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2003 ANNUAL REMEDIAL ACTION GROUND-WATER MONITORING REPORT ORMET CORPORATION SUPERFUND SITE HANNIBAL, OHIO

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2003 ANNUAL REMEDIAL ACTION GROUND-WATER MONITORING REPORT ORMET CORPORATION SUPERFUND SITE HANNIBAL, OHIO

BACKGROUND/INTRODUCTION

Under the terms of a Consent Decree entered on December 18, 1995 between the United States Environmental Protection Agency (USEPA) and the Ormet Primary Aluminum Corporation for the Ormet Corporation Superfund Site, Ormet has undertaken Remedial Action (RA) at the site consisting of the following:

- Containment of the plume in the alluvial aquifer through continued pumping of the interceptor wells and Ormet Ranney well and treatment of ground water pumped by the interceptor wells using ferrous salt precipitation;

- Installation and operation of a soil flushing system in the Former Spent Potliner Storage Area (FSPSA);

- Capping of the former construction material scrap dump (CMSD) with a multi-layer cap, including construction of a TSCA-compliant cell within the CMSD for disposal of backwater area sediment containing PCBs;

- Installation of a drain system around the toe of the former CMSD to collect seeps, with treatment of the collected seep water using activated carbon followed by treatment at the ground-water treatment plant;

- Excavation of carbon material from the former carbon runoff and deposition area and disposal of the material in the former CMSD;

- Excavation of sediment from the former Outfall 004 backwater area and disposal of the sediment in the CMSD; and

- Relocation of the Outfall 004 channel.

Areas of the site that were subject to remedial action are shown in Figure 1.

Remedial construction was initiated in April 1997 and was certified as being complete in August 1998. During the period from August1998 through October 1998, the FSPSA soil flushing system was operated on a trial basis, with flushing occurring for a period of approximately three hours per day. Beginning in April 1999, the soil flushing system began full operation (i.e., flushing for eight hours per day). To reduce ponding of water which occurred over a portion of the FSPSA, the flushing schedule was modified during 2001. Under the modified schedule, the flushing system is on for 1 ½ hours and off for ¾ of an hour for a total of about 14 hours per day. The flushing system is not operated during that period when freezing of the lines could occur and the ground may be frozen, typically from November through March.

As specified in the Statement of Work (SOW) attached to the Consent Decree, Ormet began a program of routine ground-water monitoring in conjunction with the completion of remedial construction. The purpose of ground-water monitoring is to document/evaluate changes in ground-water conditions beneath the site associated with the remedial actions. To provide a baseline characterization of ground-water conditions immediately prior to remedial activities, a sitewide ground-water monitoring event was conducted during May 5 to 9, 1997. Routine ground-water monitoring was initiated in May 1998. Ground- water monitoring activities have been conducted in accordance with the Remedial Action Ground-Water Monitoring Plan (Revision 1 - April 28, 1997), which was submitted to the USEPA during Remedial Design.

SUMMARY OF GROUND-WATER MONITORING PROGRAM

The current system of ground-water monitoring wells and piezometers at the Ormet site is shown in Figure 1. Under the RA Ground-Water Monitoring Plan, monitoring is to be conducted three times per year (approximately once every four months). During 2003, ground-water monitoring events were conducted during January 14 to 16, May 19 to 22, and September 10 and 11.

Each monitoring event included measurement of water-level elevations at all MW- and TH-series monitoring wells, PPB-series piezometers monitoring the alluvial aquifer, and at the Ohio River pool measuring points RP-1 and RP-2. Water-level elevation data collected in conjunction with the 2003 monitoring events are provided in Tables 1, 2, and 3, respectively.

During each monitoring event, ground-water samples were collected from the following wells located within and downgradient of the FSPSA:

MW - 2	MW - 31
MW - 5	MW - 32
MW - 16	MW - 35
MW - 18	MW - 36
MW - 28	MW - 37

Each monitoring event also included sampling of monitoring well MW-12, MW-44S, and MW-44D located immediately downgradient of the CMSD. These wells were identified in the RA Ground-Water Monitoring Plan as Points of Compliance, as required under Section II.6. of the Consent Decree SOW.

The RA Ground-Water Monitoring Plan specifies that one monitoring event each year is to be an expanded monitoring event which includes sampling of selected wells not hydraulically

downgradient from any of the potential source areas at the site (i.e., background wells) and additional wells located within the plume outside of the FSPSA. These wells include the following:

MW-1	MW-19 (background)
MW-7 (background)	MW-29S & D
MW-8	MW-30
MW-10	MW-34S & D
MW-11	MW-39S & D
MW-14	MW-40S & D
MW-15	MW-41 (background)
MW-17	MW-42S & D

Water Sampling Log forms for each of the monitoring events conducted during 2003 are provided in Appendix A.

The primary purpose of the annual expanded monitoring event is to collect data to facilitate preparation of plume isopleth maps. Based on the isopleth maps, estimates of contaminant mass-in-place and the total area of the aquifer exceeding cleanup goals for selected indicator parameters were made and compared with estimates based on historical monitoring results as a means of assessing the progress of the remediation program. The expanded monitoring event to characterize baseline conditions at the start of remedial construction in 1997 was conducted in May. To enable more direct comparison of the associated estimates of contaminant mass-in-place and aquifer area exceeding cleanup goals, subsequent expanded monitoring events have also been conducted during May.

Ground-water samples from all monitoring wells, except MW-44S and MW-44D, were analyzed for constituents for which cleanup goals were specified in the Record of Decision (ROD) for the site; i.e., arsenic, beryllium, cyanide, manganese, vanadium, and fluoride. Samples were also analyzed for pH, specific conductance, and sodium, which are additional indicators of the plume in

the alluvial aquifer. Tetrachloroethene (PCE) was analyzed in samples from the MW-2, MW-5, MW-18, MW-30, and MW-31 monitoring wells, in which PCE was detected during the Remedial Investigation (RI). Samples from wells MW-44S and MW-44D were analyzed for PCBs only. Ground-water analyses for samples collected during the January event, were performed by Kemron Environmental Services, Inc. (Kemron) of Marietta, OH. Ground-water analyses for samples collected during both the May and September sampling events were performed by Pace Analytical Services, Inc. (Pace) of Export, PA. Kemron provided analytical services during the RI, for treatability testing performed during Remedial Design, and during remedial construction. Methods used by Kemron and Pace to analyze ground-water samples from the 2003 RA monitoring events were as shown below.

Analytical Parameter	Analytical Method	Ground-Water Clean-Up Goal (ug/L)	Reporting Limit (ug/L)
Arsenic	SW846/6010B	10*	4
Beryllium	SW846/6010B	4	0.5
Manganese	SW846/6010B	230*	(K) 5 - (P) 10
Vanadium	SW846/6010B	260	10
Cyanide (total)	(K)SW846/9010B (P)335.2	N/A	10
Cyanide (amenable)	(K)SW846/9010B (P)335.1	200	10
Fluoride	(K)SM4500-F-C (P)340.2	4000	100
PCBs	SW846/8082	N/A	0.5
Tetrachloroethene	SW846/8260B	5	5
pH	EPA 150.1	N/A	N/A
Specific Conductance	EPA 120.1	N/A	N/A
Sodium	SW846/6010B	N/A	500

(K) = Kemron
(P) = Pace
N/A - Not Applicable

* - Final determination of cleanup goals for arsenic and manganese are pending. The USEPA and Ormet negotiated a Consent Decree and associated Statement of Work for implementation of the ROD. Because arsenic and manganese are common

ground-water constituents in the Ohio River Valley and can occur naturally at concentrations above the cleanup goals presented in the ROD, the SOW specified that as part of the Remedial Design process, Ormet would conduct a statistical evaluation to determine background levels of arsenic and manganese in the alluvial aquifer. The resulting background levels would then be considered for use as cleanup goals in place of the levels presented in the ROD. The results of the statistical analyses, which were presented to USEPA in the August 28, 1996 HydroSystems Management, Inc. report titled, "Statistical Analyses of Background Levels of Manganese and Arsenic in Ground Water", indicated background levels of 40 ug/L for arsenic and 9,780 ug/L for manganese.

Laboratory analytical reports for the 2003 monitoring events are provided in Appendix B. The analytical results are summarized in Table 4 and Table 5 (PCBs). For purposes of comparison, Table 4 also includes historical results for the parameters and wells being monitored. Analytical results for the 2003 monitoring events were validated by applying principles and concepts of the USEPA National Functional Guidelines. A data validation summary report is provided in Appendix C.

RESULTS OF 2003 REMEDIAL ACTION GROUND-WATER MONITORING

GROUND-WATER FLOW

Water-level elevation data collected during the 2003 monitoring events (Tables 1 through 3) were used to construct the water table contour maps shown in Figures 2, 3, and 4. The ground-water elevation contours and associated ground-water flow patterns shown in Figures 2 through 4 are consistent with those previously mapped, indicating that the ground-water pumping component of the site remedy is effective in containing the plume in the alluvial aquifer beneath the Ormet Reduction Mill property and extracting contaminated ground water for treatment at Ormet's ground-water treatment plant. Ground-water flow in the alluvial aquifer is generally from northeast to southwest, toward the Ormet Reduction Mill Ranney well and interceptor wells. Current pumping maintains the water table at an elevation that is below the pool elevation of the Ohio River, and a hydraulic potential does not exist for the natural discharge of ground water from the alluvial aquifer to the Ohio River along the river/plant boundary. The ground-water elevation contour maps for the 2003 monitoring events indicate that the operation of the FSPSA soil flushing system has had no discernable effect on ground-water flow patterns beneath that area of the site and has not caused a reversal of hydraulic gradients, such that ground water would discharge from the alluvial aquifer to the Ohio River.

Pumping by the Ormet Reduction Mill Ranney well and the Ormet Rolling Mill Ranney well (located approximately 2000 feet west of the Reduction Mill Ranney well) have created large cones of influence around each pumping center, which converge to form a gently rounded ground-water divide, situated roughly parallel to and west of the fenceline separating the two plants. A ground-water divide is a high point, or ridge, in the surface of the water table. The ground-water divide creates a hydraulic barrier, such that ground water on the west side of the divide flows toward the Rolling Mill Ranney well, and ground water on the east side flows toward the Reduction Mill Ranney well and interceptor well. By this condition, a hydraulic potential does not exist for ground water beneath the Reduction Mill to flow toward the Rolling Mill Ranney well.

GROUND-WATER QUALITY

Time vs. Concentration Trends

To evaluate changes in plume concentrations within the alluvial aquifer beneath the Ormet site, concentration versus time graphs were prepared for each monitoring parameter for which a cleanup goal was established in the ROD, with each parameter being graphed separately for each of the compliance point wells identified in the RA Ground-Water Monitoring Plan (see Appendix D). Analytical results for sodium have also been graphed, because it is an additional indicator of overall water quality in the plume. The graphs show the analytical results for the 2003 monitoring events, along with previous data. Summaries of time versus concentration trends and comparisons of the latest reported concentrations versus cleanup goals or background concentrations for the compliance wells are provided in the following tables. Possible time versus concentration trends were evaluated primarily with regard to the period since remediation was initiated at the site (e.g., 1997 or later).

SUMMARY OF TIME VS. CONCENTRATION TRENDS

	TOTAL CN	AMEN. CN	As	Be	Mn	V	F	Na
Wells within FSPSA								
MW - 32	- -	- -	- -	<	- -	- -	- -	⇑
MW - 35	⇓	- -	- -	<	⇓	⇑⇓	- -	⇓
MW - 36	- -	- -	⇓⇑	- -	- -	⇓⇑	⇓⇑	⇓
MW - 37	⇓	- -	⇓	<	⇑	- -	⇓	⇓
Downgradient Edge of FSPSA								
MW - 16	⇑⇓	- -	⇑	⇑⇓	⇑⇓	⇑	⇑	⇑
MW - 18	- -	- -	- -	- -	- -	⇑	⇓	⇓
MW - 28	⇑⇓	- -	<	<	⇑	<	- -	- -
MW - 31	⇓	- -	⇑⇓	- -	⇑	⇑⇓	⇓	⇑⇓
Mid - Plant Area								
MW - 2	⇓	- -	- -	- -	- -	- -	- -	⇓
MW - 5	⇑	⇑⇓	⇓	<	⇑	<	⇑	⇓
Downgradient of CMSD								
MW - 12	<	<	<	<	- -	<	- -	⇑

Total CN - Total Cyanide; Amen. CN - Amenable Cyanide; As - Arsenic; Be - Beryllium; Mn - Manganese; V - Vanadium; F - Fluoride; Na - Sodium

⇑ - Trend of increasing concentration. ⇓ - Trend of decreasing concentration.

- - No consistent trend. < - Predominantly below detection results.

Combinations of symbols indicate changes in trends.

COMPARISON OF LATEST REPORTED CONCENTRATION VERSUS CLEANUP GOALS/BACKGROUND[1]

	AMEN. CN	As	Be	Mn	V	F
Wells within FSPSA						
MW - 32		+	*	+	*	
MW - 35		*	*	+	*	
MW - 36	*		*	+	*	
MW - 37	*	*	*	+	*	
Downgradient Edge of FSPSA						
MW - 16	*	+	*	+	*	
MW - 18	*			+	*	
MW - 28	*	*	*	*	*	*
MW - 31			*	+	*	
Mid-Plant Area						
MW - 2			*	+	*	
MW - 5		*	*	+	*	
Downgradient of CMSD						
MW - 12	*	*	*	+	*	*

Amen. CN - Amenable Cyanide; As - Arsenic; Be - Beryllium; Mn - Manganese; V - Vanadium; F - Fluoride
* - Latest result at or below ROD Cleanup Goal.
+ - Latest result above Cleanup Goal, but below background.
Blanks indicate latest result is above cleanup goal. For arsenic, a blank indicates latest result is above background.
(1) Background values calculated by HMI (August, 1996). Arsenic background = 40 µg/L; manganese background = 9,780 µg/L.

Discussions of the time versus concentrations trends for each parameter for which a cleanup goal has been established are provided in the following sections.

Cyanide (Amenable to Chlorination)

The cleanup goal for cyanide established in the ROD (0.2 mg/L) is the Safe Drinking Water Act Maximum Contaminant Level (MCL) for cyanide amenable to chlorination. Cyanide amenable to chlorination is that portion of total cyanide which is weakly bound in cyanide complexes or is in the form of free (non-complexed) cyanide. Cyanide amenable to chlorination is a more reactive form of cyanide than the more strongly bound metal-cyanide complexes (e.g., iron cyanide). The form of cyanide occurring in the ground water beneath the Ormet site appears to be predominantly the stable cyanide complexes, which exhibit relatively low toxicity. This interpretation is supported by the relative concentrations of total versus amenable or free cyanide reported in ground-water samples from the site; i.e., the concentration of amenable or free cyanide is typically much lower than the total cyanide concentration in a sample. Also, the area of the alluvial aquifer containing concentrations of amenable cyanide above the cleanup goal is substantially smaller than the area of aquifer containing total cyanide at levels above 0.2 mg/L. This comparison is further discussed later in this report.

Analyses for amenable cyanide tend to be subject to a higher degree of variability than other plume indicators, such as total cyanide and fluoride. Consequently, concentration versus time graphs for amenable cyanide are somewhat erratic and exhibit less consistent trends. For this reason, the long-term concentration trends for amenable cyanide at a given monitoring well are more significant than fluctuations observed from one monitoring event to the next.

Concentration versus time graphs for total cyanide and amenable cyanide are presented in Appendix D-1 and D-2, respectively. At six of the eleven compliance point wells (MW-12, MW-16, MW-18, MW-28, MW-36, and MW-37), the most recently reported amenable cyanide concentration was below the clean-up goal of 0.2 mg/L. Amenable cyanide results for MW-12 are predominantly

below detection. At MW-5, more recent amenable cyanide concentrations exhibit a downward trend. The nine remaining compliance wells exhibit no consistent trend.

Fluoride

Of the main plume indicators, fluoride is less prone to analytical variability than cyanide, and is potentially a more reliable indicator of changes in overall plume quality. Concentration versus time graphs for fluoride for each of the compliance wells are provided in Appendix D-3.

The most recent result for fluoride was below the cleanup goal of 4 mg/L at two of the eleven compliance point wells, MW-12 and MW-28, and a downward concentration trend was observed at three of the compliance wells (MW-18, MW-31, and MW-37). At compliance wells MW-5, MW-16, and MW-36, concentrations of fluoride exhibit an increasing trend. The remaining five compliance wells exhibit no consistent trend. As shown on the ground-water contour maps for the 2003 monitoring events, (Figures 2, 3, and 4), the MW-36 monitoring well is located within the FSPSA soil flushing area and MW-5 and MW-16 are located hydraulically downgradient from the FSPSA. Increases in concentrations of fluoride at these wells are believed to reflect the migration of higher concentrations of fluoride resulting from the increased leaching of residual spent potliner materials in the soil of the FSPSA due to soil flushing.

Arsenic

Concentration versus time graphs for arsenic for each of the compliance point wells are provided in Appendix D-4. At five of the eleven compliance point wells, MW-5, MW-12, MW-28, MW-35, and MW-37, the concentrations of arsenic reported for the most recent sampling event are below the clean-up goal of 0.01 mg/L. At MW-12, arsenic concentrations have been consistently below detection. Data for MW-16 and MW-36 wells show an increasing trend while data for three of the compliance wells (MW-5, MW-31, and MW-37) show a decreasing trend.

As discussed earlier in this report, the final cleanup goal for arsenic is pending. In the ROD, the cleanup goal for arsenic was set at 0.010 mg/L. The MCL for arsenic is 0.050 mg/L. Because arsenic is a common constituent of ground water in the Ohio River Valley for which naturally-occurring concentrations can exceed the cleanup goal presented in the ROD, the SOW specified that as part of the Remedial Design process, Ormet would conduct a statistical evaluation to determine the background level of arsenic in the alluvial aquifer. The resulting background level would then be considered for use as the cleanup goal in place of the level presented in the ROD. The results of the statistical analyses, which were presented to USEPA in the August 28, 1996 HydroSystems Management, Inc. report titled, "Statistical Analyses of Background Levels of Manganese and Arsenic in Ground Water", indicated a background level of 0.040 mg/L for arsenic. At five of the compliance wells (MW-5, MW-12, MW-28, MW-35, and MW-37), the most recent results are below the 0.010 mg/L cleanup goal presented in the ROD. At two additional wells (MW-16 and MW-32), the most recent result is below the background level for arsenic.

Beryllium

Concentration versus time graphs for beryllium are provided in Appendix D-5. The cleanup goal for beryllium established in the ROD was the MCL, 0.004 mg/L. Beryllium was reported above the MCL only in samples collected during the Phase I RI (June/July 1988) and only at two wells: MW-18 and MW-37. Except for a result of 0.0044 mg/L at MW-18 during the September 2003 monitoring event, beryllium was consistently below the MCL in all samples analyzed from all of the compliance point monitoring wells during each of the 2003 monitoring events.

Manganese

Concentration versus time graphs for manganese are provided in Appendix D-6. Manganese results for MW-5, MW-28, MW-31, and MW-37 show increasing trends during more recent monitoring events. Results for MW-16 and MW-35 show a decreasing trend. The data for the remaining five compliance wells exhibit no consistent trend with regard to manganese. The MW-37

well is within the soil flushing area; MW-31 is located near the downgradient edge of the FSPSA; and, MW-5 is within the main plume body, further downgradient from the FSPSA. MW-28 is adjacent to the western edge of the FSPSA. Increases in manganese concentrations at these wells are believed to reflect increased leaching of residual spent potliner materials in the soil of the FSPSA as a result of soil flushing.

As discussed for arsenic, the final cleanup goal for manganese is pending. In the ROD, the cleanup goal for manganese was set at 0.230 mg/L. Because manganese is a common constituent of ground-water in the Ohio River Valley for which naturally-occurring concentrations can be well above the cleanup goal presented in the ROD, the SOW specified that as part of the remedial Design process, Ormet would conduct a statistical evaluation to determine the background level of manganese in the alluvial aquifer. The resulting background level would then be considered for use as the cleanup goal in place of the level presented in the ROD. The results of the statistical analyses, which were presented to USEPA in the August 28, 1996 HydroSystems Management, Inc. report titled, "*Statistical Analyses of Background Levels of Manganese and Arsenic in Ground Water*", indicated a background level of 9,780 ug/L for manganese.

At MW-28, the most recent result for manganese was below the 0.230 mg/L cleanup goal presented in the ROD. Manganese concentrations were below the background level in all of the compliance wells during each of the 2003 monitoring events.

Vanadium

Concentration versus time graphs for vanadium are provided in Appendix D-7. The cleanup goal for vanadium established in the ROD was 0.260 mg/L. As with beryllium, vanadium was reported at or above the cleanup goal only in samples collected during the Phase I RI (June/July 1988) and only at one well: MW-37. Except for an anomalous result of 0.36 mg/L at MW-18 during the January 2002 monitoring event, vanadium has been consistently below the cleanup goal in all samples analyzed since the Phase I RI, including samples from all of the compliance point

monitoring wells during all of the 2003 monitoring events. More recent vanadium results exhibit a decreasing trend at wells MW-31 (just downgradient of the soil flushing area) and MW-35 (within the FSPSA soil flushing area) and an apparent increasing trend at MW-16, MW-18, and MW-36.

Tetrachloroethene (PCE)

Under the RA Ground-Water Monitoring Plan, analyses for tetrachloroethene (PCE) were performed on samples from the five compliance wells where PCE was detected during the RI, MW-2, MW-5, MW-18, MW-30, and MW-31. Concentration versus time graphs for PCE for these five wells are provided in Appendix D-8. Since the Phase I RI, PCE concentrations have shown a decline at MW-5 and MW-31; PCE levels have increased at MW-2, MW-18, and MW-30. The cleanup goal for PCE is the MCL of 0.005 mg/L.

Contaminant Mass-in-Place

In accordance with Section II.3.C. of the Consent Decree SOW, data from the May 2003 expanded routine monitoring event were used to estimate the masses of fluoride and cyanide (the primary plume indicators) in the alluvial aquifer as a means of evaluating the progress of the remediation. The procedure used for estimating the mass-in-place was as described in the RD Work Plan and the HydroSystems Management, Inc. (HMI) report titled, "Estimation of Dissolved Contaminant Mass in the Alluvial Aquifer, Ormet Primary Aluminum Corporation Superfund Site, Hannibal, Ohio" (August 28, 1996) that was submitted to the USEPA in conjunction with the 30% RD submittal. The approach used for estimation of contaminant mass-in-place is based on methods described in "Methods for Monitoring Pump-and-Treat Performance" (USEPA, July 1994). Results of the mass-in-place estimates for fluoride and cyanide are summarized in Table 6. For comparison, Table 6 also includes fluoride and cyanide mass-in-place estimates based on previous monitoring events. The mass-in-place estimates are based on the fluoride and total cyanide isopleth maps shown in Figures 5 and 6. Data and supporting calculations for the May 2003 mass-in-place estimates are

provided in Appendix E. Data and supporting calculations for the previous mass-in-place estimates have been submitted to the USEPA in prior reports.

Based on the estimates presented in Table 6, the mass of fluoride in the alluvial aquifer declined substantially during the period from June 1988 through January 1995, from approximately 85,700 pounds to a little more than 28,000 pounds (approximately 67%). The fluoride mass-in-place calculated in 1997 (slightly more than 29,000 pounds) showed little change over 1995. The value calculated in 1998 indicated a further reduction in the fluoride mass to under 24,000 pounds (a decrease of nearly 18% from 1997). However, the fluoride mass-in-place calculated in 1999 (after the start of full-time soil flushing in the FSPSA), some 30,400 pounds, represented an increase of more than 27% over the 1998 value. In 2000, the fluoride mass-in-place was estimated to be just over 27,000 pounds, a decrease of about 11% from 1999. In 2001, the fluoride mass-in-place was estimated at 21,741 pounds, a decrease of about 20% from 2000. The fluoride mass-in-place for 2002 was estimated at 28,789 pounds, an increase of about 25% from 2001. Using the 2003 monitoring data, the fluoride mass-in-place was estimated at just over 32,100 pounds, an increase of about 10% from 2002.

With regard to cyanide, mass-in-place estimates showed substantial decreases during the period from 1988 to 1998 (from over 6,800 pounds to about 2,600 pounds, a reduction of nearly 62%). In 1999, following the start of full-time soil flushing, the estimated cyanide mass-in-place increased to nearly 5,600 pounds, an increase of over 100%. Since 1999, the estimates of cyanide mass-in-place have shown a strong decreasing trend. In 2003, the estimated cyanide mass-in-place is 2,773 pounds, a decrease of nearly 39% from 2002, 50% from 1999, and the lowest value for cyanide mass-in-place since the period prior to the start of soil flushing in the FSPSA.

To assess the extent to which cyanide and fluoride continue to leach from soil in the FSPSA, the masses of fluoride and cyanide removed from the aquifer through pumping of the interceptor wells and Ranney well for the period between the two most recent expanded monitoring events (i.e., May 2002 through May 2003) were calculated and compared to changes in the estimated masses in

the aquifer over the same period. The masses of cyanide and fluoride removed through pumping of the interceptor wells were calculated using daily analytical and flow data for the influent to Ormet's ground-water treatment plant, which receives the water pumped by the interceptor wells. The masses of cyanide and fluoride removed through pumping of the Reduction Mill Ranney well were calculated using quarterly analytical data and daily flow data collected by Ormet for NPDES reporting purposes.

As discussed in the ROD and the remedial design documents for the Ormet site, the purpose of soil flushing in the FSPSA is to accelerate the rate at which contaminants are leached from the source area soils and subsequently removed from the aquifer and treated. A means of evaluating this process is to compare changes in the estimated cyanide and fluoride mass-in-place to the mass of these constituents removed from the aquifer during the same time period by pumping. A summary of these data is provided in Table 7. During the period from May 2002 to May 2003, approximately 12,042 pounds of fluoride and approximately 1,726 pounds of cyanide (total) were removed from the alluvial aquifer by the interceptor wells and Ranney well. During the same period, the estimated mass of fluoride in the aquifer increased by approximately 3,338 pounds and the estimated mass of cyanide decreased by approximately 1,757 lbs. The mass of cyanide removed by pumping being essentially the same as the amount by which the cyanide mass in the aquifer declined over the same period suggests that the mass of cyanide leached to the ground water by soil flushing during the period was negligible. With regard to fluoride, the increase in the estimated mass in the aquifer, despite the removal of some 12,000 pounds of fluoride, suggests that soil flushing is continuing to remove fluoride from the FSPSA at a significant rate. The relationship between mass removal and changes in the calculated mass-in-place will continue to be evaluated through the ongoing monitoring program.

Factors that can affect the calculated contaminant mass-in-place include the following:

- Variation in the soil flushing operation (e.g., duration of flushing, volume of water applied);

- Natural precipitation patterns;
- Presence and duration of frozen ground (less infiltration occurs when ground is frozen);
- Variability in laboratory results; and,
- Concentration contour area estimates used in the mass-in-place calculations.

For these reasons, long-term trends in the calculated mass-in-place and mass removal are more significant than year to year variations. Figure 9 shows graphs of the estimated masses of fluoride and cyanide in the alluvial aquifer versus time. The data for cyanide strongly indicate an overall trend of decreasing mass-in-place, while the data for fluoride are less consistent.

Aquifer Area Above Cleanup Goals

As a further check of the progress of the remediation, the approximate areas of the aquifer containing fluoride and cyanide at concentrations above their respective cleanup goals were estimated using analytical results from the May 2003 sampling event. The results are summarized in Table 6. The estimates of aquifer areas above the cleanup goal are based on the fluoride and amenable cyanide isopleth maps shown in Figures 5 and 7, respectively. For comparison, Table 6 also includes estimates of the aquifer areas above the fluoride and cyanide cleanup goals prepared for previous monitoring events. These estimates are based on plume isopleth maps submitted to the USEPA in previous reports.

The area of the alluvial aquifer containing fluoride above the cleanup goal increased slightly between 1988 (approximately 43 acres) and 1995 (approximately 48 acres). Between 1995 and 1998, the area above the cleanup goal for fluoride decreased nearly 24%, from over 48 acres to

approximately 37 acres. Following the start of soil flushing in the FSPSA in 1998, the area of aquifer above the fluoride cleanup goal increased approximately 18% to nearly 44 acres. Similar to the trend for fluoride mass-in-place, the aquifer area above the fluoride cleanup goal has shown an overall decreasing trend.

The area of the aquifer with concentrations of amenable cyanide above the cleanup goal of 0.2 mg/L shows a substantially greater degree of variability than for fluoride. As discussed previously, analyses for amenable cyanide tend to be subject to a higher degree of variability than other plume indicators, such as total cyanide and fluoride. For these reasons, trends in the area of the aquifer with amenable cyanide above its cleanup goal tend to be less consistent and should be viewed over the long-term. The area of the aquifer exceeding the cleanup goal for total cyanide that was calculated using data from the 2003 expanded monitoring event (37.23 acres), was virtually the same as in 2002 (37.2 acres).

As discussed previously in this report, analytical results for total cyanide and cyanide amenable to chlorination indicate that the form of cyanide occurring in the ground water beneath the Ormet site is predominantly the stable, cyanide complexes. This interpretation is supported by a comparison of the area of the alluvial aquifer with total cyanide concentrations above 0.2 mg/L to the area of the aquifer with amenable cyanide concentrations above 0.2 mg/L. As shown in Figure 8, the area of the aquifer with amenable cyanide above 0.2 mg/L is substantially less than the area with total cyanide above 0.2 mg/L.

Analytical Results for PCBs

During each of the 2003 sampling events, ground-water samples from monitoring wells MW-12, MW-44S and MW-44D were analyzed for PCBs. Analytical results for these samples (see Table 5) show no detections of PCBs.

SUMMARY/CONCLUSIONS

- Pumping of the Ranney well and interceptor wells continues to provide containment of the plume beneath the Ormet property and removes contaminant mass from the alluvial aquifer.

- Operation of the soil flushing system has no discernable effect on ground-water flow patterns beneath the FSPSA. Along the river/plant boundary, the flow of ground water continues to be from the river to the aquifer.

- Analytical results for the 2003 monitoring events suggest continued leaching (particularly with regard to fluoride) of residual spent potliner materials in the soil of the FSPSA as a result of soil flushing.

- Pumping of the interceptor wells and Ranney well removed approximately 12,042 pounds of fluoride and approximately 1,726 pounds of cyanide from the alluvial aquifer during the period May 2002 to May 2003.

- During the same period, the estimated mass of fluoride in the aquifer increased by about 3,338 pounds (about 10.5%) and the mass of cyanide in the aquifer decreased by about 1,757 pounds (nearly 39%).

- The increase in the estimated mass of fluoride in the aquifer, despite the mass removal achieved by the interceptor and Ranney wells indicate the continued contribution of fluoride to the aquifer, due largely to the enhanced leaching of residual spent potliner material in the FSPSA by soil flushing.

- The mass of cyanide removed by pumping being essentially the same as the amount by which the cyanide mass in the aquifer declined over the same period suggests that the mass of cyanide leached to the ground water by soil flushing during the period was negligible.

- Over time, as the leachable material in the soils in the FSPSA is depleted, the removal of fluoride and cyanide mass from the aquifer through pumping of the interceptor and Ranney wells is expected to result in decreases in the contaminant mass-in-place.

- The estimated area of the alluvial aquifer with fluoride concentrations above the cleanup goal set forth in the ROD increased marginally (2.3%) between 2002 and 2003.

- The estimated area of the aquifer with total cyanide concentrations above the cleanup goal set forth in the ROD was unchanged between 2002 and 2003.

- Reductions in the contaminant mass-in-place were occurring prior to the completion of Remedial Construction and full-time operation of the FSPSA soil flushing system. These improvements in site conditions are attributable to operational changes and remedial activities undertaken by Ormet prior to the Superfund project, including pumping of wells that intercept the plume, which has been ongoing since 1972, and discontinued use of the disposal ponds and the potliner storage area.

- Ground-water samples analyzed during 2003 for PCBs were reported as non-detect.

TABLES

TABLE 1
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: JANUARY 14,2003

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-1	668.07	54.53	613.54
MW-2	668.12	56.71	611.41
MW-3	645.17	29.63	615.54
MW-4	661.07	56.99	604.08
MW-5	668.16	62.46	605.70
MW-7	667.94	58.66	609.28
MW-8	667.71	67.85	599.86
MW-9	666.59	66.16	600.43
MW-10	667.16	67.56	599.60
MW-11	667.31	62.41	604.90
MW-12	636.73	22.46	614.27
MW-13	661.44	41.79	619.65
MW-14	653.59	37.37	616.22
MW-15	657.31	37.36	619.95
MW-16	662.72	47.98	614.74
MW-17	655.03	36.90	618.13
MW-18	660.91	40.26	620.65
MW-19	662.03	41.28	620.75
MW-20	632.33	12.07	620.26
MW-21s	664.02	63.16	600.86
MW-21d	663.60	62.75	600.85
MW-22s	667.47	66.82	600.65
MW-22d	667.21	66.58	600.63
MW-23s	663.18	61.79	601.39
MW-23d	663.41	62.27	601.14
MW-24s	667.88	67.89	599.99
MW-24d	667.75	67.79	599.96
MW-25	667.73	63.72	604.01
MW-26s	665.54	65.21	600.33
MW-26d	665.59	65.32	600.27
MW-27	667.86	64.29	603.57
MW-28	663.27	22.60	640.67
MW-29s	653.40	39.14	614.26
MW-29d	653.07	38.78	614.29
MW-30	667.58	48.93	618.65
MW-31	661.59	45.86	615.73
MW-32	656.66	39.08	617.58
MW-34s	655.67	37.14	618.53
MW-34d	654.67	35.23	619.44
MW-35	661.90	36.36	625.54
MW-36	655.14	37.76	617.38
MW-37	661.14	22.09	639.05
MW-38	666.64	20.70	645.94
MW-39s	657.30	40.34	616.96
MW-39d	657.18	40.08	617.10
MW-40s	662.22	50.71	611.51
MW-40d	661.95	50.53	611.42
MW-41	637.67	13.43	624.24
MW-42s	654.37	39.24	615.13
MW-42d	654.34	39.14	615.20
MW-44s	662.01	50.83	611.18
MW-44d	661.76	51.38	610.38

TABLE 1 (CONT.)
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: JANUARY 14, 2003

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
PPB-01*	663.24	20.31	642.93
PPB-02s*	663.14	17.83	645.31
PPB-02d+	662.78	42.93	619.85
PPB-04+	661.57	44.81	616.76
PPB-05*	661.62	20.33	641.29
PPB-06+	663.04	Not Measured	--
PPB-07*	661.71	Not Measured	--
PPB-09+	664.30	43.45	620.85
PPB-10*	663.45	14.98	648.47
PPB-14*	660.64	Not Measured	--
TH-3	667.81	57.64	610.17
TH-10	658.17	37.50	620.67
TH-11	659.08	37.11	621.97
TH-15	663.62	63.63	599.99
TH-16	664.62	63.92	600.70
TH-17	663.93	62.90	601.03
RP-1	643.17	19.24	623.93
RP-2	643.05	19.00	624.05

NOTE:

All MW and PPB-series wells are measured from the top of the PVC casing.

All TH-series wells are measured from the top of steel casing.

River pool measuring point RP-2 is located on the walkway below the dry scrubbers and RP-1 is located on the walkway at the barge unloading dock.

* - Designates a perched zone piezometer

+ - Designates an alluvial aquifer piezometer.

1-14-03WLE.XLS

TABLE 2
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: MAY 19,2003

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-1	668.07	55.10	612.97
MW-2	668.12	57.80	610.32
MW-3	645.17	30.19	614.98
MW-4	661.07	58.59	602.48
MW-5	668.16	64.46	603.70
MW-7	667.94	59.87	608.07
MW-8	667.71	69.81	597.90
MW-9	666.59	68.24	598.35
MW-10	667.16	69.60	597.56
MW-11	667.31	64.26	603.05
MW-12	636.73	23.26	613.47
MW-13	661.44	41.98	619.46
MW-14	653.59	37.88	615.71
MW-15	657.31	37.44	619.87
MW-16	662.72	48.72	614.00
MW-17	655.03	37.03	618.00
MW-18	660.91	40.55	620.36
MW-19	662.03	41.31	620.72
MW-20	632.33	12.08	620.25
MW-21s	664.02	65.24	598.78
MW-21d	663.60	64.85	598.75
MW-22s	667.47	69.04	598.43
MW-22d	667.21	68.80	598.41
MW-23s	663.18	64.29	598.89
MW-23d	663.41	64.60	598.81
MW-24s	667.88	69.99	597.89
MW-24d	667.75	69.89	597.86
MW-25	667.73	62.25	605.48
MW-26s	665.54	67.40	598.14
MW-26d	665.59	67.50	598.09
MW-27	667.86	66.31	601.55
MW-28	663.27	22.01	641.26
MW-29s	653.40	39.96	613.44
MW-29d	653.07	39.58	613.49
MW-30	667.58	49.29	618.29
MW-31	661.59	46.54	615.05
MW-32	656.66	39.38	617.28
MW-34s	655.67	37.18	618.49
MW-34d	654.67	35.32	619.35
MW-35	661.90	36.45	625.45
MW-36	655.14	37.81	617.33
MW-37	661.14	22.42	638.72
MW-38	666.64	20.63	646.01
MW-39s	657.30	40.71	616.59
MW-39d	657.18	40.48	616.70
MW-40s	662.22	51.84	610.38
MW-40d	661.95	51.68	610.27
MW-41	637.67	13.45	624.22
MW-42s	654.37	39.87	614.50
MW-42d	654.34	39.76	614.58
MW-44s	662.01	52.01	610.00
MW-44d	661.76	52.56	609.20

TABLE 2 (CONT.)
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: MAY 19,2003

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
PPB-01*	663.24	Not Measured	--
PPB-02s*	663.14	17.80	645.34
PPB-02d+	662.78	42.98	619.80
PPB-04+	661.57	45.12	616.45
PPB-05*	661.62	18.68	642.94
PPB-06+	663.04	Not Measured	--
PPB-07*	661.71	Not Measured	--
PPB-09+	664.30	43.49	620.81
PPB-10*	663.45	13.37	650.08
PPB-14*	660.64	Not Measured	--
TH-3	667.81	58.85	608.96
TH-10	658.17	37.89	620.28
TH-11	659.08	37.16	621.92
TH-15	663.62	65.58	598.04
TH-16	664.62	65.93	598.69
TH-17	663.93	65.14	598.79
RP-1	643.17	19.20	623.97
RP-2	643.05	18.98	624.07

NOTE:

All MW and PPB-series wells are measured from the top of the PVC casing.

All TH-series wells are measured from the top of steel casing.

River pool measuring point RP-2 is located on the walkway below the dry scrubbers and RP-1 is located on the walkway at the barge unloading dock.

* - Designates a perched zone piezometer

+ - Designates an alluvial aquifer piezometer.

5-19-03WLE.XLS

TABLE 3
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: SEPTEMBER 10,2003

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-1	668.07	53.85	614.22
MW-2	668.12	55.68	612.44
MW-3	645.17	28.49	616.68
MW-4	661.07	55.10	605.97
MW-5	668.16	61.04	607.12
MW-7	667.94	58.13	609.81
MW-8	667.71	65.43	602.28
MW-9	666.59	63.97	602.62
MW-10	667.16	65.20	601.96
MW-11	667.31	60.84	606.47
MW-12	636.73	21.40	615.33
MW-13	661.44	41.04	620.40
MW-14	653.59	36.33	617.26
MW-15	657.31	36.39	620.92
MW-16	662.72	46.91	615.81
MW-17	655.03	35.90	619.13
MW-18	660.91	39.57	621.34
MW-19	662.03	40.61	621.42
MW-20	632.33	11.60	620.73
MW-21s	664.02	61.07	602.95
MW-21d	663.60	60.67	602.93
MW-22s	667.47	64.70	602.77
MW-22d	667.21	64.46	602.75
MW-23s	663.18	59.85	603.33
MW-23d	663.41	60.25	603.16
MW-24s	667.88	65.60	602.28
MW-24d	667.75	65.48	602.27
MW-25	667.73	62.20	605.53
MW-26s	665.54	63.01	602.53
MW-26d	665.59	63.12	602.47
MW-27	667.86	63.10	604.76
MW-28	663.27	20.12	643.15
MW-29s	653.40	38.09	615.31
MW-29d	653.07	37.72	615.35
MW-30	667.58	48.09	619.49
MW-31	661.59	44.76	616.83
MW-32	656.66	37.89	618.77
MW-34s	655.67	36.18	619.49
MW-34d	654.67	34.32	620.35
MW-35	661.90	35.71	626.19
MW-36	655.14	36.35	618.79
MW-37	661.14	19.37	641.77
MW-38	666.64	19.53	647.11
MW-39s	657.30	39.32	617.98
MW-39d	657.18	39.07	618.11
MW-40s	662.22	49.64	612.58
MW-40d	661.95	Not Measured	--
MW-41	637.67	13.56	624.11
MW-42s	654.37	38.21	616.16
MW-42d	654.34	38.10	616.24
MW-44s	662.01	49.70	612.31
MW-44d	661.76	50.23	611.53

TABLE 3 (CONT.)
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: SEPTEMBER 10,2003

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
PPB-01*	663.24		–
PPB-02s*	663.14	17.86	645.28
PPB-02d+	662.78	42.16	620.62
PPB-04+	661.57	43.73	617.84
PPB-05*	661.62	17.95	643.67
PPB-06+	663.04	Not Measured	–
PPB-07*	661.71	Not Measured	–
PPB-09+	664.30	42.90	621.40
PPB-10*	663.45	13.02	650.43
PPB-14*	660.64	Not Measured	–
TH-3	667.81	56.47	611.34
TH-10	658.17	36.72	621.45
TH-11	659.08	36.25	622.83
TH-15	663.62	61.23	602.39
TH-16	664.62	61.81	602.81
TH-17	663.93	60.81	603.12
RP-1	643.17	19.30	623.87
RP-2	643.05	18.99	624.06

NOTE:

All MW and PPB-series wells are measured from the top of the PVC casing.

All TH-series wells are measured from the top of steel casing.

River pool measuring point RP-2 is located on the walkway below the dry scrubbers and RP-1 is located on the walkway at the barge unloading dock.

* - Designates a perched zone piezometer

+ - Designates an alluvial aquifer piezometer.

9-10-03WLE.XLS

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUND-WATER MONITORING WELLS AND PARAMETERS

ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Conductance (lab)	Specific Conductance (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	Tetrachloroethene
MW-1															
12/83	6.4	6.0	270	210	0.018	0.014		0.1			0.04	0.65	14.2		
2/84	6.1	6.1	270	215	0.04			0.1			0.01	0.54	14.9		
9/84	6.1	5.7	195	210	<0.01	<0.01		<0.2			0.02	0.33	13.8		
5/85	6.4	6.0	200	210	0.13	0.13		<0.2			0.04	0.15	16.2		
6/88	6.2	6.4	670	540	<0.01		<0.01	0.2	0.0024	<0.0015	6.21	0.379	20.3	0.006	
1/95	6.2	4.7	370	550	0.02		<0.01	0.1	<0.004	<0.01	<0.04	0.39	21	<0.01	
5/97	5.9	6.32	470	365	<0.01			0.1	<0.004	<0.0005		0.13	19	<0.01	
5/98	6.01	5.65	480	505	<0.01			0.20	<0.004	<0.0005		0.10	20	<0.01	
5/01	5.95	6.35	450	392	<0.01			0.13	<0.004	<0.0005		0.098	19	<0.01	
5/02	6.62	6.76	470	343	<0.01			0.67	<0.004	<0.0005		0.0298	24.6	<0.01	
5/03	6.32	6.39	570	416	<0.01			0.25	<0.004	<0.0005		0.048	24	<0.010	
MW-2															
12/83	10.3	10.3	6,000	6,000	56.0	0.27		400			55.2	1.98	1,950		
2/84	10.3	10.3	7,752	2,750	48.0			420			58	2.46	2,290		
9/84	10.5	9.9	6,308	6,900	40.8	0.095		480			59.3	2.1	2,460		
5/85	10.4	10.4	13,200	5,800	95	0.10		400			54.0	1.74	2150		
10/85	10.5		7,100		140	12		390		<0.01	54.0	1.82	2,060		
7/88	10.4	10.4	6,200	6,000	22		12	330	0.394	<0.0015	34.2	1.00	1,450	0.251	0.011
2/90	10.34	10.2	4,800	3,900	36.2		29.6	200			31.0		1,200		
1/95	10.0	9.6	2,400	>2,000	7.1		<0.01	93	0.085	<0.01	8.6	0.82	520	0.09	
5/97	10.1	10.07	2,100	1,865	17		<1.0	63	0.092	0.001		1	470	0.06	0.008
5/98	9.98	10.24	1,900	1,880	13		<0.01	68	0.082	0.001		0.93	450	0.06	0.0053
9/98	9.96	9.96	1,900	1,991	21		0.30	69	0.086	0.00089		0.90	440	0.051	<0.005
1/99	9.98	10.27	2,000	2,000	21		5.3	65	0.085	0.00064		1.1	440	0.054	<0.005
1/99 (DUP)	9.98	10.27	1,900	2,000	22		<0.1	66	0.087	0.00064		1.0	440	0.053	<0.005
5/99	10.1	9.94	1,900	1,940	25		3.5	67	0.095	0.00088		0.96	400	0.046	<0.005
9/99	9.88	10.60	1,600	1,830	22		2.6	59	0.077	<0.0005		0.85	430	0.032	<0.005
9/99 (DUP)	9.88	10.60	1,900	1,830	22		2.5	60	0.079	<0.0005		0.95	460	0.039	<0.005
1/00	9.88	9.65	2,000	1,825	23		2.4	66	0.086	0.0006		0.99	360	0.041	<0.005
5/00	9.92	9.84	2,000	1,863	18		<0.5	66	0.0809	0.00075	13	1.0	430	0.045	<0.005
5/00 (DUP)	9.97	9.84	1,900	1,863	18		11	67	0.081	0.00076	13	1.1	410	0.045	<0.005
10/00	9.92	9.95	1,800	1,518	17		0.73	61	0.077	0.00051		1.0	270	0.039	<0.005
1/01	9.91	11.34	1,900	1,708	18		3.4	68	0.082	0.00073		1.1	450	0.045	<0.005
5/01	9.88	10.66	1,900	1,621	15		13	67	0.087	0.00078		0.96	360	0.048	<0.005
5/01 (Dup.)	9.87	10.66	1,800	1,621	15		15	68	0.076	0.00071		0.89	360	0.045	<0.005
9/01	9.80	10.14	1,800	1,635	17		2.5	63	0.089	0.00088		1.1	400	0.056	<0.005
1/02	9.90	10.10	2,000	1,767	16		2.7	58	0.0858	0.000866		0.998	354	0.0531	<0.005
5/02	9.91	9.99	1,700	1,458	15		2.1	63	0.103	0.000873		0.845	347	0.0489	<0.005
5/02 (Dup.)	9.90	9.99	1,800	1,458	15		<0.50	66	0.107	0.000980		0.870	368	0.0531	<0.005
9/02	9.73	10.04	1,740	1,637	14.8		1.5	55.4	0.0989	0.000717		0.845	298	0.0474	0.00684
1/03	9.99	9.97	1,680	1,748	14.6		1.05	56.8	0.123	0.001140		0.978	324	0.0575	0.00644
5/03	9.80	10.08	1,700	1,246	14.0		5.1	74	0.088	<0.0005		0.94	310	0.057	0.009
5/03 (Dup.)	9.76	10.08	1,700	1,246	14.0		0.76	82	0.089	0.000850		0.95	310	0.058	0.0075
9/03	9.77	9.90	1,700	1,428	16		0.93	76	0.089	<0.0005		0.73	330	0.048	0.012
MW-5															
12/83	9.7	9.5	3,058	2,825	18.8	0.064		130			17.5	1.61	880		
2/84	9.6	9.6	3,636	2,700	14.5			120			18.0	1.39	1,030		
9/84	9.8	9.3	2,278	3,100	4.94	0.032		140			19.4	1.7	850		
5/85	9.8	9.9	4,800	2,400	25.0	0.037		91			15.8	1.01	710		
10/85	9.8		2,550		22.0	2.0		70		<0.01	13.0	0.93	650		
7/88	9.5	9.6	2,000	2,050	5.5		0.10	90	0.076	<0.0015	7.05	0.514	449	0.025	0.012
1/95	8.6	8.5	1,500	1,250	3.1		<0.01	32	0.008	<0.01	1.3	0.27	270	<0.01	
5/97	9.0	9.2	1,500	1,318	3.5		<0.25	16	0.015	<0.0005		0.4	310	<0.01	<0.005
5/98	8.83	8.84	1,400	1,340	2.1		<0.01	18	0.007	<0.0005		0.17	300	<0.01	<0.005
5/98 (DUP)	8.83	8.84	1,400	1,340	1.3		<0.01	18	0.007	<0.0005		0.18	300	<0.01	<0.005
9/98	8.92	8.66	1,200	1,219	2.0		0.02	18	0.0089	<0.0005		0.16	240	<0.01	<0.005
1/99	8.95	8.93	1,100	1,175	1.8		0.14	17	0.0086	<0.0005		0.16	240	<0.01	<0.005
5/99	8.97	8.60	1,200	1,260	1.9		<0.01	16	0.0094	<0.0005		0.27	250	<0.01	<0.005
5/99 (DUP)	8.97	8.60	1,200	1,260	2.2		2.2	16	0.0097	<0.0005		0.25	240	<0.01	<0.005
9/99	8.78	9.10	1,100	1,030	2.4		0.10	17	0.0074	<0.0005		0.23	230	<0.01	<0.005

Note: All results in mg/L unless otherwise noted.

TABLE 4 (CONT.)
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUND-WATER MONITORING WELLS AND PARAMETERS

ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Conductance (lab)	Specific Conductance (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	Tetrachloroethene
MW-5 (Cont.)															
1/00	8.76	8.30	1,200	1,040	2.0		2.0	15	0.0063	<0.0005		0.24	180	<0.01	<0.005
1/00 (DUP)	8.77	8.30	1,100	1,040	1.9		1.9	16	0.006	<0.005		0.23	180	<0.01	<0.005
5/00	8.81	8.59	1,100	1,020	2.3		2.3	16	0.0082	<0.0005	1.8	0.37	110	<0.01	<0.005
10/00	8.71	8.59	1,000	817	2.6		2.6	11	0.006	<0.0005		0.35	120	<0.01	<0.005
10/00 (DUP)	8.71	9	1,000	817	2.5		2.5	11	0.0061	<0.0005		0.35	110	<0.01	<0.005
1/01	8.65	9.27	1,000	863	2.7		0.13	13	<0.004	<0.0005		0.72	190	<0.01	<0.005
1/01 (DUP)	8.65	9.27	1,000	863	2.8		0.33	14	<0.004	<0.0005		0.58	210	<0.01	<0.005
5/01	8.51	8.99	960	791	2.9		2.9	13	<0.004	<0.0005		0.66	170	<0.01	<0.005
9/01	8.42	8.69	708	970	3.6		0.34	11	<0.004	<0.0005		0.80	160	<0.01	<0.005
9/01 (DUP)	8.46	8.69	708	950	3.8		0.22	13	<0.004	<0.0005		0.80	170	<0.01	<0.005
1/02	8.53	8.75	908	793	3.1		3.1	13	0.00445	<0.0005		0.59	162	<0.01	<0.005
5/02	7.80	8.51	930	600	2.9		<0.20	14	<0.004	<0.0005		0.67	171	<0.01	<0.005
10/02	8.28	8.59	1,090	1,013	4.13		0.66	15.3	<0.004	<0.0005		0.708	165	<0.01	<0.005
1/03	7.61	7.39	1,190	1,208	1.83		0.17	18.4	<0.004	<0.0005		0.303	246	<0.01	<0.005
5/03	8.35	8.55	1,100	797	3.8		0.093	25	<0.004	<0.0005		0.68	160	<0.010	<0.005
9/03	7.76	7.53	1,300	1,045	4.8		0.15	33	0.0073	<0.0005		0.61	210	<0.010	0.006
9/03 (Dup.)	7.74	7.53	1,300	1,045	4.8		0.34	37	0.0065	<0.0005		0.60	210	<0.010	0.0055
MW-7															
12/83	6.8	6.2	613	700	0.019	0.020		0.1			1.01	7.88	49.0		
2/84	5.9	5.9	581	750	<0.01			0.1			9.0	4.72	49.2		
9/84	5.8	5.7	410	680	<0.01	<0.01		<0.2			11.6	4.65	58.0		
5/85	6.1	5.6	720	890	0.023	0.021		<0.2			24.7	3.70	61.0		
6/88	5.7	5.8	740	760	0.02		0.01	0.2	0.012	<0.0015	17.6	3.05	64.2	0.0032	
1/95	5.5	5.3	850	1,500	<0.01		<0.01	0.2	0.040	<0.01	22	2.3	72	<0.01	
5/97	5.6	6.04	790	670	<0.01			0.10	0.038	<0.0005		2.2	89	<0.01	
5/97 (DUP)	5.7		800	670	<0.01			0.20	0.038	<0.0005		2.2	84	<0.01	
5/98	5.71	5.69	770	900	<0.01			0.20	0.051	<0.0005		2.2	78	<0.01	
5/98	5.81	6.00	780	700	<0.01			0.16	0.042	<0.0005		2.0	78	<0.01	
5/00	5.74	5.96	810	777	<0.01			0.14	0.041	<0.0005	18	2.0	93	<0.01	
5/01	5.69	5.27	770	771	<0.01			0.13	0.033	<0.0005		2.0	75	<0.01	
5/02	5.73	5.79	750	515	<0.01			0.16	0.0343	<0.0005		2.01	75.9	<0.01	
5/03	5.70	5.85	810	627	0.098		0.09	<0.10	0.025	<0.0005		2.3	64	<0.010	
MW-8															
12/83	9.5	9.2	820	700	0.32	0.017		18			0.20	0.01	202		
2/84	9.5	9.5	820	700	0.14			18			0.23	0.04	199		
9/84	9.5	9.0	661	800	0.35	0.013		22			1.00	0.04	216		
5/85	9.2	9.2	830	550	0.11	0.024		7.9			0.21	0.01	151		
5/86	8.8		550		0.04						<0.01	<0.01	111		
6/88	8.4	8.3	560	550	0.06		<0.01	2.8	0.0018	<0.0015	0.044	0.023	67.8	<0.0026	<0.005
1/95	7.8	7.8	610	930	0.09		<0.01	3.1	<0.004	<0.01	<0.04	0.08	50	<0.01	
5/97	7.8	8.02	560	442	0.040		<0.01	2.2	<0.004	<0.0005		0.12	44	<0.01	
5/98	7.81	7.60	490	514	0.02		<0.01	2.3	<0.004	<0.0005		0.14	30	<0.01	
5/99	8.00	8.10	530	455	0.028		0.028	2.4	<0.004	<0.0005		0.15	34	<0.01	
5/00	7.91	8.01	600	533	0.026		0.026	2.2	<0.004	<0.0005	0.054	0.24	36	<0.01	
5/01	8.24	7.48	560	482	0.024		0.024	1.9	<0.004	<0.0005		0.26	34	<0.01	
5/02	7.81	7.76	530	374	0.019		<0.01	1.9	<0.004	<0.0005		0.268	33.9	<0.01	
5/03	7.74	7.90	580	440	0.023		<0.01	2.4	<0.004	<0.0005		0.36	42	<0.010	
MW-10															
12/83	7.7	7.6	1,205	1,280	1.36	0.083		6.9			0.60	0.26	195		
2/84	7.6	7.5	820	800	0.79			5.5			0.30	0.26	106		
9/84	7.6	6.5	547	675	0.22	0.14		4.3			0.13	0.34	88		
5/85	7.7	7.0	800	710	0.33	0.060		2.9			0.07	0.05	53		
6/88	7.3	7.2	770	750	<0.01		<0.01	2.1	0.0038	<0.0015	0.081	<0.001	28.7	<0.0026	
1/95	7.0	6.8	800	560	0.02		0.02	0.5	<0.004	<0.01	<0.04	<0.01	26	<0.01	
5/97	7.2	7.4	670	510	<0.01			0.70	<0.004	<0.0005		<0.01	25	<0.01	
5/98	7.22	7.23	970	1,110	0.15		0.01	0.60	<0.008	<0.0005		<0.01	120	<0.01	
5/99	7.40	7.32	750	545	<0.01			0.41	<0.004	<0.0005		0.012	30	<0.01	
5/00	7.45	7.51	650	549	<0.01			0.48	<0.004	<0.0005	0.079	<0.01	21	<0.01	
5/01	8.19	7.21	610	502	0.013		0.013	0.47	<0.004	<0.0005		<0.01	27	<0.01	
5/02	7.27	7.13	990	605	0.19		<0.01	0.77	<0.004	<0.0005		0.0499	117	<0.01	
5/03	7.17	7.23	1200	897	0.13		0.019	1.0	<0.004	<0.0005		<0.010	120	<0.010	

Note: All results in mg/L unless otherwise noted.

