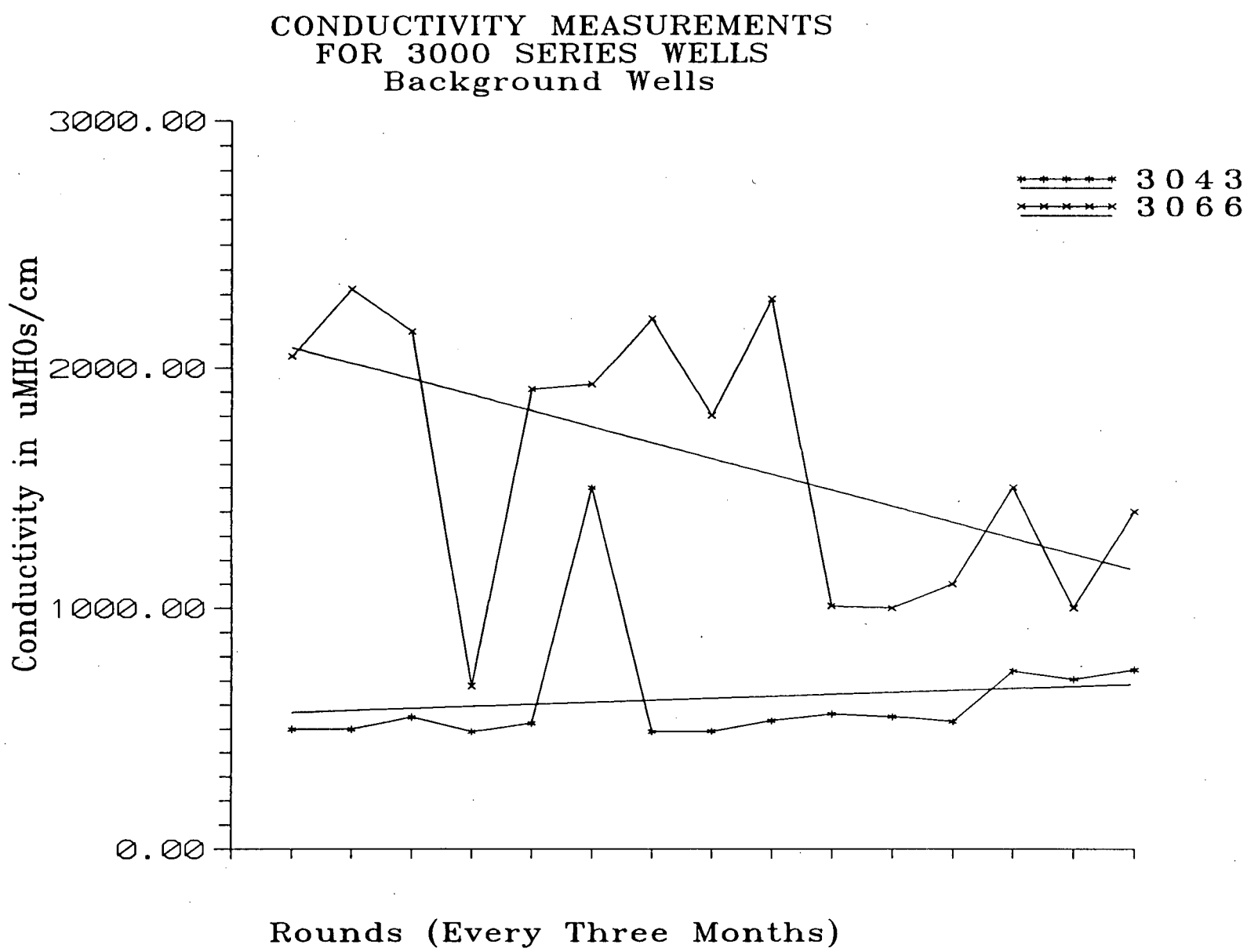


CALCIUM (Dissd.) CONCENTRATIONS FOR 3000 SERIES WELLS

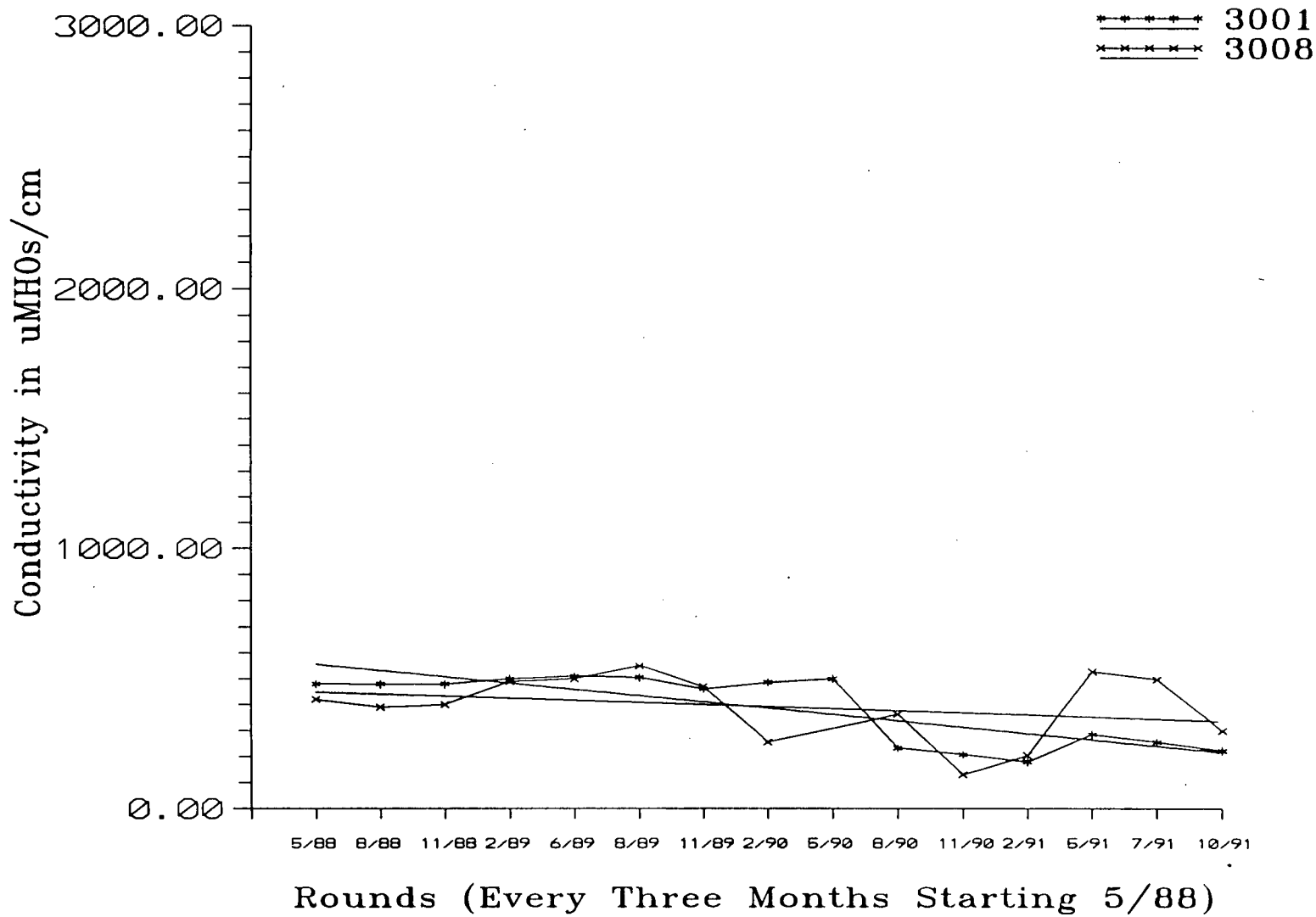


CALCIUM (Dissd.) CONCENTRATIONS
FOR 3000 SERIES WELLS

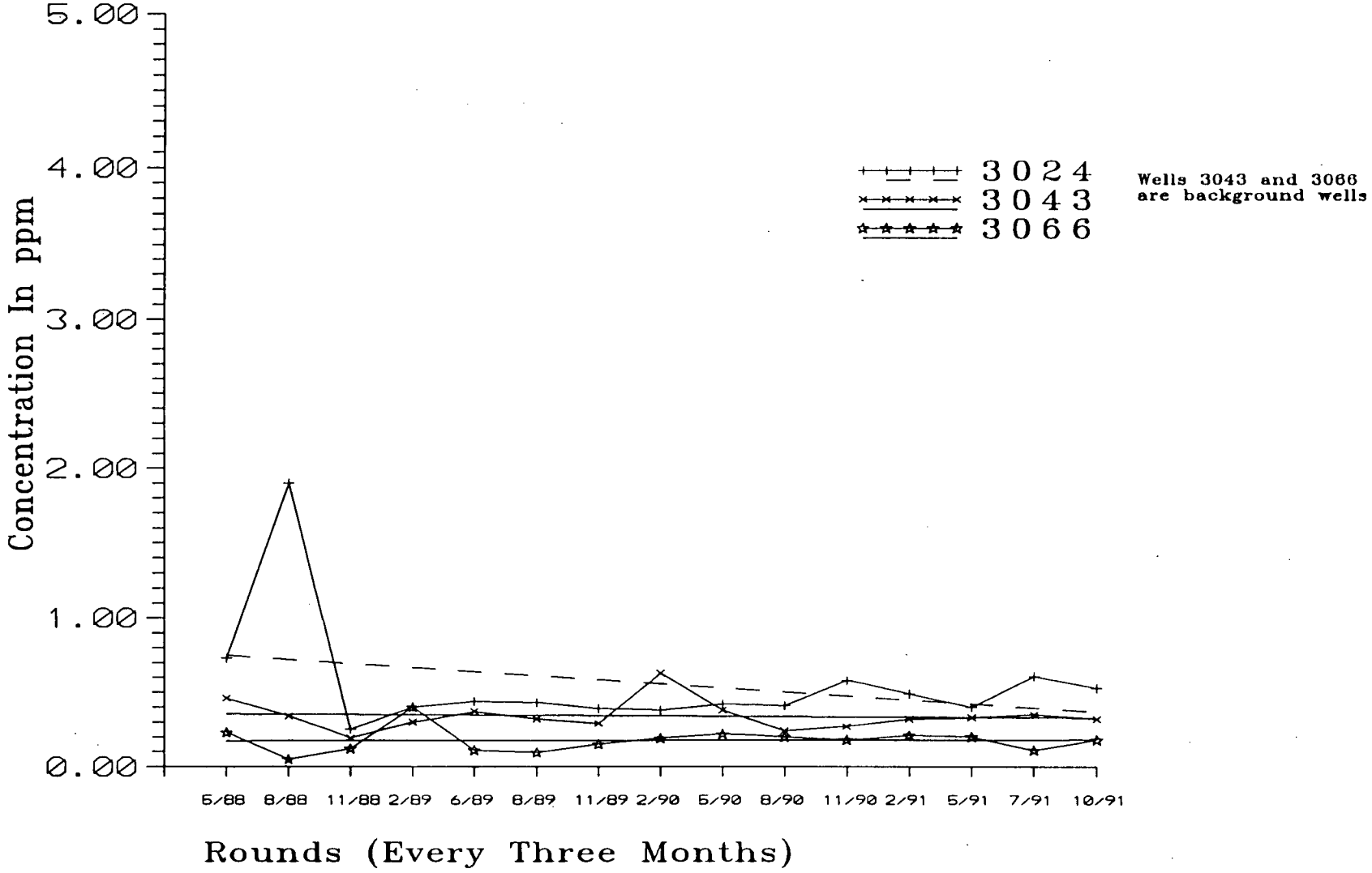



CONDUCTIVITY MEASUREMENTS
FOR 3000 SERIES WELLS
Background Wells
3043
3066
3000.00
2000.00
1000.00
0.00
Conductivity in uMHOs/cm
Rounds (Every Three Months)