TABLE 4 (CONT.)
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUND-WATER MONITORING WELLS AND PARAMETERS

ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Conductance (lab)	Specific Conductance (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	Tetrachloroethene
MW-11															
12/83	9.6	9.4	980	825	0.52	0.021		33			0.48	0.06	238		
2/84	9.6	9.5	962	775	0.25			27			7.9	0.37	232		
9/84	9.7	9.1	656	800	0.20	0.015		22			4.90	0.21	213		
5/85	9.4	9.5	750	650	0.30	0.026		13			2.68	0.13	181		
6/88	8.5	8.4	570	565	0.12		<0.01	4.9	0.0043	<0.0015	0.071	0.227	78.5	<0.0026	<0.005
1/95	7.6	7.9	540	680	0.02		<0.01	2.3	<0.004	<0.01	<0.04	0.40	30	<0.01	
5/97	7.8	7.64	530	404	0.09		<0.01	1.8	<0.004	<0.0005		0.42	33	<0.01	
5/98	7.84	7.57	490	507	0.02		<0.01	1.7	<0.004	<0.0005		0.45	31	<0.01	
5/98 (DUP)	7.85	7.57	500	507	0.02		<0.01	1.7	<0.004	<0.0005		0.43	29	<0.01	
5/99	8.07	8.39	490	425	0.024		0.011	1.7	<0.004	<0.0005		0.45	28	<0.01	
5/00	7.96	7.58	580	500	0.013		0.013	1.4	<0.004	<0.0005	0.046	0.54	32	<0.01	
5/01	7.84	7.26	550	458	<0.01			1.6	<0.004	<0.0005		0.52	35	<0.01	
5/02	8.42	7.87	510	352	0.017		0.017	1.8	<0.004	<0.0005		0.488	34	<0.01	
5/03	7.87	7.99	540	405	0.016		<0.01	2.1	<0.004	<0.0005		0.57	37	<0.010	
MW-12															
12/83	7.5	7.3	476	400	0.074	0.021		2.1			<0.01	0.94	24.3		
2/84	7.5	7.2	476	385	0.02			2.0			0.02	0.71	23.8		
9/84	7.7	6.3	366	375	<0.01	<0.01		2.2			<0.01	0.61	29.0		
5/85	7.7	7.4	540	390	0.024	0.022		1.6			<0.01	1.00	27.7		
5/86	7.5		494		<0.01						<0.01	1.23	27		
6/88	7.2	7.5	510	515	<0.01		<0.01	1.3	<0.0015	<0.0015	0.066	1.09	24.4	<0.0026	<0.005
1/95	7.4	7.6	530	350	<0.01		<0.01	1.1	<0.004	<0.01	<0.04	1.5	23	<0.01	
5/97	7.5	7.7	540	422	<0.01			0.90	<0.004	<0.0005		1.7	19	<0.01	
5/98	7.43	7.43	470	550	<0.01			0.80	<0.008	<0.0005		1.9	23	<0.01	
9/98	7.57	7.38	470	481	<0.01			0.92	<0.004	<0.0005		1.6	20	<0.01	
1/99	7.53	7.04	470	440	<0.01			0.89	<0.004	<0.0005		1.8	22	<0.01	
5/99	7.42	7.39	630	515	0.026		0.026	0.73	<0.004	<0.0005		2.5	29	<0.01	
9/99	7.54	7.25	530	565	0.017		0.012	0.68	<0.004	<0.0005		1.9	27	<0.01	
1/00	7.44	6.65	570	495	<0.01			0.74	<0.004	<0.0005		1.8	22	<0.01	
5/00	7.53	7.57	600	558	<0.01			0.73	<0.004	<0.0005	0.043	2.0	29	<0.01	
10/00	7.64	7.33	530	429	<0.01			0.83	<0.004	<0.0005		1.6	22	<0.01	
1/01	7.56	7.69	530	484	<0.01			0.92	<0.004	<0.0005		1.8	28	<0.01	
5/01	7.48	7.13	530	442	<0.01			0.82	<0.004	<0.0005		1.6	23	<0.01	
9/01	7.46	7.96	520	460	<0.01			0.83	<0.004	<0.0005		1.8	28	<0.01	
1/02	7.43	7.66	560	436	<0.01			1.1	<0.004	<0.0005		1.75	27	<0.01	
5/02	7.58	7.6	540	322	<0.01			1.1	<0.004	<0.0005		1.82	27.5	<0.01	
9/02	7.48	7.65	572	540	<0.01			0.629	<0.004	<0.0005		1.72	27.1	<0.01	
1/03	7.70	7.48	536	564	<0.01			0.884	<0.004	<0.0005		1.80	32.2	<0.01	
5/03	7.55	7.21	560	421	<0.01			0.76	<0.004	<0.0005		2.0	31	<0.01	
9/03	7.57	7.44	560	477	<0.01		<0.01	<3.2 B	<0.004	<0.0005		2.0	32	<0.01	
9/03 (Dup.)	7.60	7.44	560	477	<0.01		<0.01	<3.2 B	<0.004	<0.0005		2.0	33	<0.01	
MW-14															
5/02	7.64	7.61	500	309	0.018		<0.01	1.9	<0.004	<0.0005		1.05	29.5	<0.01	
5/03	7.59	7.20	530	398	0.014		<0.01	2.1	<0.004	<0.0005		1.2	34	<0.010	
MW-15															
12/83	6.9	6.7	568	435	0.44	0.018		0.1			0.14	0.03	28.8		
2/84	6.9	6.7	550	435	0.51			0.1			0.13	<0.01	29.4		
5/85	7.4	6.8	590	445	0.44	0.034		0.3			0.18	<0.01	32.5		
5/86	7.1		550		0.39						0.15	<0.01	34		
7/88	7.0/7.1	7.1/7.1	610/630	600/600	0.43/0.32		0.10/<0.01	0.2/0.2	0.0045	0.0025	10.8	0.117	34.4	0.0059	<0.005
1/95	7.0	7.1	720	420	0.49		0.12	1.4	<0.004	<0.01	0.26	<0.01	45	<0.01	
7/96	6.8	7.07	570	613	1.0	<0.020		2.1	<0.004	<0.0005		<0.01		<0.01	
5/97	7.4	7.44	800	731	2.8		0.20	11	<0.004	<0.0005		0.02	140	<0.01	
5/97 (DUP)	7.4	7.44	800	731	3.3		0.40	8.9	<0.004	<0.0005		0.05	140	<0.01	
5/98	6.99	6.78	610	625	0.49		0.02	0.40	<0.004	<0.0005		<0.01	40	<0.01	
5/99	7.49	7.70	980	785	8.5		<0.01	15	<0.004	<0.0005		0.017	150	<0.01	
5/00	7.53	7.56	1,200	1,169	12		<0.01	25	<0.004	<0.0005	10	0.17	120	<0.01	
5/01	7.03	6.83	600	501	0.49		0.32	2.0	<0.004	<0.0005		0.017	51	<0.01	
5/02	7.29	7.21	590	333	1.1		<0.10	2.5	0.0222	<0.0005		0.0696	56.8	<0.01	
5/03	7.23	7.47	610	469	0.80		0.11	1.6	<0.004	<0.0005		<0.010	49	<0.010	
MW-16															
12/83	9.8	9.9	2,092	1,800	7.35	0.034		110			12.4	0.91	530		
2/84	9.7	9.7	2,049	1,550	5.5			98			13.9	1.41	570		
9/84	9.8	9.2	1,390	10,500	2.11	<0.01		80			9.5	0.5	475		
5/85	9.4	9.0	2,300	1,400	10.0	0.11		72			10.3	1.09	443		
10/85	8.4		1,540		3.9	0.0		30		<0.01	2.10	0.41	186		
7/88	9.4	9.7	1,400	1,410	4.6		<0.01	61	0.063	<0.0015	6.57	0.22	300	0.018	0.006
1/95	7.7	9.0	850	930	1.4		0.13	7.9	<0.004	<0.01	0.52	1.1	81	<0.01	

Note: All results in mg/L unless otherwise noted.

B - Fluoride reported in field blank. Sample result less than 5x concentration in field blank.

TABLE 4 (CONT.)
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUND-WATER MONITORING WELLS AND PARAMETERS

ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Conductance (lab)	Specific Conductance (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	Tetrachloroethene
MW-16 (Cont.)															
7/96	7.3	7.75	990	941	1.6	<0.020		7.9	<0.004	<0.0005		1		<0.01	
5/97	7.6	7.6	980	801	1.3		0.3	11	<0.004	<0.0005		0.43	130	<0.01	
5/98	7.72	7.70	750	760	2.0		0.40	11	<0.004	<0.0005		1.2	80	<0.01	
9/98	7.70	7.50	860	790	1.4		1.4	9.5	<0.004	<0.0005		1.3	75	<0.01	
1/99	7.70	7.12	740	665	1.4		<0.04	9.8	<0.004	<0.0005		1.5	85	<0.01	
5/99	7.88	7.90	750	800	2.8		0.16	9.0	<0.004	<0.0005		1.5	82	<0.01	
9/99	7.62	8.15	730	745	2.9		0.88	8.2	<0.004	<0.0005		1.7	78	<0.01	
1/00	7.76	6.95	950	810	5.5		5.5	7.6	<0.004	<0.0005		2.2	68	<0.01	
1/00 (DUP)	7.77	6.95	940	810	5.8		5.8	7.8	<0.004	<0.005		2.2	70	<0.01	
5/00	7.69	7.53	1,100	945	12		12	7.9	<0.004	<0.0005	4.3	2.3	91	<0.01	
5/00 (DUP)	7.72	7.53	1,000	945	12		12	8.1	<0.004	<0.0005	4.4	2.4	91	<0.01	
10/00	7.74	7.67	1,000	774	16		<0.01	13	<0.004	<0.0005		1.6	130	<0.01	
10/00 (DUP)	7.77	7.67	1,000	774	15		<0.01	13	<0.004	<0.0005		1.7	130	<0.01	
1/01	7.84	7.42	1,200	939	16		3.2	24	<0.004	<0.0005		1.6	250	<0.01	
1/01 (DUP)	7.85	7.42	1,200	939	17		2.5	24	<0.004	<0.0005		1.6	250	<0.01	
5/01	7.89	8.04	1,100	920	12		12	39	<0.004	<0.0005		1.2	200	<0.01	
5/01 (DUP)	7.90	8.04	1,100	920	11		11	40	<0.004	<0.0005		1.2	210	<0.01	
9/01	7.91	7.86	1,300	754	9.7		0.85	43	<0.004	0.00058		0.89	270	0.013	
9/01 (DUP)	7.90	7.86	1,200	754	9.0		0.65	43	0.019	0.00096		1.1	260	0.021	
1/02	8.03	8.11	1,300	913	9.5		<0.5	57	0.0102	0.00211		1.46	237	0.055	
1/02 (DUP)	8.05	8.11	1,300	913	10		0.58	59	0.00816	0.00171		1.33	211	0.0422	
5/02	7.92	7.92	1,300	895	7.9		<0.20	57	0.0332	0.0015		1.12	254	0.0469	
5/02 (DUP)	8.06	7.92	1,300	695	7.4		<0.20	59	0.0269	0.0016		1.10	242	0.0500	
9/02	8.17	8.33	1,280	1176	9.75		0.56	50.1	0.0263	0.00155		1.12	208	0.0426	
9/02 (Dup.)	8.16	8.33	1,260	1176	10.9		1.56	49	0.0222	0.00198		1.4	211	0.0535	
1/03	8.31	7.78	1,310	1,299	7.03		0.77	27.5	0.0449	0.00136		0.792	235	0.0308	
1/03 (Dup.)	8.28	7.78	1,290	1,299	6.48		1.20	54	0.0381	0.00175		1.0	242	0.0441	
5/03	8.00	8.17	1,300	933	5.5		<0.01	58	0.012	0.0012		1.1	220	0.052	
5/03 (Dup.)	8.05	8.17	1,300	933	5.9		<0.01	52	0.0099	0.00093		1.0	220	0.044	
9/03	8.21	8.17	1,200	1,036	3.9		0.062	74	0.011	<0.0005		0.61	240	0.023	
MW-17															
12/83	7.9	7.6	613	475	0.99	0.021		5.6			0.44	1.38	78		
2/84	7.6	7.4	581	470	1.03			4.4			0.39	1.77	52		
9/84	8.0	6.7	485	550	0.17	<0.01		9.1			0.28	1.27	99		
5/85	7.9	7.9	610	470	0.76	0.045		4.1			0.28	1.80	45.3		
10/85	7.9		584		0.56	0.43		4.2		<0.01	6.80	1.93	43.4		
6/88	7.7	7.5	590	475	1.3		0.46	5.2	0.0054	<0.0015	0.973	1.72	39.7	<0.0026	<0.005
2/90	7.7	7.55	680	640	0.582		<0.005	4.1			18		40		
1/95	7.5	7.7	710	420	0.64		<0.01	3.9	<0.004	<0.01	0.28	1.9	36	<0.01	
5/97	7.5	7.67	870	488	0.54		<0.01	3.1	<0.004	<0.0005		1.9	30	<0.01	
5/98	7.6	7.40	570	580	0.72		0.09	3.4	<0.004	<0.0005		1.8	34	<0.01	
5/99	7.50	7.40	550	470	0.46		0.46	3.2	<0.004	<0.0005		1.8	31	<0.01	
5/99 (DUP)	7.37	7.40	550	470	0.49		0.49	3.2	<0.004	<0.0005		1.8	30	<0.01	
5/00	7.57	7.61	610	523	0.53		0.31	2.9	<0.004	<0.0005	0.34	1.8	24	<0.01	
5/01	7.87	7.36	570	460	0.50		0.50	3.0	<0.004	<0.0005		1.7	28	<0.01	
5/02	7.64	7.62	550	328	0.35		0.35	5.4	<0.004	<0.0005		1.42	40.3	<0.01	
5/03	7.65	7.80	580	435	0.41		0.096	9.8	<0.004	<0.0005		1.6	44	<0.010	
MW-18															
12/83	9.9	10.0	10,526	8,750	110.0	0.45		460			58.7	0.26	3,150		
2/84	9.8	9.8	9,615	7,500	52.0			350			61	0.50	2,750		
9/84	10.1	9.5	9,111	10,000	194	0.19		690			103	0.3	4,130		
5/85	9.8	9.9		7,000	35.2	0.091		410			64.2	0.35	2,540		
10/85	9.9		6,300		120	12		350		<0.01	71.4	1.06	1,940		
7/88	10.0	10.1	9,700	10,000	29		25	820	0.159	0.0071	144	1.75	2,640	0.191	0.022
2/90	10.0	10.1	8,000	11,400	67.0		10.5	710			110		3,500		
1/95	9.6	11.1	5,900	>2,000	15		6.6	290	0.062	<0.01	56	0.22	1,500	0.02	
7/96	9.1	8.67	4,300	4,200	7.2	<0.020		180	0.065	0.0006	56	0.19	1,500	0.01	0.006
5/97	9.7	9.58	4,000	4,110	8.7		<0.50	200	0.078	0.0009		0.29	1,100	0.02	
5/98	9.76	10.06	4200	4,300	9.8		0.40	260	0.094	0.0014		0.49	1100	0.05	0.024
9/98	9.70	9.88	3,600	3,590	5.9		<0.01	210	0.085	0.00084		0.29	800	0.022	0.014
1/99	9.67	10.04	3,600	3,450	79		3.0	210	0.088	0.00063		0.29	830	0.028	0.0219
5/99	9.72	9.80	3,000	3,000	95		81	370	0.088	0.0014		0.92	650	0.045	0.017
9/99	9.62	10.26	3,000	2,870	90		14	170	0.074	<0.0005		0.24	700	0.011	0.016
1/00	9.56	9.15	3,000	2,700	27		19	180	0.078	0.00059		0.26	680	0.017	0.020
5/00	9.59	9.73	2,800	2,270	84		75	160	0.075	0.00089	25	0.56	620	0.035	0.019

Note: All results in mg/L unless otherwise noted.

TABLE 4 (CONT.)
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUND-WATER MONITORING WELLS AND PARAMETERS

ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Conductance (lab)	Specific Conductance (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	Tetrachloroethene
MW-18 (Cont.)															
5/00 (DUP)	9.60	9.73	2,800	2,270	64		50	160	0.073	0.00062	20	0.33	620	0.023	0.016
10/00	9.54	9.67	2,400	1,948	29		<0.01	130	0.074	0.0024		2.1	400	0.08	0.012
1/01	9.62	10.82	2,500	1,980	53		9.2	170	0.067	0.0006		0.3	580	0.019	0.043
5/01	9.52	10.36	2,100	1,780	15		<0.50	100	0.065	0.0014		0.97	380	0.042	0.040
5/01 (Dup.)	9.52	10.36	2,000	1,780	49		49	110	0.079	0.0037		3.1	380	0.140	0.046
9/01	9.61	9.75	2,100	1,868	91		11	180	0.12	0.00099		0.3	520	0.024	0.027
1/02	9.44	9.65	2,400	1,680	36		<0.01	150	0.15	0.0125		16.8	436	0.360	0.024
5/02	9.48	9.55	2,300	1,693	110		40	150	0.0716	0.00105		0.432	517	0.0269	0.020
5/02 (Dup.)	9.49	9.55	2,300	1,693	72		8.3	150	0.0703	0.00104		0.401	510	0.0248	0.052
9/02	9.49	9.77	1,720	1,599	74		<0.01	108	0.0906	0.00141		0.927	303	0.0525	0.0172
1/03	9.48	9.57	2,010	2,160	62.1		<2.5	163	0.0932	0.00133		0.285	452	0.0220	0.058
5/03	9.34	9.58	1,400	1,257	15		3.0	88	0.061	<0.0005		0.20	240	0.021	0.027
5/03 (Dup.)	9.39	9.58	1,400	1,257	20		<0.01	83	0.066	0.00068		0.30	230	0.034	0.047
9/03	9.42	9.61	1,800	1,424	4		<0.01	97	0.12	0.0044		5.60	380	0.17	0.018
MW-19															
12/83	7.2	7.1	581	435	0.068	0.013		0.3			<0.01	0.54	22.9		
2/84	7.1	6.8	575	405	0.04			0.5			0.05	0.26	20.2		
9/84	7.2	6.3	451	460	0.01	<0.01		0.4			0.02	0.04	23.5		
5/85	7.6	7.0	640	460	0.019	0.014		0.5			0.12	0.02	23.6		
7/88	7.3	7.3	630	600	<0.01		<0.01	0.5	0.0067	<0.0015	17.6	0.23	32.2	0.015	<0.005
2/90	7.3	7.27	520	560	0.2		<0.005	0.7					21.0		
1/95	7.3	7.2	630	410	<0.01		<0.01	1.0	<0.004	<0.01	0.09	<0.01	24	<0.01	
5/97	7.4	7.5	520	431	<0.01		<0.01	2.0	<0.004	<0.0005		<0.01	18	<0.01	
5/98	7.23	6.95	560	575	<0.01			1.4	<0.008	<0.0005		<0.01	23	<0.01	
5/99	7.47	7.40	570	460	<0.01			1.3	<0.004	<0.0005		<0.01	22	<0.01	
5/00	7.33	7.20	580	538	<0.01			1.2	<0.004	<0.0005	0.13	<0.01	16	<0.01	
5/01	7.18	6.96	580	494	<0.01			1.1	<0.004	<0.0005		<0.01	20	<0.01	
5/02	7.39	7.38	530	324	<0.01			1.2	<0.004	<0.0005		<0.005	23.4	<0.01	
5/03	7.53	7.38	550	420	<0.01			2.2	<0.004	<0.0005		<0.010	20	<0.01	
MW-28															
5/86	5.5		382		0.89	0.08		<0.1			0.36	0.02	41		
6/88	5.7	5.8	640	665	7.4		0.6	<0.1	<0.0015	<0.0015	2.41	0.035	83.3	<0.0026	<0.005
1/95	6.2	7.4	500	700	0.74		0.26	2.7	<0.004	<0.01	0.38	0.02	79	<0.01	
7/96	5.7	5.92	440	429	0.26	<0.020		0.50	<0.004	<0.0005		0.01		<0.01	
5/97	5.6	6.4	590	453	0.11		<0.02	0.2	<0.004	<0.0005		0.01	62	<0.01	
5/98	5.74	5.32	500	550	0.12		<0.01	0.20	<0.004	<0.0005		0.01	65	<0.01	
9/98	5.81	5.28	540	527	0.11		0.11	0.27	<0.004	<0.0005		0.011	64	<0.01	
9/98 (DUP)	5.83	5.28	540	527	0.11		0.11	0.24	<0.004	<0.0005		0.01	65	<0.01	
1/99	5.72	5.17	470	450	0.087		0.027	0.38	<0.004	<0.0005		0.013	67	<0.01	
5/99	5.72	5.43	460	405	0.13		0.13	0.35	<0.004	<0.0005		0.011	70	<0.01	
9/99	5.95	6.15	480	480	0.12		0.016	0.26	<0.004	<0.0005		<0.01	57	<0.01	
1/00	6.04	5.25	460	410	0.23		0.22	0.35	<0.004	<0.0005		<0.01	58	<0.01	
5/00	5.89	5.90	470	464	1.0		1.0	0.30	<0.004	<0.0005	0.69	0.014	77	<0.01	
10/00	5.85	5.47	460	384	0.96		0.28	0.27	<0.004	<0.0005		0.014	52	<0.01	
1/01	5.75	5.45	460	412	0.9		0.9	0.32	<0.004	<0.0005		0.015	64	<0.01	
5/01	5.65	5.20	420	391	1.1		0.36	0.22	<0.004	<0.0005		0.014	54	<0.01	
9/01	5.70	6.01	430	415	1.3		<0.1	0.56	<0.004	<0.0005		0.015	64	<0.01	
1/02	5.73	5.77	450	396	0.9		0.9	0.37	<0.004	<0.0005		0.0196	60.5	<0.01	
5/02	5.63	5.71	400	311	0.60		<0.04	0.22	<0.004	<0.0005		0.0146	62.1	<0.01	
9/02	5.65	6.00	449	443	0.975		0.13	0.164	<0.004	<0.0005		0.0265	59.1	<0.01	
1/03	5.72	5.99	412	462	0.65		<0.02	0.305	<0.004	<0.0005		0.0192	70.4	<0.01	
5/03	5.73	6.09	390	305	0.38		0.068	0.13	<0.004	<0.0005		0.017	47	<0.01	
9/03	5.93	6.25	440	377	0.35		0.016	<3.2 B	0.0068	<0.0005		0.018	61	<0.01	
MW-29S															
5/86	8.4		2,350		1.5	0.02		28			0.64	0.08	590		
6/88	9.0	9.0	1,100	1,090	0.99		0.37	44	0.0052	<0.0015	1.52	0.094	224	0.0044	<0.005
1/95	8.3	10.0	2,900	1,750	0.79		0.07	56	<0.004	<0.01	0.37	0.12	590	<0.01	
5/97	8.3	8.43	2,200	1,735	0.6		<0.1	44	<0.004	<0.0005		0.14	410	<0.01	
5/98	8.64	8.70	1,700	1,685	0.18		<0.01	28	<0.004	<0.0005		0.09	370	<0.01	
5/99	8.35	8.37	1,300	1,090	0.22		0.021	16	<0.004	<0.0005		0.30	230	<0.01	
5/00	8.11	8.11	1,200	1,023	0.17		0.17	16	0.0057	<0.0005	0.14	0.41	130	<0.01	
5/01	7.89	7.54	1,000	828	0.16		0.16	16	<0.004	<0.0005		0.42	160	<0.01	
5/02	7.73	7.71	700	408	0.08		<0.01	10	<0.004	<0.0005		0.563	79.6	<0.01	
5/03	7.68	7.81	1,000	759	0.21		0.049	9.1	<0.004	<0.0005		0.78	110	<0.01	

Note: All results in mg/L unless otherwise noted.

B - Fluoride reported in field blank. Sample result less than 5x concentration in field blank.

TABLE 4 (CONT.)
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUND-WATER MONITORING WELLS AND PARAMETERS

ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Conductance (lab)	Specific Conductance (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	Tetrachloroethene
MW-29D															
5/86	8.6		648		0.31	0.01		9.7			0.18	0.26	139		
6/88	8.1	8.0	590	570	0.25		<0.01	4.2	0.002	<0.0015	0.082	1.16	60.4	<0.0026	<0.005
1/95	7.5	8.9	650	770	0.22		0.03	3.7	<0.004	<0.01	0.09	2.0	33	<0.01	
5/97	7.7	7.9	600	479	0.18		<0.02	3.3	<0.004	<0.0005		2	31	<0.01	
5/98	7.65	7.53	550	560	0.17		<0.01	3.5	<0.004	<0.0005		1.8	28	<0.01	
5/99	7.82	7.60	550	465	0.19		0.19	3.4	<0.004	<0.0005		1.8	28	<0.01	
5/00	7.75	7.86	590	503	0.15		0.15	3.1	<0.004	<0.0005	0.12	1.9	24	<0.01	
5/01	7.55	6.82	570	489	0.15		0.15	3.1	<0.004	<0.0005		1.8	27	<0.01	
5/02	7.56	7.42	540	342	0.13		<0.01	3.6	<0.004	<0.0005		1.7	30.3	<0.01	
5/03	7.64	7.74	590	449	0.13		<0.01	3.6	<0.004	<0.0005		2.0	32	<0.01	
MW-30															
5/86	6.6		342		0.01	<0.01		0.5			<0.01	2.10	20		
6/88	6.3	6.3	340	400	0.01		<0.01	<0.1	0.0018	<0.0015	4.42	0.753	18.7	0.0044	0.005
1/95	6.2	6.0	430	570	0.01		<0.01	<0.1	<0.004	<0.01	0.78	0.60	19	<0.01	
5/97	6.2	6.47	420	334	<0.01			<0.1	<0.004	<0.005		0.6	18	<0.01	0.012
5/98	6.19	5.70	390	418	<0.01			0.10	<0.004	<0.0005		0.68	21	<0.01	0.013
5/99	6.43	6.10	400	390	0.016		0.013	0.19	<0.004	<0.0005		0.71	21	<0.01	0.02
5/00	6.34	5.91	430	380	0.026		0.026	0.12	<0.004	<0.0005	1.5	0.70	21	<0.01	0.017
5/01	6.14	6.21	420	409	0.79		0.79	0.17	<0.004	<0.0005		0.54	19	<0.01	0.015
5/02	6.27	6.27	430	282	0.051		0.05	0.18	<0.004	<0.0005		0.434	31.2	<0.01	0.024
5/03	6.27	6.70	440	342	0.019		<0.01	0.16	<0.004	<0.0005		0.81	23	<0.01	0.028
MW-31															
5/86	9.1		1,250		12	1.5		46			84.5	3.67	380		
6/88	10.2	10.5	3,400	3,500	39		<0.01	140	0.046	<0.0015	20.3	1.93	703	0.184	0.040
2/90	10.0	9.95	2,300	2,700	4.80		3.94	110			49		860		
1/95	9.6	10.4	1,900	1,600	7.1		<0.01	89	0.027	<0.01	4.6	0.66	420	<0.02	
7/96	9.5	9.52	2,300	2,100	12	<0.020		91	0.042	0.0007		0.62		0.04	0.041
5/97	9.9	9.69	2,500	2,100	12		<0.50	110	0.04	0.0007		0.68	480	0.05	0.028
5/97 (DUP)	9.9	9.69	2,500	2,100	6.2			93	0.038	0.0008		0.74	480	0.05	0.029
5/98	9.63	9.80	2,400	2,350	9.3		<0.01	100	0.036	0.0013		1.1	490	0.04	0.022
9/98	9.67	9.86	2,800	2,520	9.8		<0.01	120	0.044	0.0014		1.1	620	0.045	0.017
9/98 (DUP)	9.67	9.86	2,700	2,520	9.5		<0.01	130	0.045	0.0013		1.1	600	0.043	0.020
1/99	9.72	9.97	2,500	2,240	22		0.63	120	0.047	0.0012		1.3	620	0.065	0.019
5/99	9.91	10.02	2,600	2,510	29		6.5	130	0.06	0.0014		1.2	600	0.07	0.034
9/99	9.83	10.03	2,600	2,810	30		4.3	150	0.063	0.0011		1.6	750	0.088	<0.005
1/00	9.98	9.80	2,900	2,600	24		6.3	150	0.072	0.001		1.4	650	0.120	0.028
5/00	10.1	10.10	2,900	2,400	21		1.7	140	0.096	0.0011	13	1.6	820	0.12	0.020
10/00	9.99	10.18	2,800	2,550	20		0.54	140	0.056	0.00076		1.1	480	0.079	0.043
1/01	10.1	11.21	2,100	1,900	13		1.5	110	0.056	0.001		1.3	560	0.11	0.020
5/01	9.93	10.85	2,100	1,866	12		12	77	0.046	0.0012		1.4	430	0.081	0.027
9/01	9.95	9.98	2,300	1,877	16		1.2	110	0.054	0.0014		1.4	590	0.09	0.032
1/02	9.96	10.17	2,400	1,720	13		1.6	110	0.0493	0.00116		1.46	406	0.0968	0.017
1/02 (DUP)	9.97	10.17	2,400	1,720	13		2.8	110	0.0519	0.00148		1.98	400	0.106	0.020
5/02	9.91	9.95	1,900	1,651	14		<0.50	91	0.0628	0.00105		1.0	395	0.0691	0.017
9/02	9.80	10.02	1,520	1,991	11.3		3.55	91	0.056	0.000982		1.21	357	0.0698	0.0234
9/02 (Dup.)	9.79	10.02	2,150	1,991	14.7		2.70	92.6	0.0592	0.00106		1.30	356	0.0694	0.0232
1/03	9.87	9.93	2,090	2,270	13.6		<0.5	99.5	0.0745	0.00181		1.47	472	0.0797	0.0323
1/03 (Dup.)	9.88	9.93	2,140	2,270	14		1.41	102	0.0706	0.00146		1.16	438	0.0664	0.029
5/03	9.69	10.00	1,800	1,310	15		4.1	80	0.038	0.001		0.99	330	0.064	0.022
9/03	9.69	9.81	1,800	1,648	12		7.7	91	0.046	0.001		1.3	410	0.074	0.032
MW-32															
5/86	10.5		6430		97	18		369			27.4	0.69	2120		
7/88	9.2	9.3	890	1,040	7.2		0.30	39	0.014	<0.0015	4.05	0.513	234	0.024	<0.005
1/95	9.4	9.4	1,300	630	12		3.6	47	0.014	<0.01	2.7	0.37	230	0.03	
7/96	8.6	8.69	1,000	1,038	6.9	<0.020		29	0.011	<0.0005		0.84		0.01	
5/97	8.7	8.71	930	697	4.4		1.3	19	0.008	<0.0005		1.1	110	<0.01	
5/98	8.03	8.10	830	697	2.5		0.34	7.7	<0.004	<0.0005		1.9	61	<0.01	
5/98 (DUP)	8.05	8.10	690	697	2.5		0.09	8.0	<0.004	<0.0005		2.0	68	<0.01	
9/98	8.30	8.26	760	760	4.5		1.0	13	<0.004	<0.0005		1.8	78	<0.01	
1/99	8.39	8.00	710	650	3.1		<0.02	13	<0.004	<0.0005		1.7	77	<0.01	
1/99 (DUP)	8.39	8.00	720	650	3.7		<0.02	13	<0.004	<0.0005		1.7	76	<0.01	
5/99	8.38	8.50	690	555	4.4		0.59	12	<0.004	<0.0005		2.0	78	<0.01	
9/99	9.84	10.01	2,200	2,300	18		1.8	120	0.057	0.0014		2.2	520	0.093	
1/00	8.93	8.28	950	770	4.8		0.57	27	0.017	<0.0005		1.9	97	0.024	
5/00	8.80	8.95	830	858	3.9		<0.01	19	0.013	<0.0005	3.1	1.6	70	<0.01	
10/00	9.75	9.98	1,500	1,227	8.3		0.76	70	0.051	0.00099		1.6	290	0.058	

Note: All results in mg/L unless otherwise noted.

TABLE 4 (CONT.)
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUND-WATER MONITORING WELLS AND PARAMETERS

ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Conductance (lab)	Specific Conductance (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	Tetrachloroethene
MW-32 (Cont.)															
1/01	8.46	9.24	740	675	4.3		0.82	13	0.004	<0.0005		2.0	95	<0.01	
5/01	8.51	8.84	790	624	4.9		4.9	17	0.0054	<0.0005		2.1	94	0.012	
9/01	8.69	8.74	720	606	4.9		0.53	99	0.0088	<0.0005		1.9	110	0.011	
1/02	8.45	8.69	770	627	4.3		2.4	14	0.0047	<0.0005		1.68	98.1	<0.01	
5/02	8.75	8.72	850	543	6.9		<0.25	28	0.0293	<0.0005		1.83	134	0.0107	
9/02	8.73	9.02	940	889	6.13		0.55	25.4	0.0299	<0.0005		1.60	101	0.0122	
1/03	8.35	7.70	747	768	4.41		0.11	13	0.00403	<0.0005		1.91	93.1	<0.01	
5/03	8.31	8.47	820	616	3.6		<0.01	21	0.010	<0.0005		2.2	82	<0.01	
9/03	8.67	8.88	920	745	5.9		1.4	32	0.013	<0.0005		1.7	130	0.011	
MW-34S															
5/86	7.4		668		0.13	<0.01		9.4			0.07	0.42	64		
7/88	7.2	7.2	690	670	40		38	7.3	0.0087	<0.0015	14.6	0.416	33.1	0.018	<0.005
2/90	7.4	6.93	690	740	0.113		0.26	8.5			21		49		
1/95	7.2	7.1	700	430	0.03		<0.01	7.3	<0.004	<0.01	0.18	0.01	35	<0.01	
5/97	7.4	7.43	710	579	0.18		0.04	8.1	<0.004	<0.0005		0.04	69	<0.01	
5/98	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
5/99	7.34	7.55	650	505	0.19		<0.01	6.8	<0.004	<0.0005		0.014	46	<0.01	
5/00	7.60	7.46	740	607	1.1		1.1	11	<0.004	<0.0005	1.2	0.044	83	<0.01	
5/01	7.71	7.34	670	537	0.12		0.12	8.6	0.025	0.0019		2.9	50	0.054	
5/02	7.90	7.98	920	457	0.064		<0.01	49	0.0367	0.00246		2.12	172	0.072	
5/03	7.36	7.63	700	520	0.14		0.012	13	<0.004	<0.0005		0.055	52	<0.010	
MW-34D															
5/86	7.3		602		0.05	<0.01		10.2			0.02	0.55	42		
7/88	7.4	7.4	560	580	0.07		<0.01	4.4	0.0031	<0.0015	0.538	0.762	32.4	<0.0026	<0.005
1/95	7.3	7.4	640	400	0.07		0.07	4.2	<0.004	<0.01	<0.04	0.82	34	<0.01	
5/97	7.4	7.43	630	492	0.05		<0.01	3.8	<0.004	<0.0005		0.79	31	<0.01	
5/98	7.37	7.23	590	595	0.09		0.01	3.9	<0.004	<0.0005		0.68	35	<0.01	
5/99	7.40	7.52	470	475	0.062		<0.01	3.6	<0.004	<0.0005		0.72	29	<0.01	
5/00	7.55	7.37	620	519	0.063		0.063	4.2	<0.004	<0.0005	0.14	0.76	28	<0.01	
5/01	8.00	7.16	600	453	0.13		0.13	3.9	<0.004	<0.0005		0.70	30	<0.01	
5/02	7.38	7.37	560	298	0.059		0.022	4.6	<0.004	<0.0005		0.68	32.9	<0.01	
5/03	7.38	7.52	630	470	0.047		<0.01	4.4	0.0041	<0.0005		0.58	31	<0.010	
MW-35															
5/86	10.2		6,430		240	38		358			125	1.76	2,070		
7/88	10.2	10.4	6,100	6,150	43		41	400	0.147	0.002	56.5	0.337	1,630	0.053	<0.005
2/90	9.6	9.7	1,500	1,540	8.0		<0.005	71			20		350		
1/95	9.5	9.7	1,200	562	16		<0.01	35	0.018	<0.01	11	0.43	220	<0.01	
7/96	9.5	9.5	1,700	1,851	6.0	0.040		71	0.028	0.0006		0.5		0.03	
5/97	9.4	9.47	1,000	900	16		<1.0	40	0.02	0.0006		0.68	220	0.02	
5/98	8.93	9.10	710	766	15		2.9	27	0.012	<0.0005		0.92	140	0.01	
9/98	8.97	8.90	550	778	16		0.99	26	0.01	<0.0005		0.88	130	<0.01	
1/99	9.28	9.15	820	925	23		2.9	40	0.019	<0.0005		0.81	190	0.018	
5/99	9.35	9.70	830	870	28		10	38	0.013	<0.0005		0.86	160	0.015	
9/99	9.18	9.60	790	930	18		2.0	34	0.012	<0.0005		0.53	170	0.05	
1/00	8.91	8.15	610	500	13		3.3	21	0.0077	<0.0005		0.47	94	0.068	
5/00	9.07	9.24	690	693	27		20	28	0.081	<0.0005	5.2	0.48	69	0.077	
10/00	8.76	8.84	520	470	7.3		0.59	17	0.0076	<0.0005		0.57	61	0.11	
1/01	8.86	9.59	530	549	10		3.1	19	0.008	<0.0005		0.50	89	0.075	
5/01	9.17	9.43	800	790	17		2.6	35	0.013	<0.0005		0.48	130	0.04	
9/01	9.26	9.03	820	749	15		<0.5	41	0.0097	<0.0005		0.46	120	0.062	
1/02	9.24	9.44	850	662	14		2.1	41	0.0106	<0.0005		0.511	129	0.0659	
5/02	9.03	9.21	600	528	24		7.4	27	0.0347	0.000537		0.576	172	0.0365	
9/02	8.60	9.33	542	733	8.96		1.21	17.5	0.0254	<0.0005		0.435	70.3	0.0259	
1/03	8.85	8.94	579	621	10.8		<0.5	23.6	0.00733	<0.0005		0.449	72.4	0.0255	
5/03	8.87	9.05	660	466	6.6		<0.01	31	0.0099	<0.0005		0.52	76	0.025	
9/03	8.46	8.57	540	437	6.4		1.1	23	0.0098	<0.0005		0.52	53	0.016	
MW-36															
5/86	9.7		2,700		25	1.4		97			39.5	1.13	760		
7/88	8.9	9.6	940	1,255	8.6		1.3	18	0.0078	<0.0015	3.52	0.332	161	0.0063	<0.005
1/95	9.8	9.7	3,500	1,350	18		<0.01	160	0.034	<0.01	8.7	0.83	770	0.07	
7/96	9.6	9.55	3,300	3,280	8.1	<0.020		160	0.058	0.0021		0.67		0.07	
5/97	9.8	9.64	3,600	3,290	9.2		3.5	180	0.084	0.0035		1.7	850	0.1	
5/98	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
9/98	9.90	10.10	4,500	4,380	6.5		0.03	230	0.11	0.0036		1.4	990	0.074	
1/99	9.76	10.20	3,500	3,300	41		1.2	190	0.076	0.0036		1.5	820	0.072	
5/99	10.10	10.40	2,500	2,260	19		4.4	150	0.12	0.0019		1.3	600	0.12	
9/99	10.10	10.10	1,800	1,790	6.2		0.69	93	0.059	0.00055		1.2	420	0.087	
9/99 (DUP)	10.10	10.10	1,800	1,790	6.3		<0.5	96	0.061	0.00062		1.2	450	0.07	

Note: All results in mg/L unless otherwise noted. NS = Not sampled. Well damaged du

TABLE 4 (CONT.)
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUND-WATER MONITORING WELLS AND PARAMETERS

ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Conductance (lab)	Specific Conductance (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	Tetrachloroethene
MW-36 (Cont.)															
1/00	10.2	9.80	1,600	1,450	3.9		0.51	80	0.072	<0.0005		0.70	290	0.082	
5/00	10.2	10.42	1,200	1,272	1.6		<0.01	50	0.03	<0.0005	4.0	0.54	150	0.03	
10/00	9.84	10.05	1,200	1,043	4.9		<0.01	41	0.024	0.00061		1.6	210	0.033	
1/01	9.79	11.00	1,700	1,567	12		2.0	89	0.027	0.0018		1.4	450	0.049	
5/01	9.87	10.28	1,100	1,109	3.0		3.0	49	0.029	0.00054		0.66	220	0.045	
9/01	9.80	9.75	1,100	960	2.7		<0.25	44	0.018	0.00053		0.59	210	0.026	
1/02	9.57	9.83	1,800	1,691	14		<0.01	120	0.0209	0.00205		1.0	310	0.0413	
5/02	9.61	9.61	1,800	1,286	16		4.6	98	0.0336	0.0018		1.15	381	0.0216	
9/02	9.55	9.80	1,400	1,304	4.14		<0.01	52	0.0217	0.000709		1.07	219	<0.01	
1/03	9.65	9.65	2,120	2,130	23.7		1.35	119	0.0711	0.0033		1.37	446	0.0791	
5/03	9.51	9.80	2,000	1,422	9.3		<0.01	120	0.049	0.0027		1.7	380	0.091	
9/03	9.50	9.56	1,500	1,252	6.2		0.74	110	0.046	<0.0005		0.75	290	0.038	
MW-37															
5/86	10.1		7,340		97	8.2		890			498	46.3	1,800		
7/88	9.9	9.8	5,600	5,500	0.30		<0.01	1000	0.169	0.035	115	15.4	1,470	0.369	<0.005
2/90	9.6	9.65	2,700	3,100	4.6		22.7	360			1000		970		
1/95	9.1	9.2	1,200	970	16		<0.01	87	0.033	<0.01	8.5	0.56	280	0.01	
7/96	9.1	8.89	570	832	14	<0.020		45	0.042	0.0005		0.51		0.03	
5/97	9.2	9.07	1,100	846	13		1.7	53	0.027	<0.0005		0.56	210	0.02	
5/98	8.57	8.30	530	505	6.4		<0.01	6.8	0.018	<0.0005		0.28	120	0.02	
9/98	8.90	8.26	670	682	15		5.5	52	0.020	<0.0005		0.53	140	0.017	
1/99	9.02	9.25	660	750	19		<0.10	25	0.02	<0.0005		0.68	140	0.029	
5/99	9.39	9.45	610	540	11		3.6	22	0.023	<0.0005		0.23	130	0.016	
9/99	8.78	8.91	760	753	7.9		0.91	31	0.01	<0.0005		0.33	170	<0.01	
1/00	8.83	8.40	880	822	10		2.2	32	0.011	<0.0005		0.49	110	<0.01	
5/00	8.51	8.89	770	765	5.2		0.93	32	0.015	<0.0005	9.0	0.72	92	<0.01	
10/00	8.39	8.46	750	630	6.6		<0.01	17	0.0089	<0.0005		0.61	79	<0.01	
1/01	8.42	8.99	780	678	8.8		2.7	29	0.02	0.00088		1.5	160	0.035	
5/01	7.89	7.97	650	528	7.9		<0.01	10	0.018	0.00075		2.0	110	0.026	
9/01	7.84	7.54	680	590	5.6		<0.5	21	0.0042	<0.0005		3.0	110	0.011	
1/02	7.83	8.06	700	570	5.9		0.58	20	0.014	0.00113		3.12	129	0.0355	
5/02	8.15	8.05	610	406	5.0		<0.20	18	0.139	0.0169		14.8	141	0.273	
9/02	7.87	7.59	679	601	5.09		0.65	16.7	<0.004	<0.0005		<0.005	0.975	<0.01	
1/03	7.63	7.89	569	608	5.52		0.83	14.4	<0.004	<0.0005		2.48	107	<0.01	
5/03	7.25	7.50	440	342	6.3		0.093	9.8	0.0061	<0.0005		4.2	53	0.014	
9/03	6.89	7.31	520	444	2.4		0.093	14	0.01	0.0005		4.8	83	0.028	
MW-39S															
5/88	9.5		8,360		11	2.9		244			25.0	1.35	2780		
6/88	9.3	9.1	3,500	2,550	3.8		0.10	110	0.016	<0.0015	36.6	1.63	826	0.053	<0.005
1/95	8.9	8.7	2,700	900	0.64		<0.01	59	<0.004	<0.01	0.36	0.22	520	<0.01	
5/97	8.9	9.2	5,500	5,500	3.6		<0.2	150	0.009	<0.0005		0.15	1300	<0.01	
5/98	9.04	9.09	4,000	4,000	2.3		<0.01	98	0.009	<0.0005		0.11	700	<0.01	
5/99	9.05	9.30	4,300	3,620	3.4		0.24	120	0.0096	<0.0005		0.12	950	<0.01	
5/99 (DUP)	9.05	9.30	4,200	3,620	3.6		0.89	120	0.009	<0.0005		0.11	1,100	<0.01	
5/00	9.18	9.19	4,500	3,870	3.5		3.5	110	0.013	<0.0005	2.3	0.097	1,100	<0.01	
5/01	8.91	9.38	3,700	2,820	2.0		0.86	97	0.011	<0.005		0.22	880	0.015	
5/02	9.06	9.01	4,200	2,420	4.6		0.55	130	0.0311	0.000659		0.289	1,070	0.0244	
5/03	8.95	9.20	3,800	4,120	3.1		<0.01	140	0.012	<0.0005		0.15	800	0.013	
MW-39D															
5/86	8.1		627		0.21	0.02		7.4			0.14	0.54	103		
6/88	7.9	7.8	590	595	0.17		0.03	6.1	0.0021	<0.0015	0.36	0.681	53.9	<0.0026	<0.005
1/95	7.5	7.6	630	410	0.07		<0.01	3.9	<0.004	<0.01	0.06	0.87	36	<0.01	
5/97	7.5	7.66	630	457	0.06		0.06	3.8	<0.004	<0.0005		0.87	32	<0.01	
5/98	7.52	7.35	590	560	0.04		<0.01	3.6	<0.004	<0.0005		0.77	34	<0.01	
5/99	7.59	7.64	540	447	0.037		<0.01	3.4	<0.004	<0.0005		0.87	33	<0.01	
5/00	7.68	7.60	580	503	0.027		0.027	3.2	<0.004	<0.0005	0.13	0.90	29	<0.01	
5/01	7.50	7.83	550	423	0.024		0.024	3.1	<0.004	<0.0005		0.78	32	<0.01	
5/02	7.61	7.58	510	301	0.026		<0.01	3.7	<0.004	<0.0005		0.785	32.3	<0.01	
5/03	7.60	7.78	580	430	0.033		<0.01	4.0	<0.004	<0.0005		0.93	33	<0.010	

Note: All results in mg/L unless otherwise noted.

TABLE 4 (CONT.)
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUND-WATER MONITORING WELLS AND PARAMETERS

ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Conductance (lab)	Specific Conductance (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	Tetrachloroethene
MW-40S															
5/86	8.9		2,550		1.7	0.03		28			12.8	0.49	650		
6/88	9.2	9.2	2,100	2,200	1.5		<0.01	5.9	0.018	<0.0015	1.89	0.139	445	0.0056	<0.005
1/95	7.9	7.9	2,500	1,600	0.87		<0.01	40	<0.004	<0.01	0.36	0.33	470	<0.01	
5/97	7.9	8.07	1,900	1,417	0.72		0.40	21	<0.004	<0.0005		0.66	380	<0.01	
5/98	8.2	8.18	1,400	1,335	0.36		<0.01	39	<0.004	<0.0005		0.13	270	<0.01	
5/99	8.50	8.83	1,300	1,100	0.32		<0.01	30	<0.004	<0.0005		0.11	250	<0.01	
5/00	8.08	8.04	1,100	900	0.25		0.25	14	<0.004	<0.0005	0.19	0.42	110	<0.01	
5/01	8.10	7.81	950	693	0.25		0.25	13	<0.004	<0.0005		0.57	140	<0.01	
5/02	7.89	7.91	720	543	0.20		0.17	14	<0.004	<0.0005		0.0577	147	<0.01	
5/03	7.85	7.98	1,400	1,042	0.58		0.02	21	<0.004	<0.0005		0.64	200	<0.010	
MW-40D															
5/86	9.4		1,120		7.4	0.06		20			11.7	0.62	280		
6/88	9.4	9.4	1,200	1,290	7.0		<0.01	36	0.018	<0.0015	7.81	0.454	258	0.012	<0.005
1/95	7.6	7.7	2,000	1,375	0.70		<0.01	16	<0.004	<0.01	0.29	0.74	340	<0.01	
5/97	7.6	7.9	1,800	1,350	0.59		<0.1	7.6	<0.004	<0.0005		1.3	340	<0.01	
5/98	7.85	7.73	1,300	1,250	0.49		0.47	19	<0.004	<0.0005		0.36	250	<0.01	
5/99	7.99	8.25	920	745	0.16		0.16	12	<0.004	<0.0005		0.42	150	<0.01	
5/00	7.88	7.84	980	810	0.25		0.25	11	<0.004	<0.0005	0.16	0.69	97	<0.01	
5/01	8.01	7.45	790	611	0.15		0.15	8.6	<0.004	<0.0005		0.90	78	<0.01	
5/02	7.68	7.73	600	450	0.10		<0.01	7.7	<0.004	<0.0005		1.14	79.4	<0.01	
5/03	7.65	7.9	1,000	739	0.13		<0.01	9.6	<0.004	<0.0005		1.2	88	<0.010	
MW-41															
1/95	6.6	8.2	490	600	0.04		0.02	0.2	0.017	<0.01	8.9	1.3	22	<0.01	
5/97	6.8	6.98	490	357	<0.01			0.20	0.022	<0.0005		1.6	21	<0.01	
5/98	6.67	6.74	420	449	<0.01			0.30	0.018	<0.0005		1.3	21	<0.01	
5/99	6.79	6.80	420	370	<0.01			0.33	0.014	<0.0005		1.1	20	<0.01	
5/00	6.79	6.96	430	424	<0.01			0.25	0.016	<0.0005	9.2	1.1	17	<0.01	
5/01	6.70	7.00	450	421	<0.01			0.34	0.015	<0.0005		1.0	19	<0.01	
5/02	7.01	7.10	430	377	<0.01			0.24	0.0135	<0.0005		0.938	22.9	<0.01	
5/03	6.87	6.83	460	372	<0.01			0.28	0.016	<0.0005		1.1	23	<0.010	
MW-42S															
6/88	8.0	8.4	930	870	0.70		0.25	14.0	0.002	<0.0015	0.232	0.237	143	0.0027	<0.005
2/90	8.4	8.25	2,100	2,400	0.266		0.079	35.0			0.86		520		
1/95	8.2	8.4	1,600	765	0.45		<0.01	22	<0.004	<0.01	0.2	0.35	280	<0.01	
5/97	8.2	8.57	1,700	1,350	0.56		<0.02	29	<0.004	<0.0005		0.33	300	<0.01	
5/98	8.26	8.46	1,400	1,460	0.52		<0.01	27	<0.004	<0.0005		0.37	270	<0.01	
5/99	8.19	8.54	1,500	1,100	0.54		0.033	26	<0.004	<0.0005		0.49	260	<0.01	
5/00	8.19	8.18	1,900	1,530	0.66		0.66	28	<0.004	<0.0005	0.39	0.65	280	<0.01	
5/01	8.03	8.03	1,700	1,208	0.51		0.062	23	<0.004	<0.0005		0.84	300	<0.01	
5/02	8.20	8.15	1,900	859	0.52		<0.02	37	<0.004	<0.0005		0.603	475	<0.01	
5/03	8.25	7.32	2,300	1,721	0.94		0.14	51	<0.004	<0.0005		0.41	430	<0.010	
MW-42D															
6/88	7.9	8.1	550	600	0.16		<0.01	6.0	0.0028	<0.0015	1.11	0.636	68.6	0.0028	<0.005
1/95	7.5	7.7	640	410	0.04		<0.01	3.6	<0.004	<0.01	0.08	1.5	31	<0.01	
5/97	7.6	7.99	580	468	0.04		<0.01	3.2	<0.004	<0.0005		1.3	27	<0.01	
5/98	7.54	7.64	550	535	0.07		0.01	3.3	<0.008	<0.0005		1.2	26	<0.01	
5/99	7.56	7.83	530	435	0.03		<0.01	3.4	<0.004	<0.0005		1.3	26	<0.01	
5/00	7.73	7.74	580	490	0.027		0.027	3.0	<0.004	<0.0005	0.053	1.3	24	<0.01	
5/01	7.53	7.68	550	462	0.023		0.023	3.1	<0.004	<0.0005		1.3	32	<0.01	
5/02	7.57	7.60	530	316	0.021		<0.01	3.0	<0.004	<0.0005		1.17	29.5	<0.01	
5/03	7.57	7.21	600	461	0.017		0.017	4.0	<0.004	<0.0005		1.4	34	<0.010	

Note: All results in mg/L unless otherwise noted.

HM03-01/DATA-SUM 123

TABLE 5

SUMMARY OF ANALYTICAL RESULTS FOR PCBS

ORMET CORPORATION

HANNIBAL, OHIO

		MW-12					MW-44S					MW-44D				
		5/15/02	10/01/02	1/15/03	5/22/03	9/11/03	5/15/02	10/01/02	1/15/03	5/22/03	9/11/03	5/15/02	10/01/02	1/15/03	5/22/03	9/11/03
Aroclor-1016	µg/L	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.51	<0.5	<0.5	<0.5
Aroclor-1221	µg/L	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.51	<0.5	<0.5	<0.5
Aroclor-1232	µg/L	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.51	<0.5	<0.5	<0.5
Aroclor-1242	µg/L	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.51	<0.5	<0.5	<0.5
Aroclor-1248	µg/L	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.51	<0.5	<0.5	<0.5
Aroclor-1254	µg/L	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.51	<0.5	<0.5	<0.5
Aroclor-1260	µg/L	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52	<0.5	<0.5	<0.5	<0.5	<0.5	<0.51	<0.5	<0.5	<0.5

HM0317-PCB-HIST.XLS

TABLE 6
SUMMARY OF ESTIMATED AQUIFER AREAS ABOVE CLEANUP GOALS
AND CONTAMINANT MASS-IN-PLACE
ORMET CORPORATION
HANNIBAL REDUCTION DIVISION
HANNIBAL, OHIO

Sampling Date	Estimated Area of Aquifer Above 4 mg/L Fluoride	% Change	Estimated Area of Aquifer Above 0.2 mg/L Total CN	% Change
6/88	43.3 a.		24.5 a.	
1/95	48.4 a.	+11.6	5.9 a.	-75.8
5/97	43.7 a.	-9.7	21.3 a.	+259
5/98	36.9 a.	-15.6	10.5 a.	-50.6
5/99	43.7*a.	+18.4	27.5 a.	+161
5/00	41.6 a.	-4.8	36.5 a.	+32.7
5/01	41.4 a.	-0.5	36.7a.	+0.5
5/02	37.9 a.	-8.5	37.2 a.	+1.3
5/03	38.8a.	+2.3	37.23	+0.001

Sampling Date	Estimated Fluoride Mass-in-Place	% Change	Estimated Total CN Mass-in-Place	% Change
6/88	85,702 lbs.		6,821 lbs.	
1/95	28,168 lbs.	-67.1	4,271 lbs.	-37.4
5/97	29,033 lbs.	+3.1	2,943 lbs.	-31.1
5/98	23,888 lbs.	-17.7	2,597 lbs.	-11.8
5/99	30,416* lbs.	+27.3	5,566 lbs.	+114
5/00	27,071 lbs.	-11.0	4,679 lbs.	-15.9
5/01	21,741 lbs.	-19.7	4,300 lbs.	-8.1
5/02	28,789 lbs.	+24.5	4,530 lbs.	+5.1
5/03	32,127 lbs.	+10.4	2,773 lbs.	-38.8

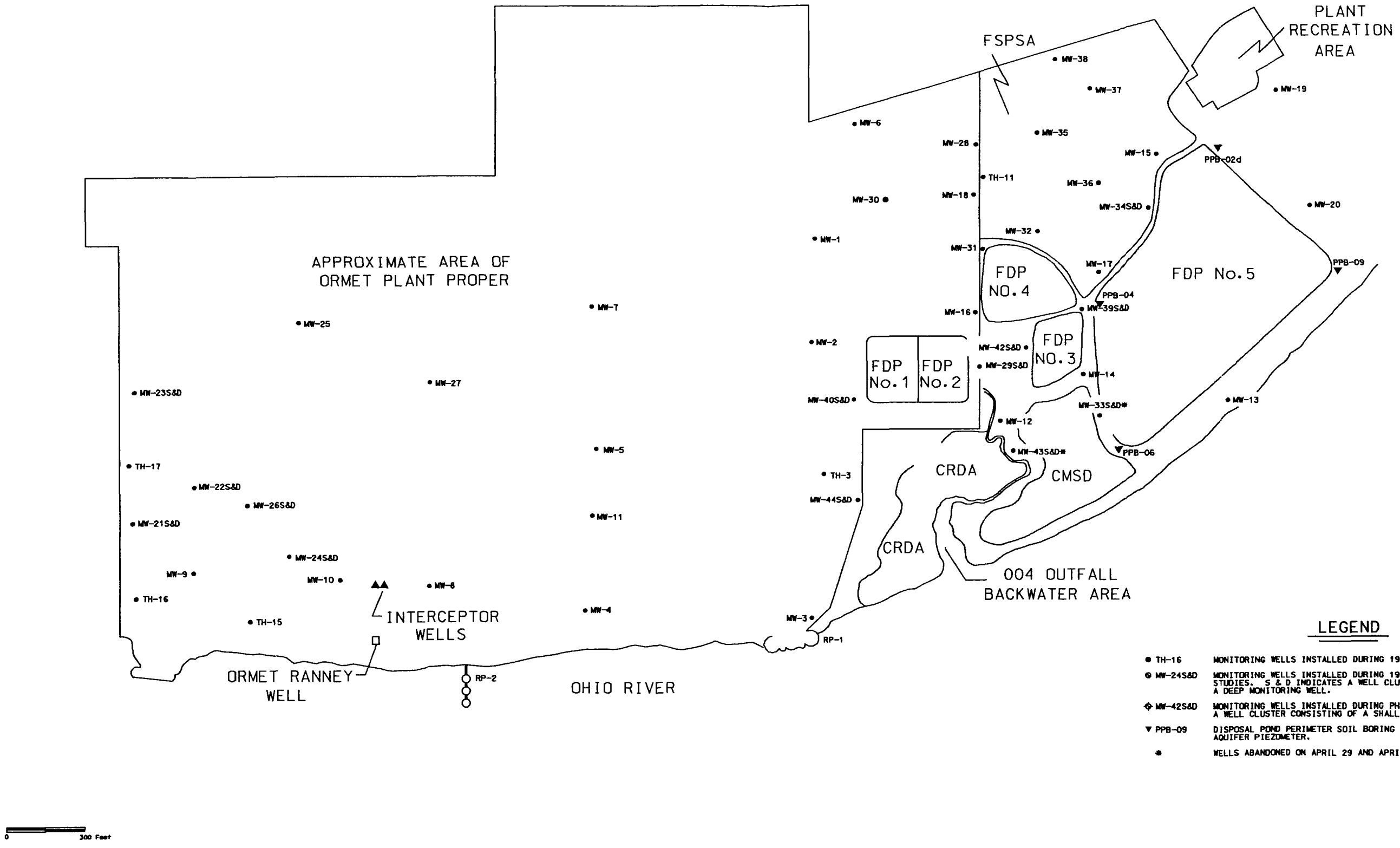
* - Value corrected due to omission during 1999 calculation.

TABLE 7
COMPARISON OF CALCULATED MASS REMOVAL TO CHANGES IN ESTIMATED MASS-IN-PLACE

	FLUORIDE			TOTAL CYANIDE		
SAMPLE DATE	ESTIMATED MASS-IN-PLACE	CHANGE	MASS REMOVED	ESTIMATED MASS-IN-PLACE	CHANGE	MASS REMOVED
6/88	85,702			6,821		
1/95	28,168	-57,534		4,271	-2,550	
5/97	29,033	+864		2,943	-1,328	
5/98	23,888	-5,145	26,383	2,597	-346	3,462
5/99	30,416	+6,528	29,516	5,566	+2,969	3,248
5/00	27,071	-3,345	18,934	4,679	-887	2,884
5/01	21,741	-5,330	19,653	4,300	-379	2,897
5/02	28,789	+7,048	16,470	4,530	+230	2,321
5/03	32,127	+3,338	12,042	2,773	-1,757	1,726
	TOTAL MASS REMOVED		122,998	TOTAL MASS REMOVED		16,538

All values given in pounds.

FIGURES



LEGEND

● TH-16	MONITORING WELLS INSTALLED DURING 1972 FRED KLAIR & ASSOC. STUDY.
⊗ MW-24S&D	MONITORING WELLS INSTALLED DURING 1983 & 1986 GERAGHTY & MILLER, INC. STUDIES. S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
◈ MW-42S&D	MONITORING WELLS INSTALLED DURING PHASE I RI (TASK 3-E). S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
▼ PPB-09	DISPOSAL POND PERIMETER SOIL BORING EQUIPPED WITH ALLUVIAL AQUIFER PIEZOMETER.
*	WELLS ABANDONED ON APRIL 29 AND APRIL 30, 1997.

HMI Environmental Consulting Services

HydroSystems Management, Inc.
Glass Works Center - Suite 109
331 S. Main Street
Washington, Pennsylvania 15301

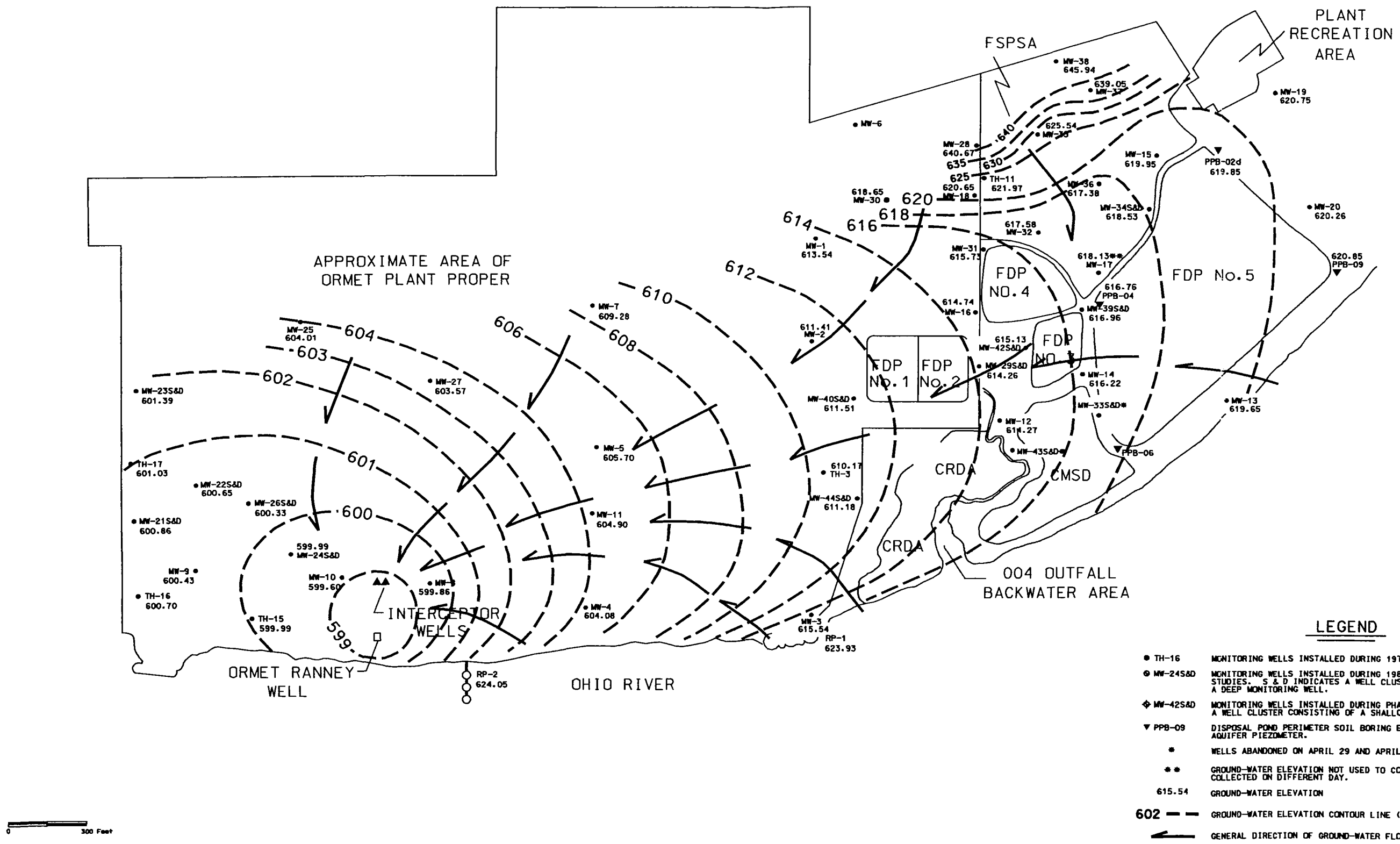
PROJECT NO.: HM00301	FILE NO:
DRAWING: BASEMAP	PLOT SIZE: 1"=300'
DRAFTED BY: SJP\EDA	DATE: 7/10/97
CHECKED BY:	DATE:
APPROVED BY:	DATE:
REVISION NO.:	DATE:

BASE MAP

ORMET CORPORATION

HANNIBAL OHIO

FIGURE 1



LEGEND

● TH-16	MONITORING WELLS INSTALLED DURING 1972 FRED KLAIR & ASSOC. STUDY.
⊙ MW-24S&D	MONITORING WELLS INSTALLED DURING 1983 & 1986 GERAGHTY & MILLER, INC. STUDIES. S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
◈ MW-42S&D	MONITORING WELLS INSTALLED DURING PHASE I RI (TASK 3-E). S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
▼ PPB-09	DISPOSAL POND PERIMETER SOIL BORING EQUIPPED WITH ALLUVIAL AQUIFER PIEZOMETER.
*	WELLS ABANDONED ON APRIL 29 AND APRIL 30, 1997.
**	GROUND-WATER ELEVATION NOT USED TO CONSTRUCT CONTOUR MAP. ELEVATION COLLECTED ON DIFFERENT DAY.
615.54	GROUND-WATER ELEVATION
602 — —	GROUND-WATER ELEVATION CONTOUR LINE (FEET MSL)
←	GENERAL DIRECTION OF GROUND-WATER FLOW

HMI Environmental Consulting Services

HydroSystems Management, Inc.
Glass Works Center - Suite 109
331 S. Main Street
Washington, Pennsylvania 15301

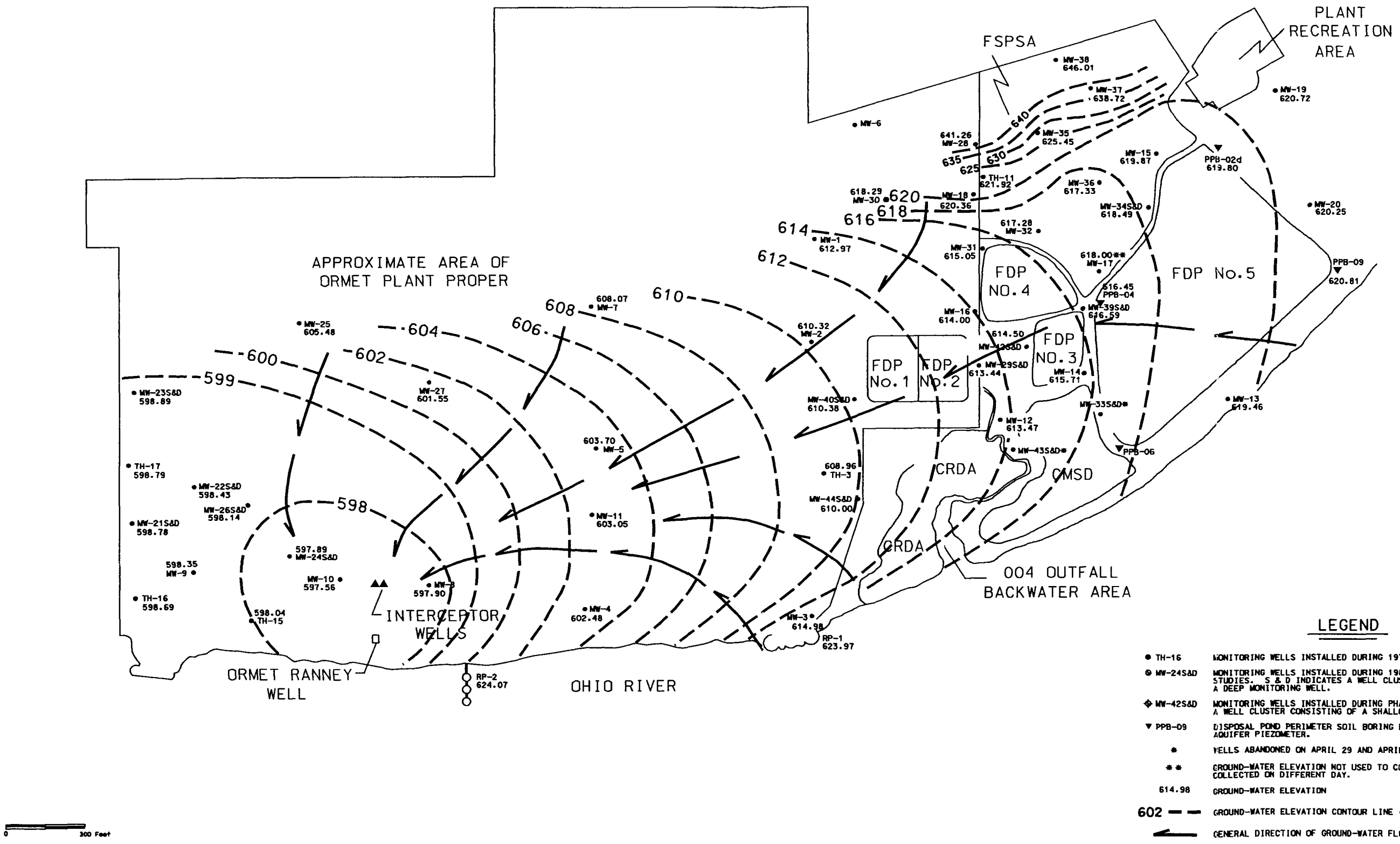
PROJECT NO.: HM00317	FILE NO:
DRAWING: C020304C	PLOT SIZE: 1"=300'
DRAFTED BY: JAW\EDA	DATE: 2/3/04
CHECKED BY: SCM\HM	DATE: 2/4/04
APPROVED BY: SCM\HM	DATE: 2/4/04
REVISION NO.:	DATE:

GROUND-WATER ELEVATION CONTOUR MAP (BASED ON DATA COLLECTED JANUARY 14, 2003)

ORMET CORPORATION

HANNIBAL OHIO

FIGURE 2



LEGEND

● TH-16	MONITORING WELLS INSTALLED DURING 1972 FRED KLAIR & ASSOC. STUDY.
⊙ MW-24S&D	MONITORING WELLS INSTALLED DURING 1983 & 1986 GERAGHTY & MILLER, INC. STUDIES. S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
◈ MW-42S&D	MONITORING WELLS INSTALLED DURING PHASE I RI (TASK 3-E). S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
▼ PPB-09	DISPOSAL POND PERIMETER SOIL BORING EQUIPPED WITH ALLUVIAL AQUIFER PIEZOMETER.
*	WELLS ABANDONED ON APRIL 29 AND APRIL 30, 1997.
**	GROUND-WATER ELEVATION NOT USED TO CONSTRUCT CONTOUR MAP. ELEVATION COLLECTED ON DIFFERENT DAY.
614.98	GROUND-WATER ELEVATION
602 — —	GROUND-WATER ELEVATION CONTOUR LINE (FEET MSL)
⟵	GENERAL DIRECTION OF GROUND-WATER FLOW

HMI
Environmental Consulting Services

HydroSystems Management, Inc.
Glass Works Center - Suite 109
331 S. Main Street
Washington, Pennsylvania 15301

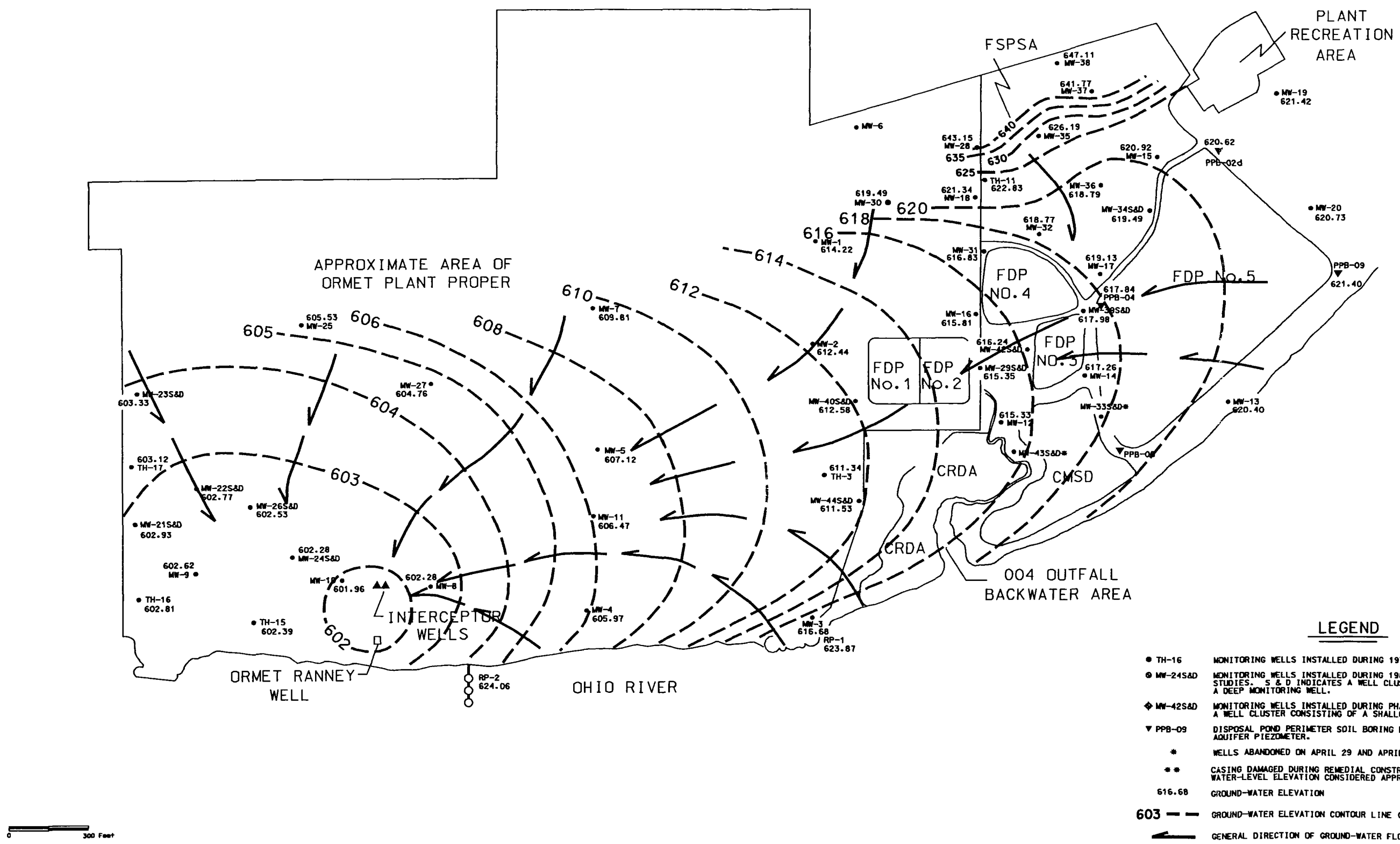
PROJECT NO.: HM00317	FILE NO:
DRAWING: C020304A	PLOT SIZE: 1"=300'
DRAFTED BY: JAW\EDA	DATE: 2/3/04
CHECKED BY: SCM\HM	DATE: 2/4/04
APPROVED BY: SCM/HM	DATE: 2/4/04
REVISION NO.:	DATE:

GROUND-WATER ELEVATION CONTOUR MAP (BASED ON DATA COLLECTED MAY 19, 2003)

ORMET CORPORATION

HANNIBAL OHIO

FIGURE 3



LEGEND

● TH-16	MONITORING WELLS INSTALLED DURING 1972 FRED KLAIR & ASSOC. STUDY.
⊙ MW-24S&D	MONITORING WELLS INSTALLED DURING 1983 & 1986 GERAGHTY & MILLER, INC. STUDIES. S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
◆ MW-42S&D	MONITORING WELLS INSTALLED DURING PHASE I RI (TASK 3-E). S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
▼ PPB-09	DISPOSAL POND PERIMETER SOIL BORING EQUIPPED WITH ALLUVIAL AQUIFER PIEZOMETER.
*	WELLS ABANDONED ON APRIL 29 AND APRIL 30, 1997.
**	CASING DAMAGED DURING REMEDIAL CONSTRUCTION WATER-LEVEL ELEVATION CONSIDERED APPROXIMATE.
616.68	GROUND-WATER ELEVATION
603 — —	GROUND-WATER ELEVATION CONTOUR LINE (FEET MSL)
◄	GENERAL DIRECTION OF GROUND-WATER FLOW

HMI Environmental Consulting Services

HydroSystems Management, Inc.
Glass Works Center - Suite 109
331 S. Main Street
Washington, Pennsylvania 15301

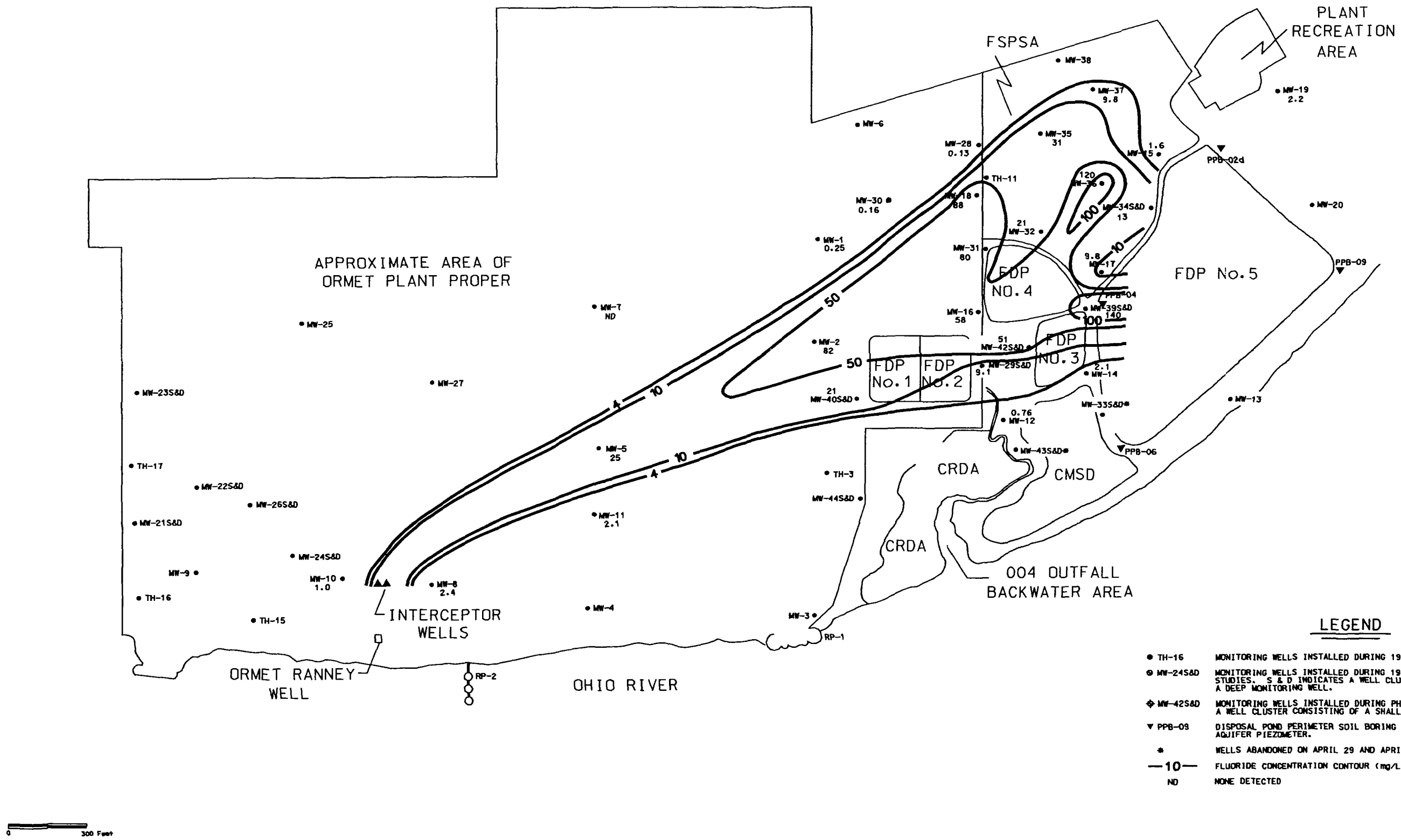
PROJECT NO.: HM00317	FILE NO:
DRAWING: C020304B	PLOT SIZE: 1"=300'
DRAFTED BY: JAW\EDA	DATE: 2/3/04
CHECKED BY: SCM\HM	DATE: 2/4/04
APPROVED BY: SCM\HM	DATE: 2/4/04
REVISION NO.:	DATE:

GROUND-WATER ELEVATION CONTOUR MAP (BASED ON DATA COLLECTED SEPTEMBER 10, 2003)

ORMET CORPORATION

HANNIBAL OHIO

FIGURE 4



LEGEND

● TH-16	MONITORING WELLS INSTALLED DURING 1972 FRED KLAIR & ASSOC. STUDY.
⊗ MW-24S&D	MONITORING WELLS INSTALLED DURING 1983 & 1986 GERAGHTY & MILLER, INC. STUDIES. S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
◆ MW-42S&D	MONITORING WELLS INSTALLED DURING PHASE I RI (TASK 3-E). S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
▼ PPB-09	DISPOSAL POND PERIMETER SOIL BORING EQUIPPED WITH ALLUVIAL AQUIFER PIEZOMETER.
*	WELLS ABANDONED ON APRIL 29 AND APRIL 30, 1997.
—10—	FLUORIDE CONCENTRATION CONTOUR (mg/L)
ND	NONE DETECTED

HMI Environmental Consulting Services

HydroSystems Management, Inc.
Glass Works Center - Suite 109
331 S. Main Street
Washington, Pennsylvania 15301

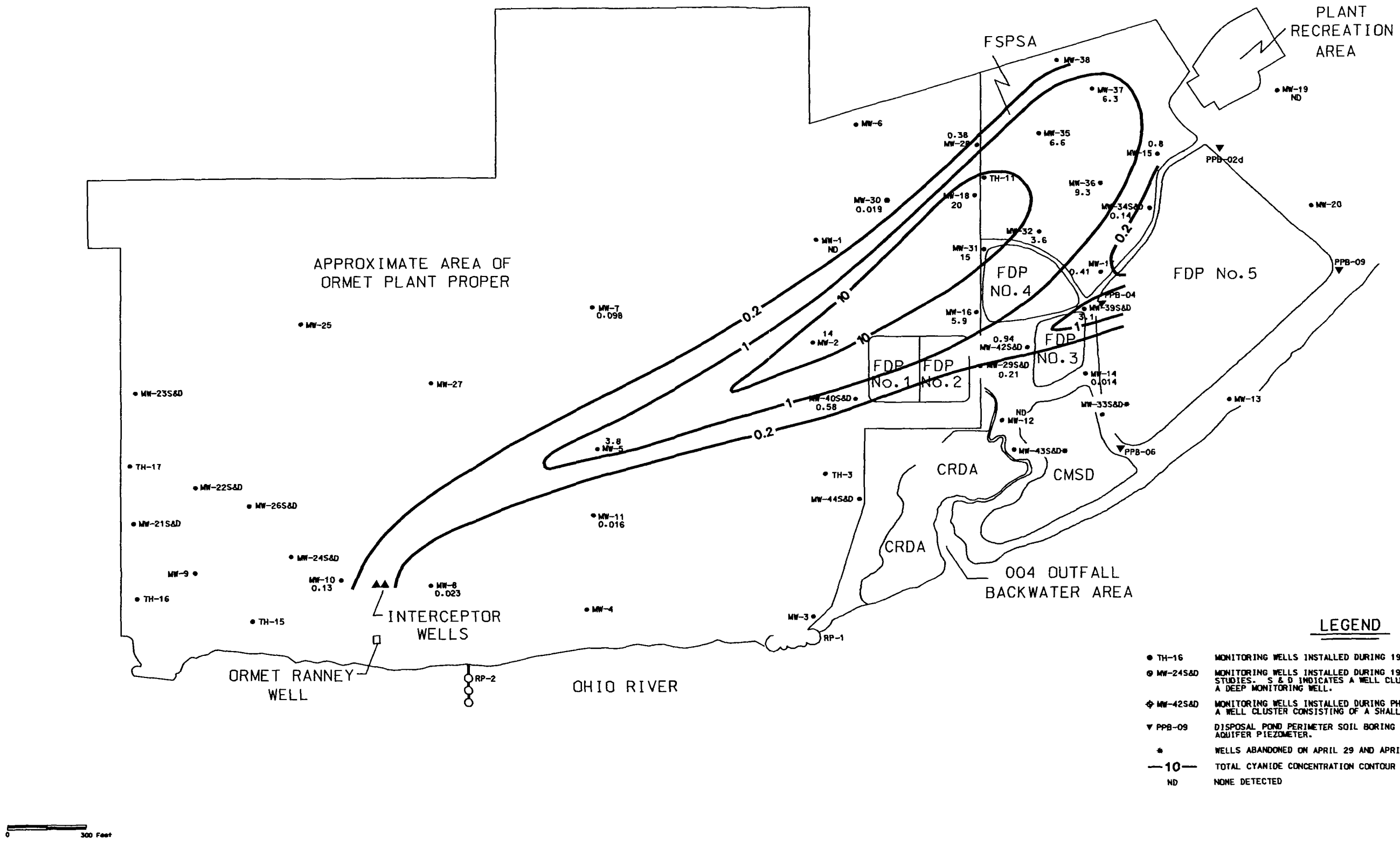
PROJECT NO.: HM00317	FILE NO:
DRAWING: C07H03A	PLOT SIZE: 1"=300'
DRAFTED BY: JAW\EDA	DATE: 7/14/03
CHECKED BY:	DATE:
APPROVED BY:	DATE:
REVISION NO.:	DATE:

FLUORIDE ISOPLETH MAP FOR THE ALLUVIAL AQUIFER (BASED ON SAMPLES COLLECTED MAY 20-22, 2003)

ORMET CORPORATION

HANNIBAL OHIO

FIGURE 5



LEGEND

● TH-16	MONITORING WELLS INSTALLED DURING 1972 FRED KLAIR & ASSOC. STUDY.
⊗ MW-24S&D	MONITORING WELLS INSTALLED DURING 1983 & 1986 GERAGHTY & MILLER, INC. STUDIES. S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
⊕ MW-42S&D	MONITORING WELLS INSTALLED DURING PHASE I RI (TASK 3-E). S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
▼ PPB-09	DISPOSAL POND PERIMETER SOIL BORING EQUIPPED WITH ALLUVIAL AQUIFER PIEZOMETER.
*	WELLS ABANDONED ON APRIL 29 AND APRIL 30, 1997.
—10—	TOTAL CYANIDE CONCENTRATION CONTOUR (mg/L)
ND	NONE DETECTED

HMI Environmental Consulting Services

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Glass Works Center - Suite 109
331 S. Main Street
Washington, Pennsylvania 15301

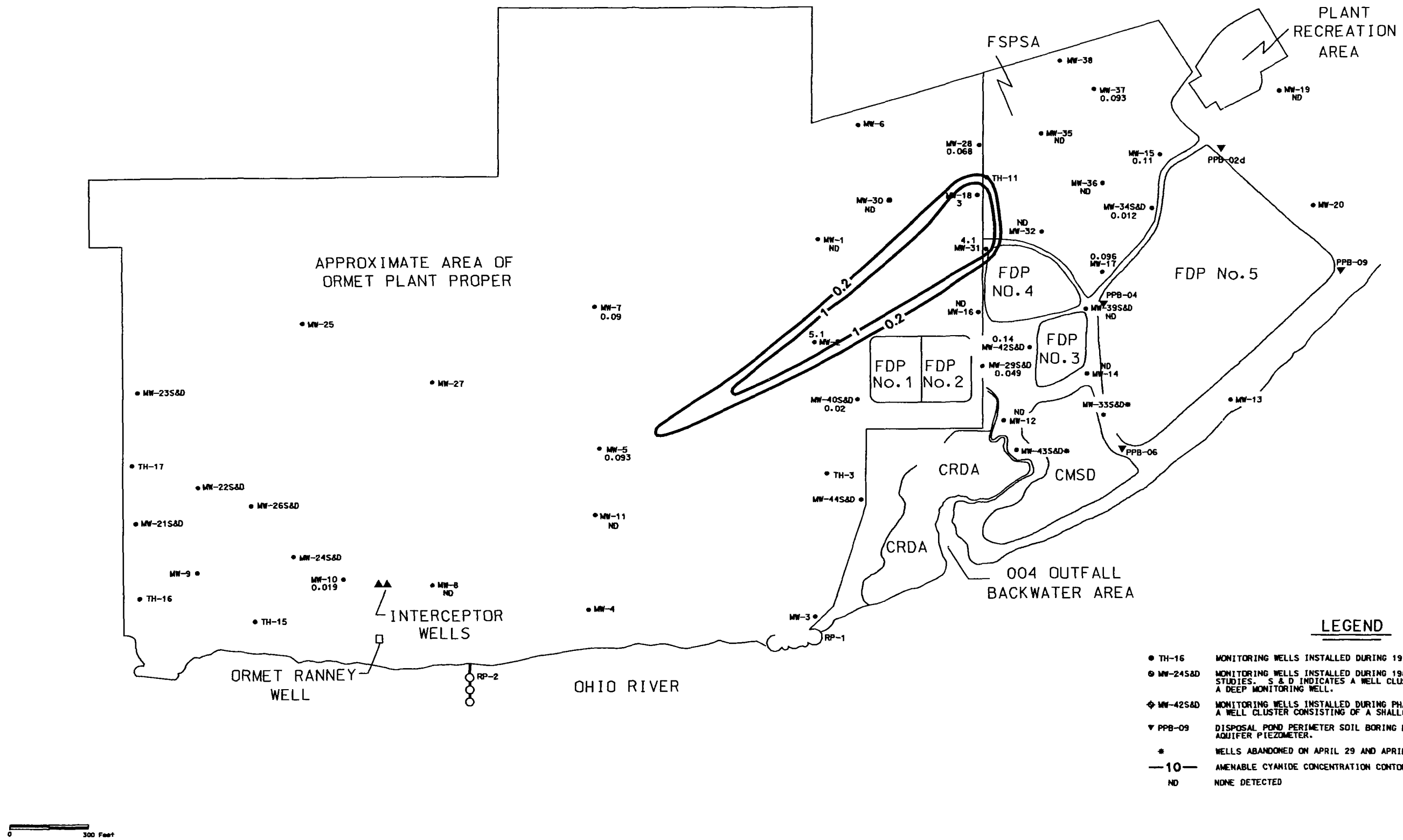
PROJECT NO.: HM00317	FILE NO:
DRAWING: C0714038	PLOT SIZE: 1"=300'
DRAFTED BY: JAW\EDA	DATE: 7/14/03
CHECKED BY:	DATE:
APPROVED BY:	DATE:
REVISION NO.:	DATE:

TOTAL CYANIDE ISOPLETH MAP FOR THE ALLUVIAL AQUIFER (BASED ON SAMPLES COLLECTED MAY 20-22, 2003)

ORMET CORPORATION

HANNIBAL OHIO

FIGURE 6



LEGEND

● TH-16	MONITORING WELLS INSTALLED DURING 1972 FRED KLAIR & ASSOC. STUDY.
⊗ MW-24S&D	MONITORING WELLS INSTALLED DURING 1983 & 1986 GERAGHTY & MILLER, INC. STUDIES. S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
◇ MW-42S&D	MONITORING WELLS INSTALLED DURING PHASE 1 RI (TASK 3-E). S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
▼ PPB-09	DISPOSAL POND PERIMETER SOIL BORING EQUIPPED WITH ALLUVIAL AQUIFER PIEZOMETER.
*	WELLS ABANDONED ON APRIL 29 AND APRIL 30, 1997.
—10—	AMENABLE CYANIDE CONCENTRATION CONTOUR (mg/L)
ND	NONE DETECTED

HMI Environmental Consulting Services

HydroSystems Management, Inc.
Glass Works Center - Suite 109
331 S. Main Street
Washington, Pennsylvania 15301

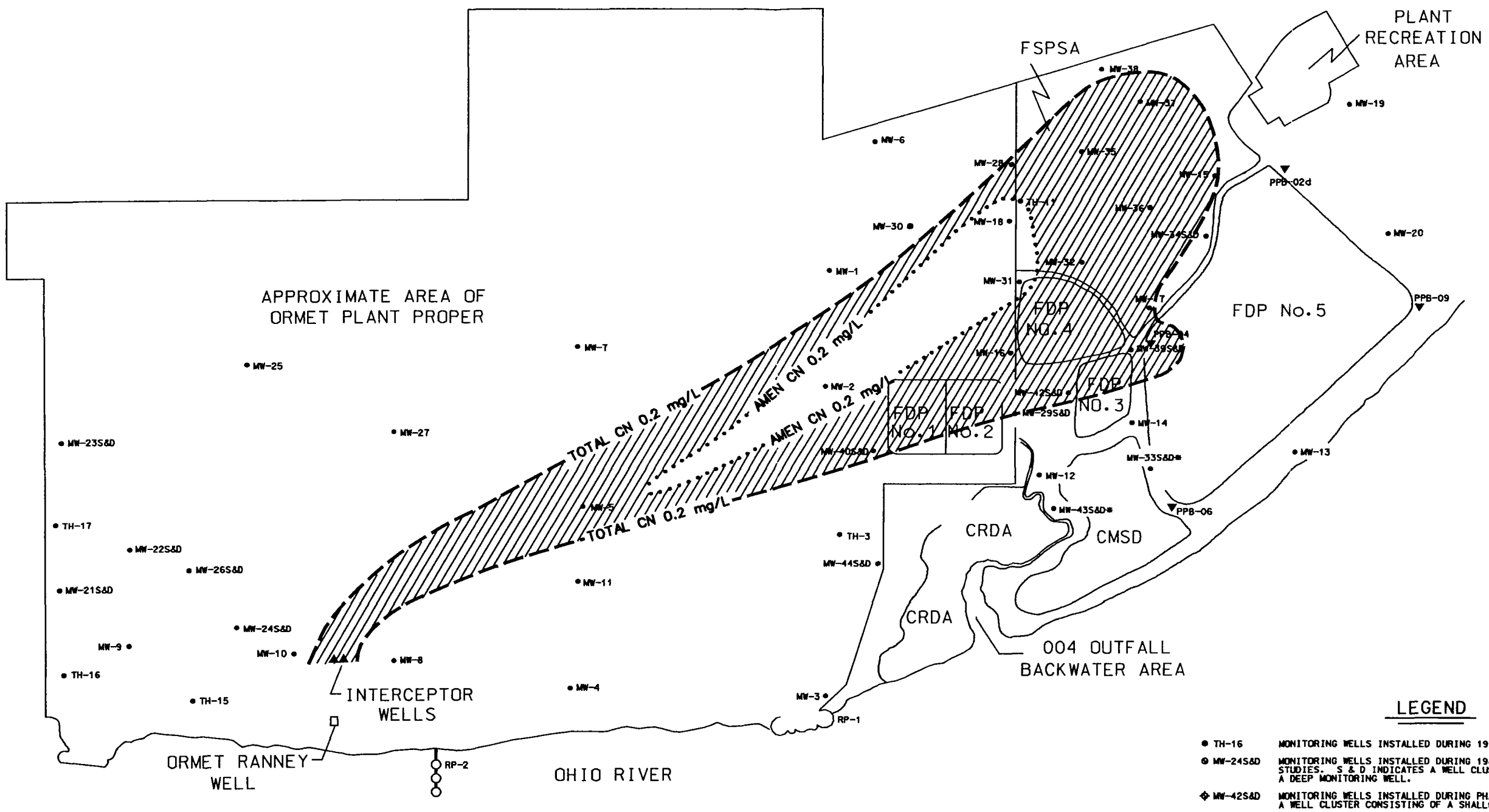
PROJECT NO.: HM00317	FILE NO:
DRAWING: C071403C	PLOT SIZE: 1"=300'
DRAFTED BY: JAW\EDA	DATE: 7/14/97
CHECKED BY:	DATE:
APPROVED BY:	DATE:
REVISION NO.:	DATE:

AMENABLE CYANIDE ISOPLETH MAP FOR THE ALLUVIAL AQUIFER (BASED ON SAMPLES COLLECTED MAY 20-22, 2003)

ORMET CORPORATION

HANNIBAL OHIO

FIGURE 7



LEGEND

● TH-16	MONITORING WELLS INSTALLED DURING 1972 FRED KLAIR & ASSOC. STUDY.
⊗ MW-24S&D	MONITORING WELLS INSTALLED DURING 1983 & 1986 GERAGHTY & MILLER, INC. STUDIES. S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
◈ MW-42S&D	MONITORING WELLS INSTALLED DURING PHASE I RI (TASK 3-E). S & D INDICATES A WELL CLUSTER CONSISTING OF A SHALLOW AND A DEEP MONITORING WELL.
▼ PPB-09	DISPOSAL POND PERIMETER SOIL BORING EQUIPPED WITH ALLUVIAL AQUIFER PIEZOMETER.
*	WELLS ABANDONED ON APRIL 29 AND APRIL 30, 1997.