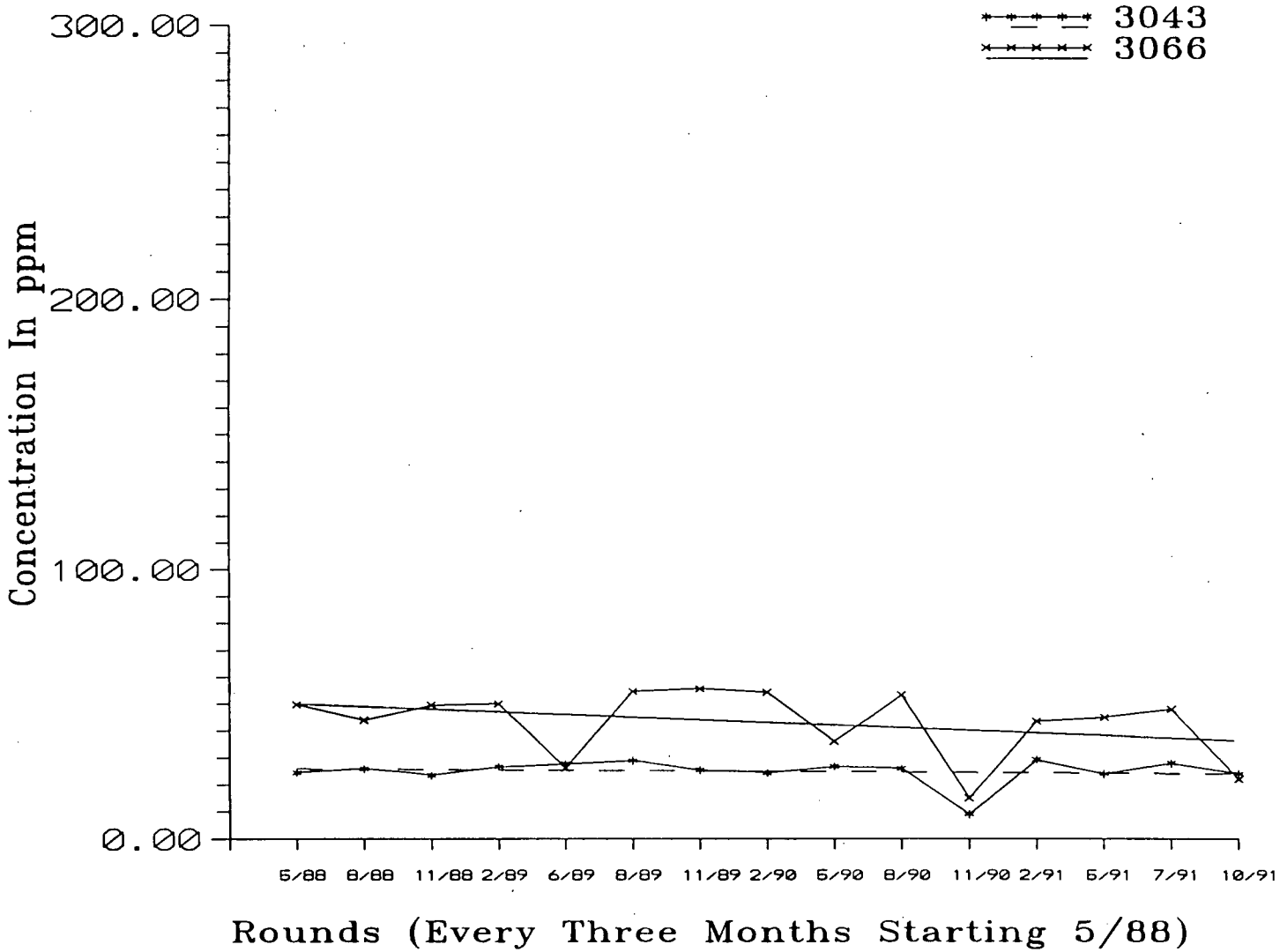
CONDUCTIVITY CONCENTRATIONS
FOR 3000 SERIES WELLS



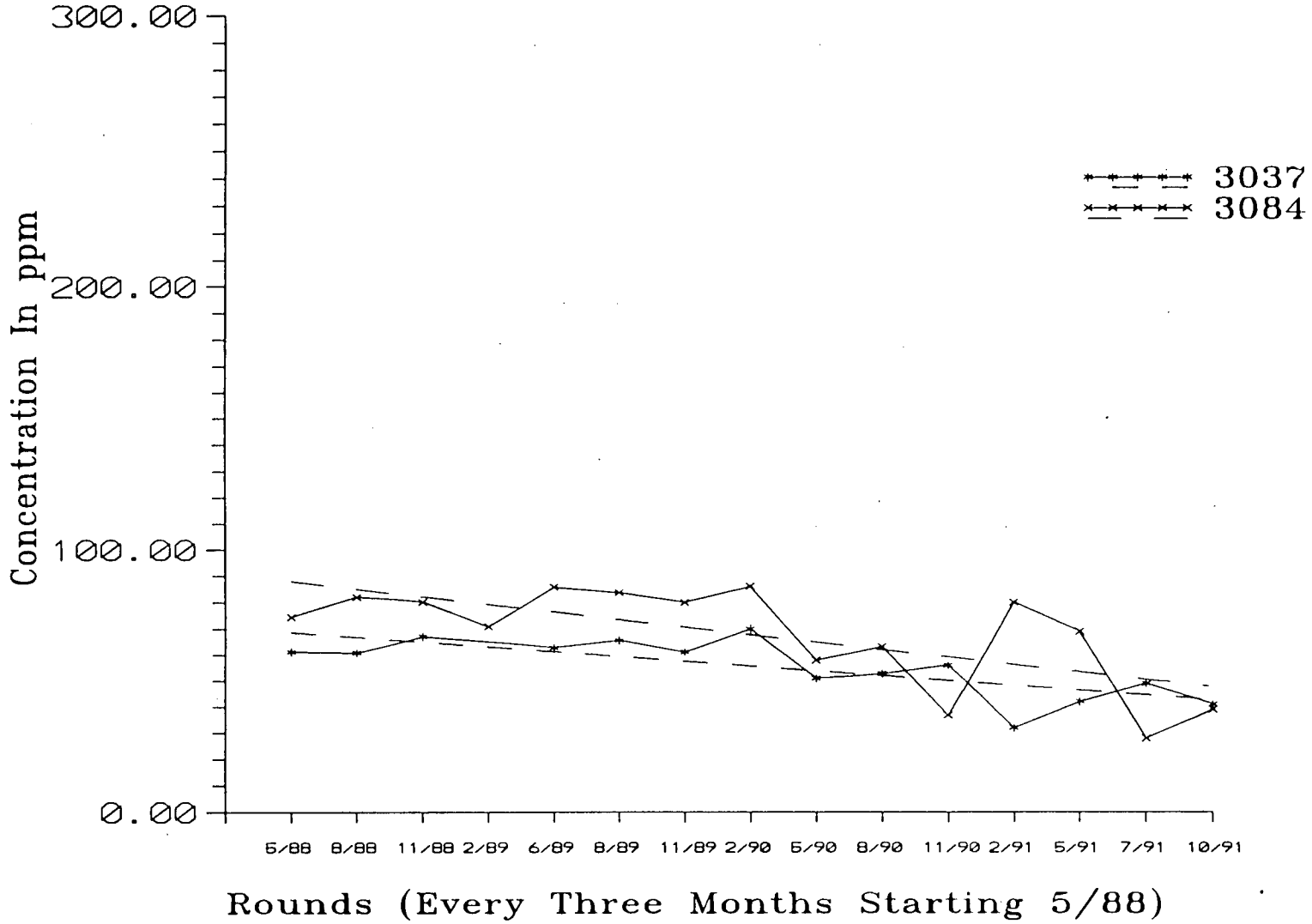
FLUORIDE CONCENTRATIONS IN 3000 SERIES WELLS



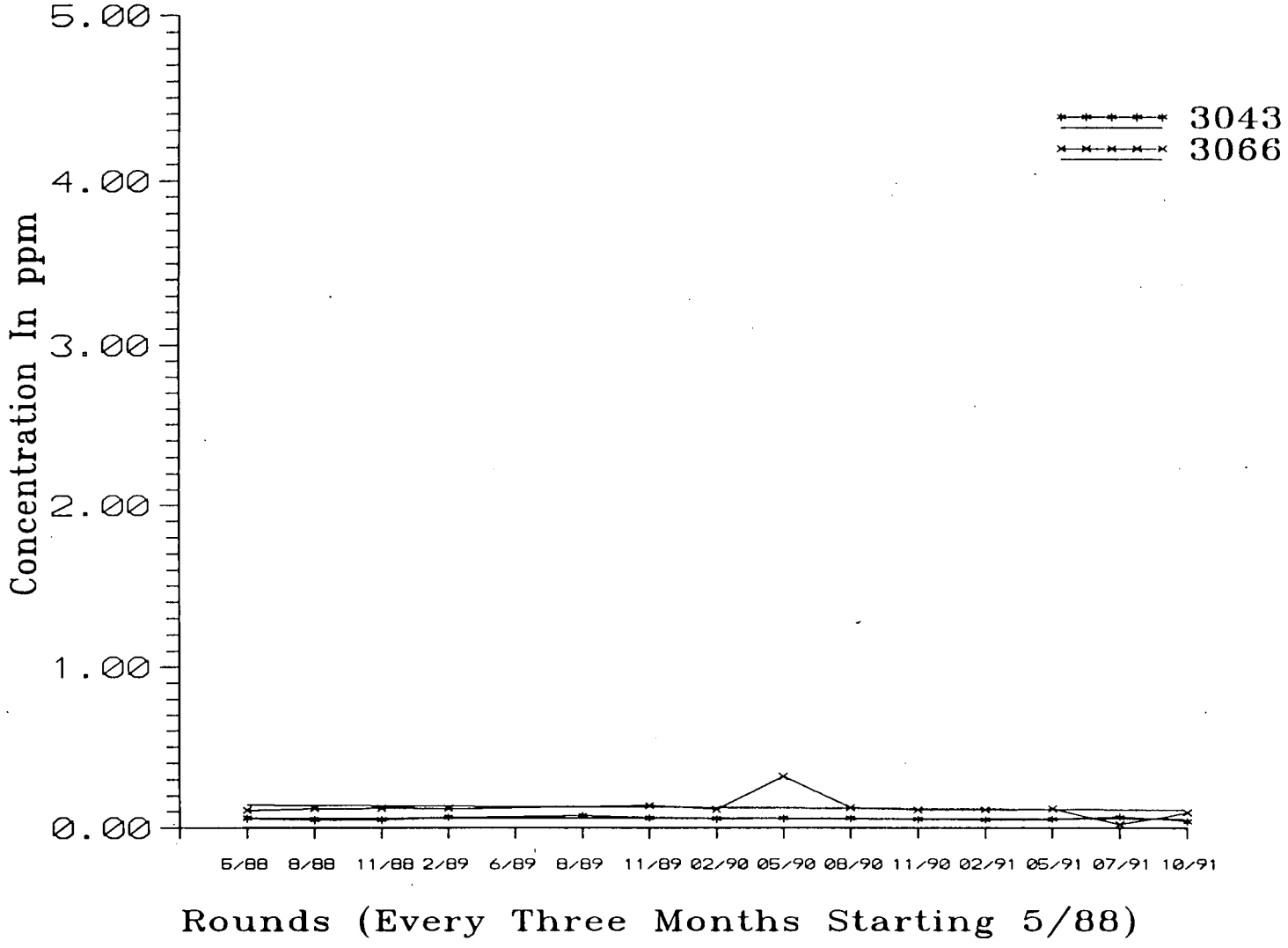
MAGNESIUM (Dissd.) CONCENTRATIONS FOR
3000 SERIES WELLS
Background Wells



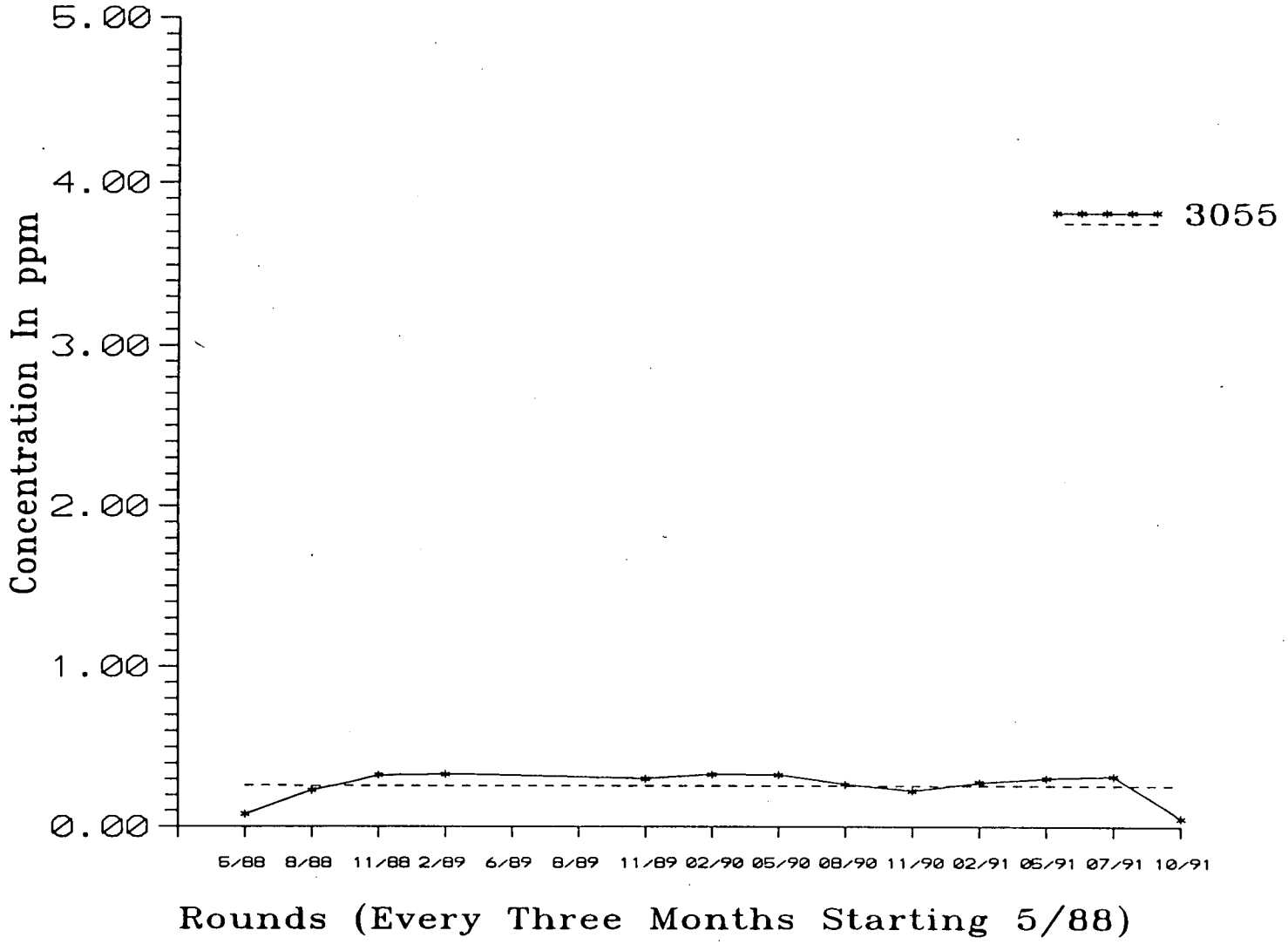
MAGNESIUM (Dissd.) CONCENTRATIONS FOR 3000 SERIES WELLS