HMI Environmental Consulting Services

HydroSystems Management, Inc.
Glass Works Center - Suite 109
331 S. Main Street
Washington, Pennsylvania 15301

PROJECT NO.: HM00317	FILE NO:
DRAWING: C0714030	PLOT SIZE: 1"=300'
DRAFTED BY: JAW\EDA	DATE: 7/14/03
CHECKED BY:	DATE:
APPROVED BY:	DATE:
REVISION NO.:	DATE:

2003 COMPARISON OF TOTAL VS. AMENABLE CYANIDE DISTRIBUTION IN GROUND-WATER (BASED ON 0.2 mg/L CONCENTRATION CONTOURS)

ORMET CORPORATION

HANNIBAL OHIO

FIGURE 8

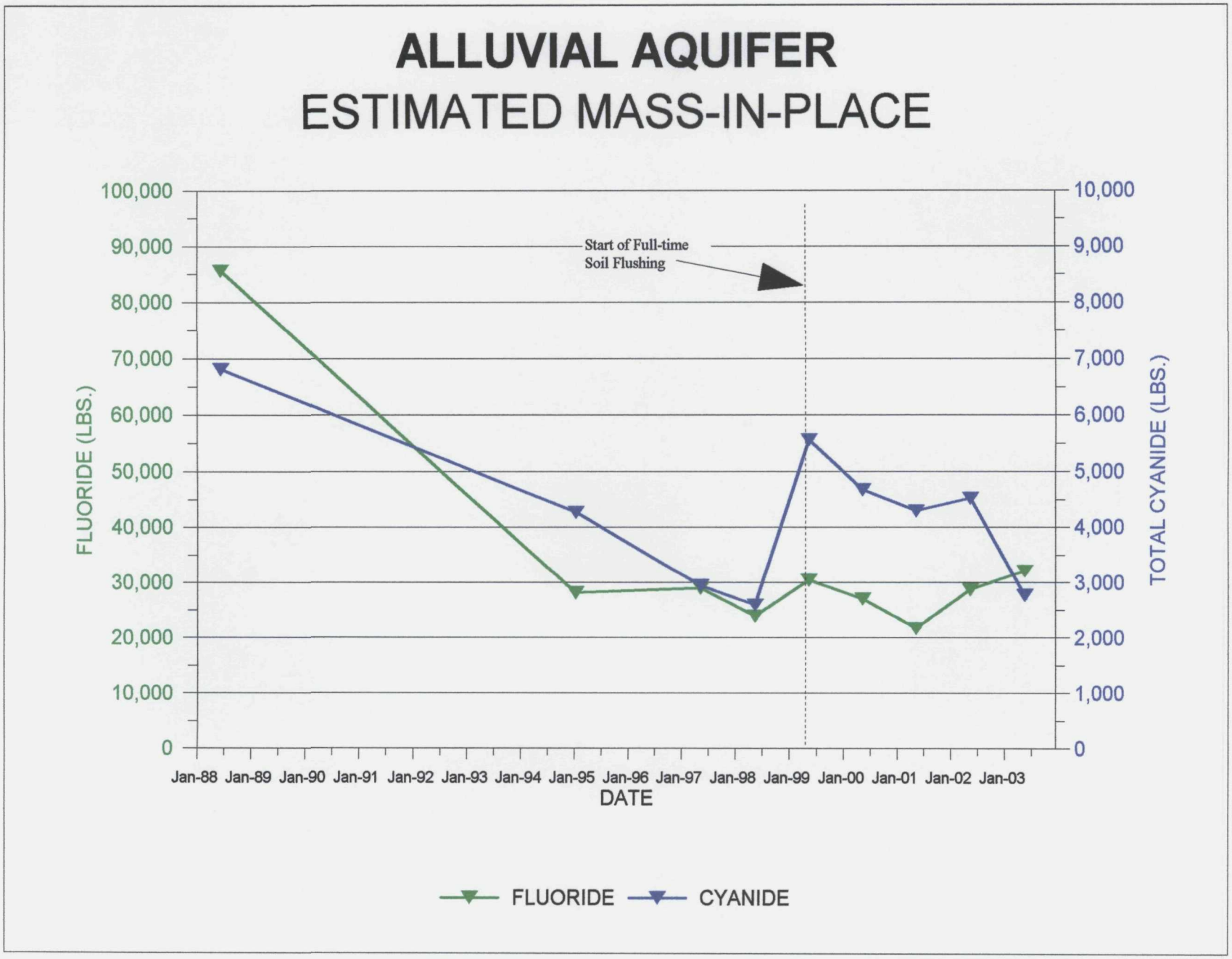

ALLUVIAL AQUIFER
ESTIMATED MASS-IN-PLACE
Start of Full-time
Soil Flushing
FLUORIDE (LBS.)
TOTAL CYANIDE (LBS.)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03
DATE
FLUORIDE
CYANIDE

FIGURE 9

APPENDIX A

APPENDIX A

WATER SAMPLING LOG FORMS

Appendix A-1	Water Sampling Log Forms for January 2003 Monitoring Event
Appendix A-2	Water Sampling Log Forms for May 2003 Monitoring Event
Appendix A-3	Water Sampling Log Forms for September 2003 Monitoring Event

APPENDIX A-1

WATER SAMPLING LOG FORMS FOR JANUARY 2003 MONITORING EVENT

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number:
Site Location: HANNIBAL, OHIO
Sampling Date: 1-15-03 Weather: Sunny 20

Sample ID: MW-2
Replicate ID: ~
Time Sampling Began: 1425
Time Sampling Completed: 1500

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 82.25
Depth to Water Below MP (DTW): 56.71
Water Column (WC) in Well [TD-DTW]: 25.54
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.0864 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 12.3
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Black / brown Odor: None Turbidity: H. silt

Well Volumes (gal.):	4	8	12.5	Final				
pH (s.u.):	10.00	9.98	9.99	9.97				
Sp. Cond. (µmhos/cm):	1756	1741	1740	1748				
Temperature (°C):	13°	13°	13°	13°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description From Lab ✓ or HMI ___	Preservative preserved by: Lab ✓ or HMI ___
DISS. AS, BE, MN, NA, V	500 ml. PLASTIC	HNO_3-FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250 ml. GLASS	NAOH
PH, SPEC. COND., F	250 ml. PLASTIC	4°C
PCE	2 x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: - Color does not filter out

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number:
Site Location: HANNIBAL, OHIO
Sampling Date: 1-15-03 Weather: Sunny 20

Sample ID: MW-5
Replicate ID: ~
Time Sampling Began: 1505
Time Sampling Completed: 1540

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 92.00
Depth to Water Below MP (DTW): 62.46
Water Column (WC) in Well [TD-DTW]: 29.54
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.7264

= Diameter of Well Casing: 2.0"
Gallons to be Purged: 14.2
(3 WCVs, 5 WCVs, etc.)
= Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: H. brown Odor: None Turbidity: cloudy / H. silt

Well Volumes (gal.):	4.5	9.0	14.2	Final				
pH (s.u.):	7.75	7.49	7.46	7.39				
Sp. Cond. (µmhos/cm):	1225	1209	1230	1208				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description From Lab ✓ or HMI ___	Preservative preserved by: Lab ✓ or HMI ___
DISS. AS, BE, MN, NA, V	500 ml. PLASTIC	HNO_3-FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250 ml. GLASS	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C
PCE	2 x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Color filters out

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number:
Site Location: HANNIBAL, OHIO
Sampling Date: 1-15-03 Weather: Sunny 20

Sample ID: MW-12
Replicate ID: ~
Time Sampling Began: 1335
Time Sampling Completed: 1415

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 68.42
Depth to Water Below MP (DTW): 22.46
Water Column (WC) in Well [TD-DTW]: 45.96
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.3536

- Diameter of Well Casing: 2.0"
Gallons to be Purged: 22.1
(3 WCVs) 5 WCVs, etc.)
= Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	7.5	15.0	22.1	Final				
pH (s.u.):	7.49	7.48	7.43	7.48				
Sp. Cond. (µmhos/cm):	546	560	562	564				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250 ml. GLASS	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C
PCB'S	2 X 1 LITER AMBER GLASS	4°C

Sampling Personnel: S. MENOSKY, J. KELLER
Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number:
Site Location: HANNIBAL, OHIO
Sampling Date: 1-15-03 Weather: Cloudy 15°

Sample ID: MW-16
Replicate ID: MW-16D
Time Sampling Began: 0940
Time Sampling Completed: 1030

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 83.12
Depth to Water Below MP (DTW): 47.98
Water Column (WC) in Well [TD-DTW]: 35.14
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: ~~34~~ 5.6224 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 17.0
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk brown / black Odor: None Turbidity: Stained

Well Volumes (gal.):	6	12	17	Final				
pH (s.u.):	7.44	7.81	7.90	7.78				
Sp. Cond. (µmhos/cm):	1313	1321	1331	1299				
Temperature (°C):	12.5°	12°	12°	12°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description From Lab ✓ or HMI ___	Preservative preserved by: Lab ✓ or HMI ___
DISS. AS, BE, MN, NA, V	500 ml. PLASTIC	HNO_3-FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250 ml. GLASS	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C
1		

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Field Filtering required (2) 1.0 Micron Filters

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number:
Site Location: HANNIBAL, OHIO
Sampling Date: 1-15-03 Weather: P- Cloudy 15°

Sample ID: MW-18
Replicate ID: ~
Time Sampling Began: 1035
Time Sampling Completed: 1100

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 61.16
Depth to Water Below MP (DTW): 40.26
Water Column (WC) in Well [TD-DTW]: 20.90
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.344 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 10.05
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.25	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: V. Silty

Well Volumes (gal.):	3	6 *	10	Final				
pH (s.u.):	9.54	9.55		9.57				
Sp. Cond. (µmhos/cm):	1975	2200		2160				
Temperature (°C):	12°	12°		12°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250 ml. GLASS	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C
PCE	2 x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: * Dewatered @ ~ 6.5 gal, sampled upon recovery

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Sample ID: MW-28
Project Number:
Replicate ID: ~
Site Location: HANNIBAL, OHIO
Time Sampling Began: 1105
Sampling Date: 1-15-03 Weather: Cloudy 15°
Time Sampling Completed: 1130

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Diameter of Well Casing: 2.0"
Total Sounded Depth of Well Below MP (TD): 46.20
Gallons to be Purged: 11.4
Depth to Water Below MP (DTW): 22.60
(3 WCVs) 5 WCVs, etc.)
Water Column (WC) in Well [TD-DTW]: 23.60
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.776 = Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: lt. brown Odor: None Turbidity: Cloudy

Well Volumes (gal.):	4	8	11.5	Final				
pH (s.u.):	6.29	6.21	6.02	5.99				
Sp. Cond. (µmhos/cm):	451	447	447	462				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250 ml. GLASS	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C
1		

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Color filters out

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number:
Site Location: HANNIBAL, OHIO
Sampling Date: 1-15-03 Weather: Sunny 17°

Sample ID: MW-31
Replicate ID: MW-31D
Time Sampling Began: 1135
Time Sampling Completed: 1220

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 67.58
Depth to Water Below MP (DTW): 45.86
Water Column (WC) in Well [TD-DTW]: 21.72
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.4752 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 10.5
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Black/brown Odor: None Turbidity: Silty

Well Volumes (gal.):	3.5	7.0	10.5	Final				
pH (s.u.):	9.82	9.91	9.92	9.93				
Sp. Cond. (µmhos/cm):	2230	2280	2260	2270				
Temperature (°C):	13°	13°	13°	12°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250 ml. GLASS	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C
PCE	2 x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:
- Color does not filter out
- Filtering required (2) 1.0 micron filters

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number:
Site Location: HANNIBAL, OHIO
Sampling Date: 1-16-03 Weather: Cloudy 15°

Sample ID: MW-32
Replicate ID: ~
Time Sampling Began: 0915
Time Sampling Completed: 0940

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 57.36
Depth to Water Below MP (DTW): 39.08
Water Column (WC) in Well [TD-DTW]: 18.28
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.9248 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 9.0
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Bleeky brown Odor: None Turbidity: Stained

Well Volumes (gal.):	3	6	9	Final				
pH (s.u.):	7.11	7.50	7.54	7.70				
Sp. Cond. (µmhos/cm):	708	736	753	768				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description From Lab ✓ or HMI ___	Preservative preserved by: Lab ✓ or HMI ___
DISS. AS, BE, MN, NA, V	500 ml. PLASTIC	HNO_3-FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250 ml. GLASS	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C
1		

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Color mostly filters out

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number:
Site Location: HANNIBAL, OHIO
Sampling Date: 1-16-03 Weather: Cloudy 15°

Sample ID: MW-35
Replicate ID: ~
Time Sampling Began: 1040
Time Sampling Completed: 1105

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 46.94
Depth to Water Below MP (DTW): 36.36
Water Column (WC) in Well [TD-DTW]: 10.58
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 1.6928 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 5.10
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Black/brown Odor: Rotten egg Turbidity: Silty

Well Volumes (gal.):	1.5	3.5 ★	5.1	Final				
pH (s.u.):	9.05	8.83		8.94				
Sp. Cond. (µmhos/cm):	619	518		621				
Temperature (°C):	13°	13°		13°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250 ml. GLASS	NAOH
PH, SPEC. COND., F	250 ml. PLASTIC	4°C
1		

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: ★ Dewatered @ 3.0 gal, sampled upon rec

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number:
Site Location: HANNIBAL, OHIO
Sampling Date: 1-16-03 Weather: Cloudy 15°

Sample ID: MW-36
Replicate ID: ~
Time Sampling Began: 0950
Time Sampling Completed: 1010

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 52.08
Depth to Water Below MP (DTW): 37.76
Water Column (WC) in Well [TD-DTW]: 14.32
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.2912 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 6.9
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.25	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Black/brown Odor: None Turbidity: H. silt

Well Volumes (gal.):	2.5	5.0	7.0	Final				
pH (s.u.):	9.60	9.63	9.62	9.65				
Sp. Cond. (µmhos/cm):	2190	2250	2240	2130				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250 ml. GLASS	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C
1		

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Color does not filter out

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number:
Site Location: HANNIBAL, OHIO
Sampling Date: 1-16-03 Weather: Cloudy 15°

Sample ID: MW-37
Replicate ID: ~
Time Sampling Began: 1015
Time Sampling Completed: 1035

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 36.90
Depth to Water Below MP (DTW): 22.09
Water Column (WC) in Well [TD-DTW]: 14.81
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.3696 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 7.2
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: V. Silty

Well Volumes (gal.):	2.5	5.0 *	7.2	Final				
pH (s.u.):	8.14	7.99		7.89				
Sp. Cond. (µmhos/cm):	630	605		608				
Temperature (°C):	13°	14°		14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250 ml. GLASS	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: * Dewatered @ 5.0 gal Sampled upon recovery
- Color mostly filtered out

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number:
Site Location: HANNIBAL, OHIO
Sampling Date: 1-15-03 Weather: Sunny 20's

Sample ID: MW-44S
Replicate ID: ~
Time Sampling Began: 1525
Time Sampling Completed: 1626

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 69.05
Depth to Water Below MP (DTW): 50.83
Water Column (WC) in Well [TD-DTW]: 18.22
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.9152 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 8.75
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1½" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Lt. tan Odor: None Turbidity: cloudy

Well Volumes (gal.):	3	6	8.75	Final				
pH (s.u.):	7.05	7.10	7.15	7.11				
Sp. Cond. (µmhos/cm):	663	656	659	681				
Temperature (°C):	14°	14°	14°	13°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
PCB'S	2 x 1 LITER AMBER GLASS	4°C

Sampling Personnel: S. MENOSKY, J. KELLER
Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number:
Site Location: HANNIBAL, OHIO
Sampling Date: 1-15-03 Weather: Sunny 20

Sample ID: MW-44D
Replicate ID: ~
Time Sampling Began: 1545
Time Sampling Completed: 1615

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 93.97
Depth to Water Below MP (DTW): 51.38
Water Column (WC) in Well [TD-DTW]: 42.59
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.8144 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 20.5
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.25	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	7	14	20.5	Final				
pH (s.u.):	7.51	7.20	7.27	7.47				
Sp. Cond. (µmhos/cm):	511	550	548	553				
Temperature (°C):	14°	13°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
PCB'S	2 x 1 LITER AMBER GLASS	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

APPENDIX A-2

WATER SAMPLING LOG FORMS FOR MAY 2003 MONITORING EVENT

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL

Project Number: HM00317

Site Location: HANNIBAL, OHIO

Sampling Date: 5-20-03 Weather: Cloudy 70

Sample ID: MW-1

Replicate ID: ~

Time Sampling Began: 1600

Time Sampling Completed: 1616

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC

MP Elevation:

Total Sounded Depth of Well Below MP (TD): 71.11

Depth to Water Below MP (DTW): 55.10

Water Column (WC) in Well [TD-DTW]: 16.01

Gallons per foot (GPF); from chart: 0.16

Gallons in Well [WC x GPF]: 2.5616 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"

Gallons to be Purged: 7.7

(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: Silty

Well Volumes (gal.):	2.5	5.0	7.7	Final				
pH (s.u.):	6.10	6.40	6.41	6.39				
Sp. Cond. (µmhos/cm):	484	426	425	416				
Temperature (°C):	16°	16°	16°	16°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. Cond., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-20-03 Weather: Cloudy 60's

Sample ID: MW-2
Replicate ID: MW-2D
Time Sampling Began: 1236
Time Sampling Completed: 1305

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 85.23
Depth to Water Below MP (DTW): 57.80
Water Column (WC) in Well [TD-DTW]: 27.43
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.3888 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 13.2
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Black brown Odor: None Turbidity: Stained

Well Volumes (gal.):	4.5	9.0	13.2	Final				
pH (s.u.):	10.11	10.10	10.10	10.08				
Sp. Cond. (µmhos/cm):	1253	1249	1244	1246				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, Be, MN, NA, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. COND., F	500 ml. PLASTIC	4°C
TETRACHLOROETHENE	3 x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Color does not filter out

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-20-03 Weather: Cloudy 66

Sample ID: MW-5
Replicate ID: ~
Time Sampling Began: 0930
Time Sampling Completed: 0955

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 91.88
Depth to Water Below MP (DTW): 64.46
Water Column (WC) in Well [TD-DTW]: 27.42
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.3872 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 13.2
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: H. brown, iced tea color Odor: None Turbidity: Stained

Well Volumes (gal.):	4.5	9.0	13.2	Final				
pH (s.u.):	8.00	8.42	8.53	8.55				
Sp. Cond. (µmhos/cm):	799	798	798	797				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. Cond., F	500 ml. PLASTIC	4°C
TETRACHLOROETHENE	3 x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Color filters out

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-20-03 Weather: Cloudy

Sample ID: MW-7
Replicate ID: ~
Time Sampling Began: 0900
Time Sampling Completed: 0928

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 79.70
Depth to Water Below MP (DTW): 59.87
Water Column (WC) in Well [TD-DTW]: 19.83
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.1728 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 9.6
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: V. Silty, cloudy

Well Volumes (gal.):	3.5	7.0	10.0	Final				
pH (s.u.):	5.82	5.78	5.78	5.85				
Sp. Cond. (µmhos/cm):	641	636	635	627				
Temperature (°C):	35°	36°	36°	36°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, Be, MN, NA, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-20-03 Weather: Rain 60's

Sample ID: MW-8
Replicate ID: ~
Time Sampling Began: 1040
Time Sampling Completed: 1105

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 99.78
Depth to Water Below MP (DTW): 69.81
Water Column (WC) in Well [TD-DTW]: 29.97
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.7952 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 14.4
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: H. tan Odor: None Turbidity: H. silt

Well Volumes (gal.):	5	10	14.4	Final				
pH (s.u.):	7.93	7.91	7.91	7.90				
Sp. Cond. (µmhos/cm):	439	440	439	440				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, Be, MN, NA, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Color filters out

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-20-03 Weather: Cloudy 60's

Sample ID: MW-10
Replicate ID: ~
Time Sampling Began: 1110
Time Sampling Completed: 1142

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 100.72
Depth to Water Below MP (DTW): 69.60
Water Column (WC) in Well [TD-DTW]: 31.12
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.9792 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 14.92
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: brown Odor: None Turbidity: Silty

Well Volumes (gal.):	5	10	15	Final				
pH (s.u.):	7.23	7.23	7.12	7.23				
Sp. Cond. (µmhos/cm):	889	889	893	897				
Temperature (°C):	30°	30°	30°	30°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. Cond., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-20-03 Weather: Cloudy 60's

Sample ID: MW-11
Replicate ID: ~
Time Sampling Began: 0958
Time Sampling Completed: 1030

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 97.35
Depth to Water Below MP (DTW): 64.26
Water Column (WC) in Well [TD-DTW]: 33.09
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 5.2944 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 16.0
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: clear Odor: None Turbidity: clear

Well Volumes (gal.):	5.5	11.0	16.0	Final				
pH (s.u.):	8.27	8.00	7.97	7.99				
Sp. Cond. (µmhos/cm):	413	409	407	405				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, BE, MN, NA, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-22-03 Weather: Sunny 50's

Sample ID: MW-12
Replicate ID: ~
Time Sampling Began: 0800
Time Sampling Completed: 0825

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 68.24
Depth to Water Below MP (DTW): 23.26
Water Column (WC) in Well [TD-DTW]: 44.98
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.1968 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 21.6
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	8	16	21.6	Final				
pH (s.u.):	7.23	7.22	7.19	7.21				
Sp. Cond. (µmhos/cm):	441	437	432	421				
Temperature (°C):	14°	14°	14°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, BE, MN, NA, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4°C
PCB'S	1 LITER GLASS	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HM07-DTWS-LOG.WK3

HMI
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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-22-03 Weather: P-cloudy 50's

Sample ID: MW-14
Replicate ID: ~
Time Sampling Began: 0831
Time Sampling Completed: 0910

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 86.90
Depth to Water Below MP (DTW): 37.88
Water Column (WC) in Well [TD-DTW]: 49.02
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.8432 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 23.5
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: clear Odor: None Turbidity: clear

Well Volumes (gal.):	8	16	23.5	Final				
pH (s.u.):	7.20	7.20	7.20	7.20				
Sp. Cond. (µmhos/cm):	398	399	397	398				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-21-03 Weather: Cloudy 50's

Sample ID: MW-15
Replicate ID: ~
Time Sampling Began: 1151
Time Sampling Completed: 1215

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 57.86
Depth to Water Below MP (DTW): 37.44
Water Column (WC) in Well [TD-DTW]: 20.42
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.2672 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 9.80
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. brown/black Odor: None Turbidity: H. silt

Well Volumes (gal.):	3.5	7.0	10.0	Final				
pH (s.u.):	8.00	7.85	7.50	7.47				
Sp. Cond. (µmhos/cm):	433	427	449	469				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. Cond., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Color filters at

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-21-03 Weather: Cloudy 50's

Sample ID: MW-16
Replicate ID: MW-16D
Time Sampling Began: 0745
Time Sampling Completed: 0834

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 83.11
Depth to Water Below MP (DTW): 48.72
Water Column (WC) in Well [TD-DTW]: 34.39
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 5.5024

Diameter of Well Casing: 2.0"
Gallons to be Purged: 16.51
(3 WCVs, 5 WCVs, etc.)
= Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. brown Odor: None Turbidity: H. silt

Well Volumes (gal.):	6	12	17	Final				
pH (s.u.):	7.97	7.98	8.03	8.17				
Sp. Cond. (µmhos/cm):	942	938	940	933				
Temperature (°C):	13°	14°	14°	13°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. Cond., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Color does not filter out

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-21-03 Weather: Sunny 70

Sample ID: MW-17
Replicate ID: ~
Time Sampling Began: 1520
Time Sampling Completed: 1660

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 77.91
Depth to Water Below MP (DTW): 37.03
Water Column (WC) in Well [TD-DTW]: 40.88
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.5408

Diameter of Well Casing: 2.0"
Gallons to be Purged: 19.62
(3 WCVs, 5 WCVs, etc.)
= Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: H. silt

Well Volumes (gal.):	7	14	20	Final				
pH (s.u.):	7.71	7.79	7.81	7.80				
Sp. Cond. (µmhos/cm):	438	432	433	435				
Temperature (°C):	13°	13°	13°	13°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. Cond., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-20-03 Weather: Rain

Sample ID: MW-18
Replicate ID: MW-18D
Time Sampling Began: 1420
Time Sampling Completed: 1500

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 57.00
Depth to Water Below MP (DTW): 40.55
Water Column (WC) in Well [TD-DTW]: 16.45
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.632 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 7.9
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown, Swirly Odor: None Turbidity: V. Silty

Well Volumes (gal.):	3	6	8	Final				
pH (s.u.):	9.70	9.65	9.68	9.58				
Sp. Cond. (µmhos/cm):	1266	1036	1374	1257				
Temperature (°C):	15°	15°	15°	15				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. COND., F	500 ml. PLASTIC	4°C
TETRACHLOROETHENE	3x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Bailed dry @ 7 gallons, removed addit gallon and sample

HM07 07WS LOG WK3

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Sample ID: MW-19
Project Number: HM00317
Replicate ID: ~
Site Location: HANNIBAL, OHIO
Time Sampling Began: 0715
Sampling Date: 5-20-03 Weather: Sunny 60
Time Sampling Completed: 0815

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC

MP Elevation:

Total Sounded Depth of Well Below MP (TD): 65.20

Depth to Water Below MP (DTW): 41.31

Water Column (WC) in Well [TD-DTW]: 23.89

Gallons per foot (GPF); from chart: 0.16

Gallons in Well [WC x GPF]: 3.8224 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"

Gallons to be Purged: 11.5

(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: V. Fine Silt, cloudy

Well Volumes (gal.):	4	8	12	Final				
pH (s.u.):	7.40	7.38	7.35	7.38				
Sp. Cond. (µmhos/cm):	402	422	419	420				
Temperature (°C):	12°	12°	12°	12				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-20-03 Weather: cloudy 70

Sample ID: MW-28
Replicate ID: ~
Time Sampling Began: 1530
Time Sampling Completed: 1555

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 46.06
Depth to Water Below MP (DTW): 22.01
Water Column (WC) in Well [TD-DTW]: 24.05
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.848 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 11.6
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: lt. brown Odor: None Turbidity: Translucent

Well Volumes (gal.):	4	8	11.6	Final				
pH (s.u.):	6.40	6.36	6.02	6.09				
Sp. Cond. (µmhos/cm):	309	305	305	305				
Temperature (°C):	14°	14°	14°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, Be, MN, NA, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-20-03 Weather: Cloudy 70

Sample ID: MW-29S
Replicate ID: ~
Time Sampling Began: 1625
Time Sampling Completed: 1651

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 61.35
Depth to Water Below MP (DTW): 39.96
Water Column (WC) in Well [TD-DTW]: 21.39
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.4224 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 10.3
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: H. tan tint Odor: none Turbidity: clear

Well Volumes (gal.):	3.5	7.0	10.3	Final				
pH (s.u.):	7.59	7.66	7.77	7.81				
Sp. Cond. (µmhos/cm):	745	751	761	759				
Temperature (°C):	15°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, Be, MN, NA, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, Spec. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-20-03 Weather: Cloudy 70's

Sample ID: MW-29D
Replicate ID: ~
Time Sampling Began: 1625
Time Sampling Completed: 1652

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 81.98
Depth to Water Below MP (DTW): 39.58
Water Column (WC) in Well [TD-DTW]: 42.40
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.784 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 20.4
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	7	14	20.5	Final				
pH (s.u.):	7.29	7.60	7.70	7.74				
Sp. Cond. (µmhos/cm):	450	456	458	449				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. Cond., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-20-03 Weather: Cloudy 70

Sample ID: MW-30
Replicate ID: ~
Time Sampling Began: 1505
Time Sampling Completed: 1525

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 60.41
Depth to Water Below MP (DTW): 49.29
Water Column (WC) in Well [TD-DTW]: 11.12
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 1.7792 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 5.3
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown, silty Odor: None Turbidity: Silty

Well Volumes (gal.):	1.5	3.0	5.3	Final				
pH (s.u.):	7.97	8.00	*	6.70				
Sp. Cond. (µmhos/cm):	348	349		342				
Temperature (°C):	15°	15°		15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, Be, MN, NA, V	250ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250ml. PLASTIC	NAOH
pH, Spec. COND., F	500ml. PLASTIC	4°C
TETRACHLOROETHENE	3x 40ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: * Bailed dry @ 4 gallons, sample upon recovery

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-21-03 Weather: Cloudy 50's

Sample ID: MW-31
Replicate ID: ~
Time Sampling Began: 1025
Time Sampling Completed: 1055

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 67.51
Depth to Water Below MP (DTW): 46.54
Water Column (WC) in Well [TD-DTW]: 20.97
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.3552 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 10.07
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dark brown/black Odor: None Turbidity: H. Silt stained

Well Volumes (gal.):	3.5	7.0	10.07	Final				
pH (s.u.):	10.01	9.98	10.02	10.00				
Sp. Cond. (µmhos/cm):	1,301	1,292	1311	1310				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, BE, MN, NA, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. COND., F	500 ml. PLASTIC	4°C
TETRACHLOROETHENE	3x40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Color does not filter out

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-21-03 Weather: Cloudy 50's

Sample ID: MW-32
Replicate ID: ~
Time Sampling Began: 1052
Time Sampling Completed: 1620

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 57.18
Depth to Water Below MP (DTW): 39.38
Water Column (WC) in Well [TD-DTW]: 17.80
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.848 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 8.544
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. black/brown Odor: None Turbidity: H. silt stained

Well Volumes (gal.):	3	6	8.5	Final				
pH (s.u.):	8.47	8.39	8.45	8.47				
Sp. Cond. (µmhos/cm):	567	597	616	616				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-21-03 Weather: P-Cloudy, 70

Sample ID: MW-34S
Replicate ID. ~
Time Sampling Began: 1430
Time Sampling Completed: 1515

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 49.35
Depth to Water Below MP (DTW): 37.18
Water Column (WC) in Well [TD-DTW]: 12.17
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 1.9472 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 5.84
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dark brown Odor: None Turbidity: V. Silty

Well Volumes (gal.):	2	4	6	Final				
pH (s.u.):	7.59	7.63	7.70	7.63				
Sp. Cond. (µmhos/cm):	559	544	623	520				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250ml. PLASTIC	NAOH
pH, Spec. Cond., F	500ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Color mostly filters out

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Sample ID: MW-34D
Project Number: HM00317
Replicate ID: ~
Site Location: HANNIBAL, OHIO
Time Sampling Began: 1435
Sampling Date: 5-21-03
Weather: Hot P. Cloudy 70°
Time Sampling Completed: 1508

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC

MP Elevation:

Diameter of Well Casing: 2.0"

Total Sounded Depth of Well Below MP (TD): 68.24

Gallons to be Purged: 15.8

Depth to Water Below MP (DTW): 35.32

(3 WCVs, 5 WCVs, etc.)

Water Column (WC) in Well [TD-DTW]: 32.92

Gallons per foot (GPF); from chart: 0.16

Gallons in Well [WC x GPF]: 5.2612 = Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: lt. brown Odor: None Turbidity: cloudy

Well Volumes (gal.):	5.5	11.0	16.0	Final				
pH (s.u.):	7.82	7.66	7.52	7.52				
Sp. Cond. (µmhos/cm):	468	473	473	470				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. Cond., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: Color filters out

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-21-03 Weather: Cloudy 50's

Sample ID: MW-35
Replicate ID: ~
Time Sampling Began: 1005
Time Sampling Completed: 1020

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 46.70
Depth to Water Below MP (DTW): 36.55
Water Column (WC) in Well [TD-DTW]: 10.15
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 1.624 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 4.9
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: DK. black Odor: Mild Earthy Turbidity: Stained, silty

Well Volumes (gal.):	1.5	3.0	4.9	Final				
pH (s.u.):	9.46	9.10		9.05				
Sp. Cond. (µmhos/cm):	447	367		466				
Temperature (°C):	14°	14°		14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. Cond., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: ~~Dark~~ Bailed dry @ 3 gal sampled upon recovery
Color somewhat filters out

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-21-03 Weather: Cloudy 50's

Sample ID: MW-36
Replicate ID: ~
Time Sampling Began: 1125
Time Sampling Completed: 1145

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 52.08
Depth to Water Below MP (DTW): 37.81
Water Column (WC) in Well [TD-DTW]: 14.27
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.2832 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 6.9
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. brown/black Odor: None Turbidity: stained, H. silt

Well Volumes (gal.):	2.5	5.0	7.0	Final				
pH (s.u.):	9.76	9.79	9.79	9.80				
Sp. Cond. (µmhos/cm):	1,404	1,427	1,428	1,422				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, Be, MN, NA, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Color does not filter out

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Sample ID: MW-37
Project Number: HM00317
Replicate ID: ~
Site Location: HANNIBAL, OHIO
Time Sampling Began: 0940
Sampling Date: 5-21-03 Weather: Cloudy 50's
Time Sampling Completed: 1000

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC

MP Elevation:
Diameter of Well Casing: 2.0"
Total Sounded Depth of Well Below MP (TD): 36.98
Gallons to be Purged: 7.0
Depth to Water Below MP (DTW): 22.42
(3 WCVs) 5 WCVs, etc.)
Water Column (WC) in Well [TD-DTW]: 14.56
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.3296 = Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: lt. brown Odor: None Turbidity: V. silty

Well Volumes (gal.):	2.5	5.0	7.0	Final				
pH (s.u.):	7.80	7.60	7.50	7.50				
Sp. Cond. (µmhos/cm):	337	336	333	342				
Temperature (°C):	13°	13°	13°	13°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, BE, MN, NA, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: Some color filters out

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Sample ID: MW-39S
Project Number: HM00317
Replicate ID: ~
Site Location: HANNIBAL, OHIO
Time Sampling Began: 1608
Sampling Date: 5-21-03 Weather: Sunny 70's
Time Sampling Completed: 1650

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Diameter of Well Casing: 2.0"
Total Sounded Depth of Well Below MP (TD): 60.23
Gallons to be Purged: 9.4
Depth to Water Below MP (DTW): 40.71
(3 WCVs) 5 WCVs, etc.)
Water Column (WC) in Well [TD-DTW]: 19.52
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.1232 = Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Odor: Turbidity:

Well Volumes (gal.):	3.5	7.0	9.4	Final				
pH (s.u.):	9.23	9.21	9.20					
Sp. Cond. (µmhos/cm):	4,470	4,320	4,120					
Temperature (°C):	15°	15°	15°					
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. Cond., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL

Project Number: HM00317

Site Location: HANNIBAL, OHIO

Sampling Date: 5-21-03 Weather: Sunny 70's

Sample ID: MW-39D

Replicate ID: ~

Time Sampling Began: 1610

Time Sampling Completed: 1650

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC

MP Elevation:

Total Sounded Depth of Well Below MP (TD): 80.21

Depth to Water Below MP (DTW): 40.48

Water Column (WC) in Well [TD-DTW]: 39.73

Gallons per foot (GPF); from chart: 0.16

Gallons in Well [WC x GPF]: 6.3568 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"

Gallons to be Purged: 19.1

(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: lt. brown Odor: None Turbidity: cloudy

Well Volumes (gal.):	7	14	19.1	Final				
pH (s.u.):	7.78	8.07	7.85	7.78				
Sp. Cond. (µmhos/cm):	429	469	429	430				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, Be, MN, NA, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-21-03 Weather: Cloudy 50's

Sample ID: MW-40S
Replicate ID: ~
Time Sampling Began: 0850
Time Sampling Completed: 0930

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 70.40
Depth to Water Below MP (DTW): 51.84
Water Column (WC) in Well [TD-DTW]: 18.56
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.9696 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 8.91
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: lt. tan Odor: None Turbidity: Translucent

Well Volumes (gal.):	3	6	9	Final				
pH (s.u.):	7.97	7.93	7.87	7.98				
Sp. Cond. (µmhos/cm):	1022	1040	1050	1042				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. Cond., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Color filters out

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-21-03 Weather: Cloudy 50's

Sample ID: MW-40D
Replicate ID: ~
Time Sampling Began: 0850
Time Sampling Completed: 0935

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 90.40
Depth to Water Below MP (DTW): 51.68
Water Column (WC) in Well [TD-DTW]: 38.72
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.1952 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 18.6
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	6	12	18.6	Final				
pH (s.u.):	7.78	7.78	7.85	7.90				
Sp. Cond. (µmhos/cm):	741	743	736	739				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. Cond., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-20-03 Weather: Sunny 60's

Sample ID: MW-41
Replicate ID: ~
Time Sampling Began: 0820
Time Sampling Completed: 0850

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 62.26
Depth to Water Below MP (DTW): 13.45
Water Column (WC) in Well [TD-DTW]: 48.81
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.8096 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 23.5
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: clear Odor: None Turbidity: clear

Well Volumes (gal.):	8	16	23.5	Final				
pH (s.u.):	7.08	7.06	6.85	6.83				
Sp. Cond. (µmhos/cm):	371	364	366	372				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, Be, Mn, Na, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. Cond., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-22-03 Weather: Sunny 60's

Sample ID: MW-42S
Replicate ID: ~
Time Sampling Began: 0915
Time Sampling Completed: 0955

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 52.30
Depth to Water Below MP (DTW): 39.87
Water Column (WC) in Well [TD-DTW]: 12.43
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 1.9888 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 5.97
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Odor: Turbidity:

Well Volumes (gal.):	2	4	6	Final				
pH (s.u.):	7.33	7.34	7.32					
Sp. Cond. (µmhos/cm):	1,683	1,708	1,721					
Temperature (°C):	15°	15°	15°					
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, BE, MN, NA, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-22-03 Weather: Sunny 60's

Sample ID: MW-42D
Replicate ID: ~
Time Sampling Began: 0926
Time Sampling Completed: 0855

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 85.10
Depth to Water Below MP (DTW): 39.76
Water Column (WC) in Well [TD-DTW]: 45.34
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.2544 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 21.76
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: clear Odor: None Turbidity: clear

Well Volumes (gal.):	7	14	21.8	Final				
pH (s.u.):	7.21	7.24	7.28	7.21				
Sp. Cond. (µmhos/cm):	436	438	480	461				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED AS, Be, MN, NA, V	250 ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, Spec. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HM07.07WS LOG WK3

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-20-03 Weather: Cloudy 60's

Sample ID: MW-44S
Replicate ID: ~
Time Sampling Began: 1155
Time Sampling Completed: 1229

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 69.05
Depth to Water Below MP (DTW): 52.01
Water Column (WC) in Well [TD-DTW]: 17.04
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: ~~[illegible]~~ 5.5952 = Well Casing Volume (WCV)
2.7264

Diameter of Well Casing: 2.0"
Gallons to be Purged: ~~[illegible]~~ 8.2
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: H. brown Odor: None Turbidity: silty

Well Volumes (gal.):	~~[illegible]~~ 3	~~[illegible]~~ 6	~~[illegible]~~ 9	Final				
pH (s.u.):	7.32	7.03	7.32	7.15				
Sp. Cond. (µmhos/cm):	517	518	514	514				
Temperature (°C):	16°	16	16°	16				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
PCB's	1 LITER GLASS	4°C

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Wispy sheen observed in bucket

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 5-30-03 Weather: Cloudy 60's

Sample ID: MW-44D
Replicate ID: ~
Time Sampling Began: 1155
Time Sampling Completed: 1220

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 93.97
Depth to Water Below MP (DTW): 52.56
Water Column (WC) in Well [TD-DTW]: 41.41
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.6256 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 19.9
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: clear Odor: None Turbidity: Clear

Well Volumes (gal.):	7	14	20	Final				
pH (s.u.):	7.79	7.38	7.55	7.64				
Sp. Cond. (µmhos/cm):	402	398	398	399				
Temperature (°C):	17°	17°	17°	17°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
PCB's	1 LITER GLASS	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

APPENDIX A-3

WATER SAMPLING LOG FORMS FOR SEPTEMBER 2003
MONITORING EVENT

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-03 Weather: Sunny 80

Sample ID: MW-2
Replicate ID: ~
Time Sampling Began: 1440
Time Sampling Completed: 1506

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 82.25
Depth to Water Below MP (DTW): 55.68
Water Column (WC) in Well [TD-DTW]: 26.57
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.252

Diameter of Well Casing: 2.0"
Gallons to be Purged: 12.7536
(3 WCVs) 5 WCVs, etc.)
= Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Black Odor: None Turbidity: Stained H. silt

Well Volumes (gal.):	4	8	13	Final				
pH (s.u.):	9.95	9.91	9.90	9.90				
Sp. Cond. (µmhos/cm):	1,419	1,434	1,427	1,428				
Temperature (°C):	15°	15°	15°	16°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	250ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL/AMENABLE CN	250ml. PLASTIC	NAOH
pH, SPEC. COND., F	500ml. PLASTIC	4°C
PCE	3 x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Sample not field filtered or preserved (Metals)

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Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-03 Weather: Sunny 80

Sample ID: MW-5
Replicate ID: MW-5D
Time Sampling Began: 1355
Time Sampling Completed: 1435

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 92.00
Depth to Water Below MP (DTW): 61.04
Water Column (WC) in Well [TD-DTW]: 30.96
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.9536 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 14.8608
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: lt. brown Odor: None Turbidity: H. silt

Well Volumes (gal.):	5	10	15	Final				
pH (s.u.):	7.60	7.53	7.57	7.53				
Sp. Cond. (µmhos/cm):	1,023	1,039	1,031	1,045				
Temperature (°C):	16°	16°	16°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	250ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL/AMENABLE CN	250ml. PLASTIC	NAOH
pH, SPEC. COND., F	500ml. PLASTIC	4°C
PCE	3 x 40ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 9-10-03 Weather: P- Cloudy 80's

Sample ID: MW-12
Replicate ID: MW-12D
Time Sampling Began: 1550
Time Sampling Completed:

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 68.42
Depth to Water Below MP (DTW): 21.40
Water Column (WC) in Well [TD-DTW]: 47.02
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.5232 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 22.[illegible]6
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: clear

Well Volumes (gal.):	8	16	23	Final				
pH (s.u.):	7.30	7.37	7.41	7.44				
Sp. Cond. (µmhos/cm):	488	478	474	477				
Temperature (°C):	16°	16°	16°	15°				
Turbidity (N.T.U):	Clear	clear	clear	clear				

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description From Lab ✓ or HMI ___	Preservative preserved by: Lab ✓ or HMI ___
DISS. AS, BE, MN, NA, V	250ml. PLASTIC	HNO_3-FIELD FILTERED (1 MICRON)
TOTAL/AMENABLE CN	250ml. PLASTIC	NAOH
pH, SPEC. COND., F	500ml. PLASTIC	4°C
PCB'S	1 LITER GLASS	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 9/11/03 Weather: Sunny 80

Sample ID: MW-16
Replicate ID:
Time Sampling Began: 1510
Time Sampling Completed:

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 83.12
Depth to Water Below MP (DTW): 46.91
Water Column (WC) in Well [TD-DTW]: 36.21
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 5.7936 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 17.3868
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Black Odor: None Turbidity: H, Silt, Stained

Well Volumes (gal.):	6	12	17.4	Final				
pH (s.u.):	8.55	8.56	8.16	8.17				
Sp. Cond. (µmhos/cm):	1,056	1,043	1,037	1,036				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	250ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL/AMENABLE CN	250ml. PLASTIC	NAOH
pH, SPEC. COND., F	500ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-03 Weather: Sunny 70's

Sample ID: MW-18
Replicate ID:
Time Sampling Began: 0825
Time Sampling Completed: 0848

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 61.16
Depth to Water Below MP (DTW): 39.57
Water Column (WC) in Well [TD-DTW]: 21.59
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.4544 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 10.4
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: Very Silty

Well Volumes (gal.):	3.5	7.0	10.4	Final				
pH (s.u.):	9.65	9.64		9.61				
Sp. Cond. (µmhos/cm):	1,277	1,348		1,424				
Temperature (°C):	14°	14°		14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	250ml. PLASTIC	HNO3 - FIELD FILTERED (1MICRON)
TOTAL/AMENABLE CN	250ml. PLASTIC	NAOH
pH, SPEC. COND., F	500ml. PLASTIC	4°C
PCE	3 x 40 ml. GLASS	

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: Bailed dry @ 8 gal, sampled upon recovery
Color does not filter out

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-03 Weather: Sunny 70°

Sample ID: MW-28
Replicate ID:
Time Sampling Began: 0855
Time Sampling Completed: 0915

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 46.20
Depth to Water Below MP (DTW): 20.12
Water Column (WC) in Well [TD-DTW]: 26.08
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: ~~[illegible]~~ 4.1728 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: ~~[illegible]~~ 12.5184
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: lt. tan Odor: None Turbidity: cloudy

Well Volumes (gal.):	4	~~[illegible]~~ 8	12.6	Final				
pH (s.u.):	6.80	6.72	6.25	6.25				
Sp. Cond. (µmhos/cm):	398	385	383	377				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	250ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL/AMENABLE CN	250ml. PLASTIC	NAOH
pH, SPEC. COND., F	500ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Sample ID: MW-31
Project Number: HM00317
Replicate ID:
Site Location: HANNIBAL, OHIO
Time Sampling Began: 0925
Sampling Date: 9-11-03 Weather: Sunny 70°
Time Sampling Completed: 0955

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Diameter of Well Casing: 2.0"
Total Sounded Depth of Well Below MP (TD): 67.58
Gallons to be Purged: 10.9536
Depth to Water Below MP (DTW): 44.76
(3 WCVs) 5 WCVs, etc.)
Water Column (WC) in Well [TD-DTW]: 22.82
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.6512 = Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dark brown, black Odor: None Turbidity: H. Silt

Well Volumes (gal.):	4	8	11	Final				
pH (s.u.):	9.65	9.81	9.81	9.81				
Sp. Cond. (µmhos/cm):	1,652	1,643	1,667	1,648				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	250ml. PLASTIC	HNO_3-FIELD FILTERED (1 MICRON)
TOTAL/AMENABLE CN	250ml. PLASTIC	NAOH
pH, SPEC. COND., F	500ml. PLASTIC	4°C
PCE	3x 40ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: Color does not filter out

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Sample ID: MW-32
Project Number: HM00317
Replicate ID:
Site Location: HANNIBAL, OHIO
Time Sampling Began: 1039
Sampling Date: 9-11-03
Weather: Sunny 70s
Time Sampling Completed: 1102

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Diameter of Well Casing: 2.0"
Total Sounded Depth of Well Below MP (TD): 57.36
Gallons to be Purged: 9.3456
Depth to Water Below MP (DTW): 37.89
(3 WCVs) 5 WCVs, etc.)
Water Column (WC) in Well [TD-DTW]: 19.47
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.1152 = Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dark black Odor: None Turbidity: H. silt

Well Volumes (gal.):	3.5	7.0	9.4	Final				
pH (s.u.):	8.33	8.49	8.60	8.68				
Sp. Cond. (µmhos/cm):	581	673	682	745				
Temperature (°C):	16°	16°	16°	16°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	250ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL/AMENABLE CN	250ml. PLASTIC	NAOH
pH, SPEC. COND., F	500ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-03 Weather: Sunny 70's

Sample ID: MW-35
Replicate ID:
Time Sampling Began: 1020
Time Sampling Completed: 1037

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 46.94
Depth to Water Below MP (DTW): 35.71
Water Column (WC) in Well [TD-DTW]: 11.23
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 1.7968 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 5.3904
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dark black/brown Odor: Earthy Turbidity: H. silt

Well Volumes (gal.):	1.5	3.0	5.4	Final				
pH (s.u.):	8.25	8.54		8.57				
Sp. Cond. (µmhos/cm):	424	388		437				
Temperature (°C):	15°	15°		15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description From Lab ✓ or HMI ___	Preservative preserved by: Lab ✓ or HMI ___
DISS. AS, BE, MN, NA, V	250ml. PLASTIC	HNO_3-FIELD FILTERED (1 MICRON)
TOTAL/AMENABLE CN	250ml. PLASTIC	NAOH
pH, SPEC. COND., F	500ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: Bailed dry @ 3 gals; sampled upon recovery
Color somewhat filters out

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-03 Weather: Sunny 80's

Sample ID: MW-36
Replicate ID:
Time Sampling Began: 1315
Time Sampling Completed: 1337

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 52.08
Depth to Water Below MP (DTW): 36.35
Water Column (WC) in Well [TD-DTW]: 15.73
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.5168 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 7.5504
(3 WCVs) 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. black Odor: None Turbidity:

Well Volumes (gal.):	3	6	8	Final				
pH (s.u.):	9.62	9.60	9.59	9.56				
Sp. Cond. (µmhos/cm):	1,258	1,266	1,259	1,252				
Temperature (°C):	16°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	250ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL/AMENABLE CN	250ml. PLASTIC	NAOH
pH, SPEC. COND., F	500ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Sample not field filtered or preserved (Diss. Metals)

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-03 Weather: Sunny 70°

Sample ID: MW-37
Replicate ID:
Time Sampling Began: 0957
Time Sampling Completed: 1012

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 36.90
Depth to Water Below MP (DTW): 19.37
Water Column (WC) in Well [TD-DTW]: 17.53
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.8048

Diameter of Well Casing: 2.0"
Gallons to be Purged: 8.4144
(3 WCVs) 5 WCVs, etc.)
= Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: Silty

Well Volumes (gal.):	3	6	8.5	Final				
pH (s.u.):	7.85	7.48	7.42	7.31				
Sp. Cond. (µmhos/cm):	436	438	437	444				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISS. AS, BE, MN, NA, V	250ml. PLASTIC	HNO_3-FIELD FILTERED (1micron)
TOTAL/AMENABLE CN	250ml. PLASTIC	NAOH
pH, SPEC. COND., F	500ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: Color mostly filters out

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Sample ID: MW-44S
Project Number: HM00317
Replicate ID:
Site Location: HANNIBAL, OHIO
Time Sampling Began: 1100
Sampling Date: 9-11-03 Weather: Sunny 70's
Time Sampling Completed: 1148

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Diameter of Well Casing: 2.0"
Total Sounded Depth of Well Below MP (TD): 69.05
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 9.288
Depth to Water Below MP (DTW): 49.70
Water Column (WC) in Well [TD-DTW]: 19.35
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.096 = Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: H. tan Odor: None Turbidity: Cloudy

Well Volumes (gal.):	3	6	9.3	Final				
pH (s.u.):	7.68	7.30	7.20	7.08				
Sp. Cond. (µmhos/cm):	542	550	550	555				
Temperature (°C):	17°	16°	16°	16°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLY PROPYLENE ROPE

Parameters to be Analyzed	Container Description From Lab ✓ or HMI ___	Preservative preserved by: Lab ✓ or HMI ___
PCB'S	1 LITER GLASS	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-03 Weather: Sunny 70's

Sample ID: MW-44D
Replicate ID:
Time Sampling Began: 1100
Time Sampling Completed: 1148

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 93.97
Depth to Water Below MP (DTW): 50.23
Water Column (WC) in Well [TD-DTW]: 43.74
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.9984 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 20.9952

GALLONS PER FOOT (gpf)			
1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: clear

Well Volumes (gal.):	7	14	21	Final				
pH (s.u.):	7.80	7.40	7.21	7.22				
Sp. Cond. (µmhos/cm):	402	407	408	412				
Temperature (°C):	16°	16°	16°	16°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLY PROPYLENE ROPE

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
PCB'S	1 LITER GLASS	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HM07-07WS LOG WK3

APPENDIX B

LABORATORY ANALYTICAL REPORTS

Appendix B-1 Laboratory Analytical Report for January 2003 Monitoring Event

Appendix B-2 Laboratory Analytical Report for May 2003 Monitoring Event

Appendix B-3 Laboratory Analytical Report for September 2003 Monitoring Event

APPENDIX B-1

LABORATORY ANALYTICAL REPORT FOR JANUARY 2003 MONITORING EVENT

TEST CERTIFICATE
KEMRON Environmental Services
109 Starlite Park
Marietta, Ohio 45750
Phone: (740) 373-4071

Hydrosystems Management Inc.
HMI Glassworks Center Suite 109
331 South Main Street
Washington, PA 15301
Attention: Steve Menosky

Login #: L0301344
Report Date: 01/29/03
Work ID: ORMET/HANNIBAL, OH
Date Received: 01/16/03

PO Number:
Account Number: HYDRO-360

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
L0301344-01	MW-2	L0301344-02	MW-2
L0301344-03	MW-5	L0301344-04	MW-5
L0301344-05	MW-12	L0301344-06	MW-12
L0301344-07	MW-16	L0301344-08	MW-16
L0301344-09	MW-16D	L0301344-10	MW-16D
L0301344-11	MW-18	L0301344-12	MW-18
L0301344-13	MW-28	L0301344-14	MW-28
L0301344-15	MW-31	L0301344-16	MW-31
L0301344-17	MW-31D	L0301344-18	MW-31D
L0301344-19	MW-32	L0301344-20	MW-32
L0301344-21	MW-35	L0301344-22	MW-35
L0301344-23	MW-36	L0301344-24	MW-36
L0301344-25	MW-37	L0301344-26	MW-37
L0301344-27	MW-44S	L0301344-28	MW-44D
L0301344-29	FIELD BLANK	L0301344-30	FIELD BLANK
L0301344-31	TRIP BLANK		

KEMRON
ENVIRONMENTAL SERVICES

All results on solids/sludges are reported on a dry weight basis, where applicable, unless otherwise specified. This report shall not be reproduced, except in full, without the written approval of KEMRON.