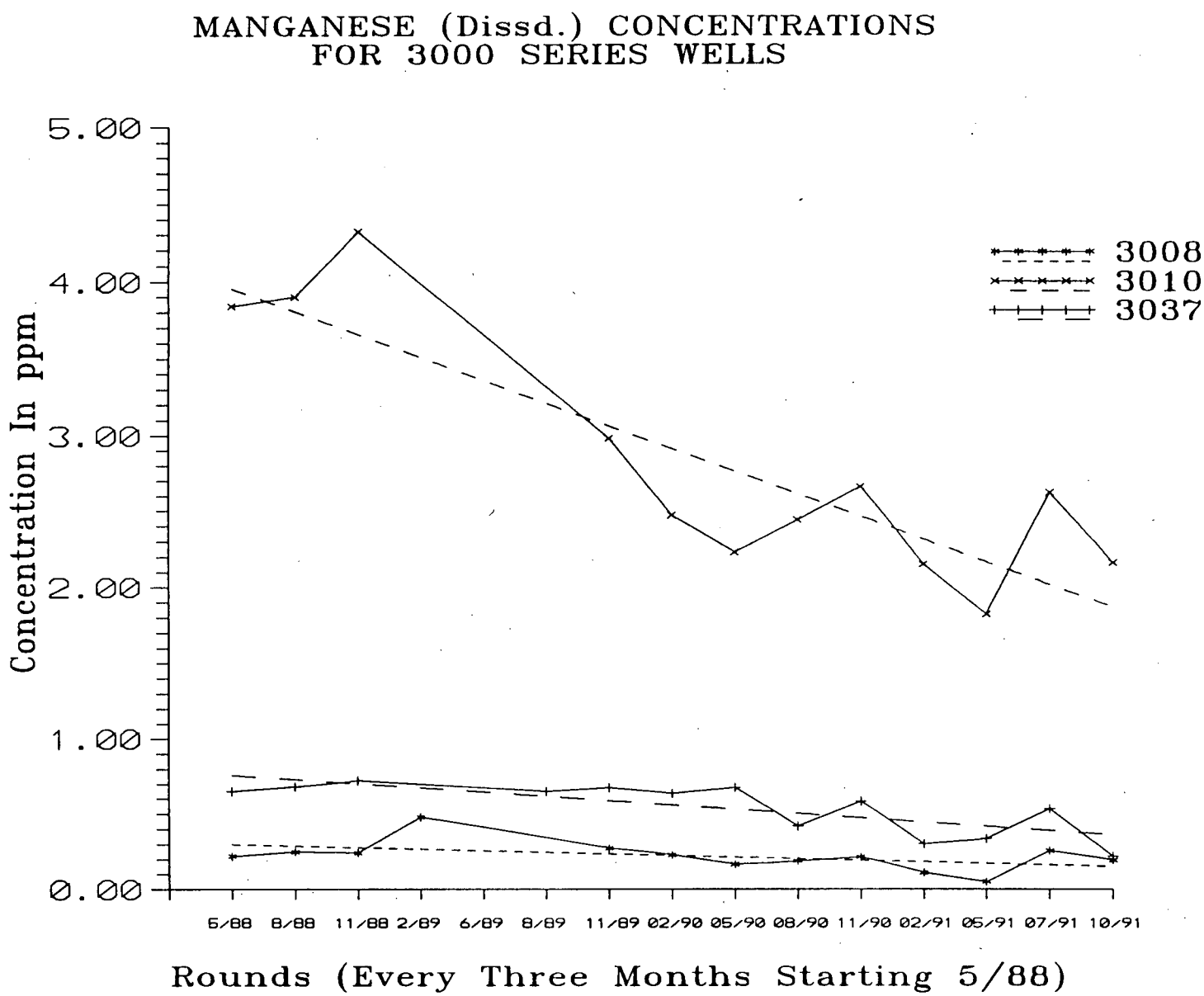


MANGANESE (Dissd.) CONCENTRATIONS
FOR 3000 SERIES WELLS
Background Wells

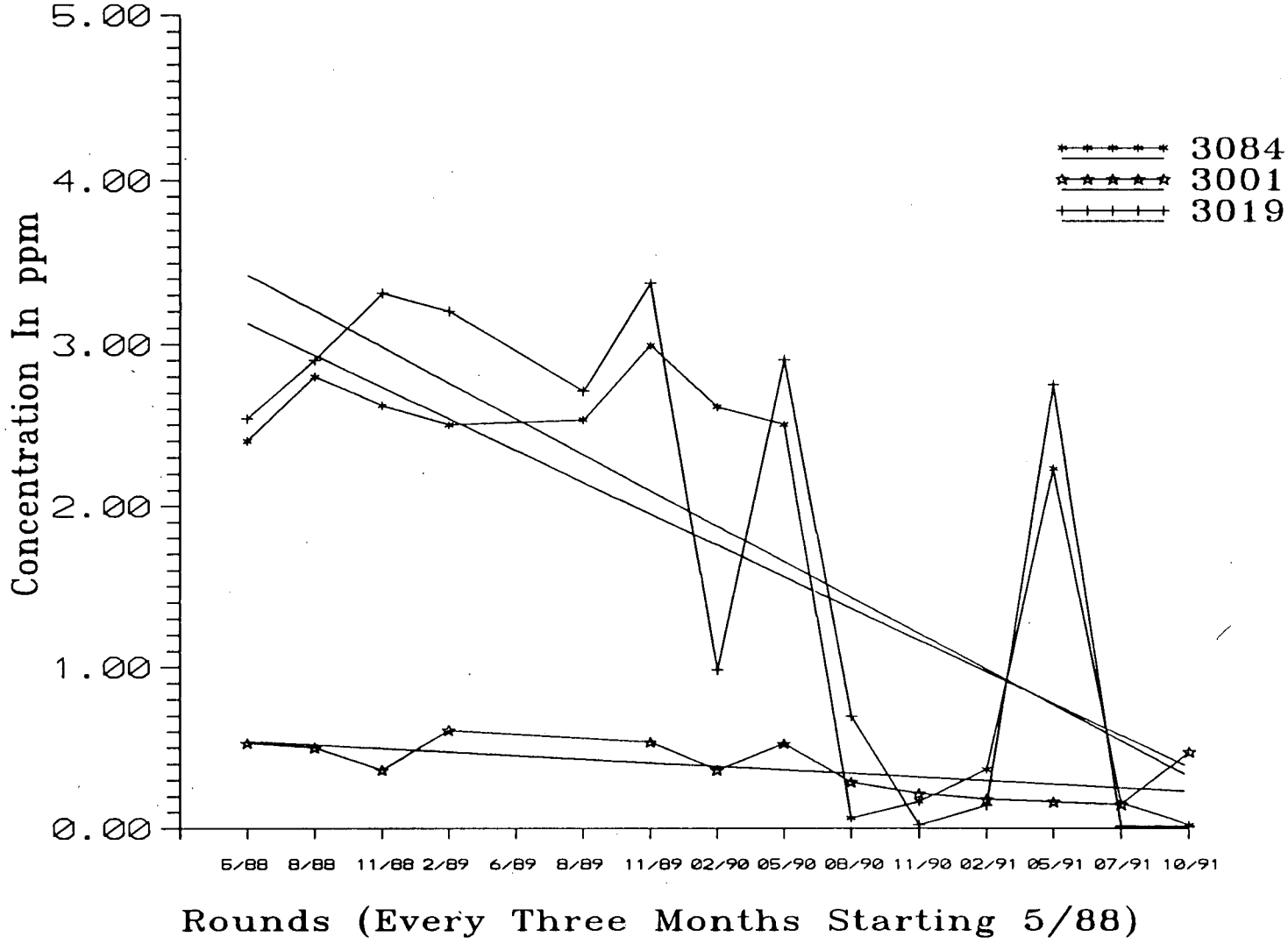


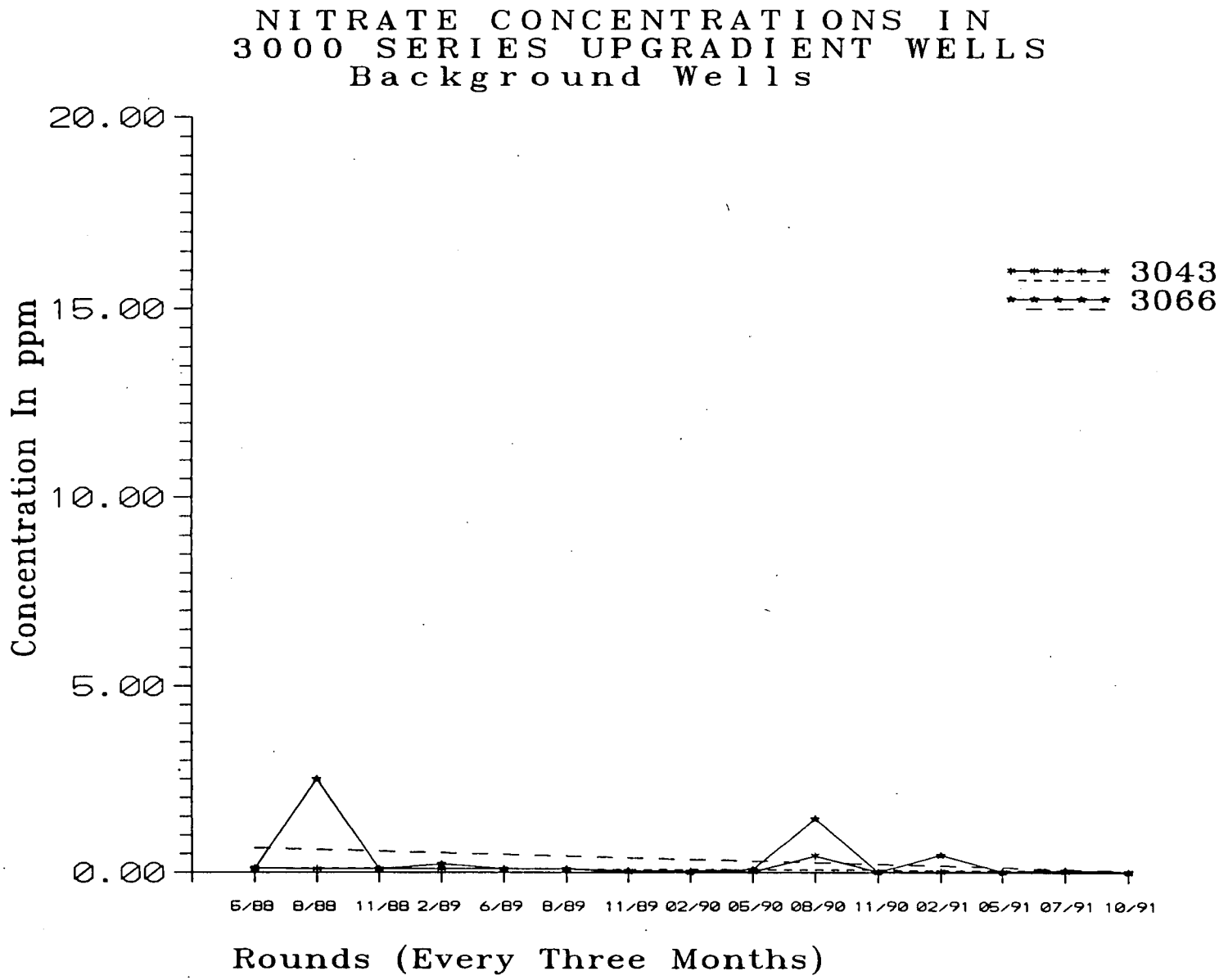
MANGANESE (Dissd.) CONCENTRATIONS
FOR 3000 SERIES WELLS



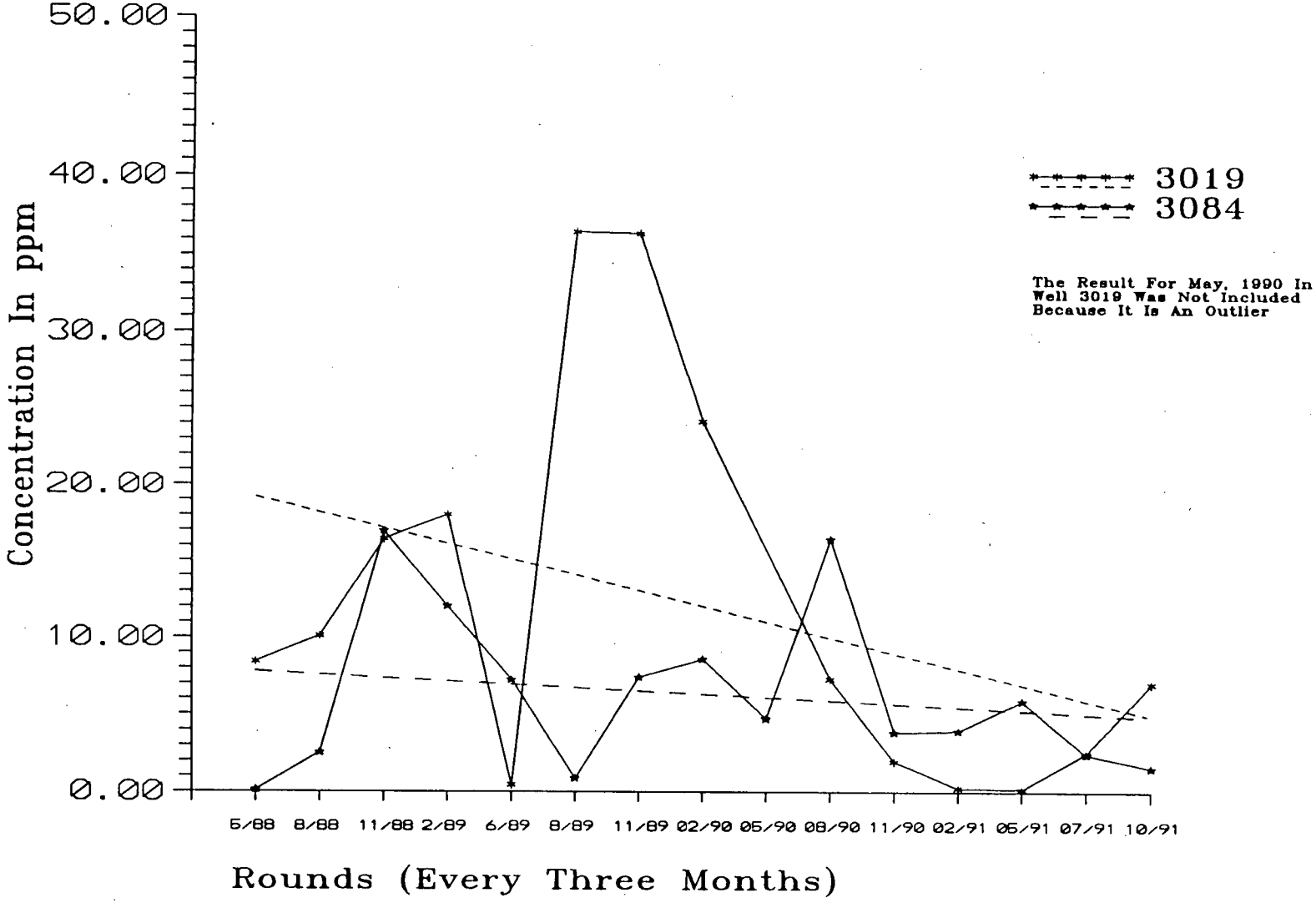

MANGANESE (Dissd.) CONCENTRATIONS
FOR 3000 SERIES WELLS
Concentration In ppm
5.00
4.00
3.00
2.00
1.00
0.00
3008
3010
3037
5/88 8/88 11/88 2/89 6/89 8/89 11/89 02/90 05/90 08/90 11/90 02/91 05/91 07/91 10/91
Rounds (Every Three Months Starting 5/88)

MANGANESE (Dissd.) CONCENTRATIONS
FOR 3000 SERIES WELLS

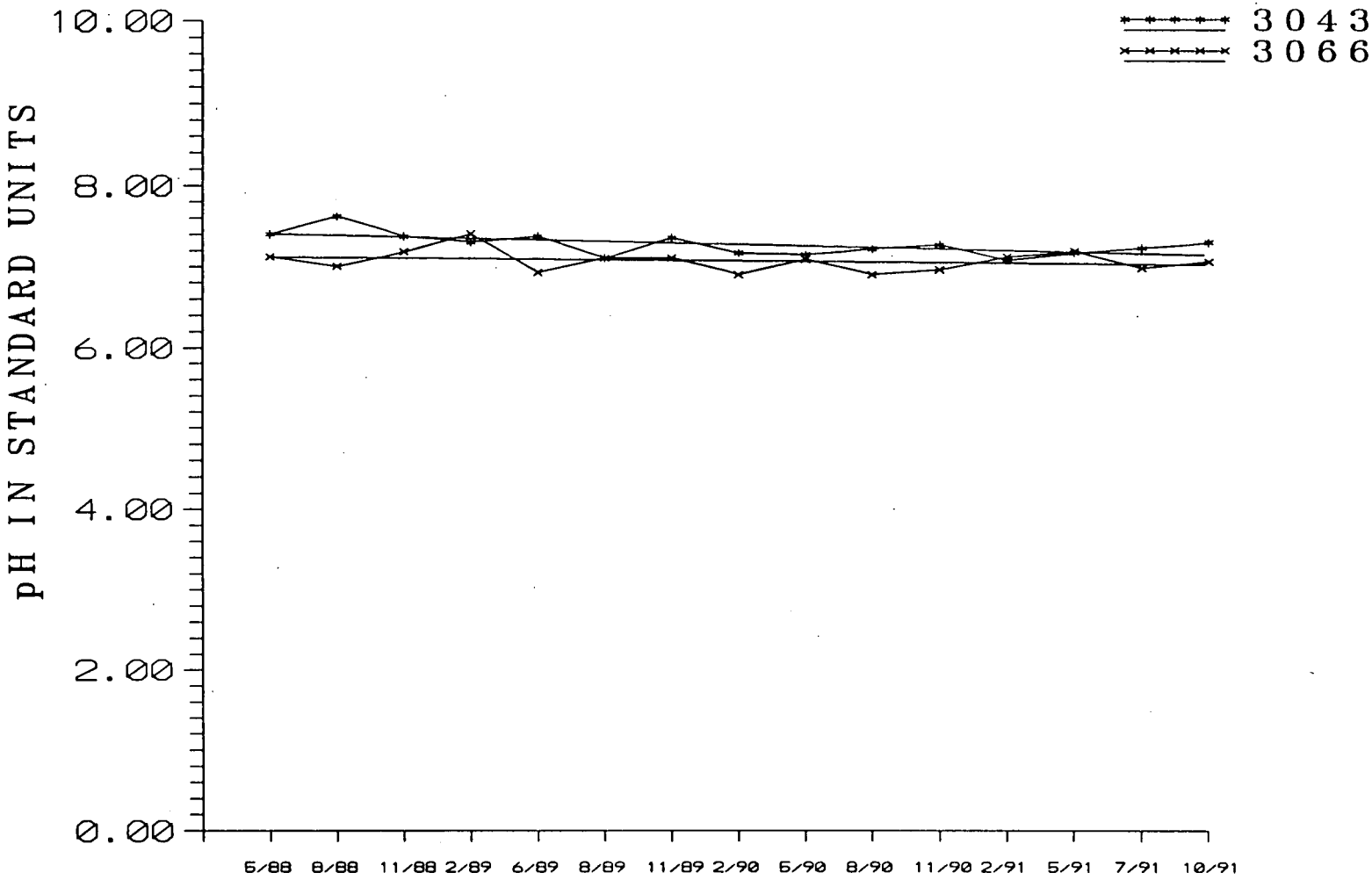



NITRATE CONCENTRATIONS IN
3000 SERIES UPGRADIENT WELLS
Background Wells
Concentration In ppm
20.00
15.00
10.00
5.00
0.00
3043
3066
5/88 8/88 11/88 2/89 6/89 8/89 11/89 02/90 05/90 08/90 11/90 02/91 05/91 07/91 10/91
Rounds (Every Three Months)

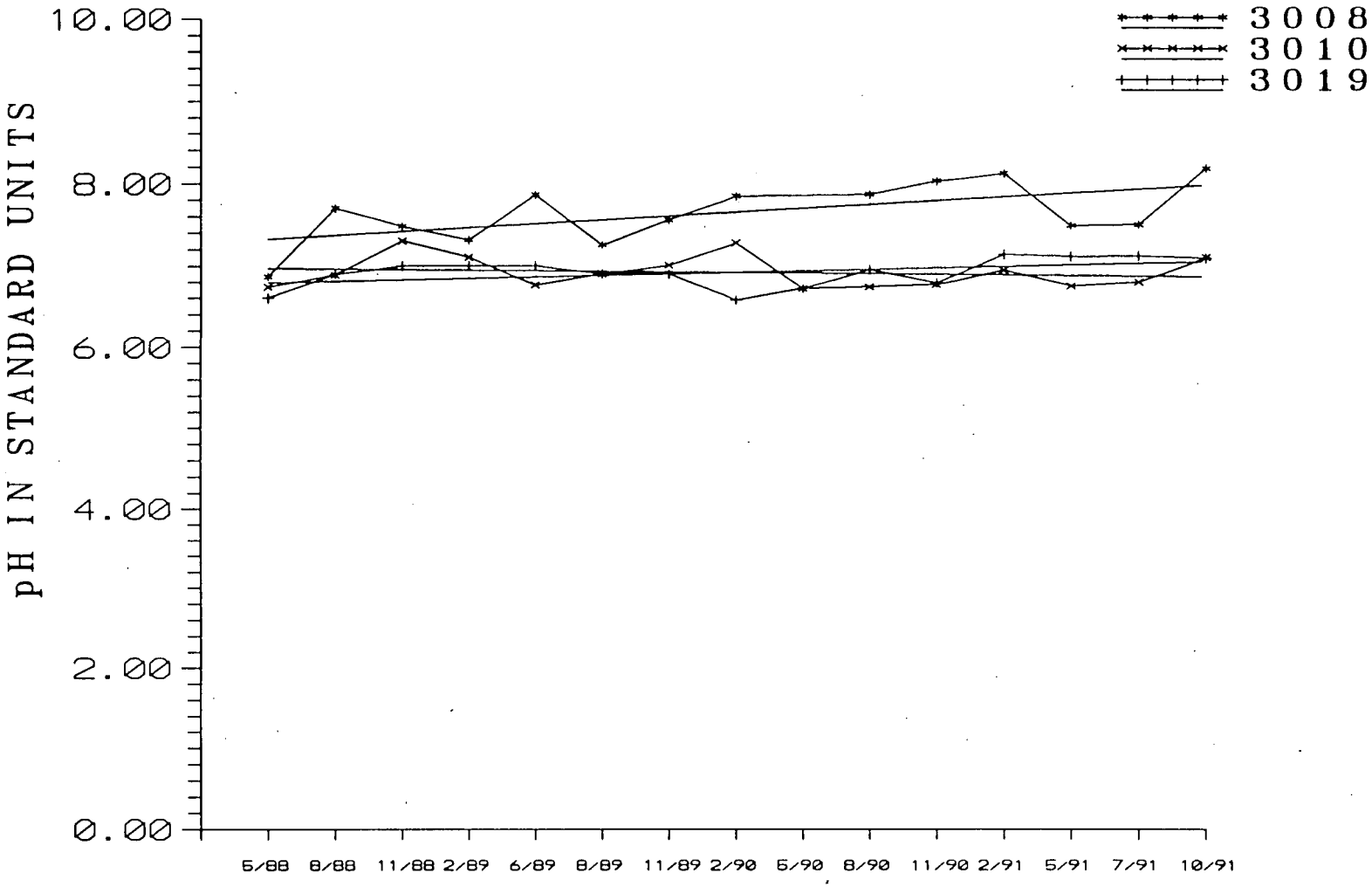
NITRATE CONCENTRATIONS IN 3000 SERIES WELLS