NYSDOH ELAP ID: 10861

David E. Vandenberg

Certified By
David E. Vandenberg
Laboratory Director

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

0003

Login #L0301344
January 29, 2003 09:20 am

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0301344-01
Client Sample ID: MW-2
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 14:45

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide.....	mg/L	14.6		0.500	2	N/A	DLN	01/22/03	09:00	9010B
Cyanide, Amenable to Chlor.....	mg/L	1.05		0.500	50	N/A	DLN	01/23/03	11:30	335.1
Conductivity.....	umhos/cm	1680		1.00	1	N/A	DLP	01/21/03	13:30	120.1
Fluoride.....	mg/L	56.8		1.00	10	N/A	DIH	01/22/03	09:45	SM4500-F-C
pH.....	UNITS	9.99			1	N/A	DLP	01/17/03	09:00	150.1

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0301344-01
Client Sample ID: MW-2
Site/Work ID: ORMET/HANNIBAL, OH
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 01/15/03

Sample Weight: N/A
Extract Volume: N/A
% Solid: N/A

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/17/03 Time: 18:00

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M20445

Method: 8260B\5030B
Run ID: R372220
Batch : WG132771

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L	6.44		5.00	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	101	(86 - 118%)
1,2-Dichloroethane-d4.....	101	(80 - 120%)
Toluene-d8.....	103	(88 - 110%)
4-Bromofluorobenzene.....	106	(86 - 115%)

RL = Reporting Limit

7000

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0301344-02
Client Sample ID: MW-2
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 14:45 COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.123		0.00400	1	01	SLP	01/24/03	15:30	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.00114		0.000500	1	01	SLP	01/24/03	15:30	6010B\3005A
Manganese, Dissolved.....	mg/L	0.978		0.00500	1	01	SLP	01/24/03	15:30	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.0575		0.0100	1	01	SLP	01/24/03	15:30	6010B\3005A
Sodium, Dissolved.....	mg/L	324		50.0	100	DL01	CRC	01/24/03	22:40	6010B\3005A

Lab Sample ID: L0301344-03
Client Sample ID: MW-5
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 15:25 COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide.....	mg/L	1.83		0.100	2	N/A	DLN	01/22/03	09:00	9010B
Cyanide, Amenable to Chlor.....	mg/L	0.170		0.100	10	N/A	DLN	01/23/03	11:30	335.1
Conductivity.....	umhos/cm	1190		1.00	1	N/A	DLP	01/21/03	13:30	120.1
Fluoride.....	mg/L	18.4		0.500	5	N/A	DIH	01/22/03	09:45	SM4500-F-C
pH.....	UNITS	7.61			1	N/A	DLP	01/17/03	09:00	150.1

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0301344-03
Client Sample ID: MW-5
Site/Work ID: ORMET/HANNIBAL, OH
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 01/15/03

Sample Weight: N/A
Extract Volume: N/A
% Solid: N/A

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/17/03 Time: 18:31

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M20446

Method: 8260B\5030B
Run ID: R372221
Batch : WG132771

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L		ND	5.00	1

RL = Reporting Limit

9000

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0301344-03
Client Sample ID: MW-5
Site/Work ID: ORMET/HANNIBAL, OH
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 01/15/03

Sample Weight: N/A
Extract Volume: N/A
% Solid: N/A

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/17/03 Time: 18:31

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M20446

Method: 8260B\5030B
Run ID: R372221
Batch : WG132771

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
	SURROGATES- In Percent Recovery:					
	Dibromofluoromethane.....	103		(86 - 118%)		
	1,2-Dichloroethane-d4.....	103		(80 - 120%)		
	Toluene-d8.....	104		(88 - 110%)		
	4-Bromofluorobenzene.....	103		(86 - 115%)		

Lab Sample ID: L0301344-04
Client Sample ID: MW-5
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 15:25

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L		ND	0.00400	1	01	SLP	01/24/03	14:09	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.000500	1	01	SLP	01/24/03	14:09	6010B\3005A
Manganese, Dissolved.....	mg/L	0.303		0.00500	1	01	SLP	01/24/03	14:09	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.0100	1	01	SLP	01/24/03	14:09	6010B\3005A
Sodium, Dissolved.....	mg/L	246		50.0	100	DL01	CRC	01/24/03	22:45	6010B\3005A

RL = Reporting Limit

9000

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0301344-05
Client Sample ID: MW-12
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 14:05 COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide.....	mg/L		ND	0.0100	1	N/A	DLN	01/22/03	09:00	9010B
Conductivity.....	umhos/cm	536		1.00	1	N/A	DLP	01/21/03	13:30	120.1
Fluoride.....	mg/L	0.884		0.100	1	N/A	DIH	01/22/03	09:45	SM4500-F-C
pH.....	UNITS	7.70			1	N/A	DLP	01/17/03	09:00	150.1

Product: 8082 - PCB

Lab Sample ID: L0301344-05
Client Sample ID: MW-12
Site/Work ID: ORMET/HANNIBAL, OH
Matrix: Water

Dil. Type: 01
COC Info: N/A
Date Collected: 01/15/03

Sample Weight: N/A
Extract Volume: N/A
% Solid: N/A

TCLP Extract Date: N/A
Extract Date: 01/20/03
Analysis Date: 01/22/03 Time: 05:22

Instrument: HP7
Analyst: ECL
Lab File ID: 7G20176

Method: 8082\3510C
Run ID: R373119
Batch : WG133042

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
12674-11-2	Aroclor-1016.....	ug/L		ND	0.500	1
11104-28-2	Aroclor-1221.....	ug/L		ND	0.500	1
11141-16-5	Aroclor-1232.....	ug/L		ND	0.500	1
53469-21-9	Aroclor-1242.....	ug/L		ND	0.500	1
12672-29-6	Aroclor-1248.....	ug/L		ND	0.500	1
11097-69-1	Aroclor-1254.....	ug/L		ND	0.500	1
11096-82-5	Aroclor-1260.....	ug/L		ND	0.500	1

SURROGATES- In Percent Recovery:

2,4,5,6-Tetrachloro-m-xylene.....	79.9	(30 - 132%)
Decachlorobiphenyl.....	87.3	(36 - 144%)

RL = Reporting Limit

4000

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0301344-06
Client Sample ID: MW-12
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 14:05
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L		ND	0.00400	1	01	SLP	01/24/03	15:35	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.000500	1	01	SLP	01/24/03	15:35	6010B\3005A
Manganese, Dissolved.....	mg/L	1.80		0.00500	1	01	SLP	01/24/03	15:35	6010B\3005A
Sodium, Dissolved.....	mg/L	32.2		0.500	1	01	SLP	01/24/03	15:35	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.0100	1	01	SLP	01/24/03	15:35	6010B\3005A

Lab Sample ID: L0301344-07
Client Sample ID: MW-16
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 10:15
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide.....	mg/L	7.03		0.200	2	N/A	DLN	01/22/03	09:00	9010B
Cyanide, Amenable to Chlor.....	mg/L	0.770		0.200	20	N/A	DLN	01/23/03	11:30	335.1
Conductivity.....	umhos/cm	1310		1.00	1	N/A	DLP	01/21/03	13:30	120.1
Fluoride.....	mg/L	27.5		0.500	5	N/A	DIH	01/22/03	09:45	SM4500-F-C
pH.....	UNITS	8.31			1	N/A	DLP	01/17/03	09:00	150.1

Lab Sample ID: L0301344-08
Client Sample ID: MW-16
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 10:15
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.0449		0.00400	1	01	SLP	01/24/03	15:40	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.00136		0.000500	1	01	SLP	01/24/03	15:40	6010B\3005A
Manganese, Dissolved.....	mg/L	0.792		0.00500	1	01	SLP	01/24/03	15:40	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.0308		0.0100	1	01	SLP	01/24/03	15:40	6010B\3005A
Sodium, Dissolved.....	mg/L	235		50.0	100	DL01	CRC	01/24/03	22:55	6010B\3005A

RL = Reporting Limit

8000

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0301344-09
Client Sample ID: MW-16D
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 10:35
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide.....	mg/L	6.48		0.200	2	N/A	DLN	01/22/03	09:00	9010B
Cyanide, Amenable to Chlor.....	mg/L	1.20		0.200	20	N/A	DLN	01/23/03	11:30	335.1
Conductivity.....	umhos/cm	1290		1.00	1	N/A	DLP	01/21/03	13:30	120.1
Fluoride.....	mg/L	54.0		1.00	10	N/A	DIH	01/22/03	09:45	SM4500-F-C
pH.....	UNITS	8.28			1	N/A	DLP	01/17/03	09:00	150.1

Lab Sample ID: L0301344-10
Client Sample ID: MW-16D
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 10:35
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.0381		0.00400	1	01	SLP	01/24/03	15:45	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.00175		0.000500	1	01	SLP	01/24/03	15:45	6010B\3005A
Manganese, Dissolved.....	mg/L	1.00		0.00500	1	01	SLP	01/24/03	15:45	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.0441		0.0100	1	01	SLP	01/24/03	15:45	6010B\3005A
Sodium, Dissolved.....	mg/L	242		50.0	100	DL01	CRC	01/24/03	22:59	6010B\3005A

Lab Sample ID: L0301344-11
Client Sample ID: MW-18
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 10:55
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide.....	mg/L	62.1		2.50	25	N/A	DLN	01/22/03	09:00	9010B
Cyanide, Amenable to Chlor.....	mg/L		ND	2.50	250	N/A	DLN	01/23/03	11:30	335.1
Conductivity.....	umhos/cm	2010		1.00	1	N/A	DLP	01/21/03	13:30	120.1
Fluoride.....	mg/L	163		5.00	50	N/A	DIH	01/22/03	09:45	SM4500-F-C
pH.....	UNITS	9.48			1	N/A	DLP	01/17/03	09:00	150.1

RL = Reporting Limit

6000

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0301344-11
Client Sample ID: MW-18
Site/Work ID: ORMET/HANNIBAL, OH
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 01/15/03

Sample Weight: N/A
Extract Volume: N/A
% Solid: N/A

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/17/03 Time: 19:02

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M20447

Method: 8260B\5030B
Run ID: R372222
Batch : WG132771

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L	58.0		5.00	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	102	(86 - 118%)
1,2-Dichloroethane-d4.....	105	(80 - 120%)
Toluene-d8.....	103	(88 - 110%)
4-Bromofluorobenzene.....	104	(86 - 115%)

Lab Sample ID: L0301344-12
Client Sample ID: MW-18
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 10:55
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.0932		0.00400	1	01	SLP	01/24/03	15:50	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.00133		0.000500	1	01	SLP	01/24/03	15:50	6010B\3005A
Manganese, Dissolved.....	mg/L	0.285		0.00500	1	01	SLP	01/24/03	15:50	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.0220		0.0100	1	01	SLP	01/24/03	15:50	6010B\3005A
Sodium, Dissolved.....	mg/L	452		50.0	100	DL01	CRC	01/24/03	23:04	6010B\3005A

RL = Reporting Limit

0100

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0301344-13
Client Sample ID: MW-28
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 11:30
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide.....	mg/L	0.650		0.0200	1	N/A	DLN	01/22/03	09:00	9010B
Cyanide, Amenable to Chlor.....	mg/L		ND	0.0200	2	N/A	DLN	01/23/03	11:30	335.1
Conductivity.....	umhos/cm	412		1.00	1	N/A	DLP	01/21/03	13:30	120.1
Fluoride.....	mg/L	0.305		0.100	1	N/A	DIH	01/22/03	09:45	SM4500-F-C
pH.....	UNITS	5.72			1	N/A	DLP	01/17/03	09:00	150.1

Lab Sample ID: L0301344-14
Client Sample ID: MW-28
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 11:30
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L		ND	0.00400	1	01	SLP	01/24/03	15:55	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.000500	1	01	SLP	01/24/03	15:55	6010B\3005A
Manganese, Dissolved.....	mg/L	0.0192		0.00500	1	01	SLP	01/24/03	15:55	6010B\3005A
Sodium, Dissolved.....	mg/L	70.4		0.500	1	01	SLP	01/24/03	15:55	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.0100	1	01	SLP	01/24/03	15:55	6010B\3005A

Lab Sample ID: L0301344-15
Client Sample ID: MW-31
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 12:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide.....	mg/L	13.6		0.500	5	N/A	DLN	01/22/03	09:00	9010B
Cyanide, Amenable to Chlor.....	mg/L		ND	0.500	50	N/A	DLN	01/23/03	11:30	335.1
Conductivity.....	umhos/cm	2090		1.00	1	N/A	DLP	01/21/03	13:30	120.1
Fluoride.....	mg/L	99.5		2.50	25	N/A	DIH	01/22/03	09:45	SM4500-F-C
pH.....	UNITS	9.87			1	N/A	DLP	01/17/03	09:00	150.1

RL = Reporting Limit

T100

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0301344-15
Client Sample ID: MW-31
Site/Work ID: ORMET/HANNIBAL, OH
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 01/15/03

Sample Weight: N/A
Extract Volume: N/A
% Solid: N/A

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/17/03 Time: 19:33

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M20448

Method: 8260B\5030B
Run ID: R372223
Batch : WG132771

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L	32.3		5.00	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	102	(86 - 118%)
1,2-Dichloroethane-d4.....	104	(80 - 120%)
Toluene-d8.....	103	(88 - 110%)
4-Bromofluorobenzene.....	107	(86 - 115%)

Lab Sample ID: L0301344-16
Client Sample ID: MW-31
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 12:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.0745		0.00400	1	01	SLP	01/24/03	16:00	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.00181		0.000500	1	01	SLP	01/24/03	16:00	6010B\3005A
Manganese, Dissolved.....	mg/L	1.47		0.00500	1	01	SLP	01/24/03	16:00	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.0797		0.0100	1	01	SLP	01/24/03	16:00	6010B\3005A
Sodium, Dissolved.....	mg/L	472		50.0	100	DL01	CRC	01/24/03	23:09	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0301344-17
Client Sample ID: MW-31D
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 12:15
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide.....	mg/L	14.0		0.500	5	N/A	DLN	01/22/03	09:00	9010B
Cyanide, Amenable to Chlor.....	mg/L	1.41		0.500	50	N/A	DLN	01/23/03	11:30	335.1
Conductivity.....	umhos/cm	2140		1.00	1	N/A	DLP	01/21/03	13:30	120.1
Fluoride.....	mg/L	102		2.50	25	N/A	DIH	01/22/03	09:45	SM4500-F-C
pH.....	UNITS	9.88			1	N/A	DLP	01/17/03	09:00	150.1

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0301344-17
Client Sample ID: MW-31D
Site/Work ID: ORMET/HANNIBAL, OH
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 01/15/03

Sample Weight: N/A
Extract Volume: N/A
% Solid: N/A

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/17/03 Time: 20:04

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M20449

Method: 8260B\5030B
Run ID: R372224
Batch : WG132771

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L	29.0		5.00	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	103	(86 - 118%)
1,2-Dichloroethane-d4.....	106	(80 - 120%)
Toluene-d8.....	104	(88 - 110%)
4-Bromofluorobenzene.....	105	(86 - 115%)

RL = Reporting Limit

0013

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0301344-18
Client Sample ID: MW-31D
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 12:15

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.0706		0.00400	1	01	SLP	01/24/03	16:04	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.00146		0.000500	1	01	SLP	01/24/03	16:04	6010B\3005A
Manganese, Dissolved.....	mg/L	1.16		0.00500	1	01	SLP	01/24/03	16:04	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.0664		0.0100	1	01	SLP	01/24/03	16:04	6010B\3005A
Sodium, Dissolved.....	mg/L	438		50.0	100	DL01	CRC	01/24/03	23:24	6010B\3005A

Lab Sample ID: L0301344-19
Client Sample ID: MW-32
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/16/03 09:35

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide.....	mg/L	4.41		0.100	2	N/A	DLN	01/22/03	09:00	9010B
Cyanide, Amenable to Chlor.....	mg/L	0.110		0.100	10	N/A	DLN	01/23/03	11:30	335.1
Conductivity.....	umhos/cm	747		1.00	1	N/A	DLP	01/21/03	13:30	120.1
Fluoride.....	mg/L	13.0		0.200	2	N/A	DIH	01/22/03	09:45	SM4500-F-C
pH.....	UNITS	8.35			1	N/A	DLP	01/17/03	09:00	150.1

Lab Sample ID: L0301344-20
Client Sample ID: MW-32
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/16/03 09:35

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.00403		0.00400	1	01	SLP	01/24/03	16:09	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.000500	1	01	SLP	01/24/03	16:09	6010B\3005A
Manganese, Dissolved.....	mg/L	1.91		0.00500	1	01	SLP	01/24/03	16:09	6010B\3005A
Sodium, Dissolved.....	mg/L	93.1		0.500	1	01	SLP	01/24/03	16:09	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.0100	1	01	SLP	01/24/03	16:09	6010B\3005A

RL = Reporting Limit

#100

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0301344-21
Client Sample ID: MW-35
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/16/03 11:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide.....	mg/L	10.8		0.500	5	N/A	DLN	01/22/03	09:00	9010B
Cyanide, Amenable to Chlor.....	mg/L		ND	0.500	50	N/A	DLN	01/23/03	11:30	335.1
Conductivity.....	umhos/cm	579		1.00	1	N/A	DLP	01/21/03	13:30	120.1
Fluoride.....	mg/L	23.6		0.500	5	N/A	DIH	01/22/03	09:45	SM4500-F-C
pH.....	UNITS	8.85			1	N/A	DLP	01/17/03	09:00	150.1

Lab Sample ID: L0301344-22
Client Sample ID: MW-35
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/16/03 11:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.00733		0.00400	1	01	SLP	01/24/03	16:14	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.000500	1	01	SLP	01/24/03	16:14	6010B\3005A
Manganese, Dissolved.....	mg/L	0.449		0.00500	1	01	SLP	01/24/03	16:14	6010B\3005A
Sodium, Dissolved.....	mg/L	72.4		0.500	1	01	SLP	01/24/03	16:14	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.0255		0.0100	1	01	SLP	01/24/03	16:14	6010B\3005A

Lab Sample ID: L0301344-23
Client Sample ID: MW-36
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/16/03 10:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide.....	mg/L	23.7		1.25	25	N/A	DLN	01/22/03	09:00	9010B
Cyanide, Amenable to Chlor.....	mg/L	1.35		1.25	125	N/A	DLN	01/23/03	11:30	335.1
Conductivity.....	umhos/cm	2120		1.00	1	N/A	DLP	01/21/03	13:30	120.1
Fluoride.....	mg/L	119		2.50	25	N/A	DIH	01/22/03	09:45	SM4500-F-C
pH.....	UNITS	9.65			1	N/A	DLP	01/17/03	09:00	150.1

RL = Reporting Limit

9100

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0301344-24
Client Sample ID: MW-36
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/16/03 10:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.0711		0.00400	1	01	CRC	01/24/03	22:25	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.00330		0.000500	1	01	CRC	01/24/03	22:25	6010B\3005A
Manganese, Dissolved.....	mg/L	1.37		0.00500	1	01	CRC	01/24/03	22:25	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.0791		0.0100	1	01	CRC	01/24/03	22:25	6010B\3005A
Sodium, Dissolved.....	mg/L	446		50.0	100	DL01	CRC	01/24/03	23:29	6010B\3005A

Lab Sample ID: L0301344-25
Client Sample ID: MW-37
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/16/03 10:30
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide.....	mg/L	5.52		0.200	2	N/A	DLN	01/22/03	09:00	9010B
Cyanide, Amenable to Chlor.....	mg/L	0.830		0.200	20	N/A	DLN	01/23/03	11:30	335.1
Conductivity.....	umhos/cm	569		1.00	1	N/A	DLP	01/21/03	13:30	120.1
Fluoride.....	mg/L	14.4		0.200	2	N/A	DIH	01/22/03	09:45	SM4500-F-C
pH.....	UNITS	7.63			1	N/A	DLP	01/17/03	09:00	150.1

Lab Sample ID: L0301344-26
Client Sample ID: MW-37
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/16/03 10:30
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L		ND	0.00400	1	01	CRC	01/24/03	22:30	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.000500	1	01	CRC	01/24/03	22:30	6010B\3005A
Manganese, Dissolved.....	mg/L	2.48		0.00500	1	01	CRC	01/24/03	22:30	6010B\3005A
Sodium, Dissolved.....	mg/L	107		0.500	1	01	CRC	01/24/03	22:30	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.0100	1	01	CRC	01/24/03	22:30	6010B\3005A

RL = Reporting Limit

9100

KEMRON ENVIRONMENTAL SERVICES

Product: 8082 - PCB

Lab Sample ID: L0301344-27
Client Sample ID: MW-44S
Site/Work ID: ORMET/HANNIBAL, OH
Matrix: Water

Dil. Type: 01
COC Info: N/A
Date Collected: 01/15/03

Sample Weight: N/A
Extract Volume: N/A
% Solid: N/A

TCLP Extract Date: N/A
Extract Date: 01/20/03
Analysis Date: 01/22/03 Time: 05:40

Instrument: HP7
Analyst: ECL
Lab File ID: 7G20177

Method: 8082\3510C
Run ID: R373120
Batch : WG133042

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
12674-11-2	Aroclor-1016	ug/L		ND	0.500	1
11104-28-2	Aroclor-1221	ug/L		ND	0.500	1
11141-16-5	Aroclor-1232	ug/L		ND	0.500	1
53469-21-9	Aroclor-1242	ug/L		ND	0.500	1
12672-29-6	Aroclor-1248	ug/L		ND	0.500	1
11097-69-1	Aroclor-1254	ug/L		ND	0.500	1
11096-82-5	Aroclor-1260	ug/L		ND	0.500	1

SURROGATES- In Percent Recovery:

2,4,5,6-Tetrachloro-m-xylene	83.1	(30 - 132%)
Decachlorobiphenyl	57.2	(36 - 144%)

Product: 8082 - PCB

Lab Sample ID: L0301344-28
Client Sample ID: MW-44D
Site/Work ID: ORMET/HANNIBAL, OH
Matrix: Water

Dil. Type: 01
COC Info: N/A
Date Collected: 01/15/03

Sample Weight: N/A
Extract Volume: N/A
% Solid: N/A

TCLP Extract Date: N/A
Extract Date: 01/20/03
Analysis Date: 01/22/03 Time: 05:58

Instrument: HP7
Analyst: ECL
Lab File ID: 7G20178

Method: 8082\3510C
Run ID: R373121
Batch : WG133042

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
12674-11-2	Aroclor-1016	ug/L		ND	0.500	1
11104-28-2	Aroclor-1221	ug/L		ND	0.500	1
11141-16-5	Aroclor-1232	ug/L		ND	0.500	1
53469-21-9	Aroclor-1242	ug/L		ND	0.500	1
12672-29-6	Aroclor-1248	ug/L		ND	0.500	1
11097-69-1	Aroclor-1254	ug/L		ND	0.500	1
11096-82-5	Aroclor-1260	ug/L		ND	0.500	1

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Product: 8082 - PCB

Lab Sample ID: L0301344-28
Client Sample ID: MW-44D
Site/Work ID: ORMET/HANNIBAL, OH
Matrix: Water

TCLP Extract Date: N/A
Extract Date: 01/20/03
Analysis Date: 01/22/03 Time: 05:58

Dil. Type: 01
COC Info: N/A

Date Collected: 01/15/03

Instrument: HP7
Analyst: ECL
Lab File ID: 7G20178

Sample Weight: N/A
Extract Volume: N/A

% Solid: N/A

Method: 8082\3510C
Run ID: R373121
Batch : WG133042

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
	SURROGATES- In Percent Recovery:					
	2,4,5,6-Tetrachloro-m-xylene.....		71.9	(30 - 132%)		
	Decachlorobiphenyl.....		88.9	(36 - 144%)		

Lab Sample ID: L0301344-29
Client Sample ID: FIELD BLANK
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 16:30

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide.....	mg/L		ND	0.0100	1	N/A	DLN	01/22/03	09:00	9010B
Conductivity.....	umhos/cm	1.37		1.00	1	N/A	DLP	01/21/03	13:30	120.1
Fluoride.....	mg/L		ND	0.100	1	N/A	DIH	01/22/03	09:45	SM4500-F-C
pH.....	UNITS	5.54			1	N/A	DLP	01/17/03	09:00	150.1

RL = Reporting Limit

8100

Product: 8082 - PCB

Lab Sample ID: L0301344-29
Client Sample ID: FIELD BLANK
Site/Work ID: ORMET/HANNIBAL, OH
Matrix: Water

Dil. Type: 01
COC Info: N/A
Date Collected: 01/15/03

Sample Weight: N/A
Extract Volume: N/A
% Solid: N/A

TCLP Extract Date: N/A
Extract Date: 01/20/03
Analysis Date: 01/22/03 Time: 06:16

Instrument: HP7
Analyst: ECL
Lab File ID: 7G20179

Method: 8082\3510C
Run ID: R373122
Batch : WG133042

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
12674-11-2	Aroclor-1016	ug/L		ND	0.500	1
11104-28-2	Aroclor-1221	ug/L		ND	0.500	1
11141-16-5	Aroclor-1232	ug/L		ND	0.500	1
53469-21-9	Aroclor-1242	ug/L		ND	0.500	1
12672-29-6	Aroclor-1248	ug/L		ND	0.500	1
11097-69-1	Aroclor-1254	ug/L		ND	0.500	1
11096-82-5	Aroclor-1260	ug/L		ND	0.500	1

SURROGATES- In Percent Recovery:

2,4,5,6-Tetrachloro-m-xylene	80.7	(30 - 132%)
Decachlorobiphenyl	74.5	(36 - 144%)

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0301344-29
Client Sample ID: FIELD BLANK
Site/Work ID: ORMET/HANNIBAL, OH
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 01/15/03

Sample Weight: N/A
Extract Volume: N/A
% Solid: N/A

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/17/03 Time: 13:46

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M20437

Method: 8260B\5030B
Run ID: R372212
Batch : WG132771

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene	ug/L		ND	5.00	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane	100	(86 - 118%)
1,2-Dichloroethane-d4	100	(80 - 120%)
Toluene-d8	104	(88 - 110%)
4-Bromofluorobenzene	103	(86 - 115%)

RL = Reporting Limit

6700

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0301344-30
Client Sample ID: FIELD BLANK
Site/Work ID: ORMET/HANNIBAL, OH

Matrix: Water
Collected: 01/15/03 16:30
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L		ND	0.00400	1	01	CRC	01/24/03	22:35	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.000500	1	01	CRC	01/24/03	22:35	6010B\3005A
Manganese, Dissolved.....	mg/L		ND	0.00500	1	01	CRC	01/24/03	22:35	6010B\3005A
Sodium, Dissolved.....	mg/L		ND	0.500	1	01	CRC	01/24/03	22:35	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.0100	1	01	CRC	01/24/03	22:35	6010B\3005A

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0301344-31
Client Sample ID: TRIP BLANK
Site/Work ID: ORMET/HANNIBAL, OH
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 01/15/03

Sample Weight: N/A
Extract Volume: N/A
% Solid: N/A

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/21/03 Time: 16:00

Instrument: HPMS6
Analyst: CMS
Lab File ID: 6M35353

Method: 8260B\5030B
Run ID: R373450
Batch : WG133013

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L		ND	5.00	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	95.7		(86 - 118%)
1,2-Dichloroethane-d4.....	92.6		(80 - 120%)
Toluene-d8.....	99.2		(88 - 110%)
4-Bromofluorobenzene.....	117	*	(86 - 115%)

RL = Reporting Limit

0020

HMI
Environmental Consulting Services

CHAIN-OF-CUSTODY RECORD

Project Number	Project Name/Location	Container Description/ Number of Containers
HM00314	ORMET/HANNIBAL OH	
	Laboratory: KEMRON	
Sampling Personnel: S. MENOSKY / J. KELLER		

Sample ID	Date/Time	Sample Code	40ml. GLASS TETRACHLOROETHENE (HCL)	500 ml. PLASTIC DISS. AS, BA, MN, NA, V FIELD FILTERED (HNO3)	250ml. GLASS TOTAL AND AMENABLE CYANIDE * (NAOH)	250 ml. PLASTIC pH, Spec. Cond., F (4°C)	PCB'S 1 LITER AMBER GLASS (4°C)					TOTAL
MW-2 1445	1-15-03	L	2	1	1	1						5
MW-5 1525	1-15-03		2	1	1	1						5
MW-12 1405	1-15-03			1	1	1	2					5
MW-16 1015	1-15-03			1	1	1						3
MW-16D 1035	1-15-03			1	1	1						3
MW-18 1055	1-15-03		2	1	1	1						5
MW-28 1130	1-15-03			1	1	1						3
MW-31 1200	1-15-03		2	1	1	1						5
MW-31D 1215	1-15-03		2	1	1	1						5
MW-32 0935	1-16-03			1	1	1						3
MW-35 1100	1-16-03			1	1	1						3
MW-36 1000	1-16-03			1	1	1						3
MW-37 1030	1-16-03			1	1	1						3
MW-44S 1630	1-15-03						2					2
MW-44D 1615	1-15-03						2					2

Sample Code: L = Liquid; S = Solid; A = Air

Total Number of Containers: 55

Relinquished by: STEVE MENOSKY	Organization: HMI	Date: 1-16-03	Time: 1300	Seal Intact?
Received by: [signature]	Organization: [signature]	Date: 1-16-03	Time: 1300	Yes No NA
Relinquished by: [signature]	Organization: [signature]	Date: 1-16-03	Time: 1420	Seal Intact?
Received by: [signature]	Organization: [signature]	Date: 1-16-03	Time: 1420	Yes No NA

REMARKS: * ONLY ANALYZE FOR AMENABLE CYANIDE IF TOTAL CYANIDE IS DETECTED six intact @ 2, 1, 3, 0°C

DELIVERY METHOD: In Person [ ] Common Carrier [ ] Lab Courier KEMRON Other [ ]

HMI
Environmental Consulting Services

CHAIN-OF-CUSTODY RECORD

Project Number: HM00314
Project Name/Location: ORMET/HANNIBAL OHIO
Laboratory: KEMRON
Sampling Personnel: S. MENOSKY / J. KELLER

Sample ID	Date/Time	Sample Code	40ml. GLASS TETRACHLOROETHENE (HCL)	500ml. PLASTIC DISS. As, Ba, Mn, Na, V FIELD FILTERED (HNO3)	250ml. GLASS TOTAL AND AMENABLE CYANIDE* (NAOH)	250ml. PLASTIC pH, Spec. Cond., F (4°C)	1 LITER AMBER GL. PCB'S (4°C)					TOTAL
FIELD BLANK	1630 1-15-03	L	2	1	1	1	2					7
TRIP BLANK	1600 1-15-03	↓	2									2

Sample Code: L = Liquid; S = Solid; A = Air

Total Number of Containers: 9

Relinquished by: STEVE MENOSKY	Organization: HMI	Date: 1-16-03	Time: 1300	Seal Intact?	
Received by: [signature]	Organization: Kemron	Date: 1-16-03	Time: 1300	Yes No (NA)	
Relinquished by: [signature]	Organization: Kemron	Date: 1-16-03	Time: 1420	Seal Intact?	
Received by: Shauna Hyde	Organization: Kemron	Date: 1-16-03	Time: 1420	Yes No NA	

REMARKS: * ONLY ANALYZE FOR AMENABLE CYANIDE IF TOTAL CYANIDE IS DETECTED Seals intact @ 2, 1, 3.0°C

DELIVERY METHOD: In Person [ ] Common Carrier [ ] Lab Courier [KEMRON] Other [ ]

APPENDIX B-2

LABORATORY ANALYTICAL REPORT FOR MAY 2003 MONITORING EVENT

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Export, PA 15632
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Fax: 724.327.7793

June 6, 2003

Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Dear Mr. Fargo:

Enclosed are analytical results for samples submitted to Pace Analytical by Hydro Systems Management, Inc.. The samples were received on May 22, 2003. Please reference Pace project number 03-1943 when inquiring about this report.

Client Site: Reduction Mill
Client Ref.: HM00317

Pace Sample Identification	Client Sample Identification
0305-1681	MW-2
0305-1682	MW-2D
0305-1683	MW-5
0305-1684	MW-18
0305-1685	MW-18D
0305-1686	MW-30
0305-1687	MW-31
0305-1688	Field Blank
0305-1689	Trip Blank
0305-1690	MW-1
0305-1691	MW-7
0305-1692	MW-8
0305-1693	MW-10
0305-1694	MW-11
0305-1695	MW-14
0305-1696	MW-12
0305-1697	MW-44S
0305-1698	MW-44D
0305-1699	MW-15
0305-1700	MW-16

Pace Sample Identification	Client Sample Identification
0305-1701	MW-16D
0305-1702	MW-17
0305-1703	MW-19
0305-1704	MW-28
0305-1705	MW-29S
0305-1706	MW-29D
0305-1707	MW-32
0305-1708	MW-34S
0305-1709	MW-34D
0305-1710	MW-35
0305-1711	MW-36
0305-1712	MW-37
0305-1713	MW-39S
0305-1714	MW-39D
0305-1715	MW-40S
0305-1716	MW-40D
0305-1717	MW-41
0305-1718	MW-42S
0305-1719	MW-42D

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General Comments: Ice was present upon receipt. Cyanide Amenable will only be reported on those samples in which Cyanide Total is found to be present.

Please call me if you have any questions regarding the information contained within this report.

Sincerely,

Rachel D. Christner
Project Coordinator

RDC: jld

Enclosures

cc: John Reggi, Ormet Primary Aluminum Corporation

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1681**
Client Sample ID: MW-2
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	5.1	0.010	mg/l	TAT	05/29/2003	0021590-1	<0.010
Cyanide (Total)	335.2(1)	14	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	74	0.10	mg/l	CK0	06/02/2003	0021660-1	<0.10
pH	150.1(1)	9.80	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	1700	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.088	0.0040	mg/l	CS0	06/02/2003	0021606-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021606-1	<0.00050
Manganese	6010B(2)	0.94	0.010	mg/l	CS0	06/02/2003	0021606-1	<0.010
Sodium	6010B(2)	310	0.50	mg/l	CS0	06/02/2003	0021606-1	<0.50
Vanadium	6010B(2)	0.057	0.010	mg/l	CS0	06/02/2003	0021606-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.0090	0.0050	mg/l	MAK	05/29/2003	0021612-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1682**
Client Sample ID: MW-2D
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.76	0.010	mg/l	TAT	05/29/2003	0021590-1	<0.010
Cyanide (Total)	335.2(1)	14	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	82	0.10	mg/l	CK0	06/02/2003	0021660-1	<0.10
pH	150.1(1)	9.76	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	1700	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.089	0.0040	mg/l	CS0	06/02/2003	0021606-1	<0.0040
Beryllium	6010B(2)	0.00085	0.00050	mg/l	CS0	06/02/2003	0021606-1	<0.00050
Manganese	6010B(2)	0.95	0.010	mg/l	CS0	06/02/2003	0021606-1	<0.010
Sodium	6010B(2)	310	0.50	mg/l	CS0	06/02/2003	0021606-1	<0.50
Vanadium	6010B(2)	0.058	0.010	mg/l	CS0	06/02/2003	0021606-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.0075	0.0050	mg/l	MAK	05/29/2003	0021612-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1683**
Client Sample ID: MW-5
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.093	0.010	mg/l	TAT	05/29/2003	0021590-1	<0.010
Cyanide (Total)	335.2(1)	3.8	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	25	0.10	mg/l	CK0	06/02/2003	0021660-1	<0.10
pH	150.1(1)	8.35	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	1100	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021606-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021606-1	<0.00050
Manganese	6010B(2)	0.66	0.010	mg/l	CS0	06/02/2003	0021606-1	<0.010
Sodium	6010B(2)	160	0.50	mg/l	CS0	06/02/2003	0021606-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021606-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	<0.0050	0.0050	mg/l	MAK	05/29/2003	0021612-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1684**
Client Sample ID: MW-18
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	3.0	0.010	mg/l	TAT	05/29/2003	0021590-1	<0.010
Cyanide (Total)	335.2(1)	15	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	88	0.10	mg/l	CK0	06/02/2003	0021660-1	<0.10
pH	150.1(1)	9.34	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	1400	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.061	0.0040	mg/l	CS0	06/02/2003	0021606-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021606-1	<0.00050
Manganese	6010B(2)	0.20	0.010	mg/l	CS0	06/02/2003	0021606-1	<0.010
Sodium	6010B(2)	240	0.50	mg/l	CS0	06/02/2003	0021606-1	<0.50
Vanadium	6010B(2)	0.021	0.010	mg/l	CS0	06/02/2003	0021606-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.027	0.0050	mg/l	MAK	05/29/2003	0021612-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1685**
Client Sample ID: MW-18D
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/29/2003	0021590-1	<0.010
Cyanide (Total)	335.2(1)	20	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	83	0.10	mg/l	CK0	06/02/2003	0021660-1	<0.10
pH	150.1(1)	9.39	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	1400	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.066	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	0.00068	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	0.30	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	230	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	0.034	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.047	0.0050	mg/l	MAK	05/29/2003	0021612-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1686**
Client Sample ID: MW-30
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.019	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	0.16	0.10	mg/l	CK0	06/02/2003	0021660-1	<0.10
pH	150.1(1)	6.27	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	440	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	0.81	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	23	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.028	0.0050	mg/l	MAK	05/29/2003	0021612-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1687**
Client Sample ID: MW-31
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	4.1	0.010	mg/l	TAT	05/29/2003	0021590-1	<0.010
Cyanide (Total)	335.2(1)	15	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	80	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	9.69	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	1800	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.038	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	0.0010	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	0.99	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	330	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	0.064	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.022	0.0050	mg/l	MAK	05/29/2003	0021612-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1688**
Client Sample ID: Field Blank
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	<0.10	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	5.77	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	4.3	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	1.3	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	<0.0050	0.0050	mg/l	MAK	05/29/2003	0021612-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1689**
Client Sample ID: Trip Blank
Sample Matrix: Aqueous

Date Sampled: 05/22/2003
Date Received: 05/22/2003

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B[1]	<0.0050	0.0050	mg/l	MAK	05/29/2003	0021612-1	<0.0050

[1] U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1690**
Client Sample ID: MW-1
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	0.25	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	6.32	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	570	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	0.048	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	24	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1691**
Client Sample ID: MW-7
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.090	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.098	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	<0.10	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	5.70	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	810	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.025	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	2.3	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	64	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1692**
Client Sample ID: MW-8
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.023	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	2.4	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	7.74	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	580	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	0.36	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	42	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1693**
Client Sample ID: MW-10
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.019	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.13	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	1.0	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	7.17	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	1200	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	120	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1694**
Client Sample ID: MW-11
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.016	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	2.1	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	7.87	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	540	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	0.57	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	37	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1695**
Client Sample ID: MW-14
Sample Matrix: Aqueous

Date Sampled: 05/22/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.014	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	2.1	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	7.59	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	530	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	1.2	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	34	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1696**
Client Sample ID: MW-12
Sample Matrix: Aqueous

Date Sampled: 05/22/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2[1]	<0.010	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2[1]	0.76	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1[1]	7.55	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1[1]	560	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B[2]	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B[2]	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B[2]	2.0	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B[2]	31	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B[2]	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082[2]	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1221	8082[2]	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1232	8082[2]	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1242	8082[2]	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1248	8082[2]	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1254	8082[2]	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1260	8082[2]	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
PCB Total-TCL	8082[2]	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50

[1] U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
[2] U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1697**
Client Sample ID: MW-44S
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1221	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1232	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1242	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1248	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1254	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1260	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
PCB Total-TCL	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50

(1) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1698**
Client Sample ID: MW-44D
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1221	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1232	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1242	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1248	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1254	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
Aroclor-1260	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50
PCB Total-TCL	8082(1)	<0.50	0.50	mg/l	RDJ	05/30/2003	0021516-1	<0.50

(1) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1699**
Client Sample ID: MW-15
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.11	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.80	0.010	mg/l	TAT	05/26/2003	0021468-1	<0.010
Fluoride	340.2(1)	1.6	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	7.23	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	610	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	49	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1700**
Client Sample ID: MW-16
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/29/2003	0021590-1	<0.010
Cyanide (Total)	335.2(1)	5.5	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	58	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	8.00	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	1300	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.012	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	0.0012	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	1.1	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	220	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	0.052	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1701**
Client Sample ID: MW-16D
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/29/2003	0021590-1	<0.010
Cyanide (Total)	335.2(1)	5.9	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	52	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	8.05	1.00	pH	BLV	05/22/2003	0021481-1	5.73
Specific Conductance	120.1(1)	1300	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0099	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	0.00093	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	1.00	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	220	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	0.044	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1702**
Client Sample ID: MW-17
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.096	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.41	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	9.8	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	7.65	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	580	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	1.6	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	44	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1703**
Client Sample ID: MW-19
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	2.2	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	7.53	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	550	1.0	umhos/cm	BLV	05/23/2003	0021510-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	20	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1704**
Client Sample ID: MW-28
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.068	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.38	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	0.13	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	5.73	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	390	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	0.017	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	47	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1705**
Client Sample ID: MW-29S
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.049	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.21	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	9.1	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	7.68	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	1000	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	0.78	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	110	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1706**
Client Sample ID: MW-29D
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.13	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	3.6	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	7.64	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	590	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	2.0	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	32	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1707**
Client Sample ID: MW-32
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/29/2003	0021590-1	<0.010
Cyanide (Total)	335.2(1)	3.6	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	21	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	8.31	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	820	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.010	0.0040	mg/l	CS0	06/02/2003	0021607-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/02/2003	0021607-1	<0.00050
Manganese	6010B(2)	2.2	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010
Sodium	6010B(2)	82	0.50	mg/l	CS0	06/02/2003	0021607-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/02/2003	0021607-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1708**
Client Sample ID: MW-34S
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.012	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.14	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	13	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	7.36	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	700	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/03/2003	0021608-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/03/2003	0021608-1	<0.00050
Manganese	6010B(2)	0.055	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010
Sodium	6010B(2)	52	0.50	mg/l	CS0	06/03/2003	0021608-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1709**
Client Sample ID: MW-34D
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.047	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	4.4	0.10	mg/l	CK0	06/04/2003	0021697-1	<0.10
pH	150.1(1)	7.38	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	630	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0041	0.0040	mg/l	CS0	06/03/2003	0021608-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/03/2003	0021608-1	<0.00050
Manganese	6010B(2)	0.58	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010
Sodium	6010B(2)	31	0.50	mg/l	CS0	06/03/2003	0021608-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1710**
Client Sample ID: MW-35
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/29/2003	0021590-1	<0.010
Cyanide (Total)	335.2(1)	6.6	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	31	0.10	mg/l	CK0	06/04/2003	0021698-1	<0.10
pH	150.1(1)	8.87	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	660	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0099	0.0040	mg/l	CS0	06/03/2003	0021608-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/03/2003	0021608-1	<0.00050
Manganese	6010B(2)	0.52	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010
Sodium	6010B(2)	76	0.50	mg/l	CS0	06/03/2003	0021608-1	<0.50
Vanadium	6010B(2)	0.025	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1711**
Client Sample ID: MW-36
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/29/2003	0021590-1	<0.010
Cyanide (Total)	335.2(1)	9.3	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	120	0.10	mg/l	CK0	06/04/2003	0021698-1	<0.10
pH	150.1(1)	9.51	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	2000	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.049	0.0040	mg/l	CS0	06/03/2003	0021608-1	<0.0040
Beryllium	6010B(2)	0.0027	0.00050	mg/l	CS0	06/03/2003	0021608-1	<0.00050
Manganese	6010B(2)	1.7	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010
Sodium	6010B(2)	380	0.50	mg/l	CS0	06/03/2003	0021608-1	<0.50
Vanadium	6010B(2)	0.091	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1712**
Client Sample ID: MW-37
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.093	0.010	mg/l	TAT	06/03/2003	0021701-1	<0.010
Cyanide (Total)	335.2(1)	6.3	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	9.8	0.10	mg/l	CK0	06/04/2003	0021698-1	<0.10
pH	150.1(1)	7.25	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	440	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0061	0.0040	mg/l	CS0	06/03/2003	0021608-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/03/2003	0021608-1	<0.00050
Manganese	6010B(2)	4.2	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010
Sodium	6010B(2)	53	0.50	mg/l	CS0	06/03/2003	0021608-1	<0.50
Vanadium	6010B(2)	0.014	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1713**
Client Sample ID: MW-39S
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	06/03/2003	0021701-1	<0.010
Cyanide (Total)	335.2(1)	3.1	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	140	0.10	mg/l	CK0	06/04/2003	0021698-1	<0.10
pH	150.1(1)	8.95	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	3800	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.012	0.0040	mg/l	CS0	06/03/2003	0021608-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/03/2003	0021608-1	<0.00050
Manganese	6010B(2)	0.15	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010
Sodium	6010B(2)	800	0.50	mg/l	CS0	06/03/2003	0021608-1	<0.50
Vanadium	6010B(2)	0.013	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) *U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and* Emergency Response, Washington, DC.

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331 South Main St.
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Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1714**
Client Sample ID: MW-39D
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.033	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	4.0	0.10	mg/l	CK0	06/04/2003	0021698-1	<0.10
pH	150.1(1)	7.60	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	580	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/03/2003	0021608-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/03/2003	0021608-1	<0.00050
Manganese	6010B(2)	0.93	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010
Sodium	6010B(2)	33	0.50	mg/l	CS0	06/03/2003	0021608-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1715**
Client Sample ID: MW-40S
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.020	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.58	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	21	0.10	mg/l	CK0	06/04/2003	0021698-1	<0.10
pH	150.1(1)	7.85	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	1400	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/03/2003	0021608-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/03/2003	0021608-1	<0.00050
Manganese	6010B(2)	0.64	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010
Sodium	6010B(2)	200	0.50	mg/l	CS0	06/03/2003	0021608-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1716**
Client Sample ID: MW-40D
Sample Matrix: Aqueous

Date Sampled: 05/21/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.13	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	9.6	0.10	mg/l	CK0	06/04/2003	0021698-1	<0.10
pH	150.1(1)	7.65	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	1000	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/03/2003	0021608-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/03/2003	0021608-1	<0.00050
Manganese	6010B(2)	1.2	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010
Sodium	6010B(2)	86	0.50	mg/l	CS0	06/03/2003	0021608-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Fax: 724.327.7793

Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1717**
Client Sample ID: MW-41
Sample Matrix: Aqueous

Date Sampled: 05/20/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	0.28	0.10	mg/l	CK0	06/04/2003	0021698-1	<0.10
pH	150.1(1)	6.87	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	460	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.016	0.0040	mg/l	CS0	06/03/2003	0021608-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/03/2003	0021608-1	<0.00050
Manganese	6010B(2)	1.1	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010
Sodium	6010B(2)	23	0.50	mg/l	CS0	06/03/2003	0021608-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1718**
Client Sample ID: MW-42S
Sample Matrix: Aqueous

Date Sampled: 05/22/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.14	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.94	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	51	0.10	mg/l	CK0	06/04/2003	0021698-1	<0.10
pH	150.1(1)	8.25	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	2300	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/03/2003	0021608-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/03/2003	0021608-1	<0.00050
Manganese	6010B(2)	0.41	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010
Sodium	6010B(2)	430	0.50	mg/l	CS0	06/03/2003	0021608-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-1943**
Lab Sample ID: **0305-1719**
Client Sample ID: MW-42D
Sample Matrix: Aqueous

Date Sampled: 05/22/2003
Date Received: 05/22/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.017	0.010	mg/l	TAT	05/27/2003	0021495-1	<0.010
Cyanide (Total)	335.2(1)	0.017	0.010	mg/l	TAT	05/26/2003	0021492-1	<0.010
Fluoride	340.2(1)	4.0	0.10	mg/l	CK0	06/04/2003	0021698-1	<0.10
pH	150.1(1)	7.57	1.00	pH	BLV	05/22/2003	0021471-1	5.71
Specific Conductance	120.1(1)	600	1.0	umhos/cm	BLV	05/23/2003	0021503-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	06/03/2003	0021608-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	06/03/2003	0021608-1	<0.00050
Manganese	6010B(2)	1.4	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010
Sodium	6010B(2)	34	0.50	mg/l	CS0	06/03/2003	0021608-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	06/03/2003	0021608-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Chain of Custody

HMI
Environmental Consulting Services

03-1943

CHAIN-OF-CUSTODY RECORD

Project Number	Project Name/Location	Laboratory	Sampling Personnel
HM00317	ORMET / REDUCTION MILL	PACE ANALYTICAL	S. MENOSKY, J. KELLER

Sample ID	Date/Time	Sample Code	Dissolved As, Be, Mn, Na, V 250ml. Plastic Field Filtered (HNO3)	CN (Total/Amenable) 250ml. Plastic (NaOH)	pH, Spec. Cond., F 500ml. Plastic (4°C)	Tetrachloroethene 40ml. Glass (HCL)						TOTAL
MW-2	5/20/03	L	1	1	1	3				0305-1681		6
MW-2D	5/20/03		1	1	1	3					1682	6
MW-5	5/20/03		1	1	1	3					1683	6
MW-18	5/20/03		1	1	1	3					1684	6
MW-18D	5/20/03		1	1	1	3					1685	6
MW-30	5/20/03		1	1	1	3					1686	6
MW-31	5/20/03		1	1	1	3					1687	6
Field Blank	5/20/03		1	1	1	3					1688	6
Trip Blank	5/22/03					3					1689	3
MW-1	5/20/03		1	1	1						1690	3
MW-7	5/20/03		1	1	1						1691	3
MW-8	5/20/03		1	1	1						1692	3
MW-10	5/20/03		1	1	1						1693	3
MW-11	5/20/03		1	1	1						1694	3
MW-14	5/22/03		1	1	1						1695	3

Sample Code: (L = Liquid; S = Solid; A = Air)

Total Number of Containers: 69

Relinquished by: Stephen Menosky	Organization: HMI	Date: 5/22/03	Time: 1330	Seal Intact? Yes No (NA)
Received by: [illegible]	Organization: PASI	Date: [illegible]	Time: 1330	
Relinquished by: [illegible]	Organization: PASI	Date: 5-22-03	Time: 1730	Seal Intact? Yes No (NA)
Received by: [illegible]	Organization: PASI	Date: 5-22-03	Time: 17:30	

REMARKS: ONLY ANALYZE AMENABLE CN IF TOTAL CN IS DETECTED
Samples are in 3 coolers

DELIVERY METHOD: In Person [ ] Common Carrier [ ] Lab Courier [Pace] Other [ ]

HMI
Environmental Consulting Services

03-1943

CHAIN-OF-CUSTODY RECORD

Project Number	Project Name/Location	Laboratory	Sampling Personnel
HM00317	ORMET/REDUCTION MILL	PACE ANALYTICAL	S. MENOSKY, J. KELLER

Sample ID	Date/Time	Sample Code	Dissolved As, Be, Mn, Na, V 250 ml. Plastic Field Filtered (HNO3)	CN (Total/Amenable) 250 ml. Plastic (NaOH)	pH, Spec. Cond., F 500 ml. Plastic (4°C)	PCB's 1 Liter Glass (4°C)						TOTAL
MW-12	5/20/03	L	1	1	1	1				0305-	1696	4
MW-44s	5/20/03					1					1697	1
MW-44d	5/20/03					1					1698	1
MW-15	5/21/03		1	1	1						1699	3
MW-16	5/21/03		1	1	1						1700	3
MW-16D	5/21/03		1	1	1						1701	3
MW-17	5/21/03		1	1	1						1702	3
MW-19	5/20/03		1	1	1						1703	3
MW-28	5/20/03		1	1	1						1704	3
MW-29s	5/20/03		1	1	1						1705	3
MW-29d	5/20/03		1	1	1						1706	3
MW-32	5/21/03		1	1	1						1707	3
MW-34s	5/21/03		1	1	1						1708	3
MW-34d	5/21/03		1	1	1						1709	3
MW-35	5/21/03	✓	1	1	1						1710	3

Sample Code: L = Liquid; S = Solid; A = Air

Total Number of Containers: 42

Relinquished by: Stephen C. Menosky	Organization: HMI	Date: 5/22/03	Time: 1330	Seal Intact? Yes No NA
Received by: [illegible]	Organization: PASI	Date: 5/22/03	Time: 1330	
Relinquished by: [illegible]	Organization: PASI	Date: 5/22/03	Time: 1730	Seal Intact? Yes No NA
Received by: [illegible]	Organization: PASI	Date: 5-22-03	Time: 17:30	

REMARKS: ONLY ANALYZE AMENABLE CN IF TOTAL CN IS DETECTED
Samples are in 3 coolers

DELIVERY METHOD: In Person [ ] Common Carrier [ ] Lab Courier [Pace] Other [ ]

HMI
Environmental Consulting Services

CHAIN-OF-CUSTODY RECORD

03-1943

Project Number	Project Name/Location	Laboratory	Sampling Personnel
HM00317	ORMET/REDUCTION MILL	PACE ANALYTICAL	S. MENOSKY, J. KELLER

Sample ID	Date/Time	Sample Code	Dissolved As, Be, Mn, Na, V 250 ml. Plastic Field Filtered (HNO3)	CN (Total/Amenable) 250 ml. Plastic (NaOH)	pH, Spec. Cond., F 500 ml. Plastic (4°C)							TOTAL
MW-36	5/21/03	L	1	1	1					0305	1711	3
MW-37	5/21/03		1	1	1						1712	3
MW-39s	5/21/03		1	1	1						1713	3
MW-39d	5/21/03		1	1	1						1714	3
MW-40s	5/21/03		1	1	1						1715	3
MW-40d	5/21/03		1	1	1						1716	3
MW-41	5/20/03		1	1	1						1717	3
MW-42s	5/22/03		1	1	1						1718	3
MW-42d	5/22/03		1	1	1						1719	3

Sample Code: L = Liquid; S = Solid; A = Air

Total Number of Containers: ~27
total (138)

Relinquished by: Stephen Menosky	Organization: HMI	Date: 5/22/03	Time: 1330	Seal Intact? Yes No NA
Received by: [illegible]	Organization: PASL	Date: [illegible]	Time: 1330	
Relinquished by: [illegible]	Organization: PASL	Date: 5-22-03	Time: 1730	Seal Intact? Yes No NA
Received by: [illegible]	Organization: PASL	Date: 5-22-03	Time: 1730	

REMARKS: ONLY ANALYZE AMENABLE CN IF TOTAL CN IS DETECTED
Samples are in 3 coolers

DELIVERY METHOD: In Person [ ] Common Carrier [ ] Lab Courier [Pace] Other [ ]

APPENDIX B-3

LABORATORY ANALYTICAL REPORT FOR
SEPTEMBER 2003 MONITORING EVENT

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September 30, 2003

Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Dear Mr. Fargo:

Enclosed are analytical results for samples submitted to Pace Analytical by Hydro Systems Management, Inc.. The samples were received on September 12, 2003. Please reference Pace project number 03-3815 when inquiring about this report.

Client Site: Reduction Mill
Client Ref.: HM00317

Pace Sample Identification	Client Sample Identification
0309-1162	MW-2
0309-1163	MW-5
0309-1164	MW-5D
0309-1165	MW-12
0309-1166	MW-12D
0309-1167	MW-16
0309-1168	MW-18
0309-1169	MW-28
0309-1170	MW-31

Pace Sample Identification	Client Sample Identification
0309-1171	MW-32
0309-1172	MW-35
0309-1173	MW-36
0309-1174	MW-37
0309-1175	MW-44S
0309-1176	MW-44D
0309-1177	Field Blank
0309-1178	Trip Blank

General Comments: Cooler temperatures 3 and 2 ° C upon receipt. Ice was present.

Please call me if you have any questions regarding the information contained within this report.