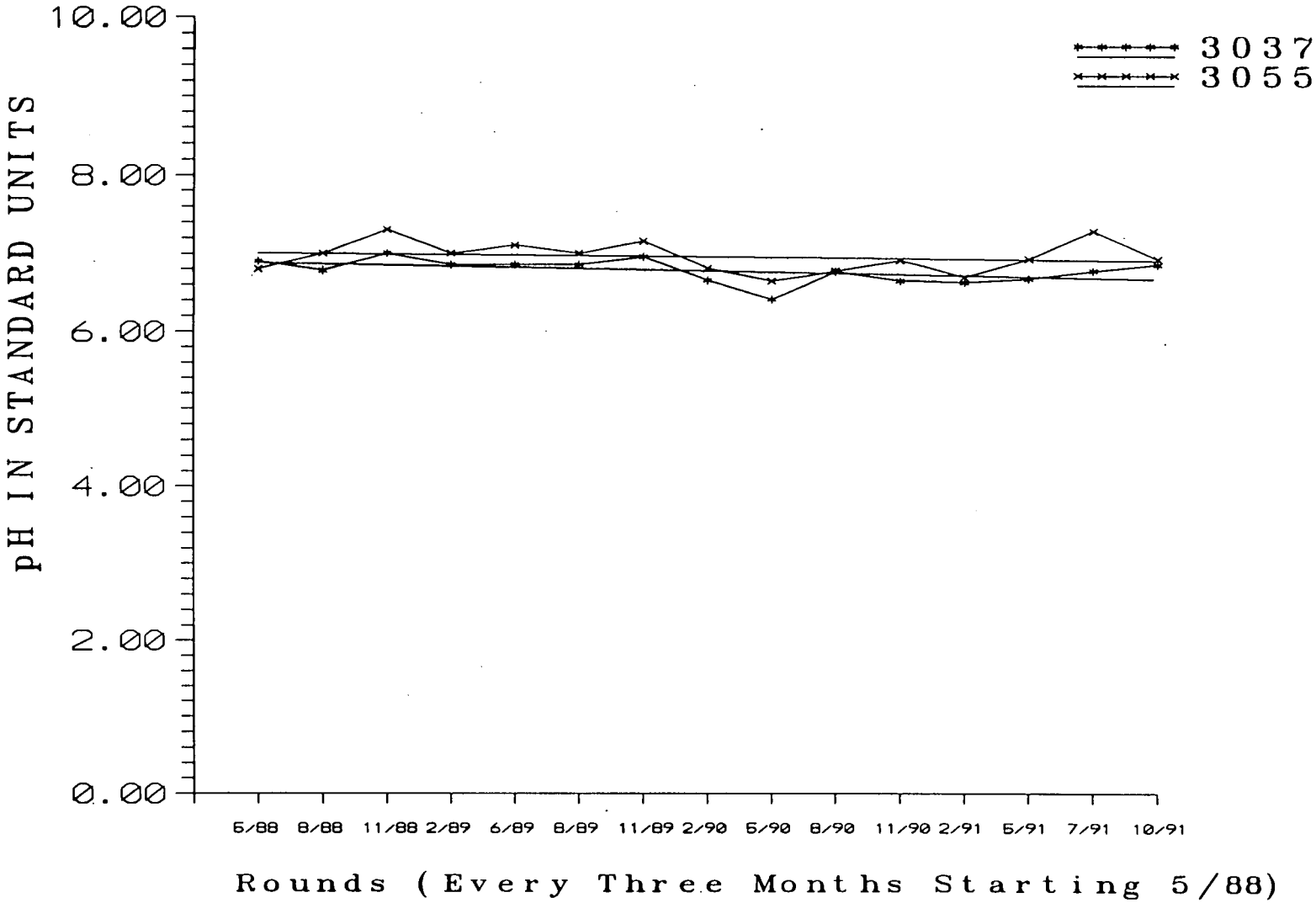
pH MEASUREMENTS IN 3000 SERIES WELLS
Background Wells



pH MEASUREMENTS IN 3000 SERIES WELLS

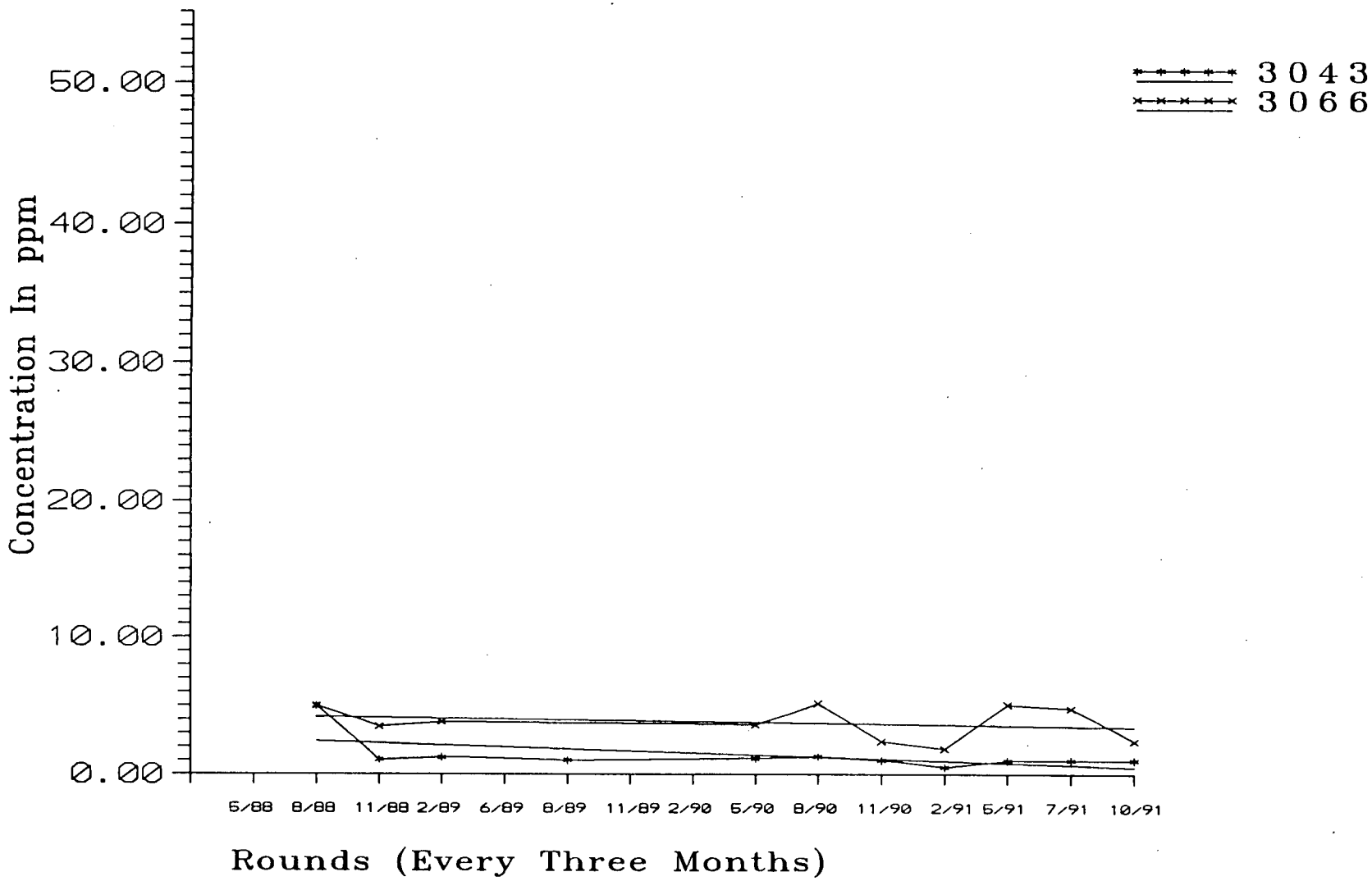


pH MEASUREMENTS IN 3000 SERIES WELLS

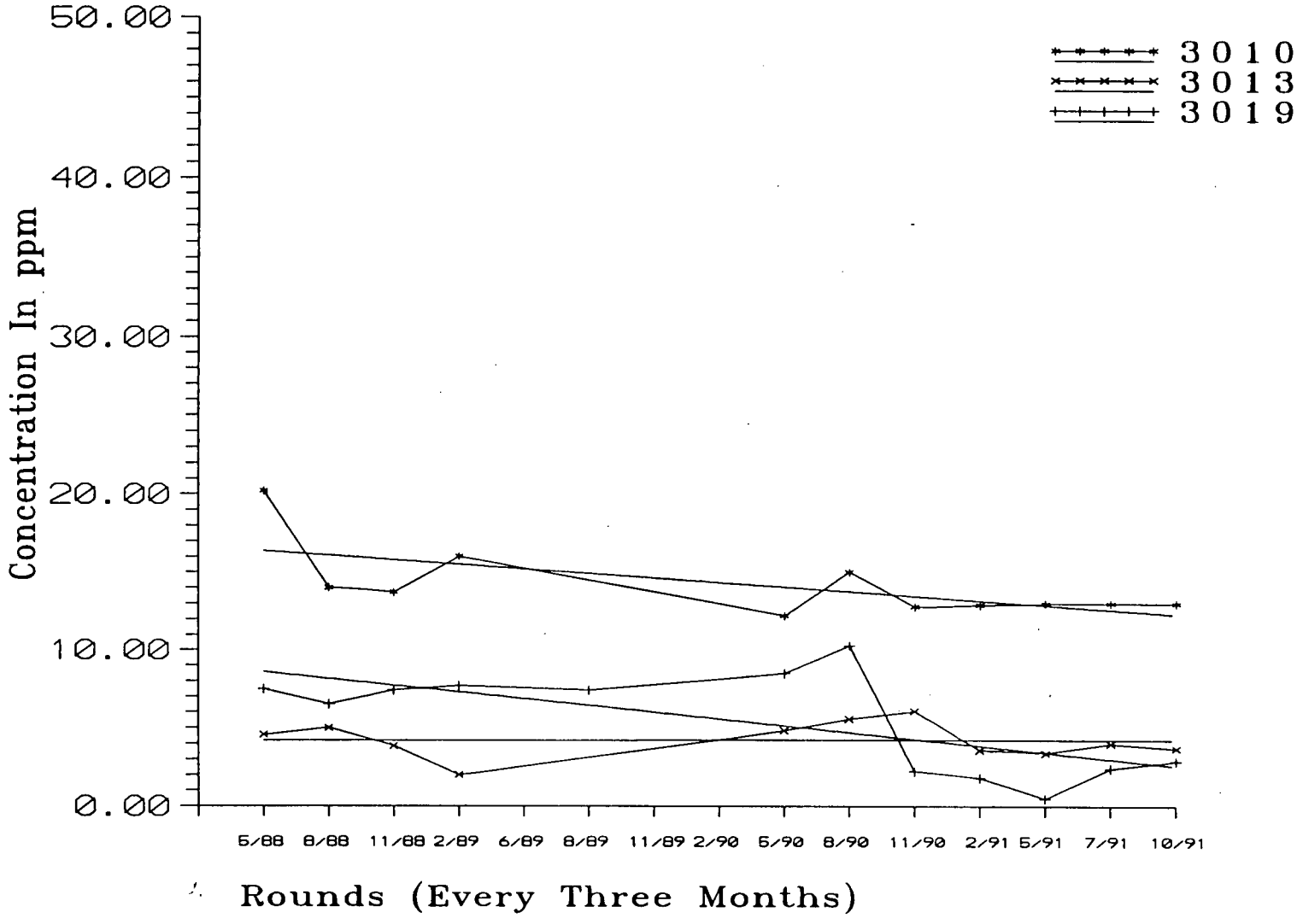


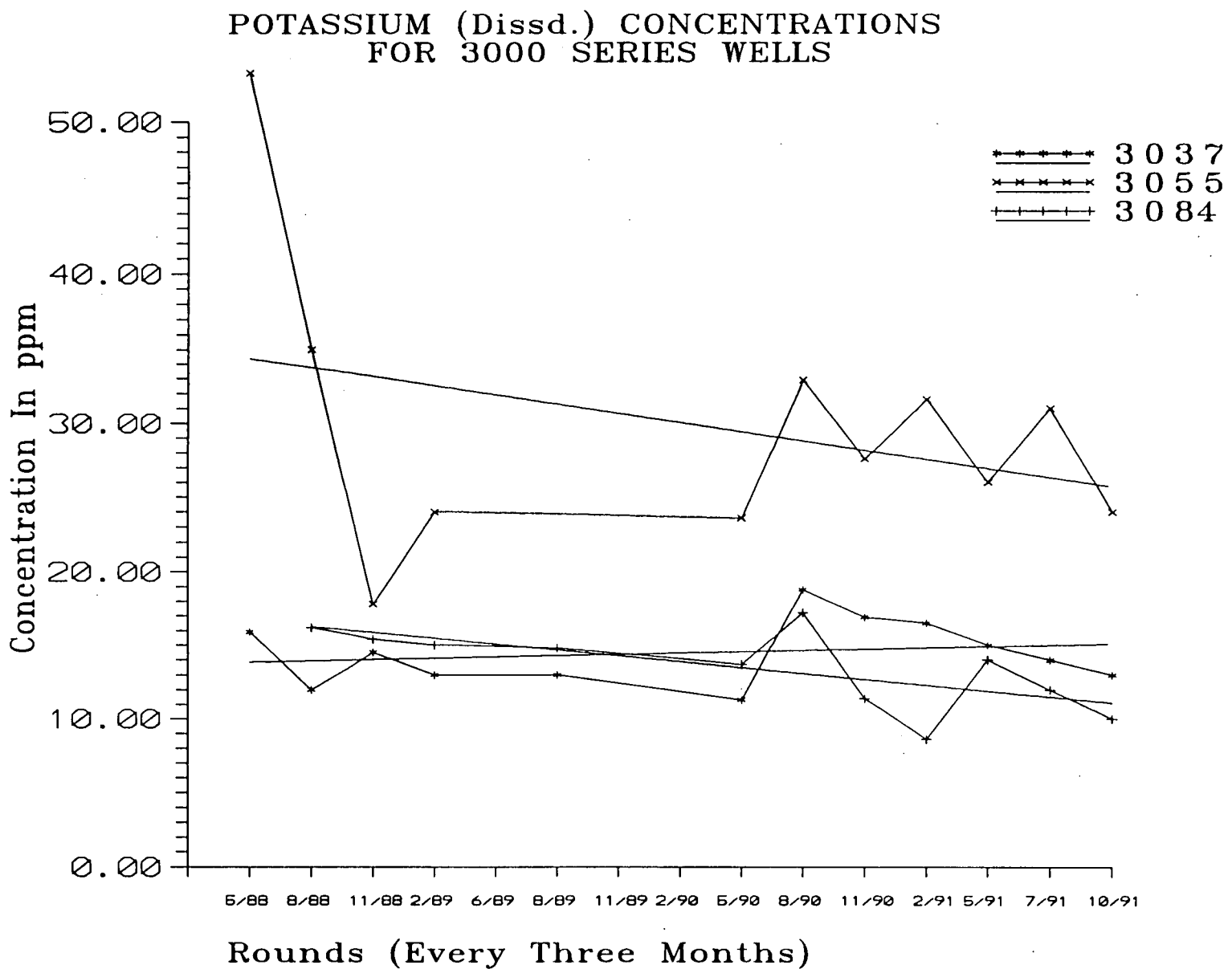
5848

POTTASSIUM (Dissd.) CONCENTRATIONS
FOR 3000 SERIES WELLS
Background Wells

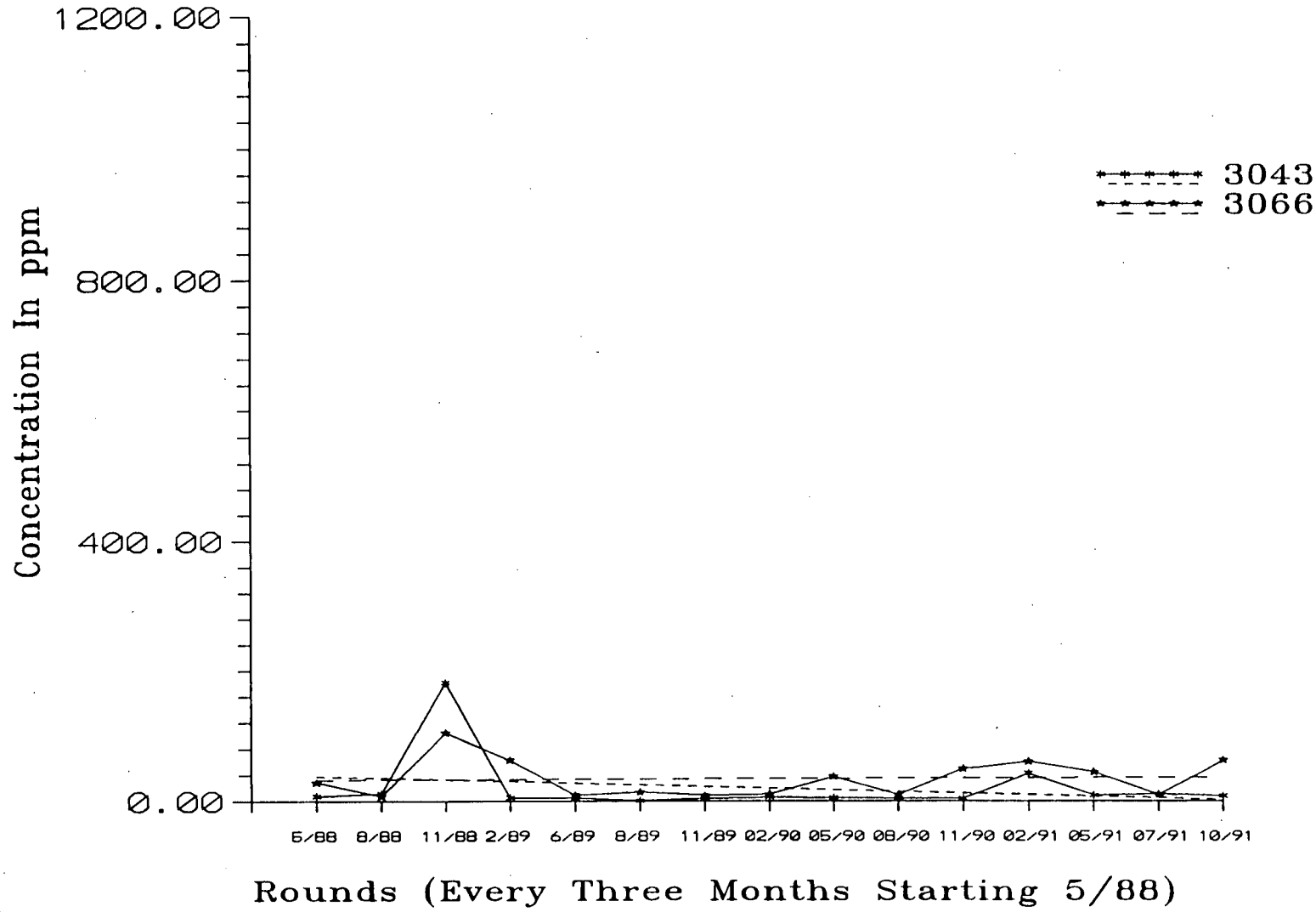


POTASSIUM (Dissd.) CONCENTRATIONS
FOR 3000 SERIES WELLS

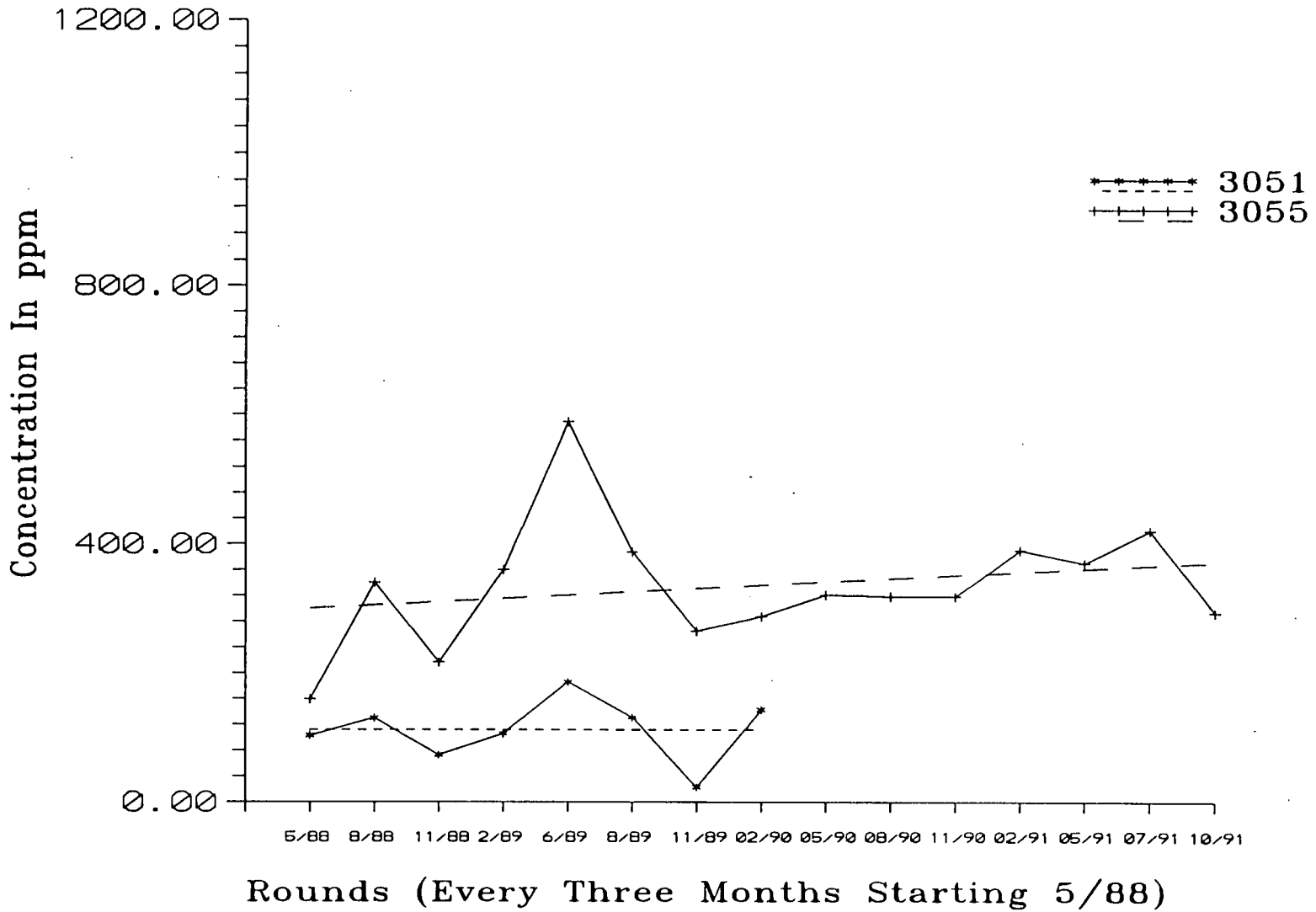


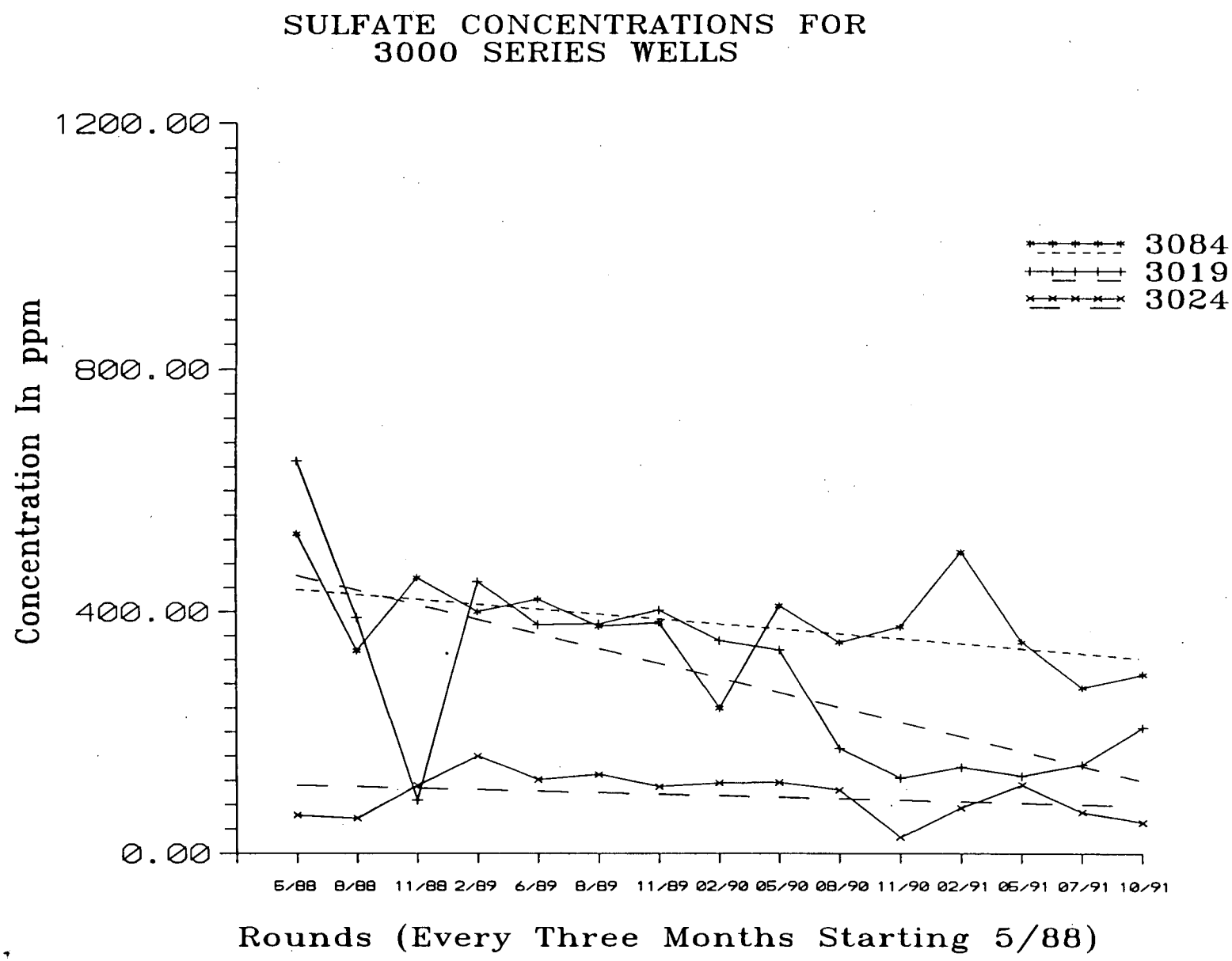

POTASSIUM (Dissd.) CONCENTRATIONS
FOR 3000 SERIES WELLS
3037
3055
3084
Concentration In ppm
50.00
40.00
30.00
20.00
10.00
0.00
5/88 8/88 11/88 2/89 6/89 8/89 11/89 2/90 5/90 8/90 11/90 2/91 5/91 7/91 10/91
Rounds (Every Three Months)