Sincerely,

Rachel D. Christner
Project Coordinator

RDC: jld

Enclosures

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1162**
Client Sample ID: MW-2
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.93	0.010	mg/l	TAT	09/22/2003	0024317-1	<0.010
Cyanide (Total)	335.2(1)	16	0.010	mg/l	TAT	09/20/2003	0024283-1	<0.010
Fluoride	340.2(1)	76	0.10	mg/l	CK0	09/25/2003	0024434-1	<0.10
pH	150.1(1)	9.77	1.00	pH	EAC	09/12/2003	0024170-1	6.04
Specific Conductance	120.1(1)	1700	1.0	umhos/cm	EAC	09/12/2003	0024171-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.089	0.0040	mg/l	CS0	09/16/2003	0024187-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	09/16/2003	0024187-1	<0.00050
Manganese	6010B(2)	0.73	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010
Sodium	6010B(2)	330	0.50	mg/l	CS0	09/16/2003	0024187-1	<0.50
Vanadium	6010B(2)	0.048	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.012	0.0050	mg/l	MAK	09/15/2003	0024188-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1163**
Client Sample ID: MW-5
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.15	0.010	mg/l	TAT	09/22/2003	0024317-1	<0.010
Cyanide (Total)	335.2(1)	4.8	0.010	mg/l	TAT	09/20/2003	0024283-1	<0.010
Fluoride	340.2(1)	33	0.10	mg/l	CK0	09/25/2003	0024434-1	<0.10
pH	150.1(1)	7.76	1.00	pH	EAC	09/12/2003	0024170-1	6.04
Specific Conductance	120.1(1)	1300	1.0	umhos/cm	EAC	09/12/2003	0024171-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0073	0.0040	mg/l	CS0	09/16/2003	0024187-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	09/16/2003	0024187-1	<0.00050
Manganese	6010B(2)	0.61	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010
Sodium	6010B(2)	210	0.50	mg/l	CS0	09/16/2003	0024187-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.0060	0.0050	mg/l	MAK	09/15/2003	0024188-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1164**
Client Sample ID: MW-5D
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.34	0.010	mg/l	TAT	09/22/2003	0024317-1	<0.010
Cyanide (Total)	335.2(1)	4.8	0.010	mg/l	TAT	09/20/2003	0024283-1	<0.010
Fluoride	340.2(1)	37	0.10	mg/l	CK0	09/25/2003	0024434-1	<0.10
pH	150.1(1)	7.74	1.00	pH	EAC	09/12/2003	0024170-1	6.04
Specific Conductance	120.1(1)	1300	1.0	umhos/cm	EAC	09/12/2003	0024171-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0065	0.0040	mg/l	CS0	09/16/2003	0024187-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	09/16/2003	0024187-1	<0.00050
Manganese	6010B(2)	0.60	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010
Sodium	6010B(2)	210	0.50	mg/l	CS0	09/16/2003	0024187-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.0055	0.0050	mg/l	MAK	09/15/2003	0024188-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1165**
Client Sample ID: MW-12
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	09/22/2003	0024317-1	<0.010
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	09/20/2003	0024283-1	<0.010
Fluoride	340.2(1)	1.6	0.10	mg/l	CK0	09/25/2003	0024434-1	<0.10
pH	150.1(1)	7.57	1.00	pH	EAC	09/12/2003	0024170-1	6.04
Specific Conductance	120.1(1)	560	1.0	umhos/cm	EAC	09/12/2003	0024171-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	09/16/2003	0024187-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	09/16/2003	0024187-1	<0.00050
Manganese	6010B(2)	2.0	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010
Sodium	6010B(2)	32	0.50	mg/l	CS0	09/16/2003	0024187-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(2)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1221	8082(2)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1232	8082(2)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1242	8082(2)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1248	8082(2)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1254	8082(2)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1260	8082(2)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
PCB Total-TCL	8082(2)	<0.50	0.50	ug/l	RDJ	09/23/2003	0024265-1	<0.50

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1166**
Client Sample ID: MW-12D
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	09/22/2003	0024317-1	<0.010
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	09/20/2003	0024283-1	<0.010
Fluoride	340.2(1)	0.94	0.10	mg/l	CK0	09/25/2003	0024434-1	<0.10
pH	150.1(1)	7.60	1.00	pH	EAC	09/12/2003	0024170-1	6.04
Specific Conductance	120.1(1)	560	1.0	umhos/cm	EAC	09/12/2003	0024171-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	09/16/2003	0024187-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	09/16/2003	0024187-1	<0.00050
Manganese	6010B(2)	2.0	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010
Sodium	6010B(2)	33	0.50	mg/l	CS0	09/16/2003	0024187-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(2)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1221	8082(2)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1232	8082(2)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1242	8082(2)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1248	8082(2)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1254	8082(2)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1260	8082(2)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
PCB Total-TCL	8082(2)	<0.50	0.50	ug/l	RDJ	09/23/2003	0024265-1	<0.50

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1167**
Client Sample ID: MW-16
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.062	0.010	mg/l	TAT	09/22/2003	0024317-1	<0.010
Cyanide (Total)	335.2(1)	3.9	0.010	mg/l	TAT	09/20/2003	0024283-1	<0.010
Fluoride	340.2(1)	74	0.10	mg/l	CK0	09/25/2003	0024434-1	<0.10
pH	150.1(1)	8.21	1.00	pH	EAC	09/12/2003	0024170-1	6.04
Specific Conductance	120.1(1)	1200	1.0	umhos/cm	EAC	09/12/2003	0024171-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.011	0.0040	mg/l	CS0	09/16/2003	0024187-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	09/16/2003	0024187-1	<0.00050
Manganese	6010B(2)	0.61	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010
Sodium	6010B(2)	240	0.50	mg/l	CS0	09/16/2003	0024187-1	<0.50
Vanadium	6010B(2)	0.023	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1168**
Client Sample ID: MW-18
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	09/22/2003	0024317-1	<0.010
Cyanide (Total)	335.2(1)	4.0	0.010	mg/l	TAT	09/20/2003	0024283-1	<0.010
Fluoride	340.2(1)	97	0.10	mg/l	CK0	09/25/2003	0024434-1	<0.10
pH	150.1(1)	9.42	1.00	pH	EAC	09/12/2003	0024170-1	6.04
Specific Conductance	120.1(1)	1800	1.0	umhos/cm	EAC	09/12/2003	0024171-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.12	0.0040	mg/l	CS0	09/16/2003	0024187-1	<0.0040
Beryllium	6010B(2)	0.0044	0.00050	mg/l	CS0	09/16/2003	0024187-1	<0.00050
Manganese	6010B(2)	5.6	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010
Sodium	6010B(2)	380	0.50	mg/l	CS0	09/16/2003	0024187-1	<0.50
Vanadium	6010B(2)	0.17	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.018	0.0050	mg/l	MAK	09/15/2003	0024188-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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331 South Main St.
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Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1169**
Client Sample ID: MW-28
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.016	0.010	mg/l	TAT	09/22/2003	0024317-1	<0.010
Cyanide (Total)	335.2(1)	0.35	0.010	mg/l	TAT	09/20/2003	0024283-1	<0.010
Fluoride	340.2(1)	0.96	0.10	mg/l	CK0	09/25/2003	0024434-1	<0.10
pH	150.1(1)	5.93	1.00	pH	EAC	09/12/2003	0024170-1	6.04
Specific Conductance	120.1(1)	440	1.0	umhos/cm	EAC	09/12/2003	0024171-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0068	0.0040	mg/l	CS0	09/16/2003	0024187-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	09/16/2003	0024187-1	<0.00050
Manganese	6010B(2)	0.018	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010
Sodium	6010B(2)	61	0.50	mg/l	CS0	09/16/2003	0024187-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1170**
Client Sample ID: MW-31
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	7.7	0.010	mg/l	TAT	09/22/2003	0024317-1	<0.010
Cyanide (Total)	335.2(1)	12	0.010	mg/l	TAT	09/20/2003	0024283-1	<0.010
Fluoride	340.2(1)	91	0.10	mg/l	CK0	09/25/2003	0024434-1	<0.10
pH	150.1(1)	9.69	1.00	pH	EAC	09/12/2003	0024170-1	6.04
Specific Conductance	120.1(1)	1800	1.0	umhos/cm	EAC	09/12/2003	0024171-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.046	0.0040	mg/l	CS0	09/16/2003	0024187-1	<0.0040
Beryllium	6010B(2)	0.0010	0.00050	mg/l	CS0	09/16/2003	0024187-1	<0.00050
Manganese	6010B(2)	1.3	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010
Sodium	6010B(2)	410	0.50	mg/l	CS0	09/16/2003	0024187-1	<0.50
Vanadium	6010B(2)	0.074	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.032	0.0050	mg/l	MAK	09/15/2003	0024189-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1171**
Client Sample ID: MW-32
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	1.4	0.010	mg/l	TAT	09/22/2003	0024317-1	<0.010
Cyanide (Total)	335.2(1)	5.9	0.010	mg/l	TAT	09/20/2003	0024283-1	<0.010
Fluoride	340.2(1)	32	0.10	mg/l	CK0	09/25/2003	0024434-1	<0.10
pH	150.1(1)	8.67	1.00	pH	EAC	09/12/2003	0024170-1	6.04
Specific Conductance	120.1(1)	920	1.0	umhos/cm	EAC	09/12/2003	0024171-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.013	0.0040	mg/l	CS0	09/16/2003	0024187-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	09/16/2003	0024187-1	<0.00050
Manganese	6010B(2)	1.7	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010
Sodium	6010B(2)	130	0.50	mg/l	CS0	09/16/2003	0024187-1	<0.50
Vanadium	6010B(2)	0.011	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1172**
Client Sample ID: MW-35
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	1.1	0.010	mg/l	TAT	09/22/2003	0024317-1	<0.010
Cyanide (Total)	335.2(1)	6.4	0.010	mg/l	TAT	09/20/2003	0024283-1	<0.010
Fluoride	340.2(1)	23	0.10	mg/l	CK0	09/25/2003	0024434-1	<0.10
pH	150.1(1)	8.46	1.00	pH	EAC	09/12/2003	0024170-1	6.04
Specific Conductance	120.1(1)	540	1.0	umhos/cm	EAC	09/12/2003	0024171-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0098	0.0040	mg/l	CS0	09/16/2003	0024187-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	09/16/2003	0024187-1	<0.00050
Manganese	6010B(2)	0.52	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010
Sodium	6010B(2)	53	0.50	mg/l	CS0	09/16/2003	0024187-1	<0.50
Vanadium	6010B(2)	0.016	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

REPORT OF LABORATORY ANALYSIS

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Export, PA 15632
Phone: 724.733.1161
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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1173**
Client Sample ID: MW-36
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.74	0.010	mg/l	TAT	09/22/2003	0024317-1	<0.010
Cyanide (Total)	335.2(1)	6.2	0.010	mg/l	TAT	09/20/2003	0024283-1	<0.010
Fluoride	340.2(1)	110	0.10	mg/l	CK0	09/25/2003	0024434-1	<0.10
pH	150.1(1)	9.50	1.00	pH	EAC	09/12/2003	0024170-1	6.04
Specific Conductance	120.1(1)	1500	1.0	umhos/cm	EAC	09/12/2003	0024171-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.046	0.0040	mg/l	CS0	09/16/2003	0024187-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	09/16/2003	0024187-1	<0.00050
Manganese	6010B(2)	0.75	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010
Sodium	6010B(2)	290	0.50	mg/l	CS0	09/16/2003	0024187-1	<0.50
Vanadium	6010B(2)	0.038	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1174**
Client Sample ID: MW-37
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.093	0.010	mg/l	TAT	09/22/2003	0024317-1	<0.010
Cyanide (Total)	335.2(1)	2.4	0.010	mg/l	TAT	09/20/2003	0024283-1	<0.010
Fluoride	340.2(1)	14	0.10	mg/l	CK0	09/25/2003	0024434-1	<0.10
pH	150.1(1)	6.89	1.00	pH	EAC	09/12/2003	0024170-1	6.04
Specific Conductance	120.1(1)	520	1.0	umhos/cm	EAC	09/12/2003	0024171-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.010	0.0040	mg/l	CS0	09/16/2003	0024187-1	<0.0040
Beryllium	6010B(2)	0.00050	0.00050	mg/l	CS0	09/16/2003	0024187-1	<0.00050
Manganese	6010B(2)	4.8	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010
Sodium	6010B(2)	83	0.50	mg/l	CS0	09/16/2003	0024187-1	<0.50
Vanadium	6010B(2)	0.028	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1175**
Client Sample ID: MW-44S
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(1)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1221	8082(1)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1232	8082(1)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1242	8082(1)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1248	8082(1)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1254	8082(1)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1260	8082(1)	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
PCB Total-TCL	8082(1)	<0.50	0.50	ug/l	RDJ	09/23/2003	0024265-1	<0.50

(1) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
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331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1176**
Client Sample ID: MW-44D
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082[1]	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1221	8082[1]	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1232	8082[1]	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1242	8082[1]	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1248	8082[1]	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1254	8082[1]	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
Aroclor-1260	8082[1]	<0.50	0.50	mg/l	RDJ	09/23/2003	0024265-1	<0.50
PCB Total-TCL	8082[1]	<0.50	0.50	ug/l	RDJ	09/23/2003	0024265-1	<0.50

[1] U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1177**
Client Sample ID: Field Blank
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	09/22/2003	0024317-1	<0.010
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	09/20/2003	0024283-1	<0.010
Fluoride	340.2(1)	0.64	0.10	mg/l	CK0	09/25/2003	0024434-1	<0.10
pH	150.1(1)	4.99	1.00	pH	EAC	09/12/2003	0024170-1	6.04
Specific Conductance	120.1(1)	4.3	1.0	umhos/cm	EAC	09/12/2003	0024171-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	09/16/2003	0024187-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	09/16/2003	0024187-1	<0.00050
Manganese	6010B(2)	<0.010	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010
Sodium	6010B(2)	<0.50	0.50	mg/l	CS0	09/16/2003	0024187-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	09/16/2003	0024187-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	<0.0050	0.0050	mg/l	MAK	09/15/2003	0024188-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **03-3815**
Lab Sample ID: **0309-1178**
Client Sample ID: Trip Blank
Sample Matrix: Aqueous

Date Sampled: 09/11/2003
Date Received: 09/12/2003

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B[1]	<0.0050	0.0050	mg/l	MAK	09/15/2003	0024188-1	<0.0050

[1] U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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APPENDIX C

DATA VALIDATION SUMMARY REPORT FOR 2003 MONITORING EVENTS

APPENDIX C
DATA VALIDATION SUMMARY REPORT
2002 REMEDIAL ACTION GROUND-WATER MONITORING

ORMET CORPORATION
HANNIBAL, OHIO

Under the Remedial Action Ground-Water Monitoring Plan for the Ormet Corporation site, ground-water samples were collected in January, May and September. The samples collected in January were analyzed by Kemron Environmental Services of Marietta, Ohio. Samples collected in May and September were analyzed by Pace Analytical Services, Incorporated of Export, Pennsylvania. All samples were analyzed using SW-846 and EPA protocols. Validation of the analytical results was conducted by applying principals and concepts of the USEPA National Functional Guidelines. The validation process included review of holding times, blank results, surrogate and matrix spike recoveries, and laboratory control sample results. A summary of the validation results for each of the monitoring events conducted during 2003 is provided below.

January 2003 Monitoring Event

Recovery for the surrogate compound 4-Bromoflourobenzene (117%) for the trip blank sample was slightly above the control range of 86% - 115%. This is not considered significant and the results were not qualified.

Flouride was reported in the field blank at 0.055 mg/L. By application of the 5x rule, results below 0.275 mg/L would be considered non-detect. No data is affected by the application of the 5x rule.

The matrix spike result for flouride (82.25%) was below the lower control limit of 90.00%. This is not considered significant and the results were not qualified.

The REP RPD = 32.82% (Relative Percent Difference of Sample Replicates) for flouride was above the RPD UCL = 14.00% (Relative Percent Difference Upper Control Limit). No results were qualified based on this finding.

May 2003 Monitoring Event

Dissolved sodium was reported in the field blank at 1.3 mg/L. By application of the 5x rule, results below 6.5 mg/L would be considered non-detect. No data is affected by the application of the 5x rule.

The matrix spike result for fluoride (118%) was slightly above the upper control limit of 115%. This is not considered significant and the results were not qualified.

September 2003 Monitoring Event

Matrix spike and matrix spike duplicate results for 1,1,1 - Trichloroethane, 1,2 Dichloroethane, Trichloroethene, Tetrachlorothene, 1,2-Dibromoethane,ED, and 1,2,4-Trichlorobenzene failed the laboratory limit check. Based on the laboratories explanation of this occurrence, no results were qualified.

Fluoride was reported in the field blank at 0.64 mg/L. By application of the 5x rule, results below 3.2 mg/L would be considered non-detect. Fluoride results for MW-12 (1.6 mg/ L), MW-12D (0.94 mg/L), and MW-28 (0.96 mg/L) are affected by the application of the 5x rule. These results were reported as < 3.2 mg/L and flagged with a 'B'.

The matrix spike and matrix spike duplicate results for fluoride (134% and 135% respectively) were above the upper control limit of 115%. This is not considered significant and the results were not qualified. No results were qualified based on this finding.

ORMET-03.C

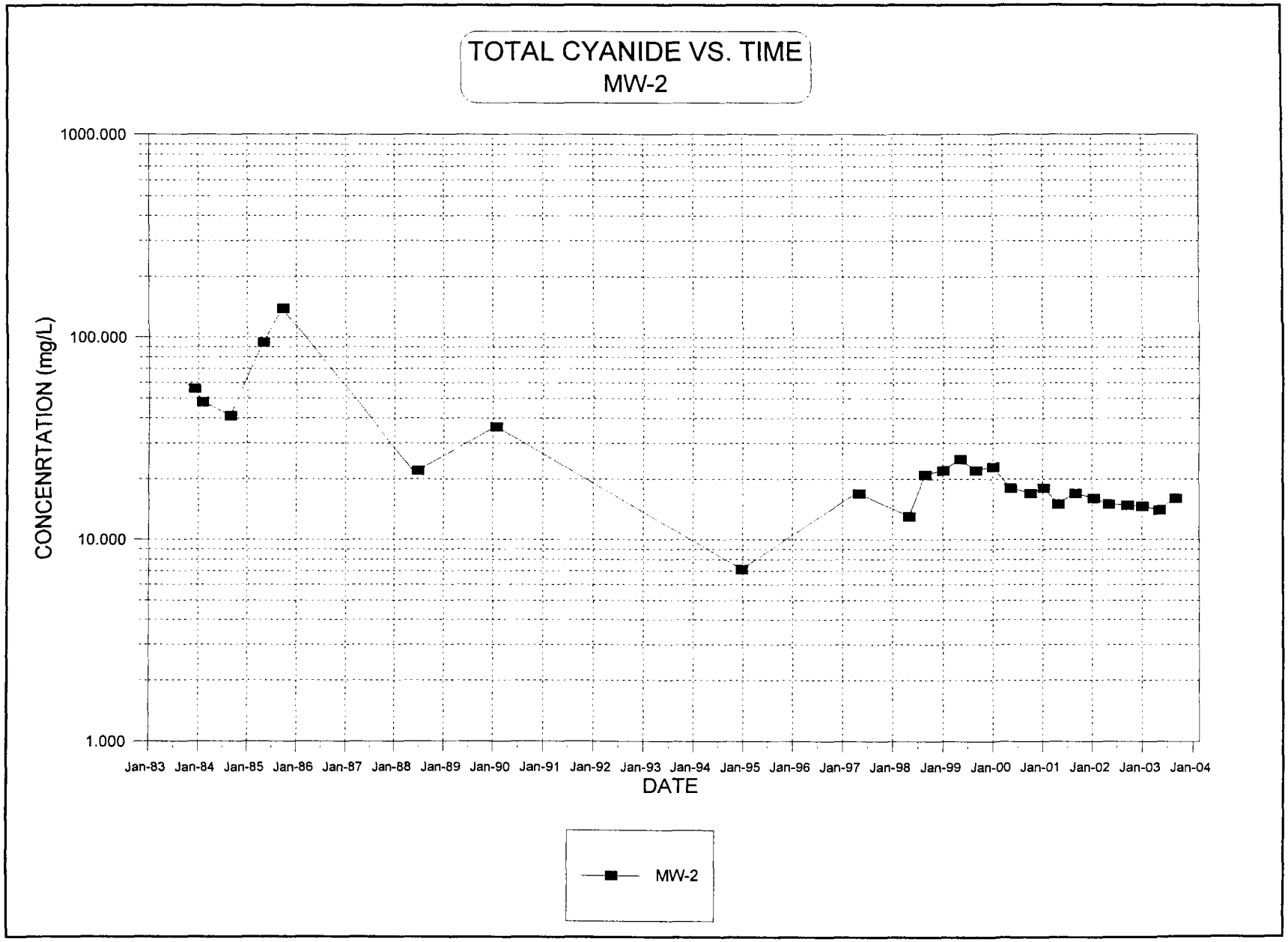
APPENDIX D

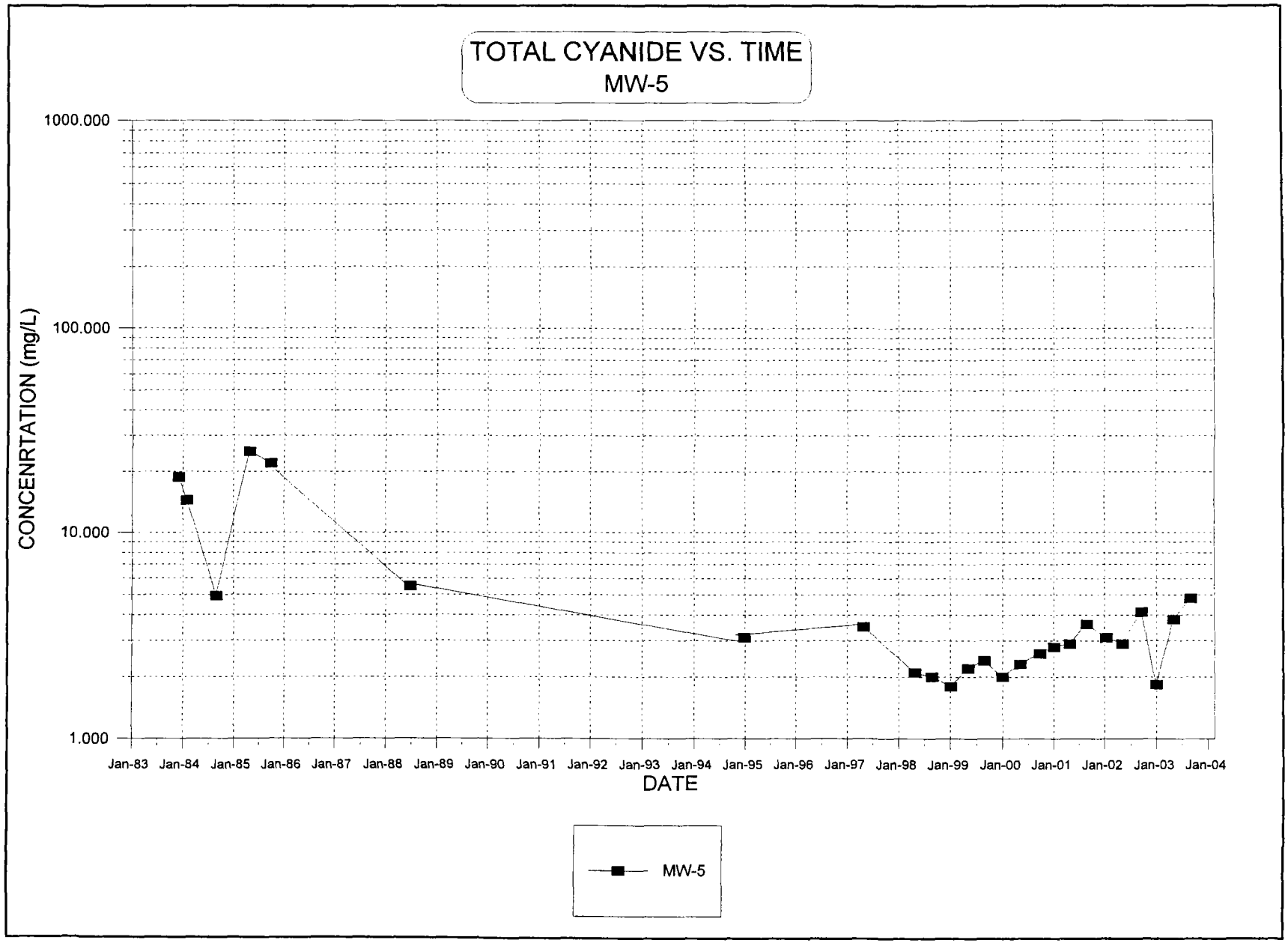
CONCENTRATION VS. TIME GRAPHS FOR REMEDIAL ACTION MONITORING PARAMETERS

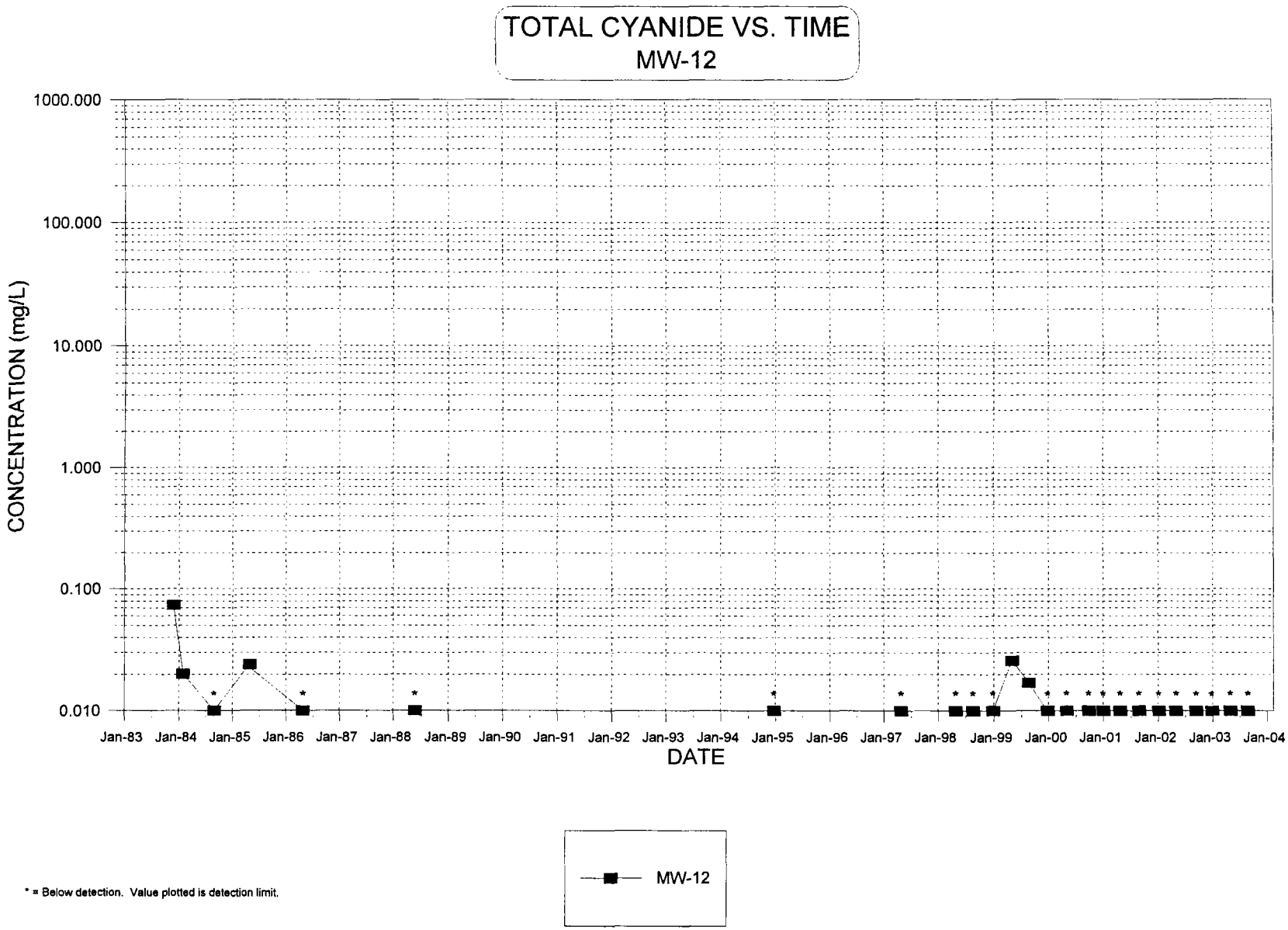
Appendix D-1	Total Cyanide
Appendix D-2	Cyanide Amenable to Chlorination
Appendix D-3	Fluoride
Appendix D-4	Arsenic
Appendix D-5	Beryllium
Appendix D-6	Manganese
Appendix D-7	Vanadium
Appendix D-8	Tetrachloroethene
Appendix D-9	Sodium

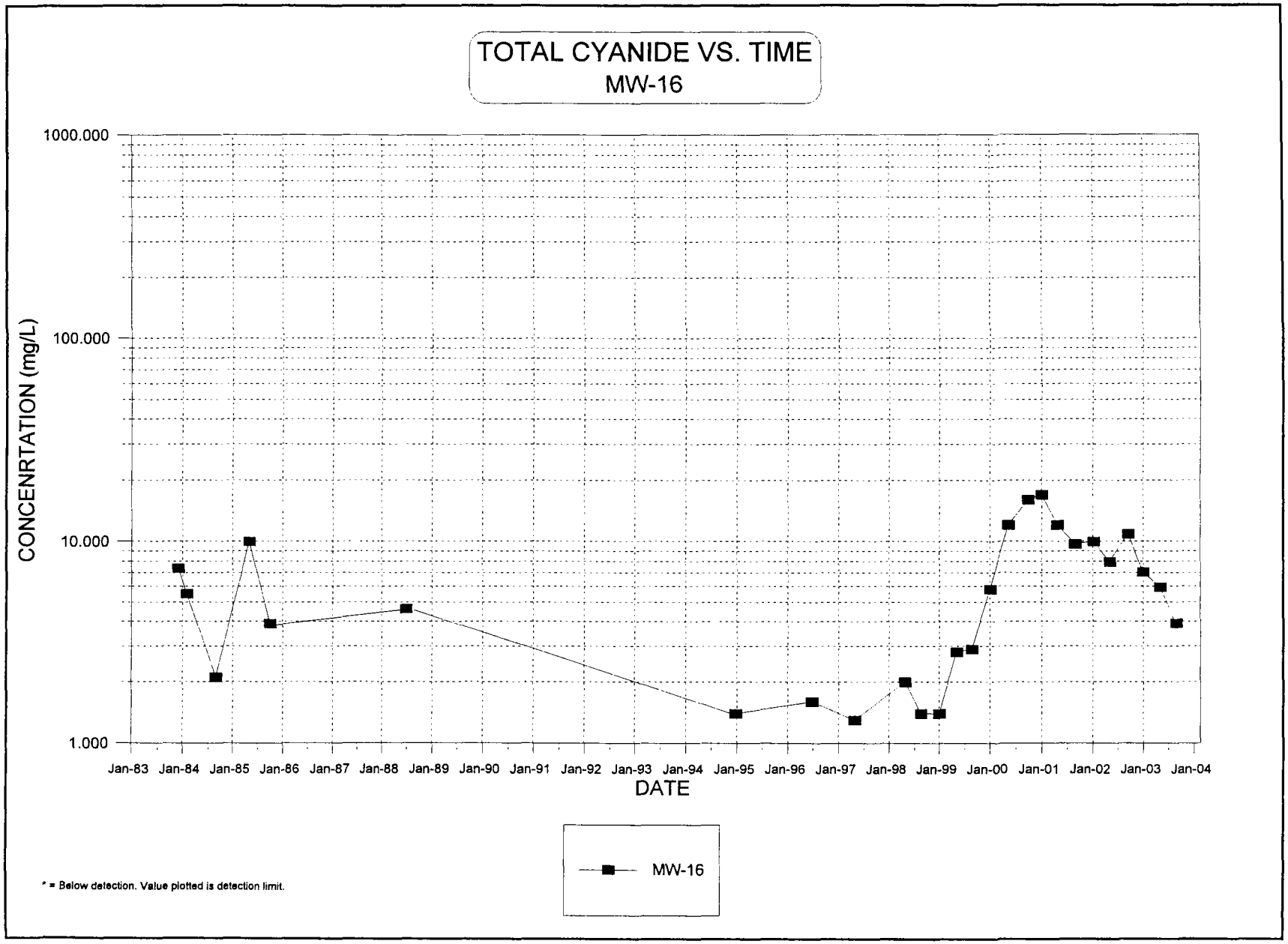
APPENDIX D-1

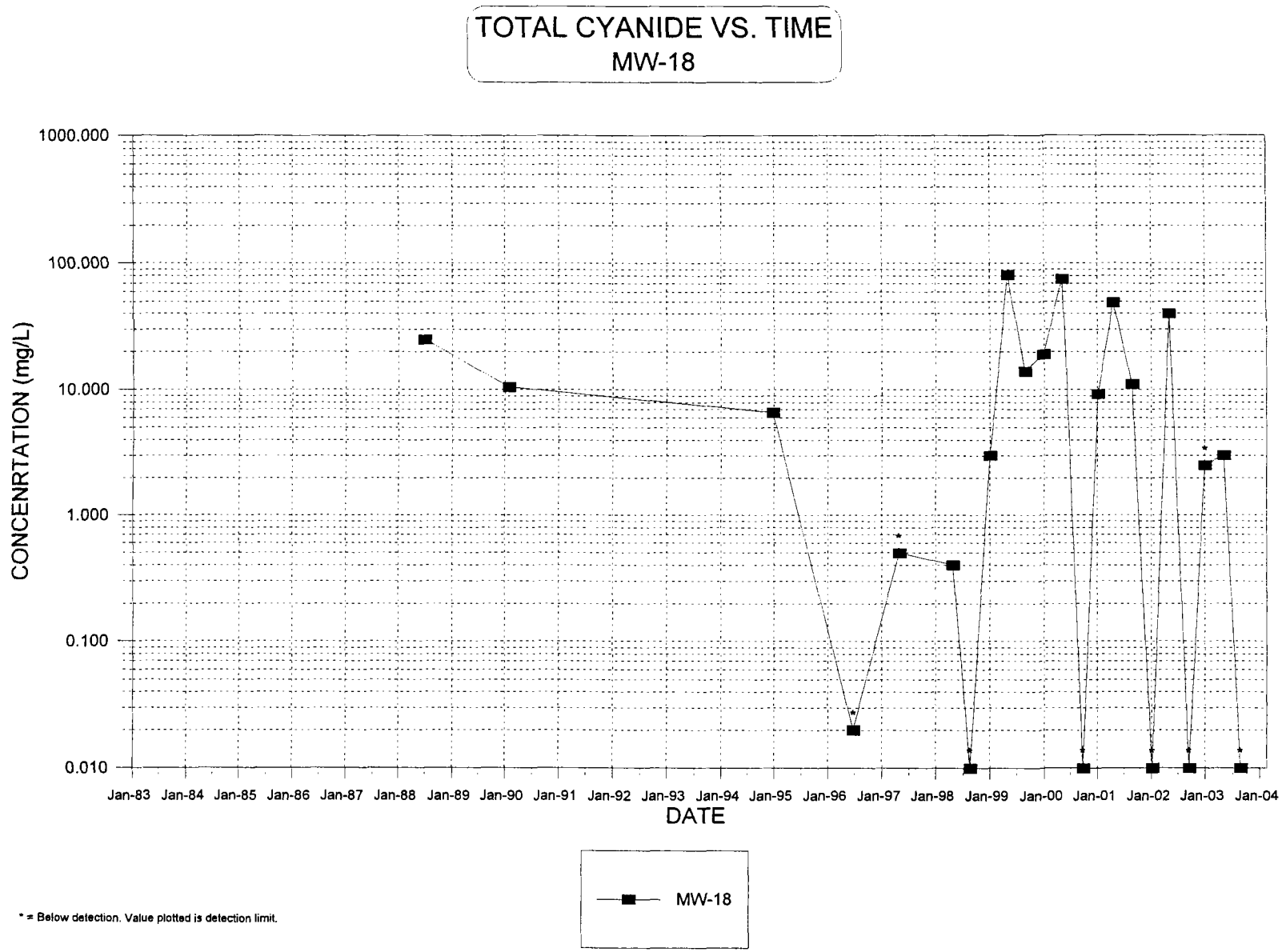
TOTAL CYANIDE

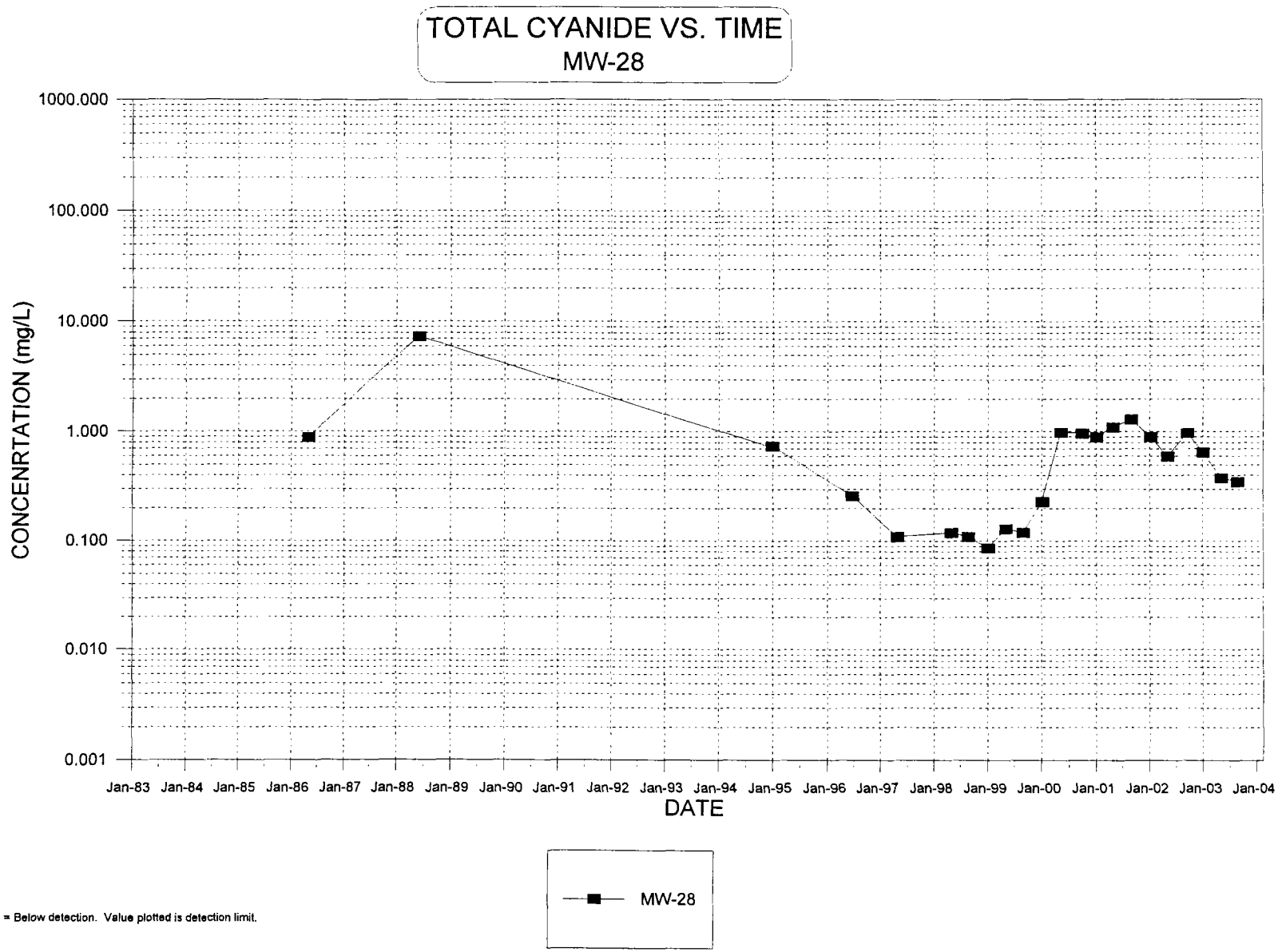

TOTAL CYANIDE VS. TIME
MW-2
1000.000
100.000
10.000
1.000
CONCENRTATION (mg/L)
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-2


TOTAL CYANIDE VS. TIME
MW-5
1000.000
100.000
10.000
1.000
CONCENRTATION (mg/L)
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-5

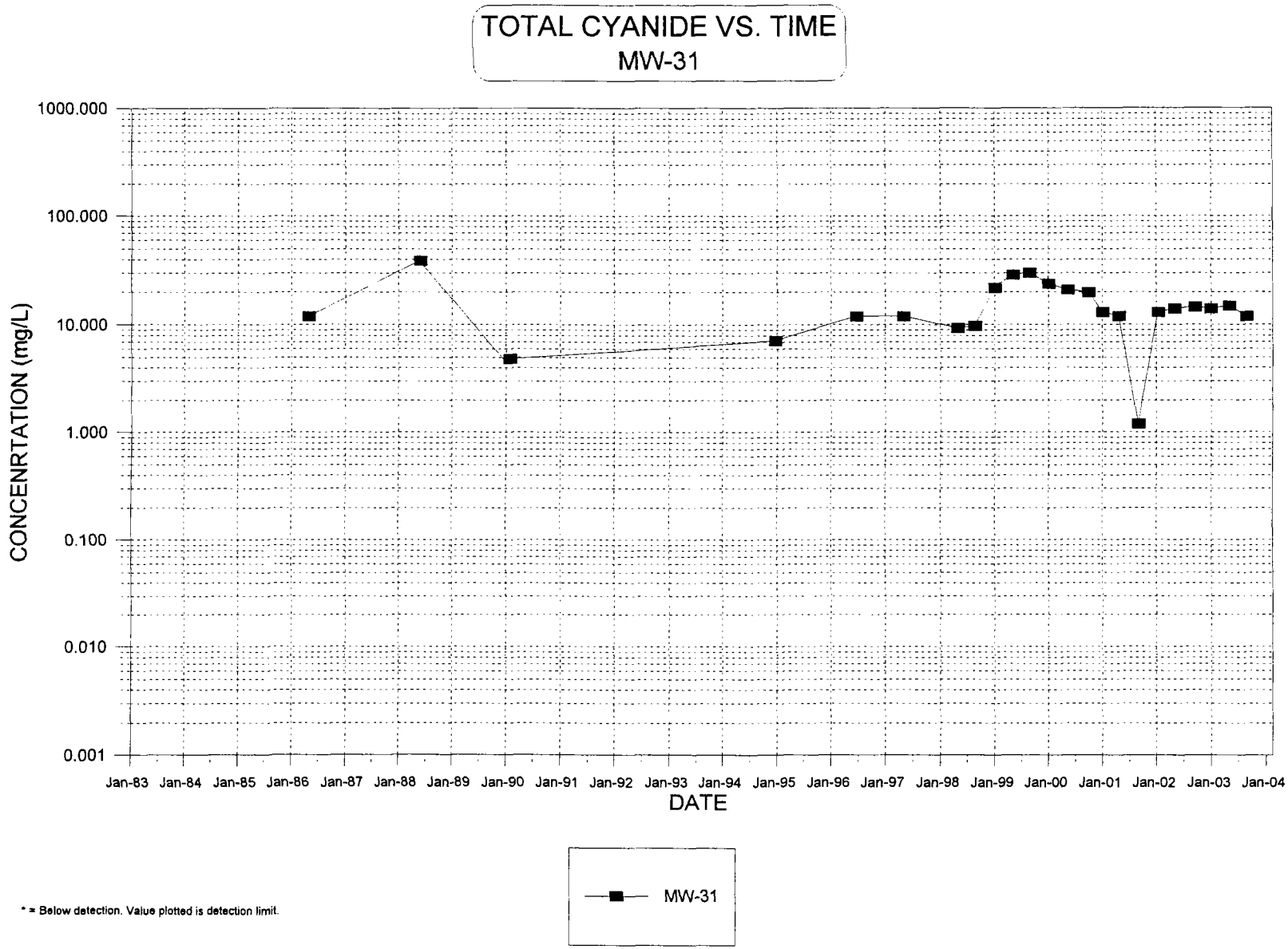

TOTAL CYANIDE VS. TIME
MW-12
CONCENTRATION (mg/L)
1000.000
100.000
10.000
1.000
0.100
0.010
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-12
* = Below detection. Value plotted is detection limit.


TOTAL CYANIDE VS. TIME
MW-16
1000.000
100.000
10.000
1.000
CONCENRTATION (mg/L)
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-16
* = Below detection. Value plotted is detection limit.

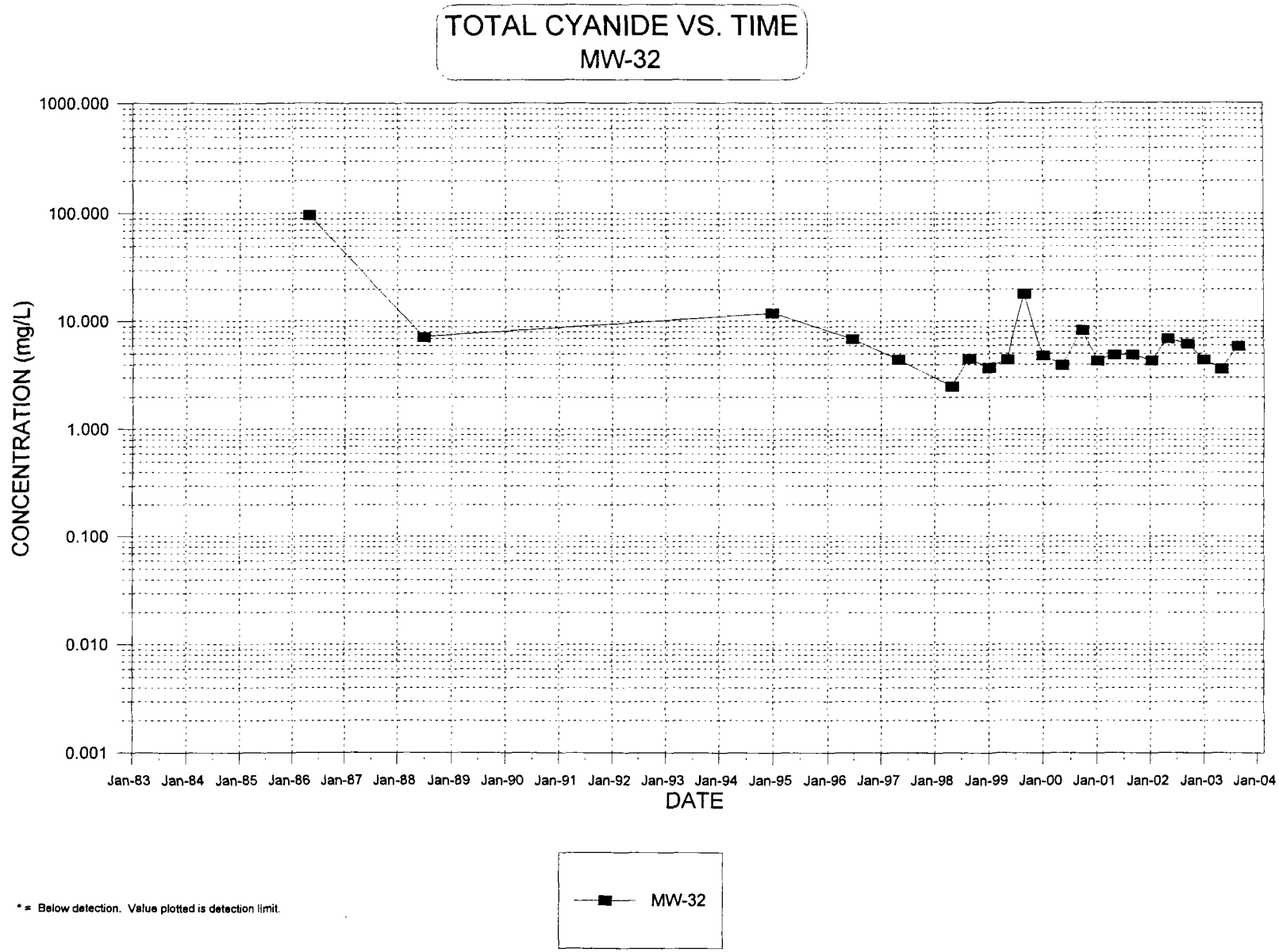

TOTAL CYANIDE VS. TIME
MW-18
1000.000
100.000
10.000
1.000
0.100
0.010
CONCENRTATION (mg/L)
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04
DATE
MW-18
* = Below detection. Value plotted is detection limit.



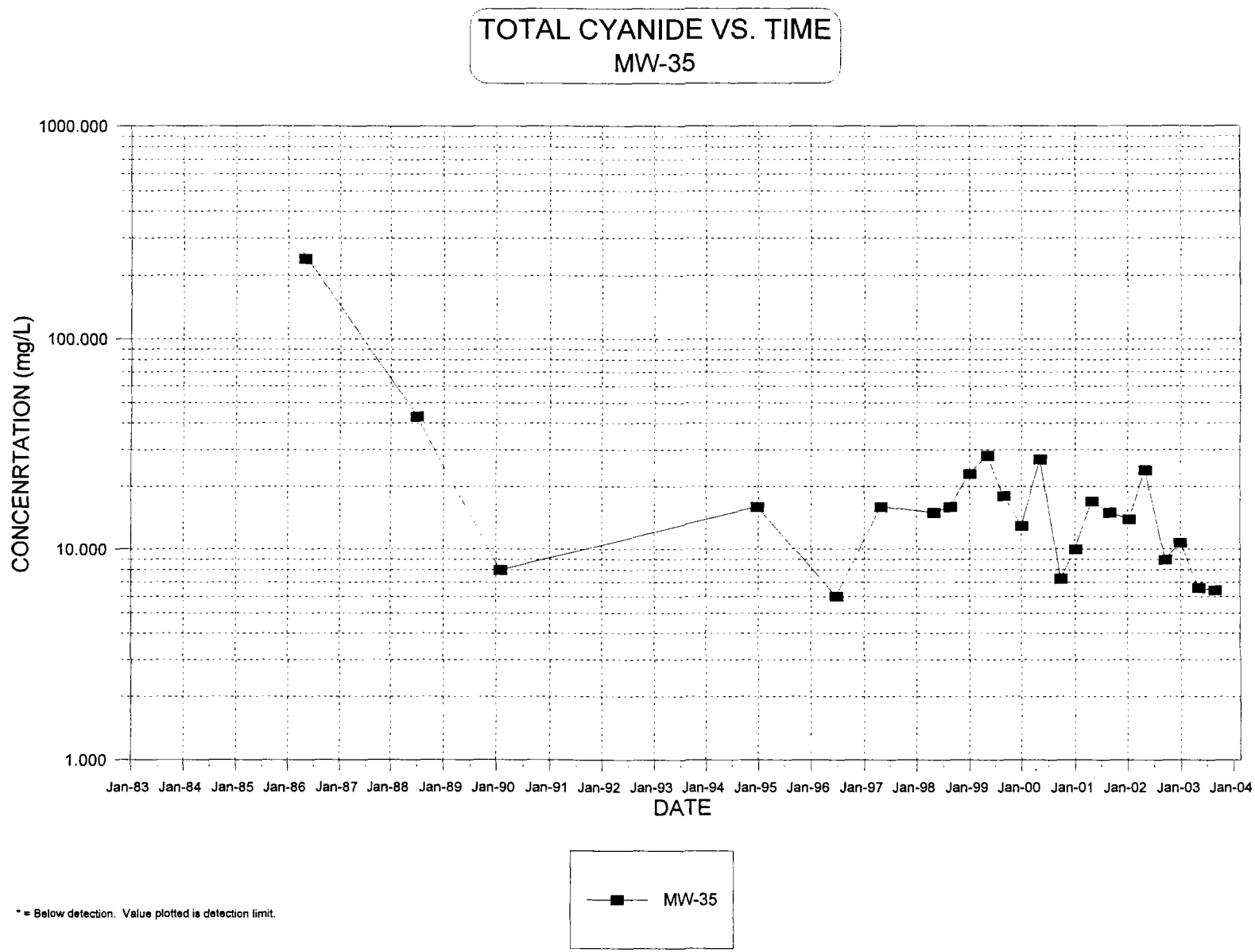
* = Below detection. Value plotted is detection limit.



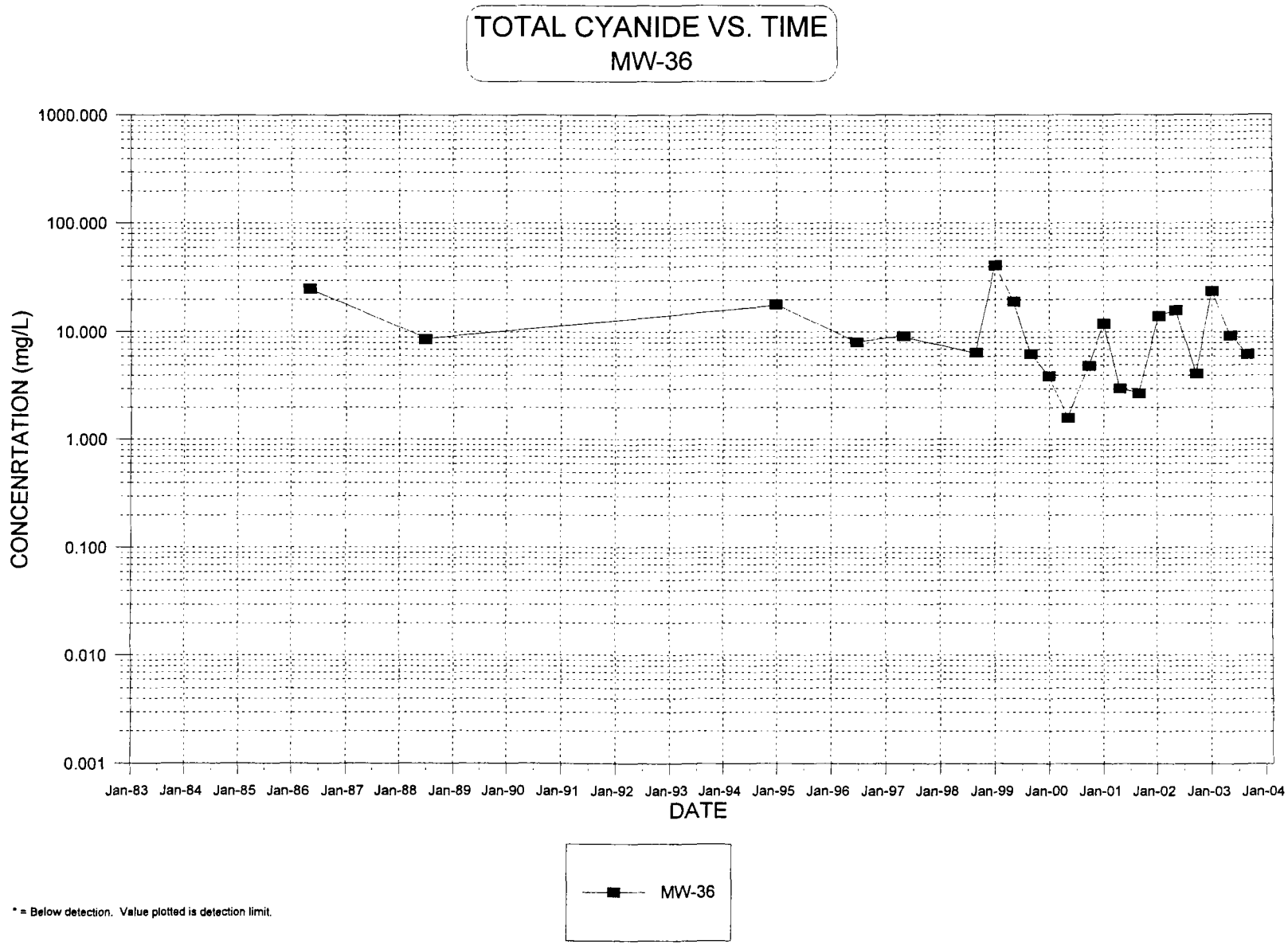
* = Below detection. Value plotted is detection limit.