SULFATE CONCENTRA[illegible]S FOR
3000 SERIES WE[illegible]
Background Wells

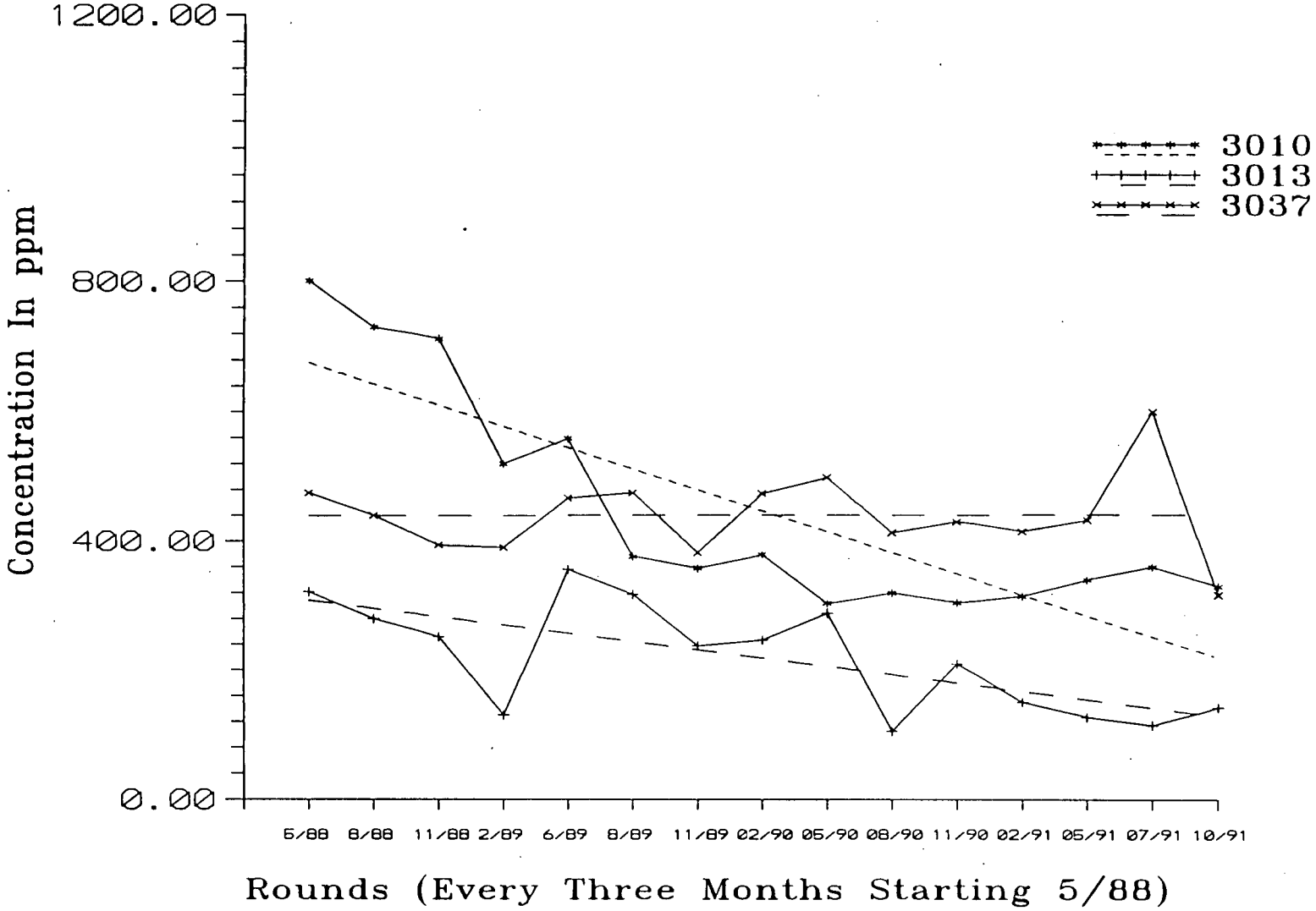


SULFATE CONCENTRATIONS FOR 3000 SERIES WELLS

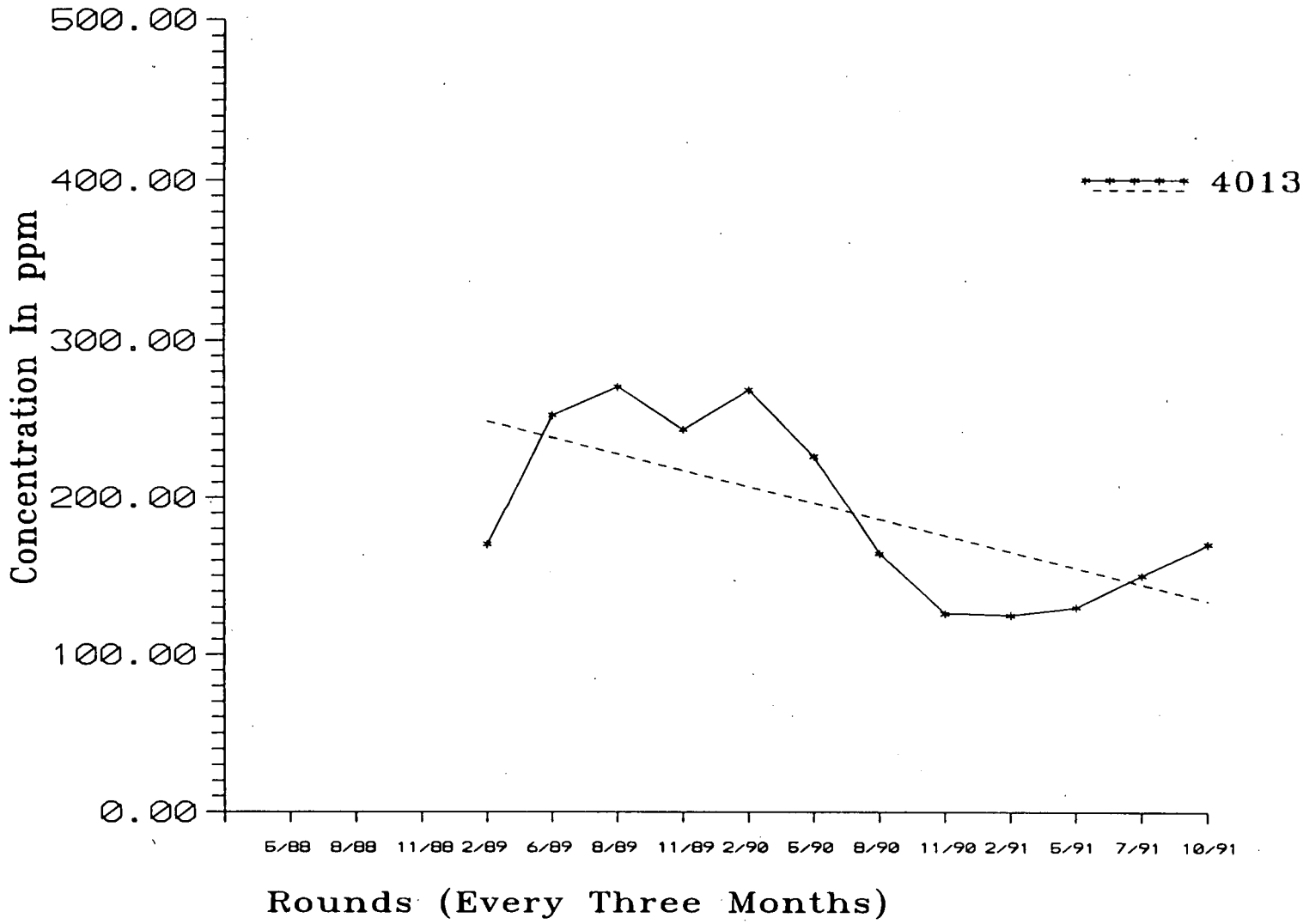


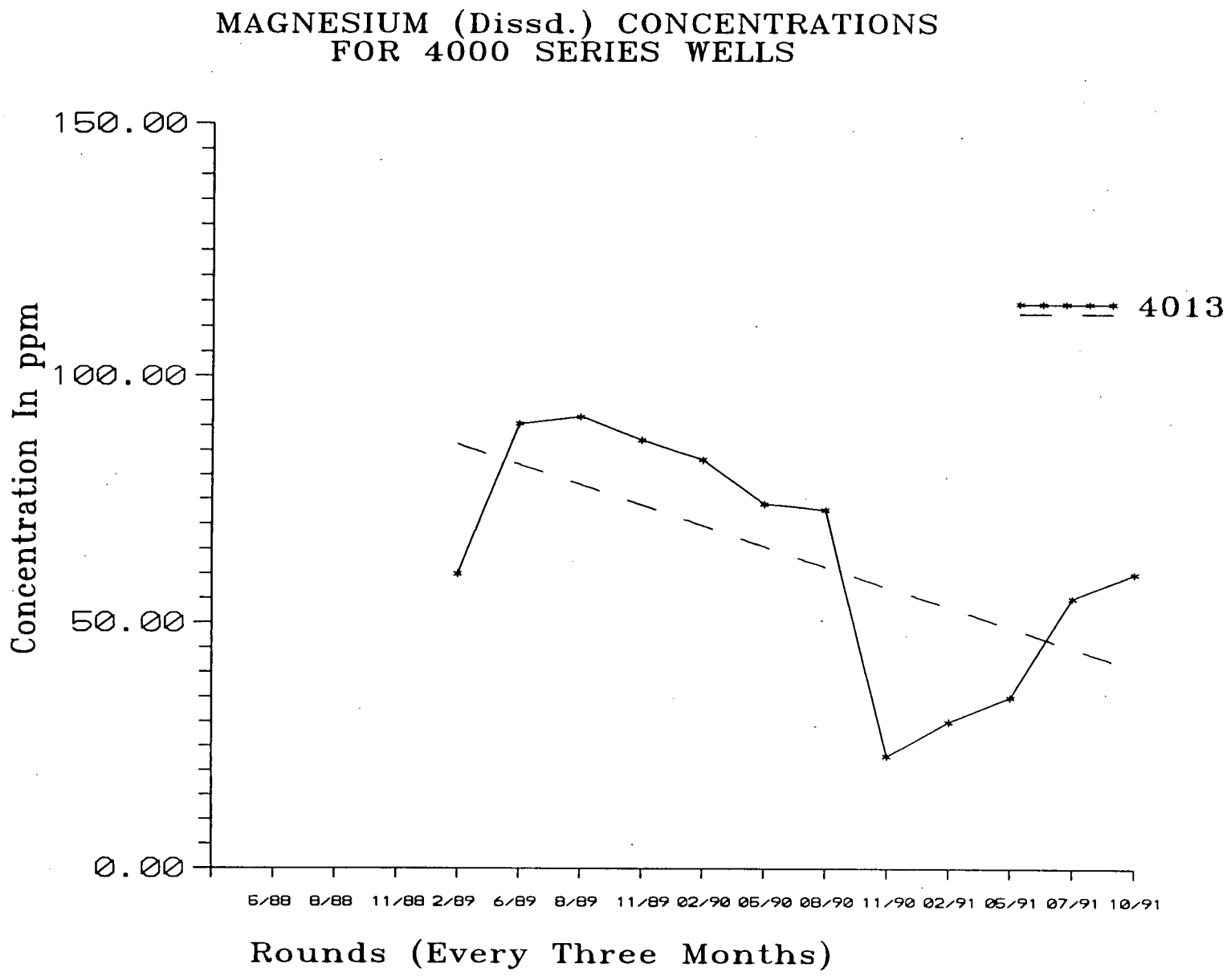

SULFATE CONCENTRATIONS FOR
3000 SERIES WELLS
1200.00
800.00
400.00
0.00
Concentration In ppm
3084
3019
3024
5/88 8/88 11/88 2/89 6/89 8/89 11/89 02/90 05/90 08/90 11/90 02/91 05/91 07/91 10/91
Rounds (Every Three Months Starting 5/88)

SULFATE CONCENTRATIONS FOR 3000 SERIES WELLS

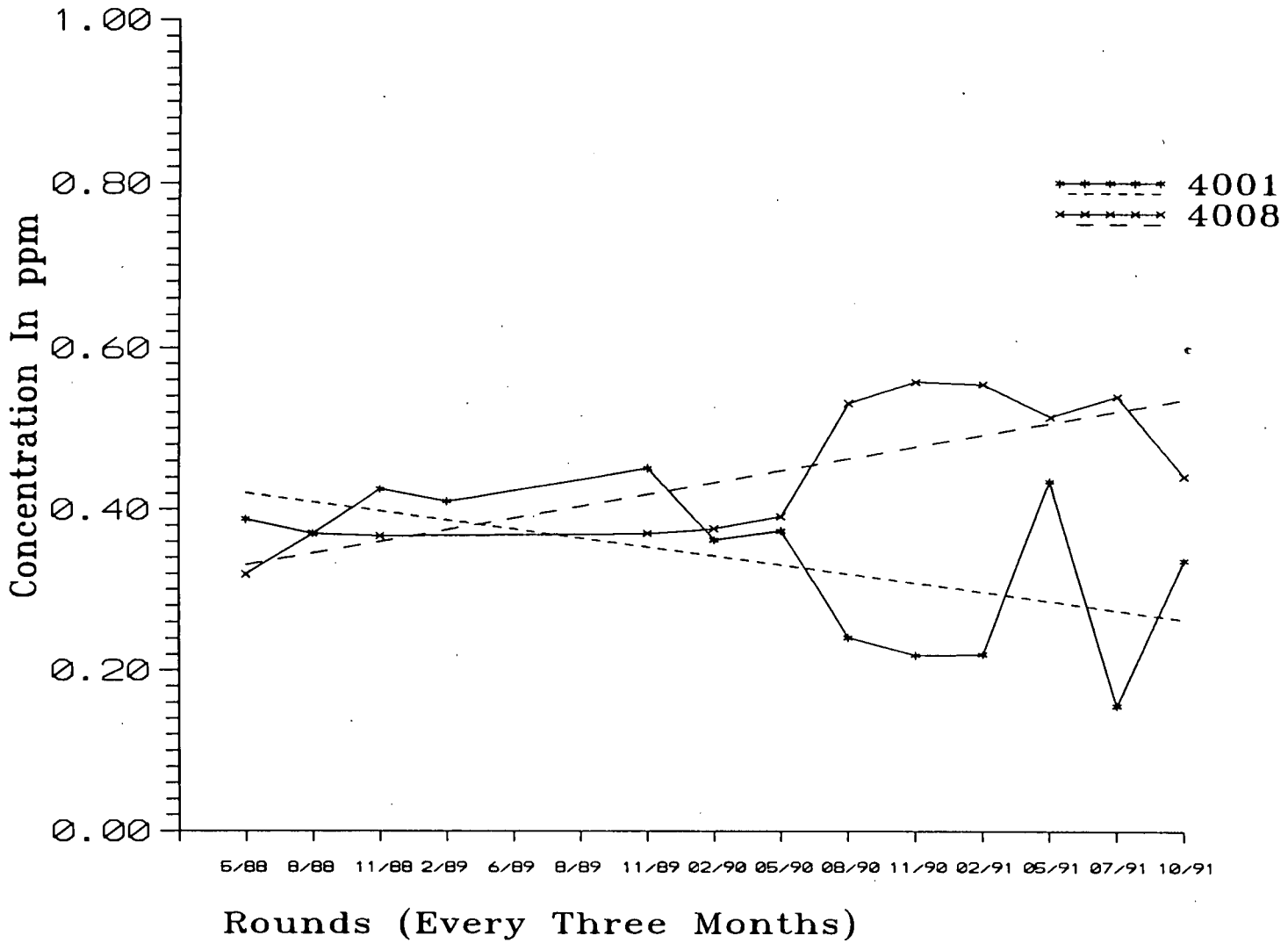


CALCIUM (Dissd.) CONCENTRATIONS
FOR 4000 SERIES WELLS




MAGNESIUM (Dissd.) CONCENTRATIONS
FOR 4000 SERIES WELLS
150.00
100.00
50.00
0.00
Concentration In ppm
4013
5/88
8/88
11/88
2/89
6/89
8/89
11/89
02/90
05/90
08/90
11/90
02/91
05/91
07/91
10/91
Rounds (Every Three Months)

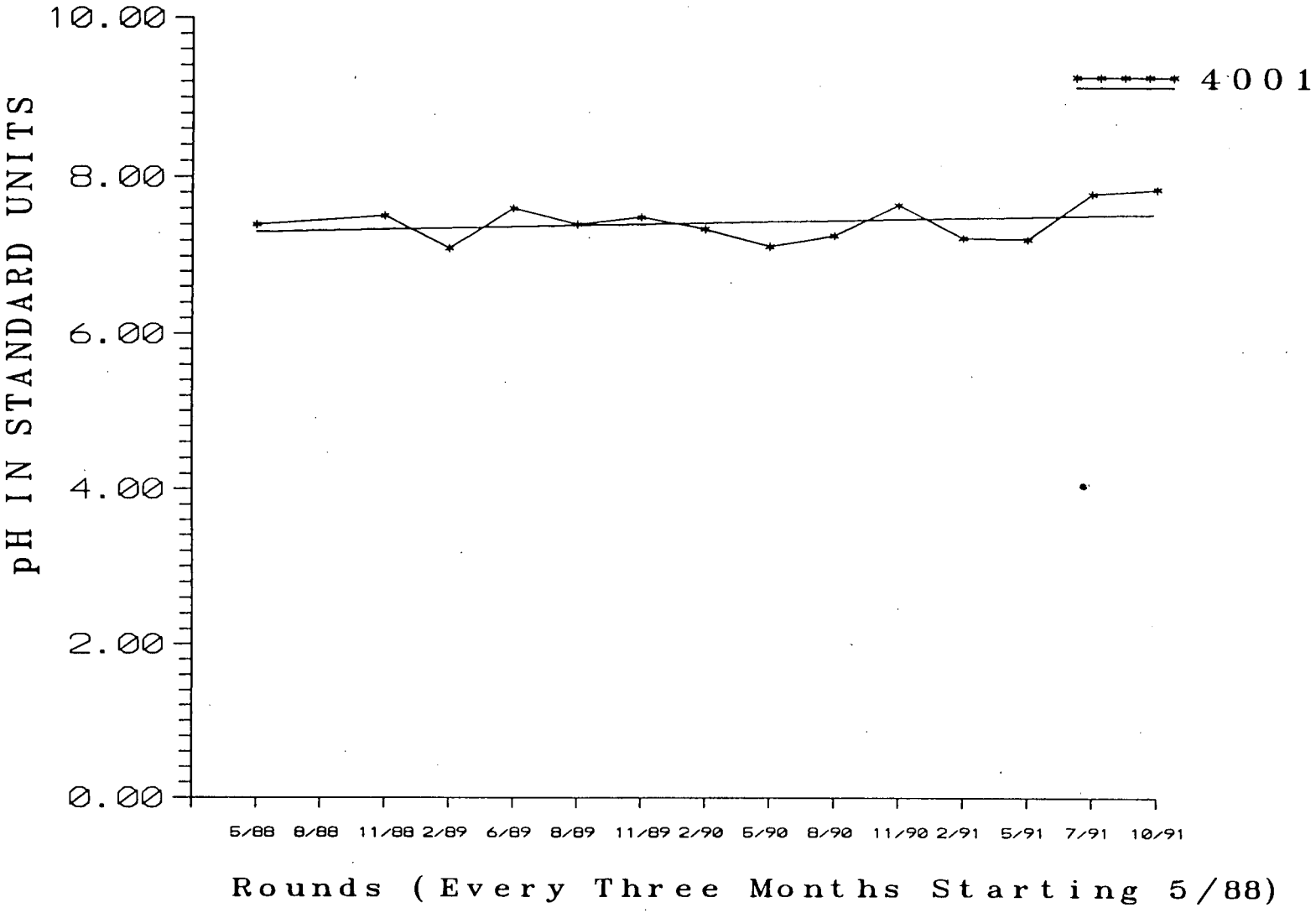
MANGANESE (Dissd.) CONCENTRATIONS
FOR 4000 SERIES WELLS

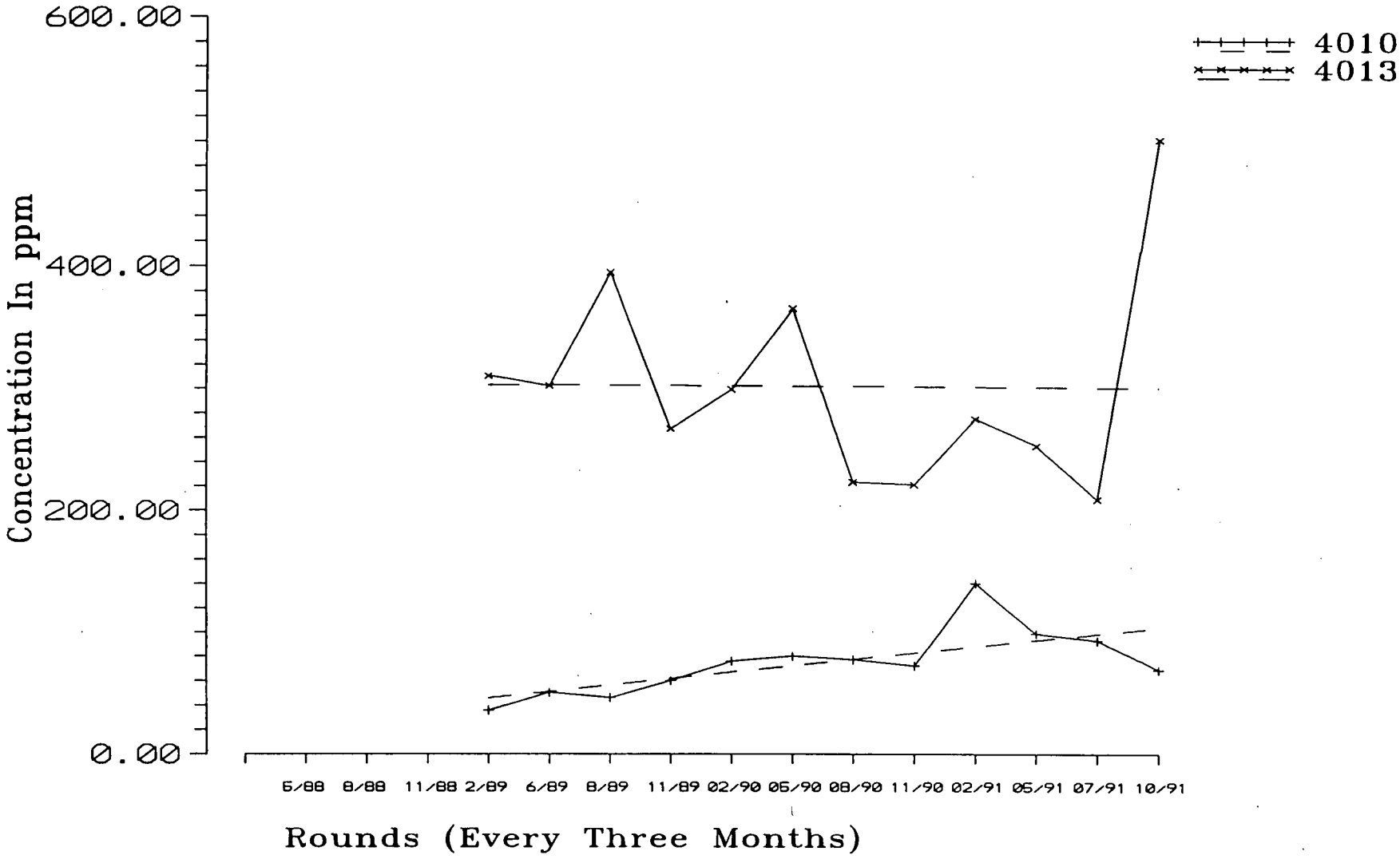


3713

E4492

pH MEASUREMENTS IN 4000 SERIES WELLS



A93

SULFATE CONCENTRATIONS IN
4000 SERIES WELLS