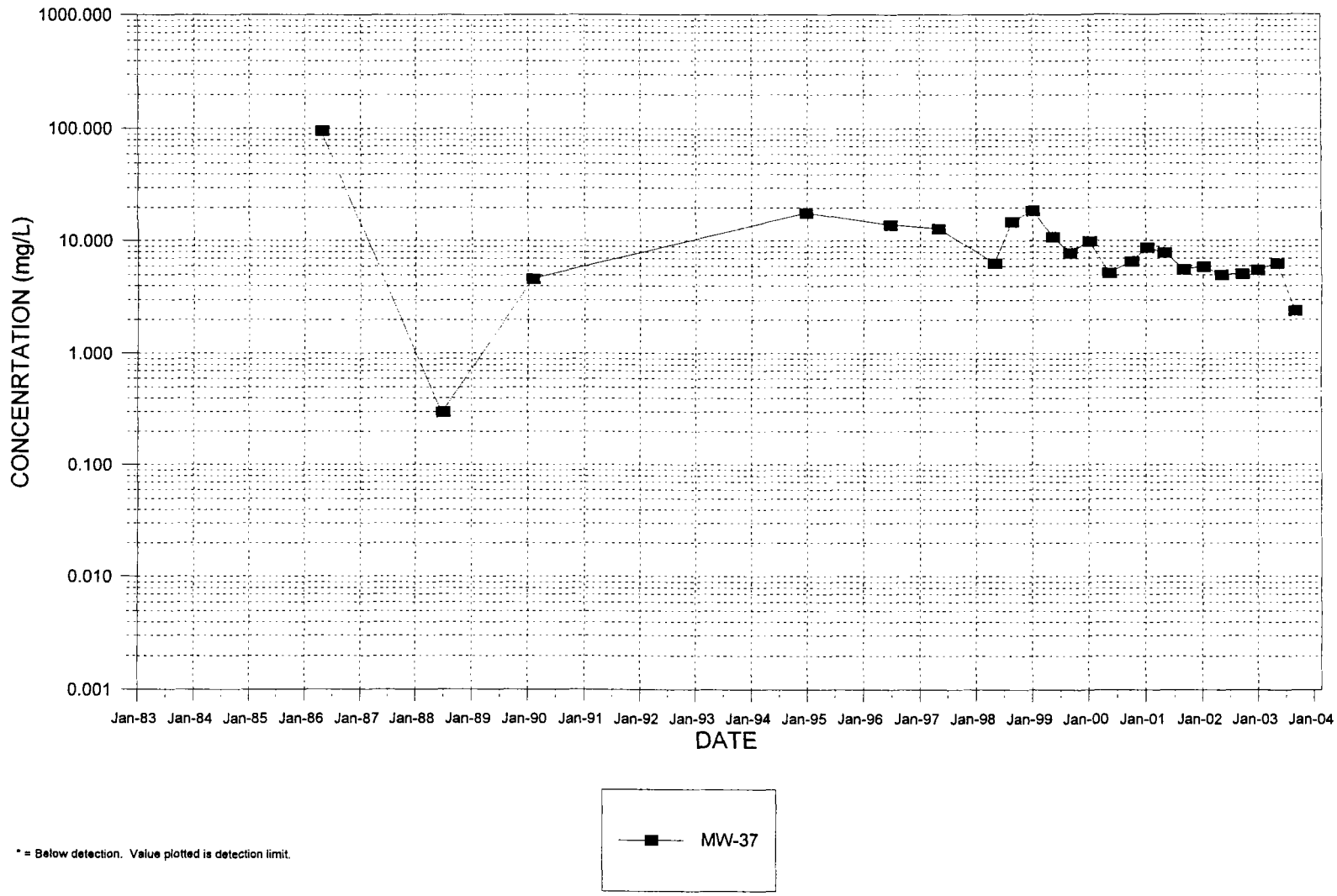
* = Below detection. Value plotted is detection limit.



* = Below detection. Value plotted is detection limit.



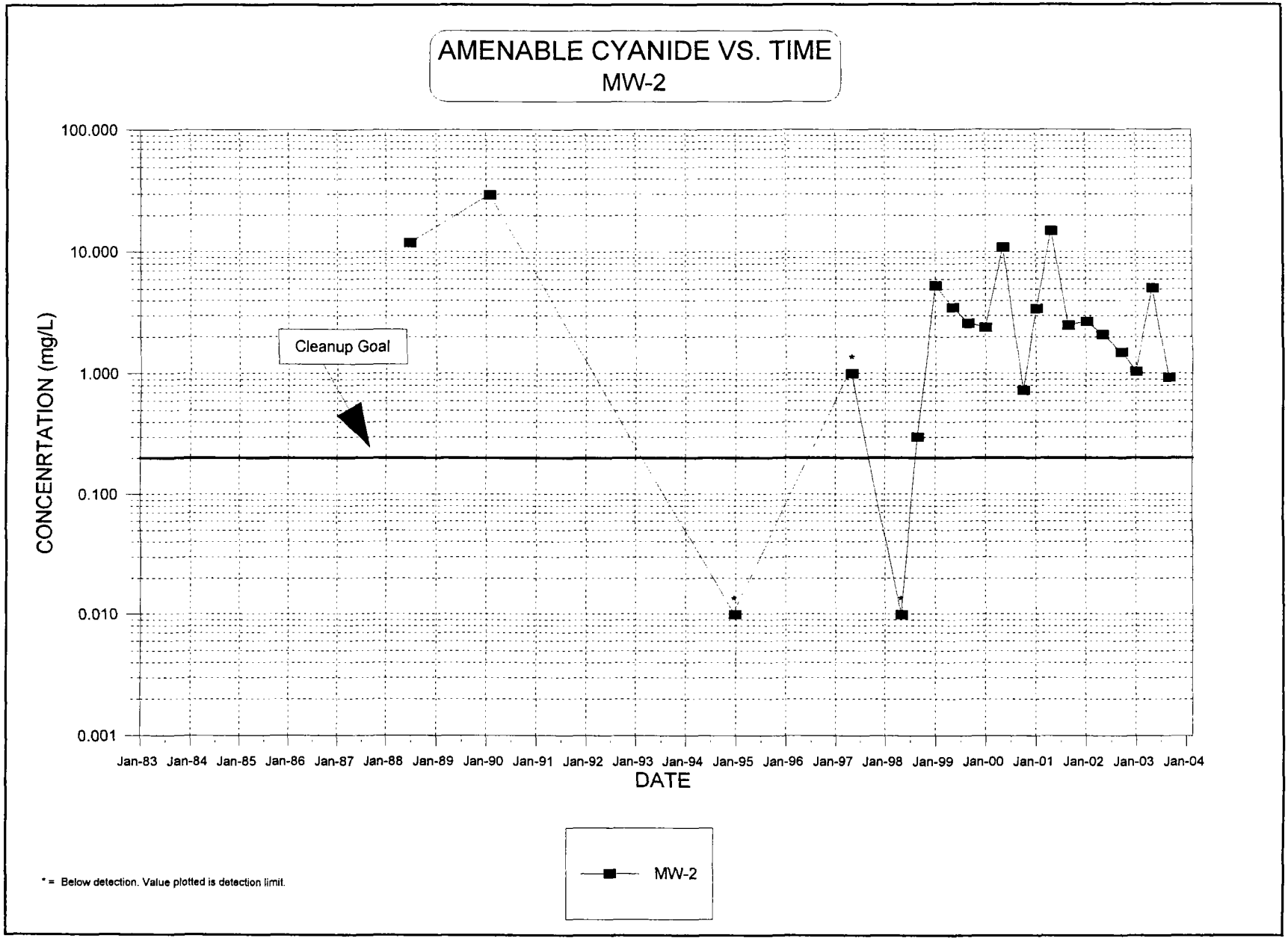
* = Below detection. Value plotted is detection limit.

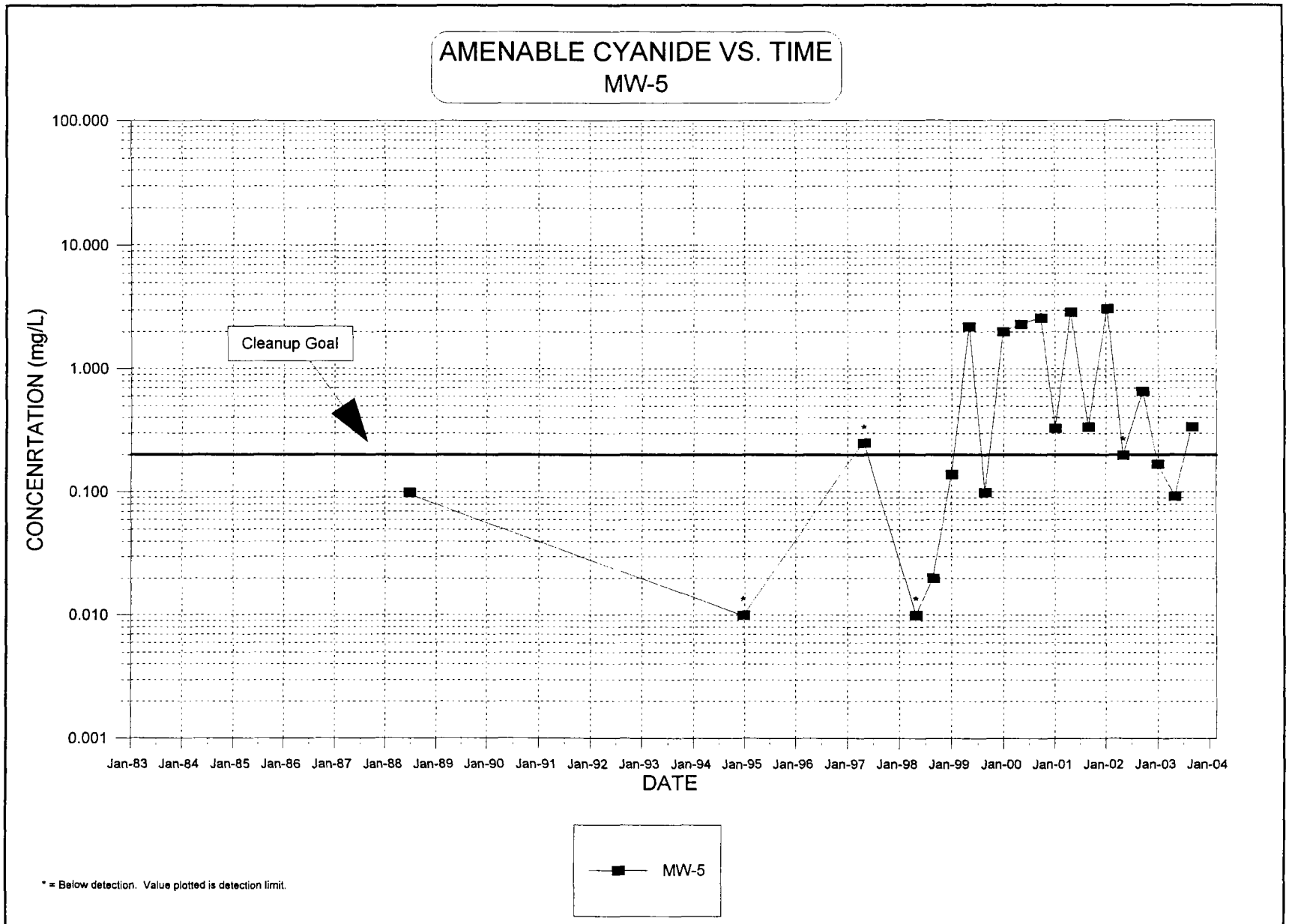


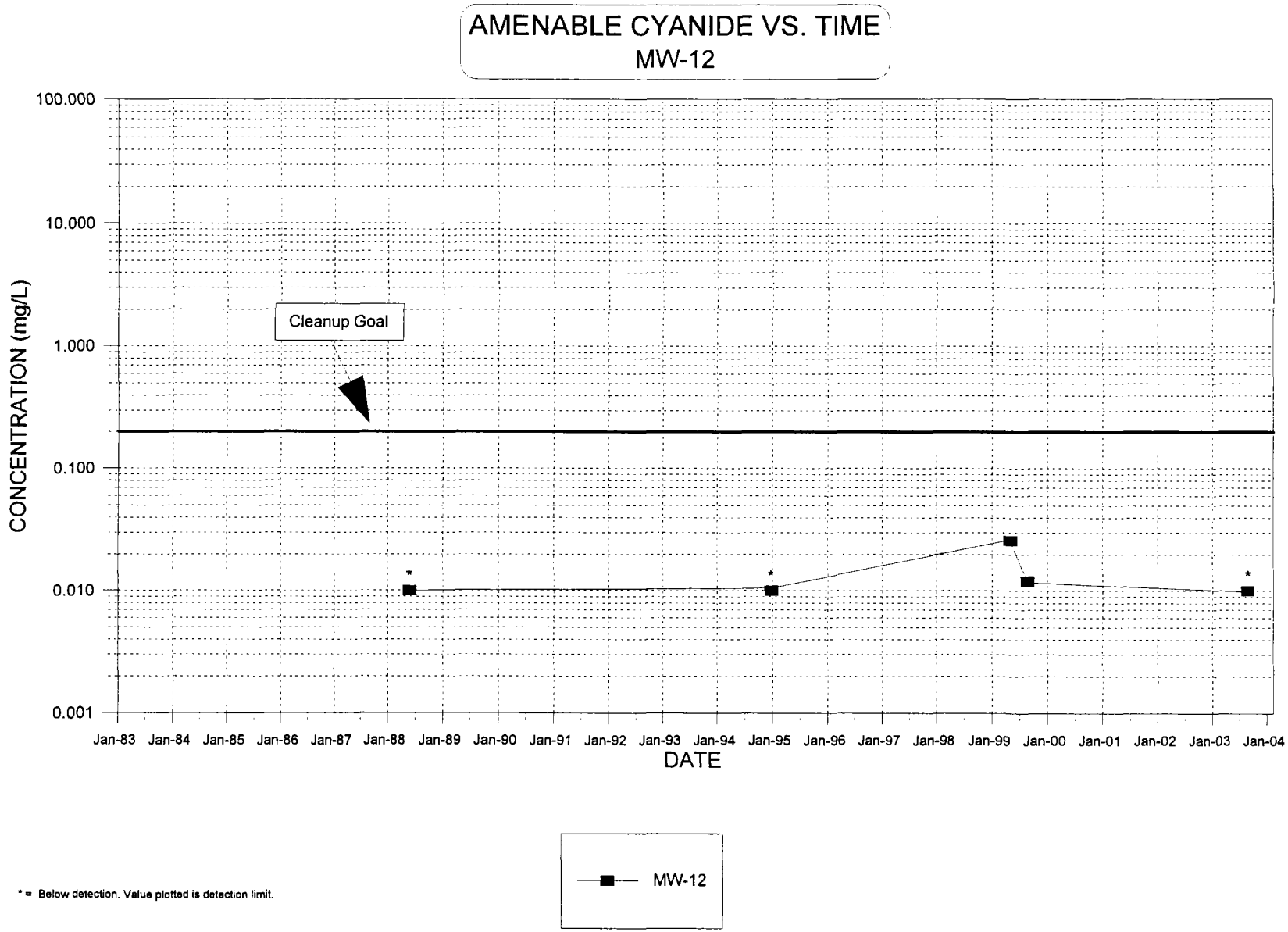
* = Below detection. Value plotted is detection limit.

APPENDIX D-2

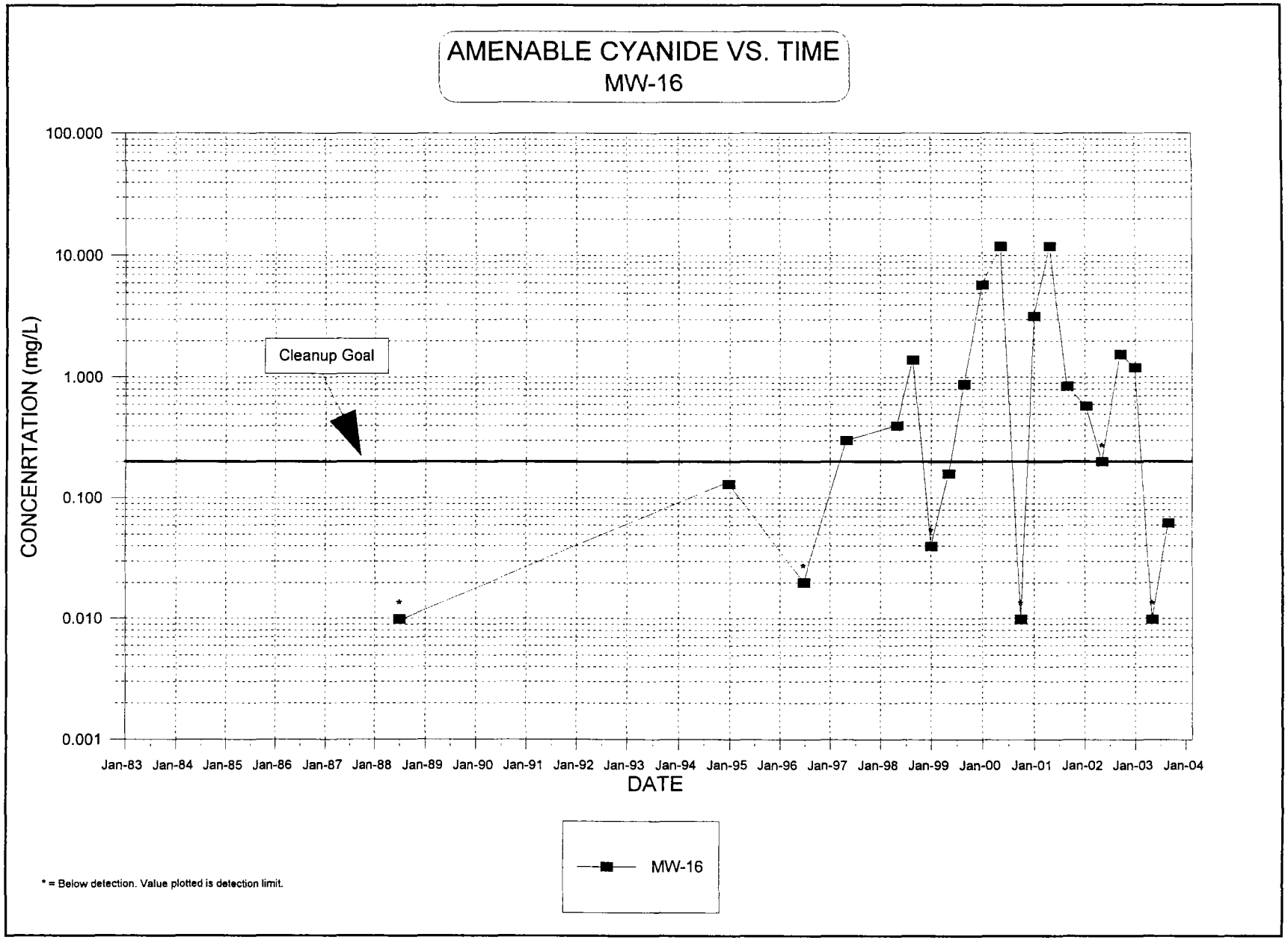
CYANIDE AMENABLE TO CHLORINATION


AMENABLE CYANIDE VS. TIME
MW-2
100.000
10.000
1.000
0.100
0.010
0.001
CONCENRTATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04
DATE
MW-2
* = Below detection. Value plotted is detection limit.

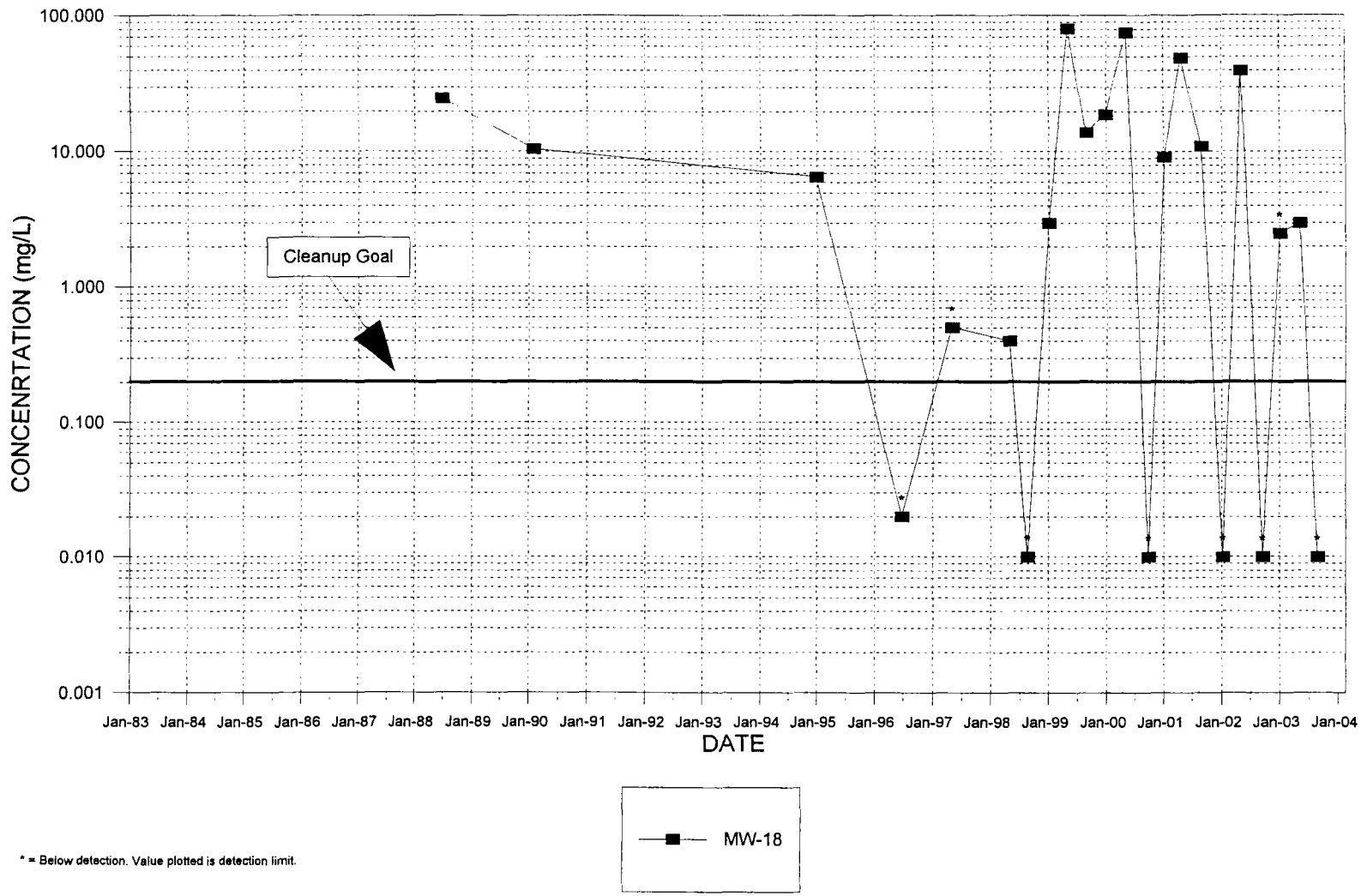

AMENABLE CYANIDE VS. TIME
MW-5
100.000
10.000
1.000
0.100
0.010
0.001
CONCENRTATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-5
* = Below detection. Value plotted is detection limit.



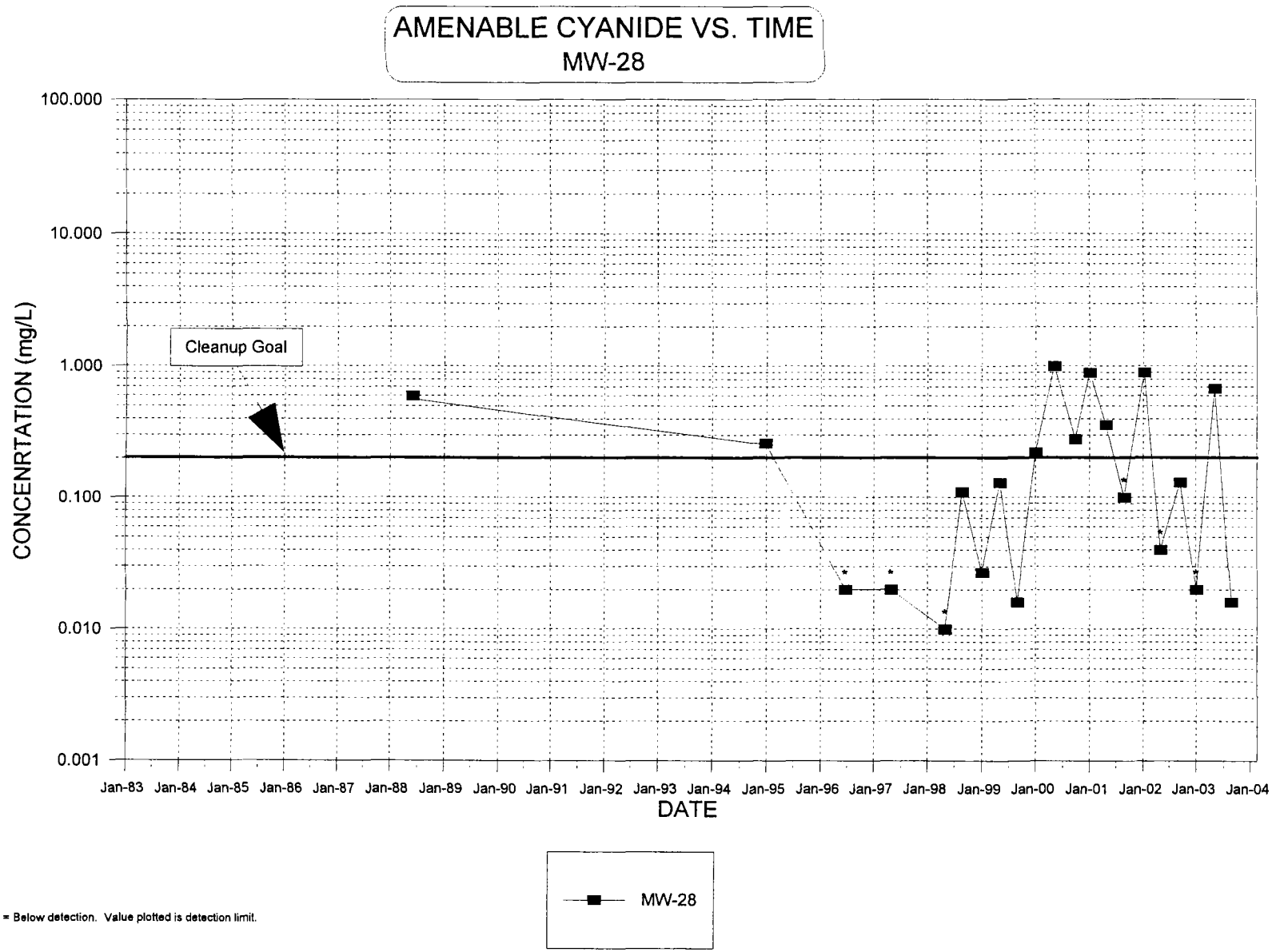
* = Below detection. Value plotted is detection limit.


AMENABLE CYANIDE VS. TIME
MW-16
100.000
10.000
1.000
0.100
0.010
0.001
CONCENRTATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-16
* = Below detection. Value plotted is detection limit.

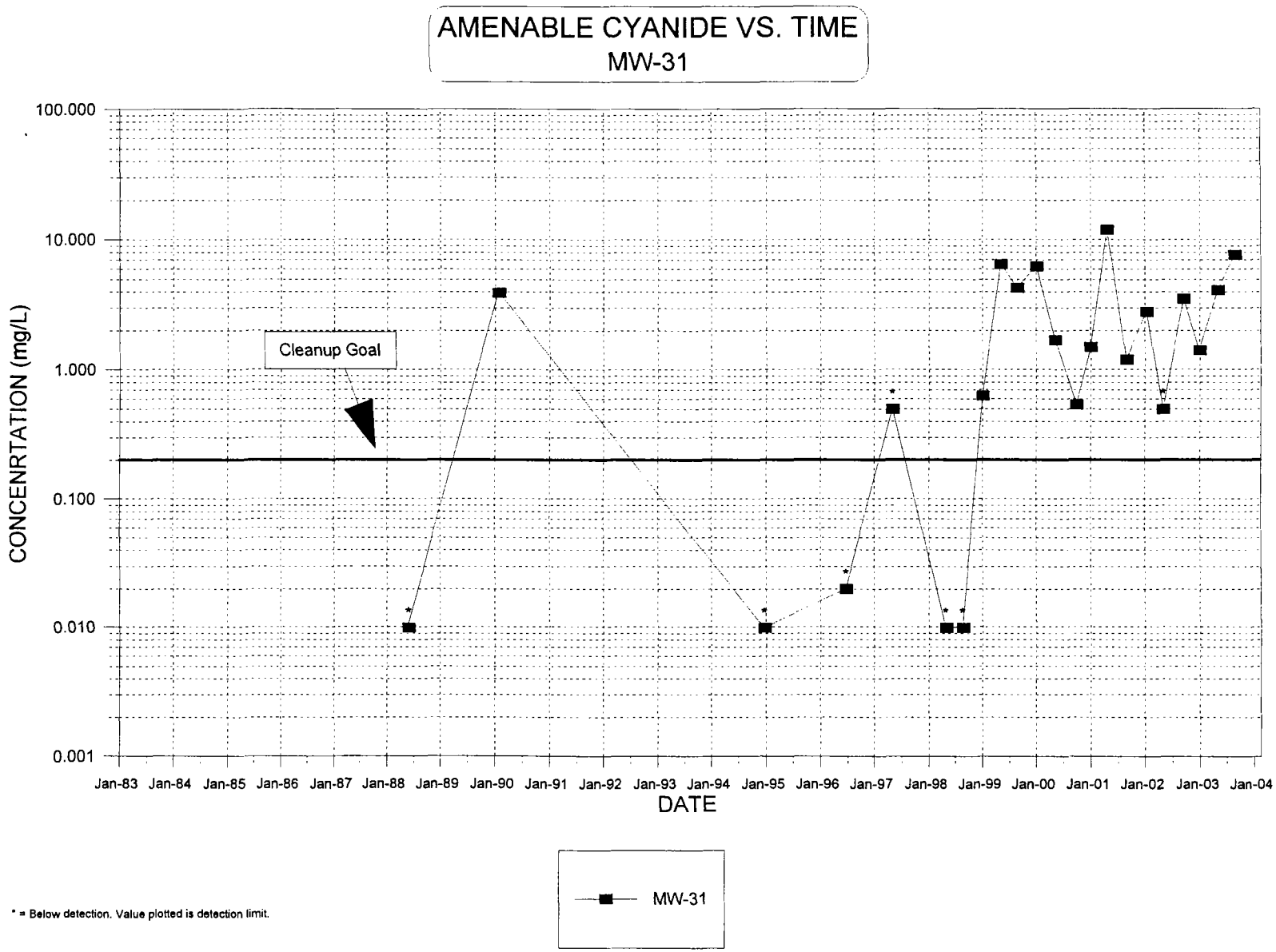
AMENABLE CYANIDE VS. TIME
MW-18



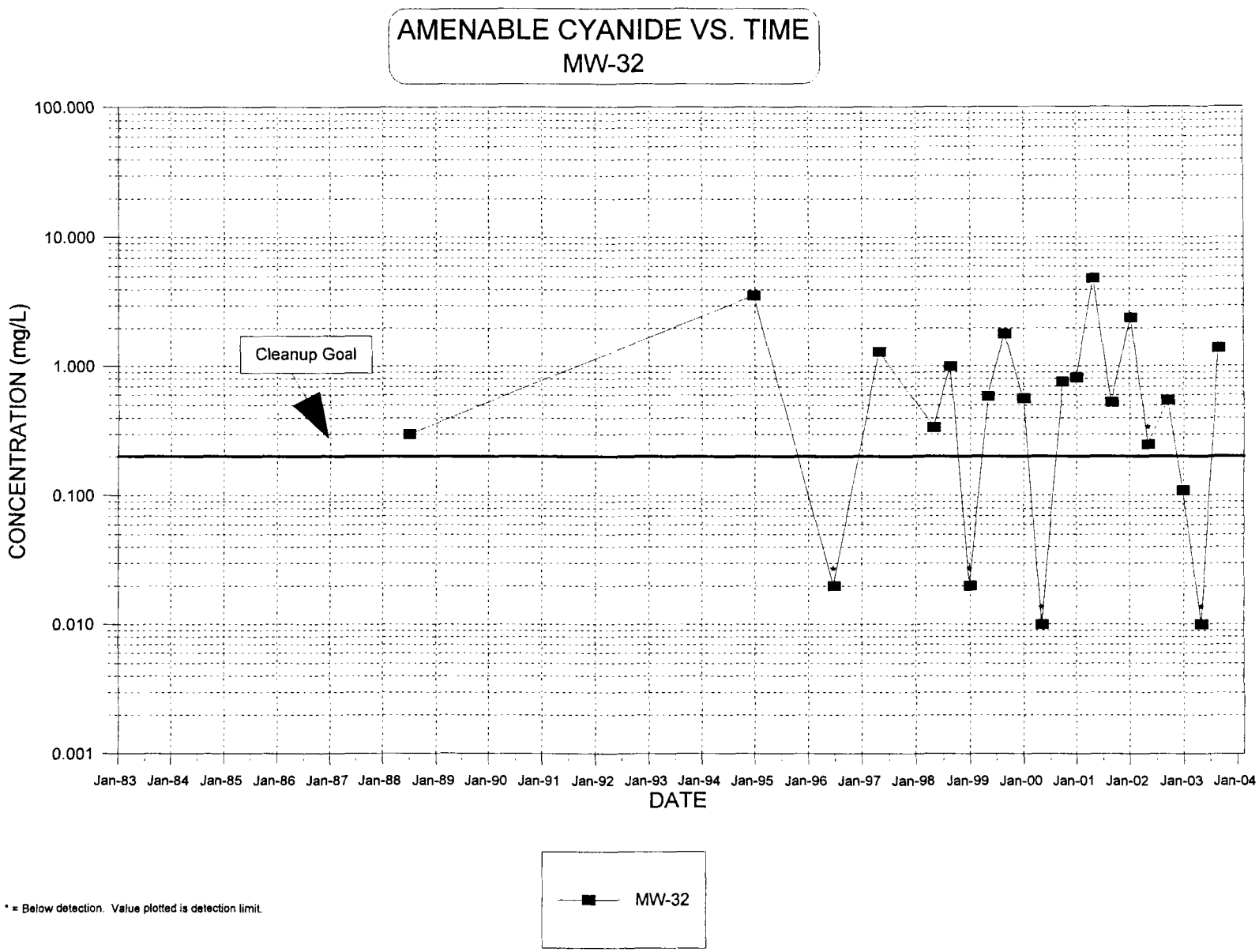
* = Below detection. Value plotted is detection limit.



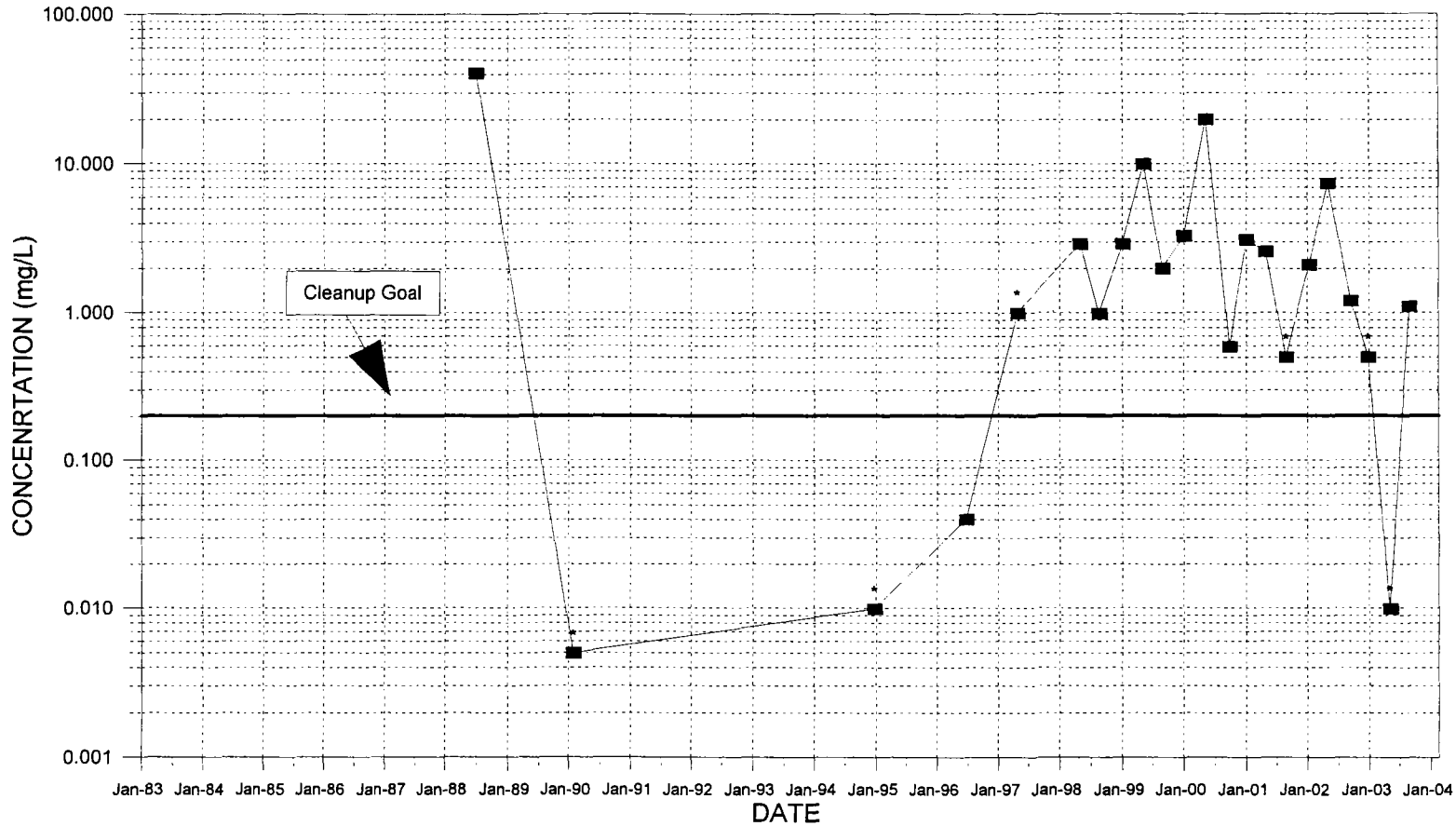
* = Below detection. Value plotted is detection limit.



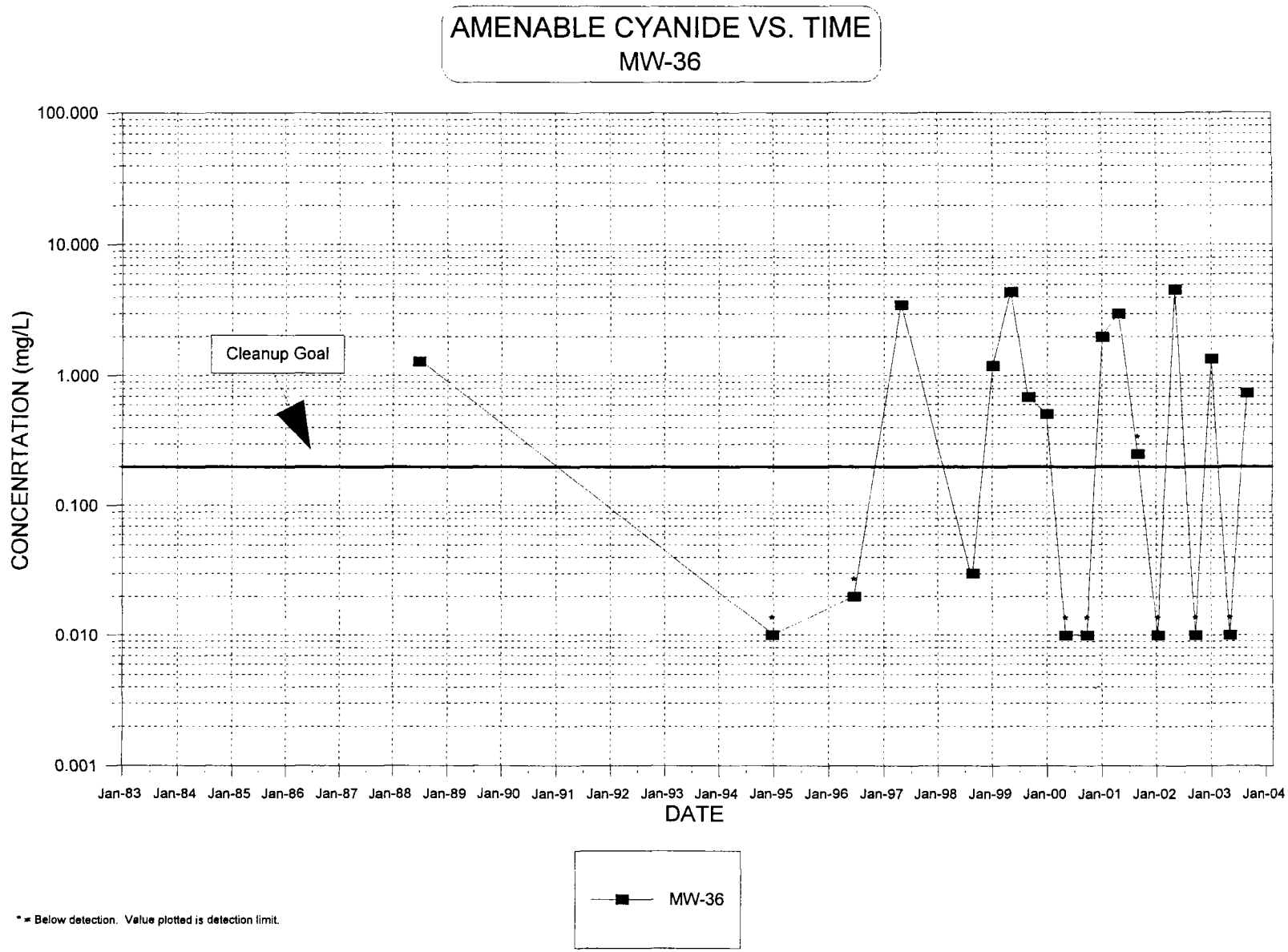
* = Below detection. Value plotted is detection limit.

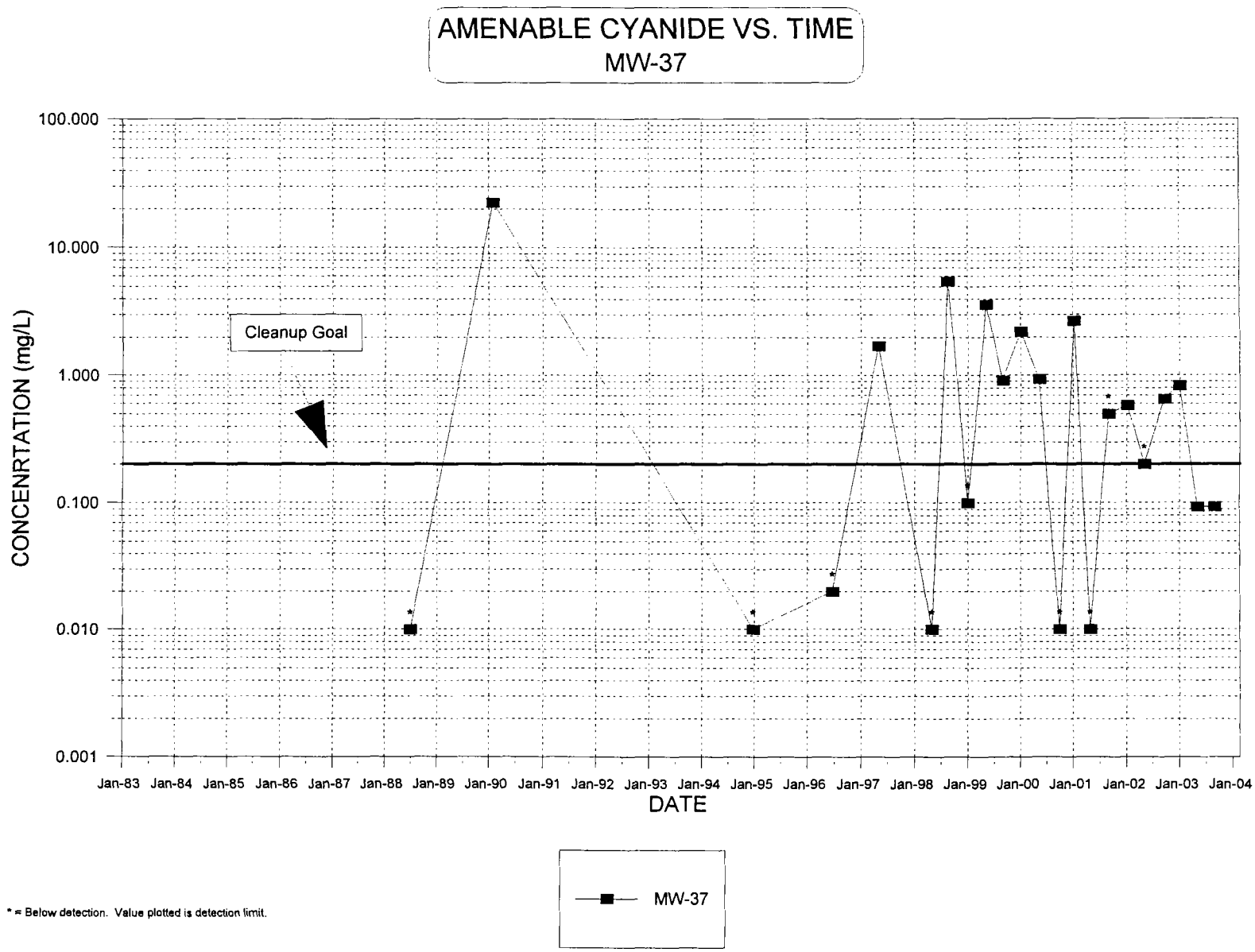


* = Below detection. Value plotted is detection limit.



* = Below detection. Value plotted is detection limit.

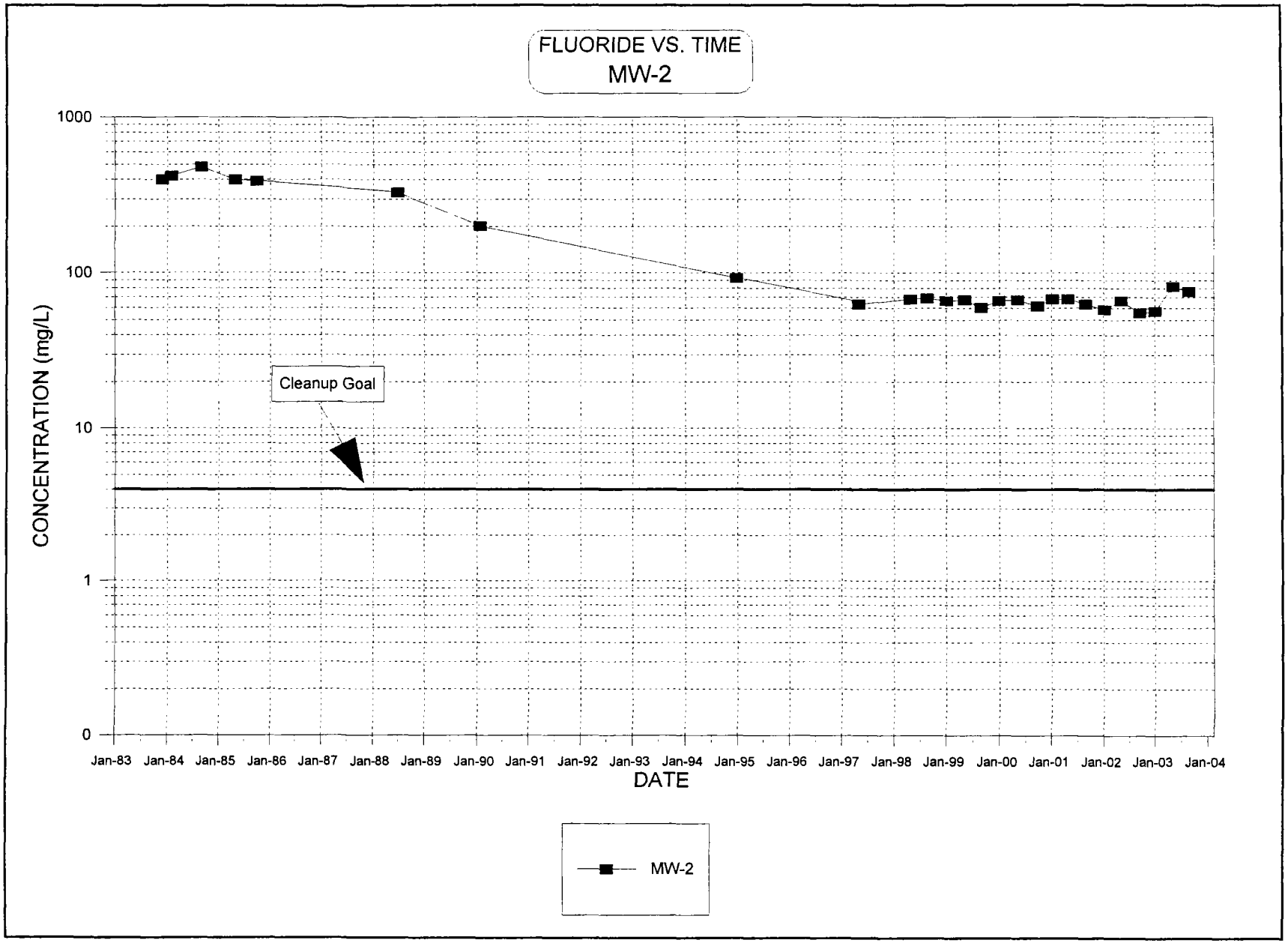

AMENABLE CYANIDE VS. TIME
MW-36
100.000
10.000
1.000
0.100
0.010
0.001
CONCENRTATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-36
* = Below detection. Value plotted is detection limit.

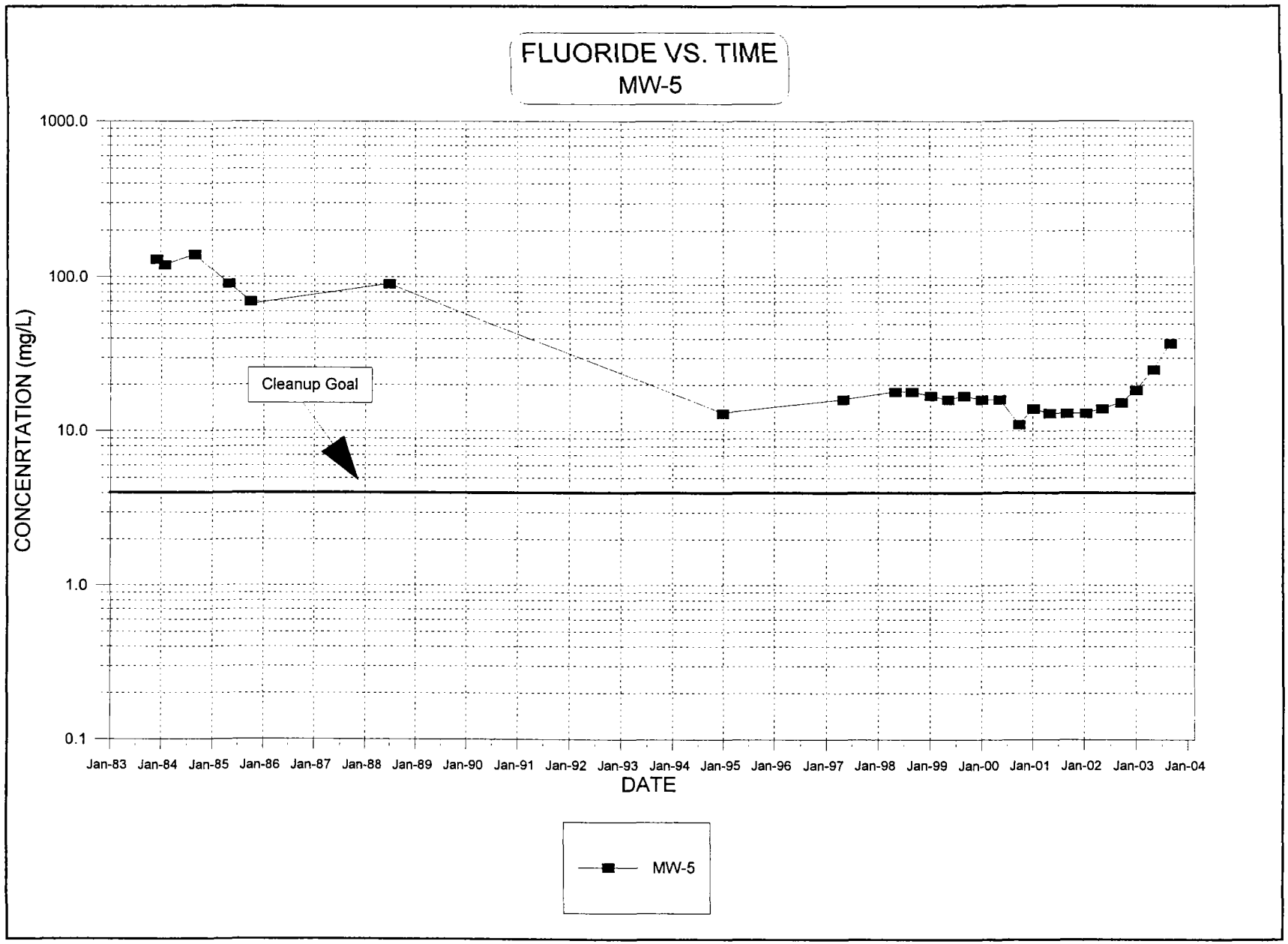


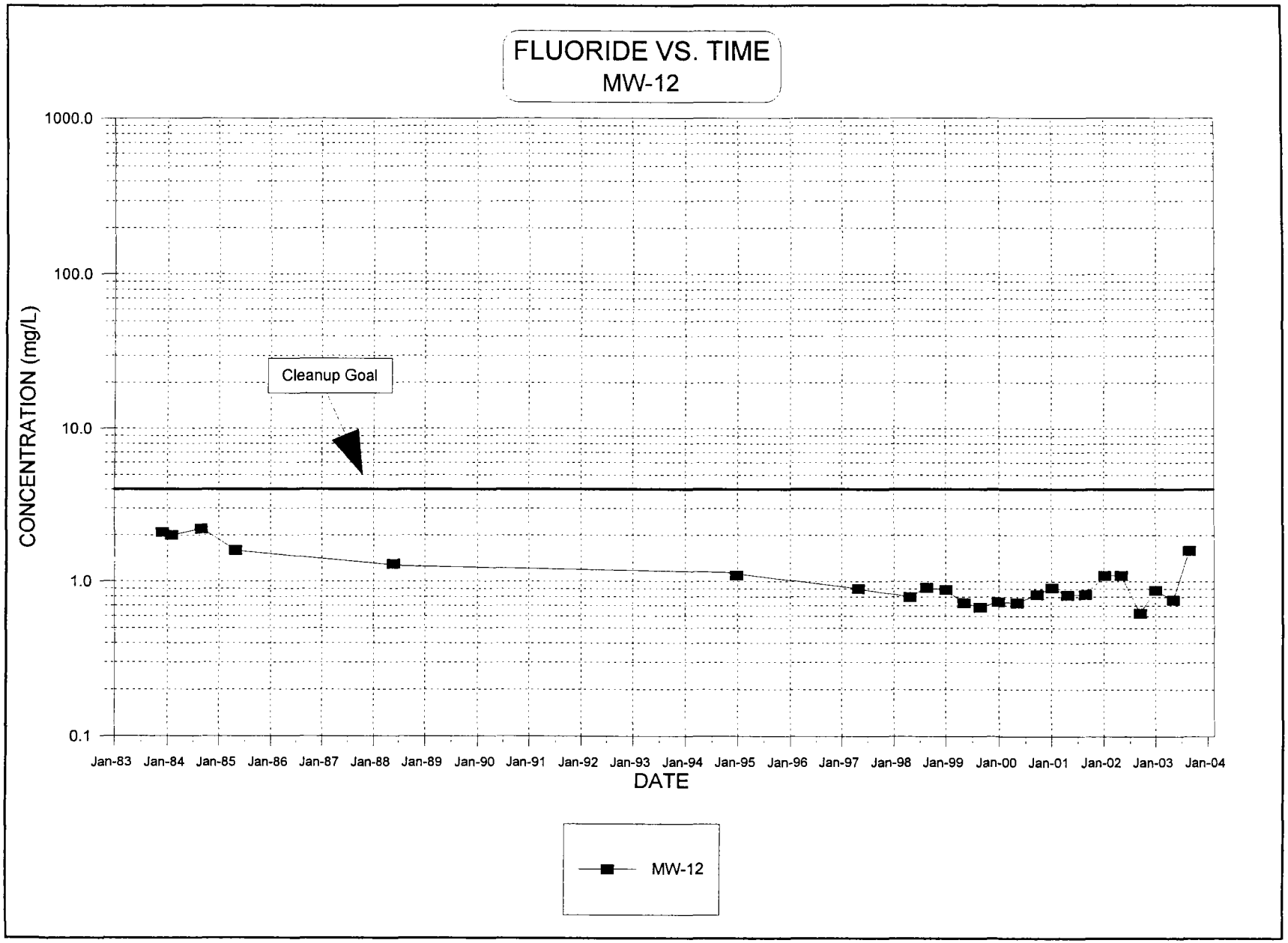
* = Below detection. Value plotted is detection limit.

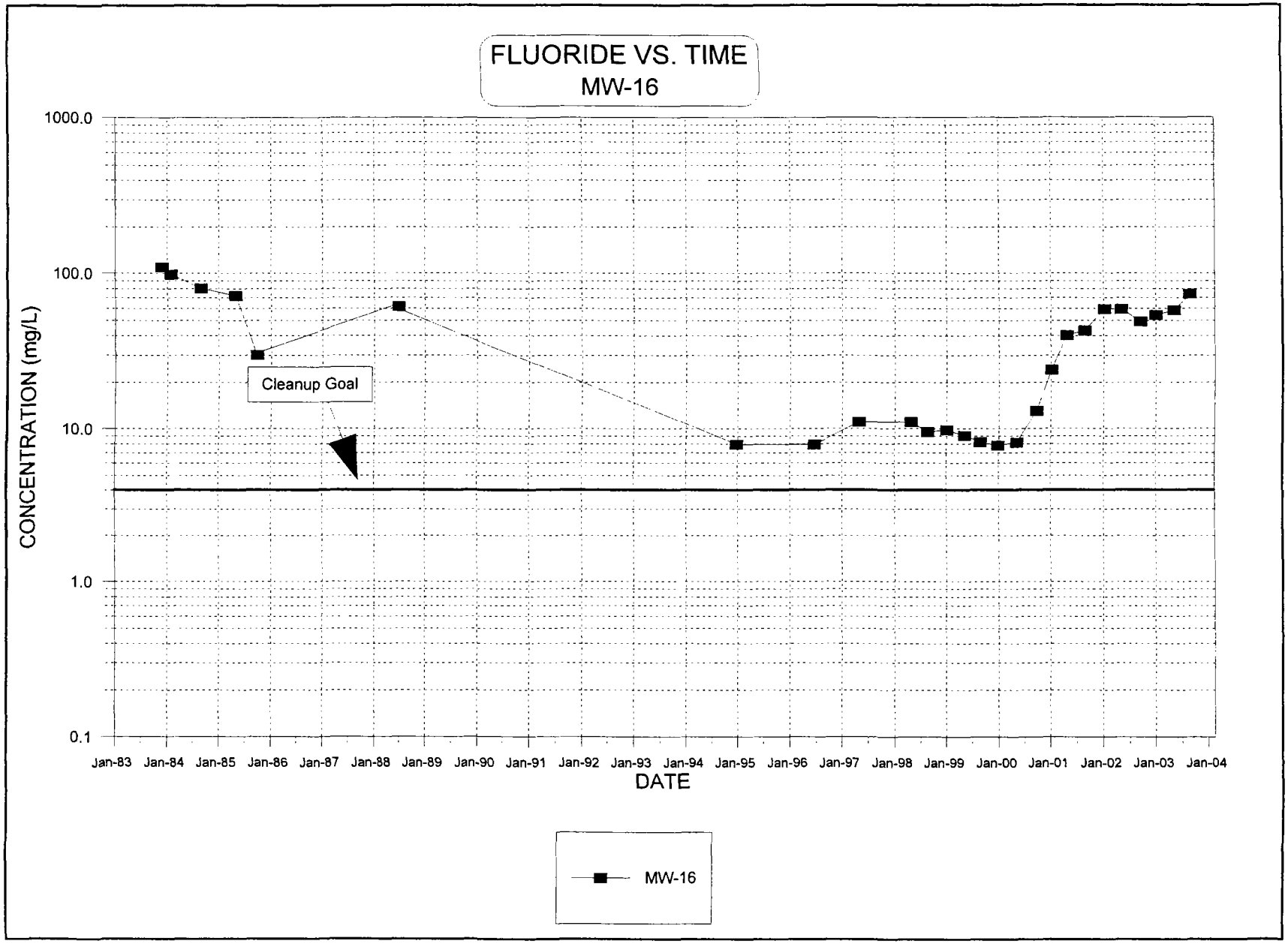
APPENDIX D-3

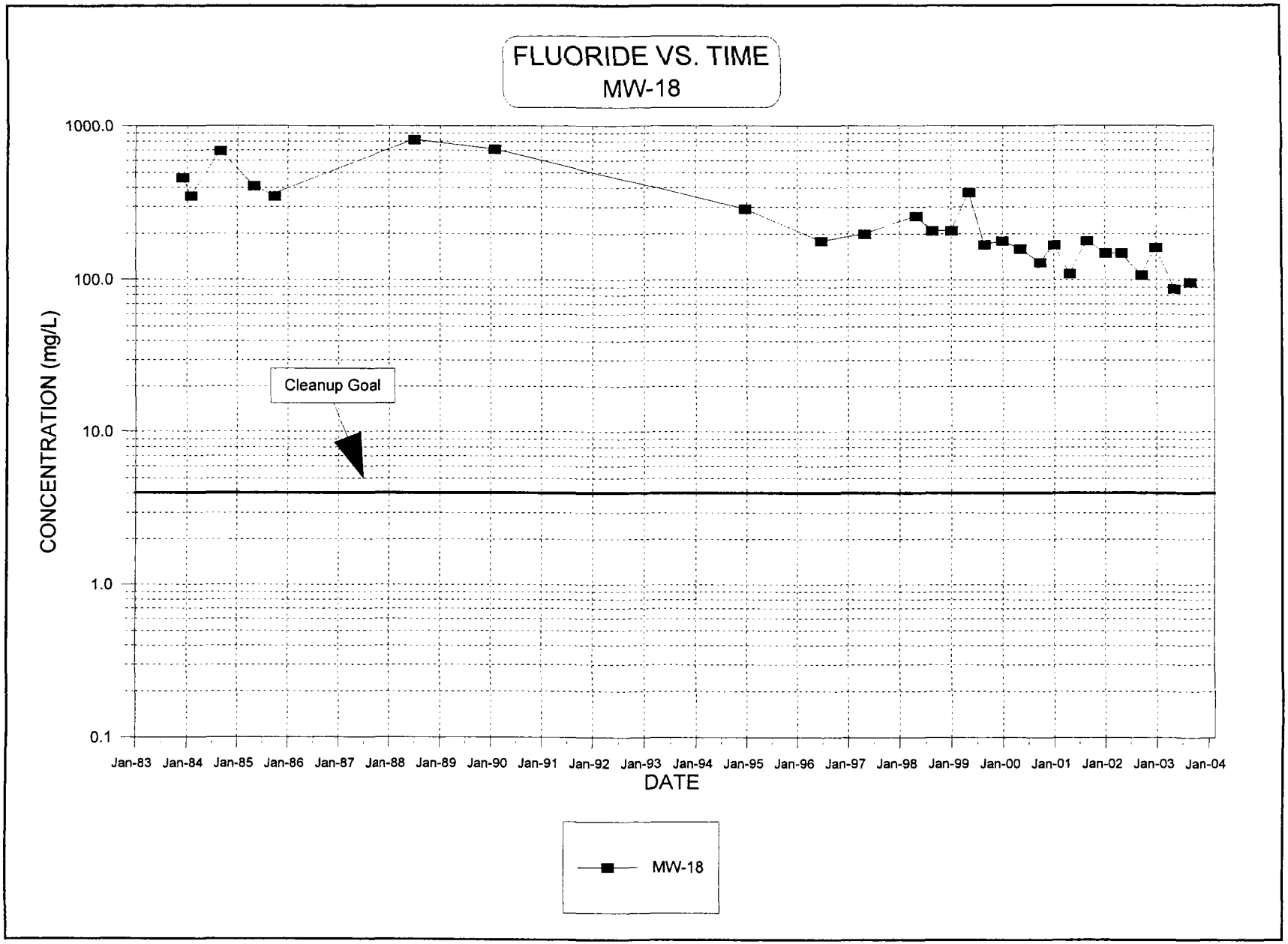
FLUORIDE

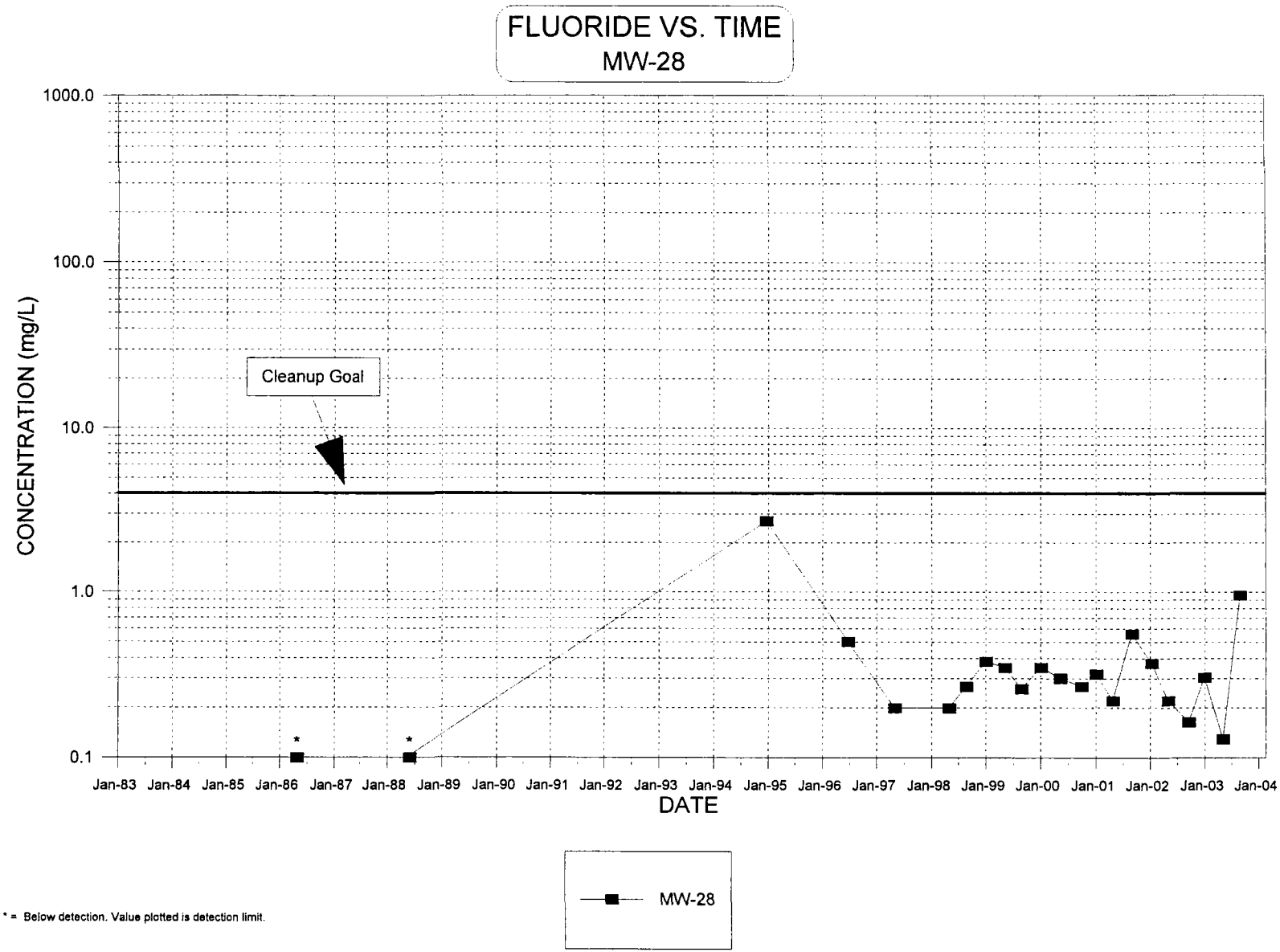

FLUORIDE VS. TIME
MW-2
CONCENTRATION (mg/L)
1000
100
10
1
0
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-2


FLUORIDE VS. TIME
MW-5
1000.0
100.0
10.0
1.0
0.1
CONCENRTATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-5

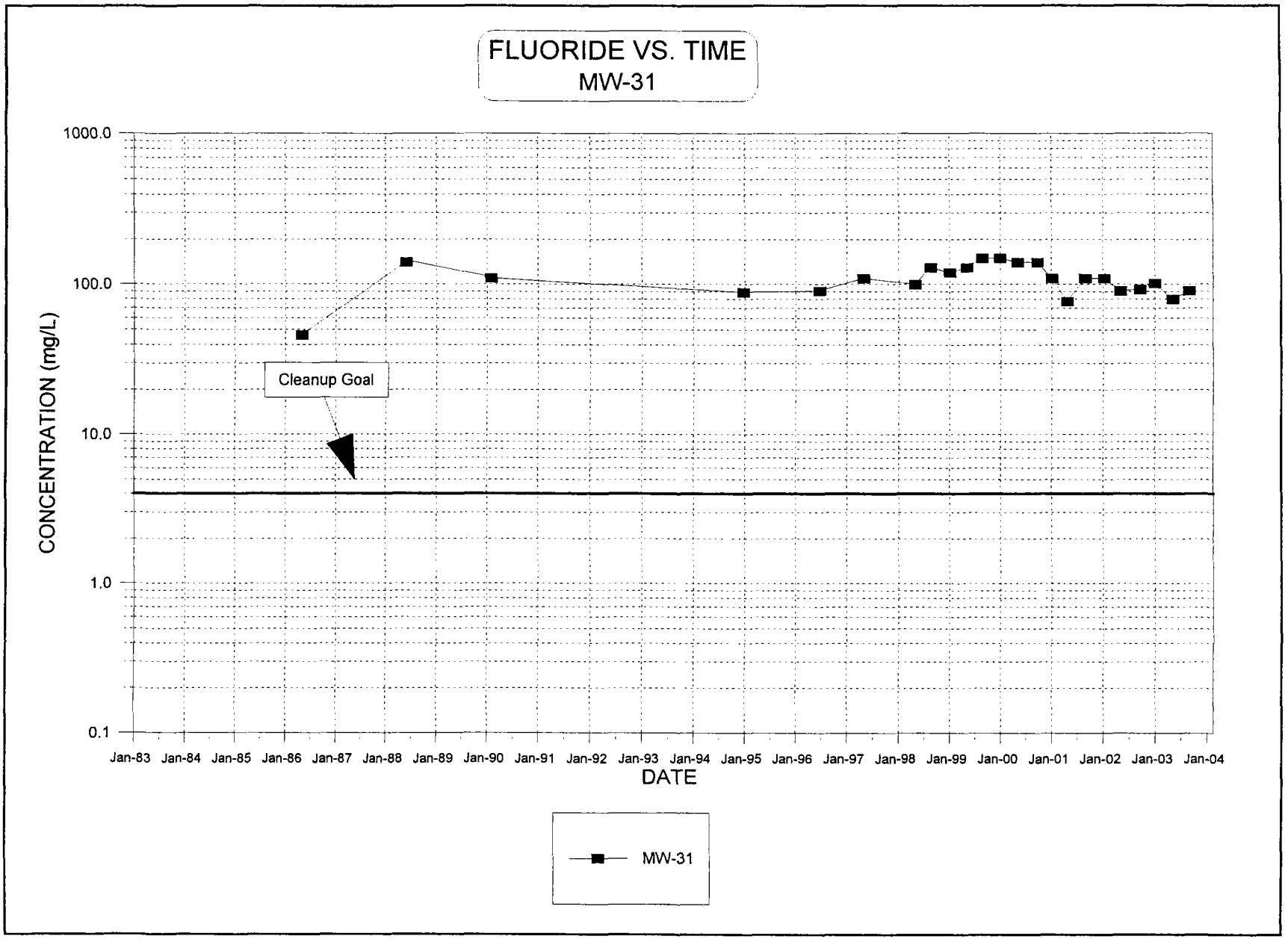

FLUORIDE VS. TIME
MW-12
CONCENTRATION (mg/L)
1000.0
100.0
10.0
1.0
0.1
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-12

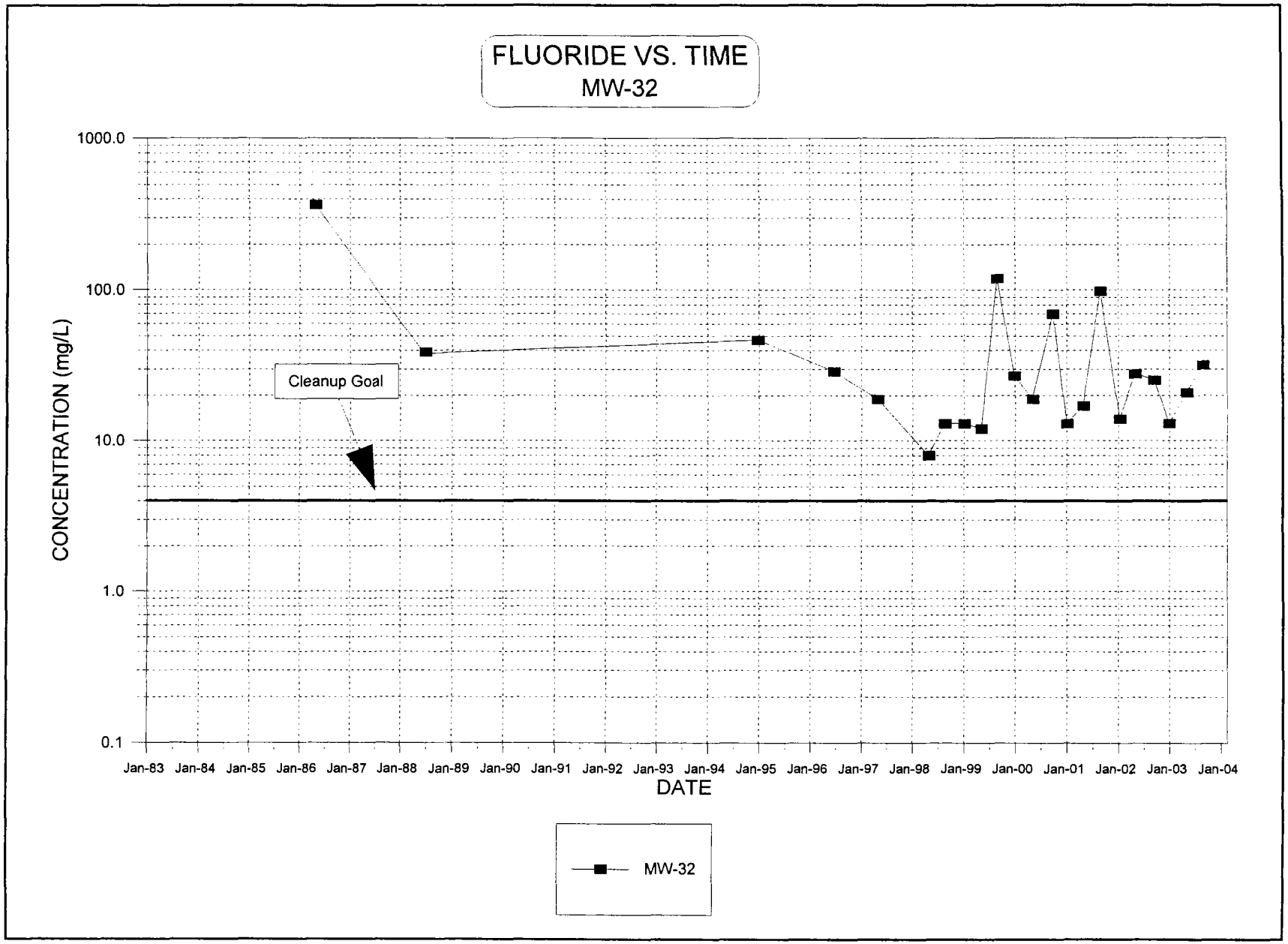

FLUORIDE VS. TIME
MW-16
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-16

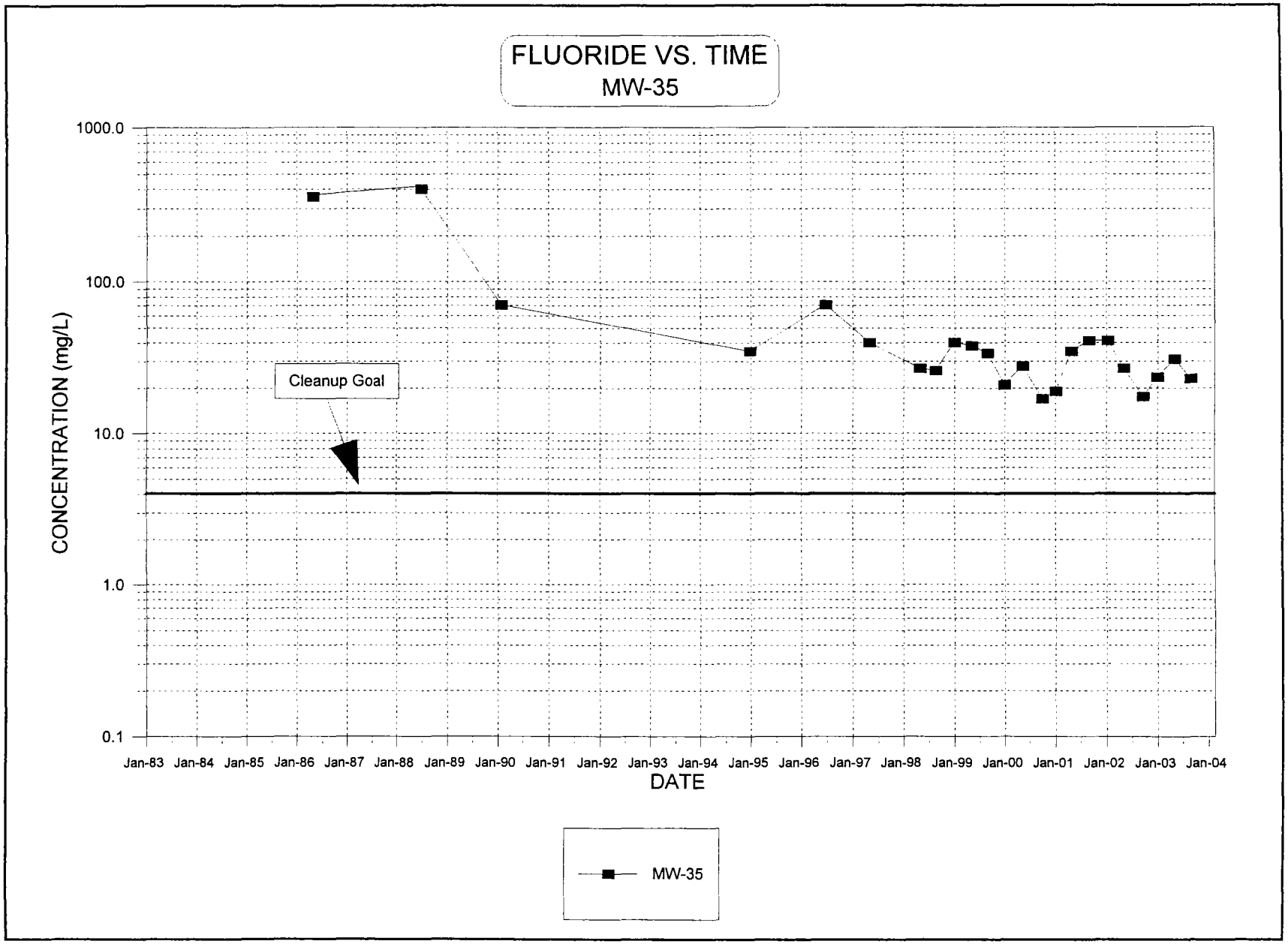

FLUORIDE VS. TIME
MW-18
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-18

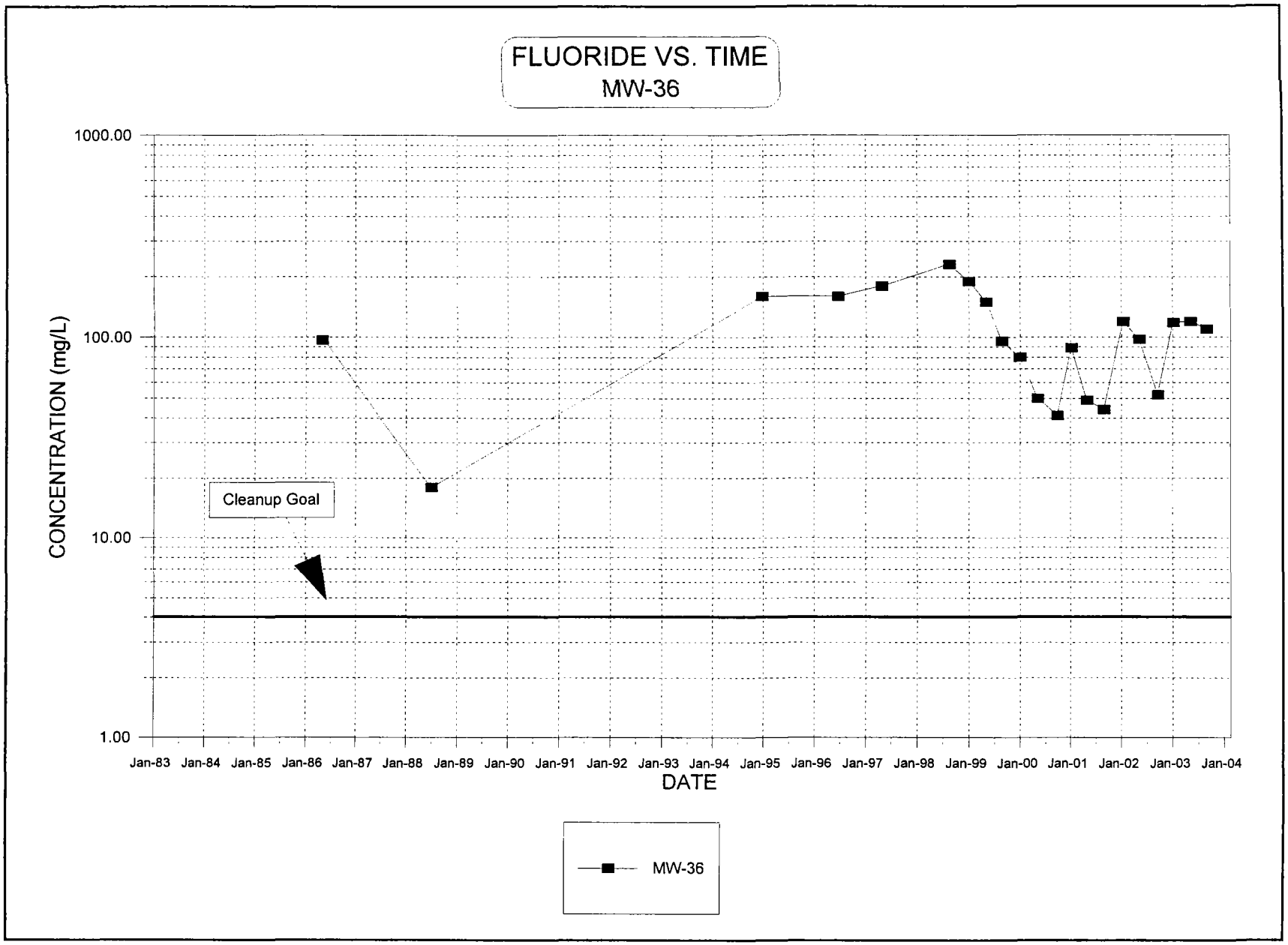


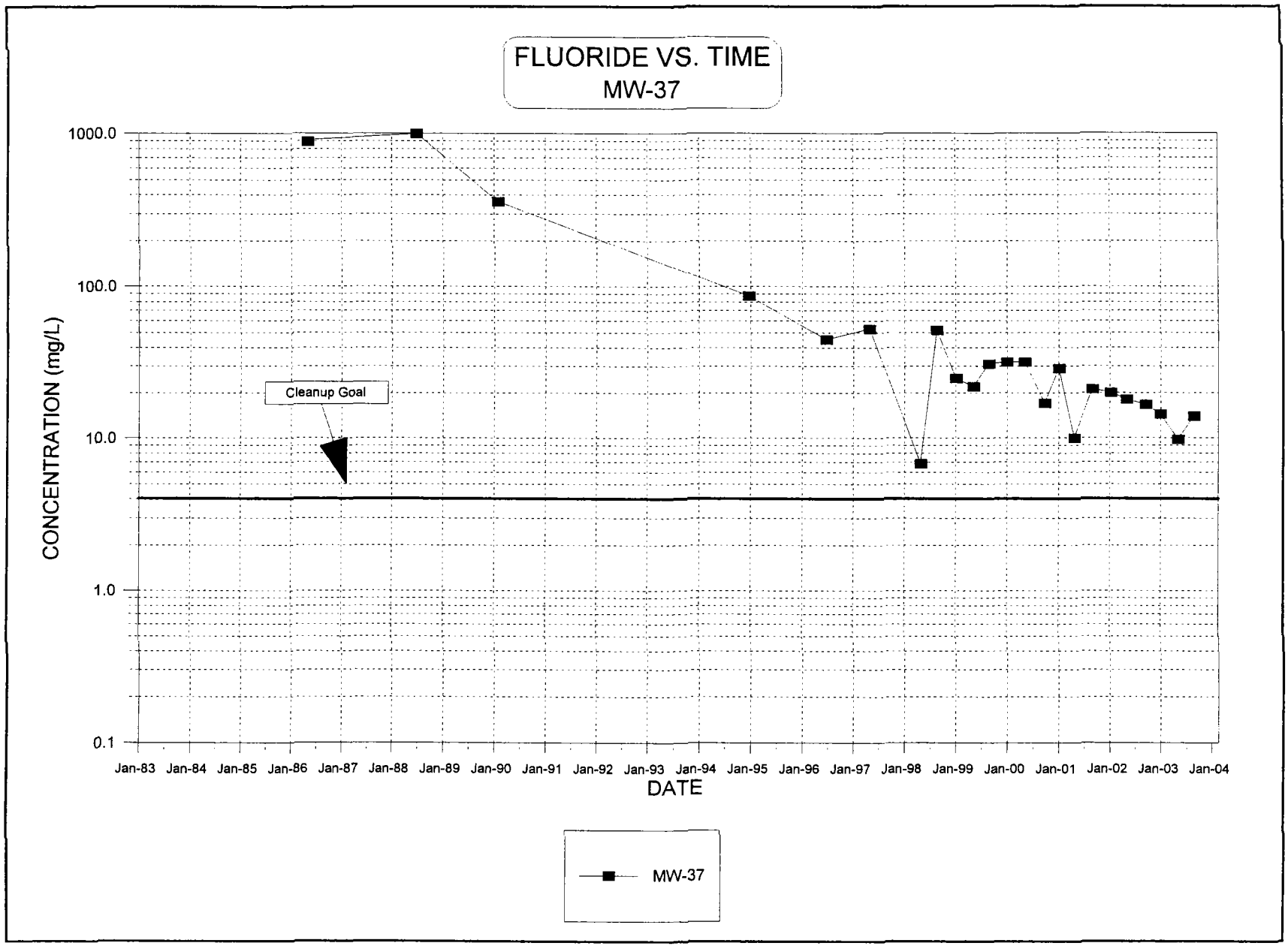
* = Below detection. Value plotted is detection limit.


FLUORIDE VS. TIME
MW-31
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-31


FLUORIDE VS. TIME
MW-32
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-32

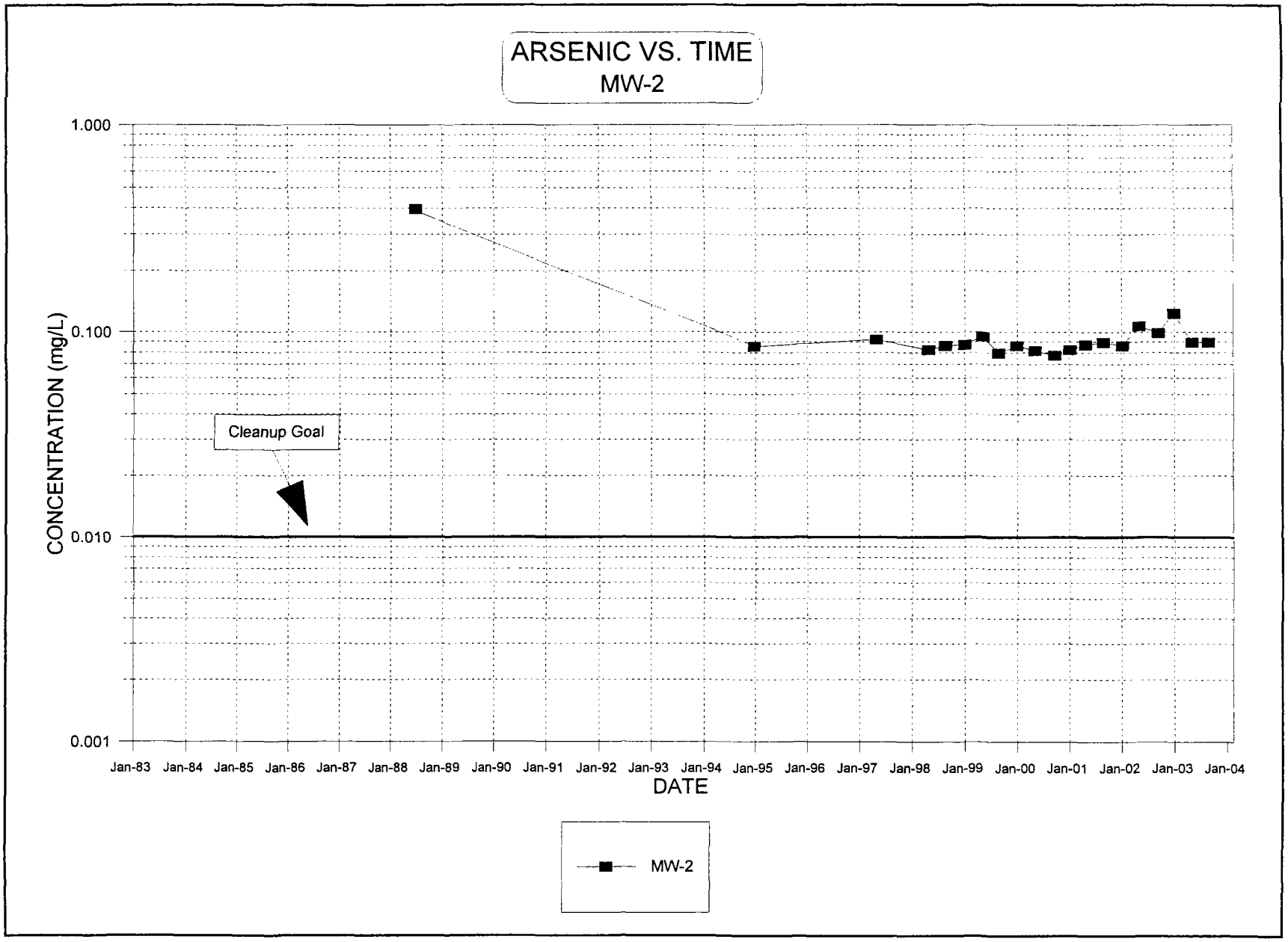

FLUORIDE VS. TIME
MW-35
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-35

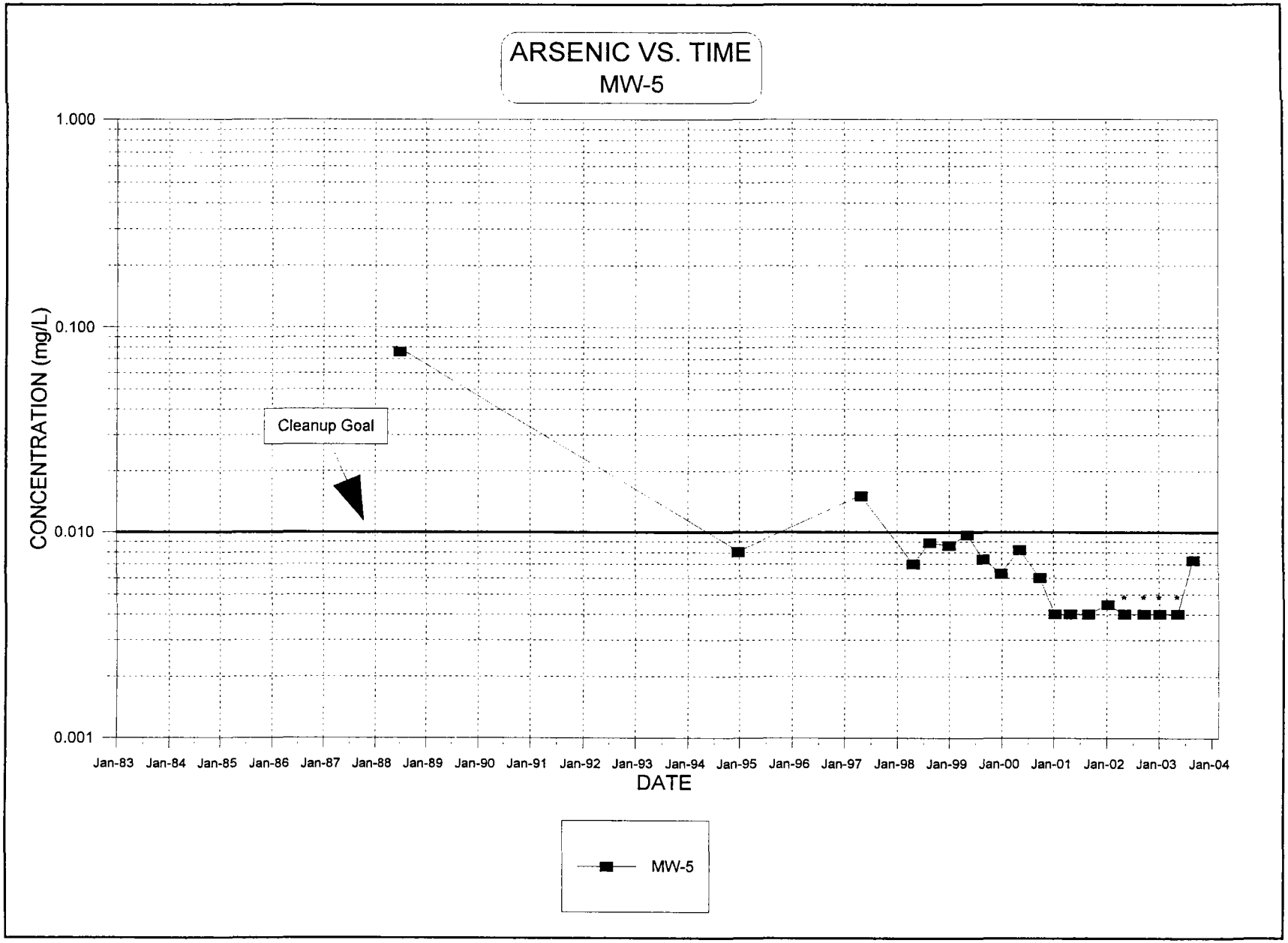

FLUORIDE VS. TIME
MW-36
1000.00
100.00
10.00
1.00
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-36

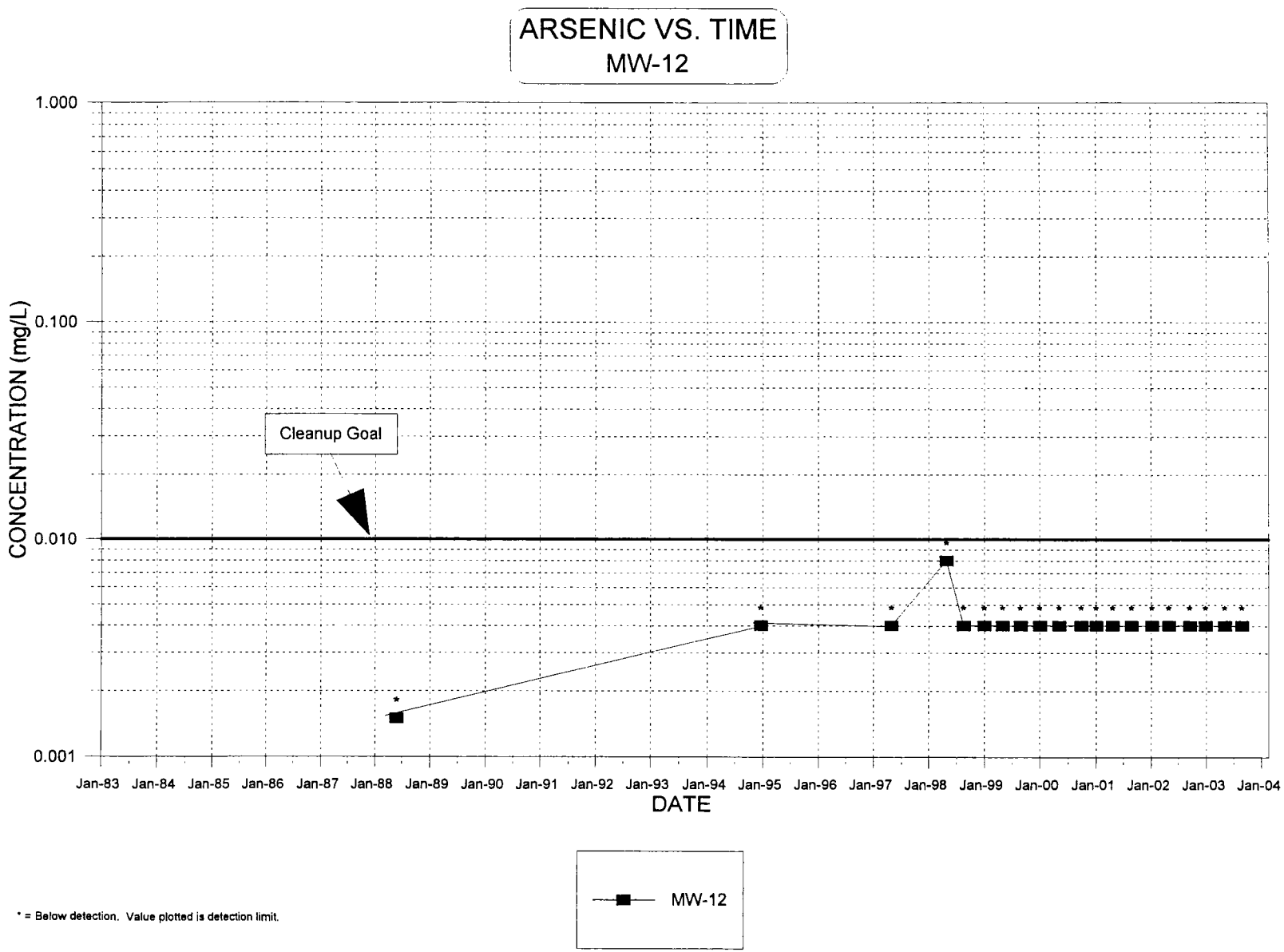

FLUORIDE VS. TIME
MW-37
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-37

APPENDIX D-4

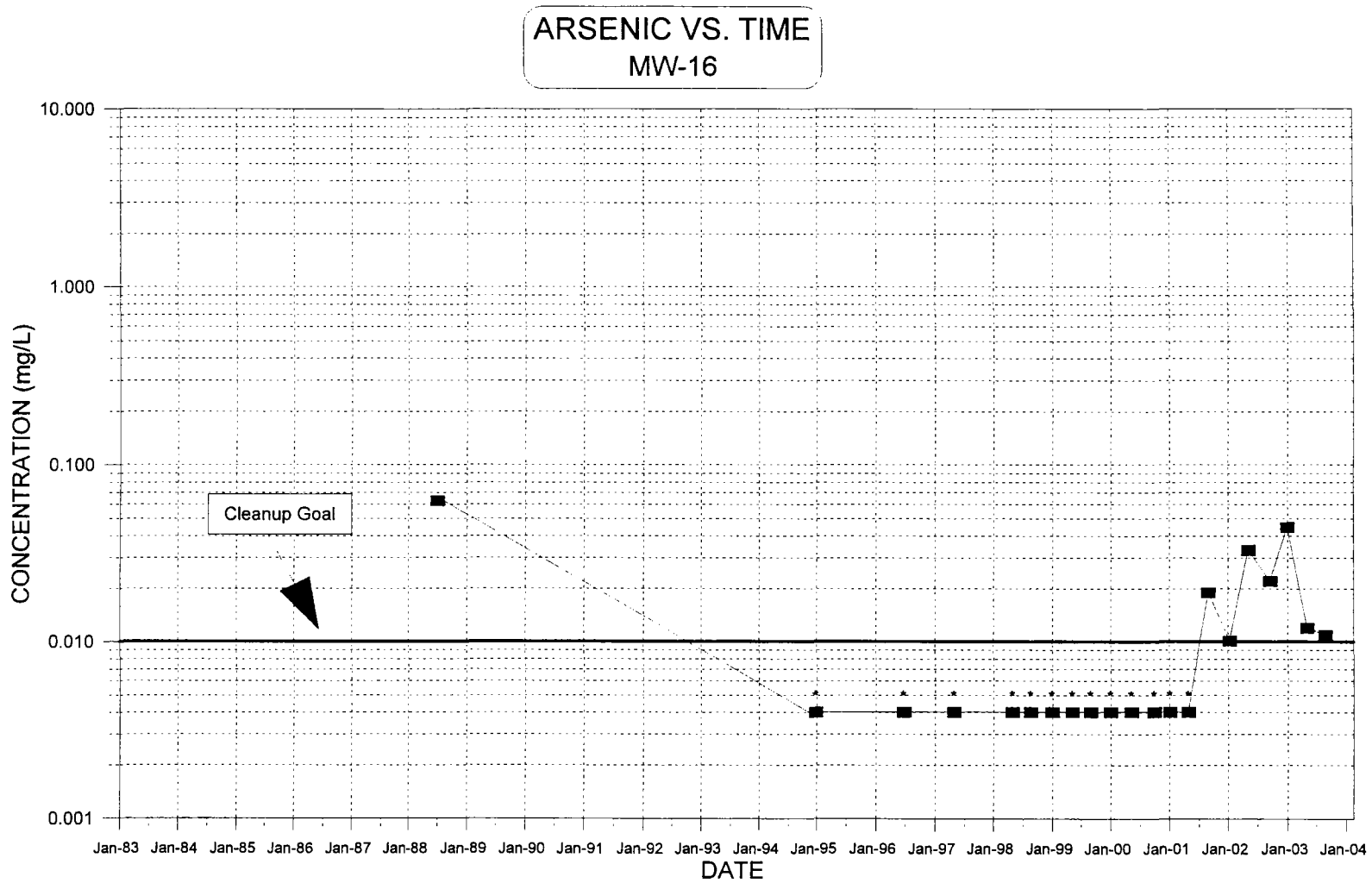
ARSENIC


ARSENIC VS. TIME
MW-2
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-2

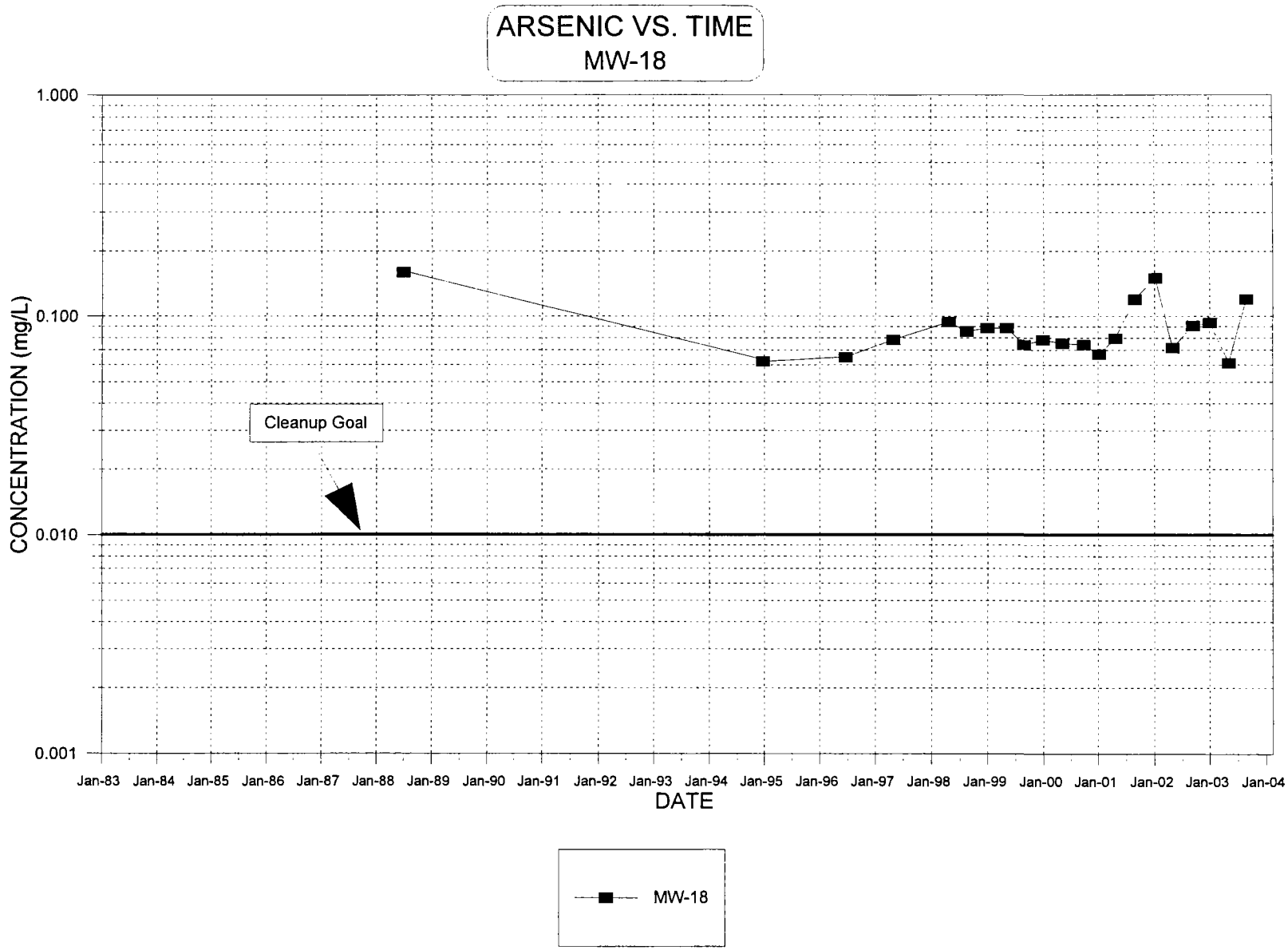

ARSENIC VS. TIME
MW-5
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-5

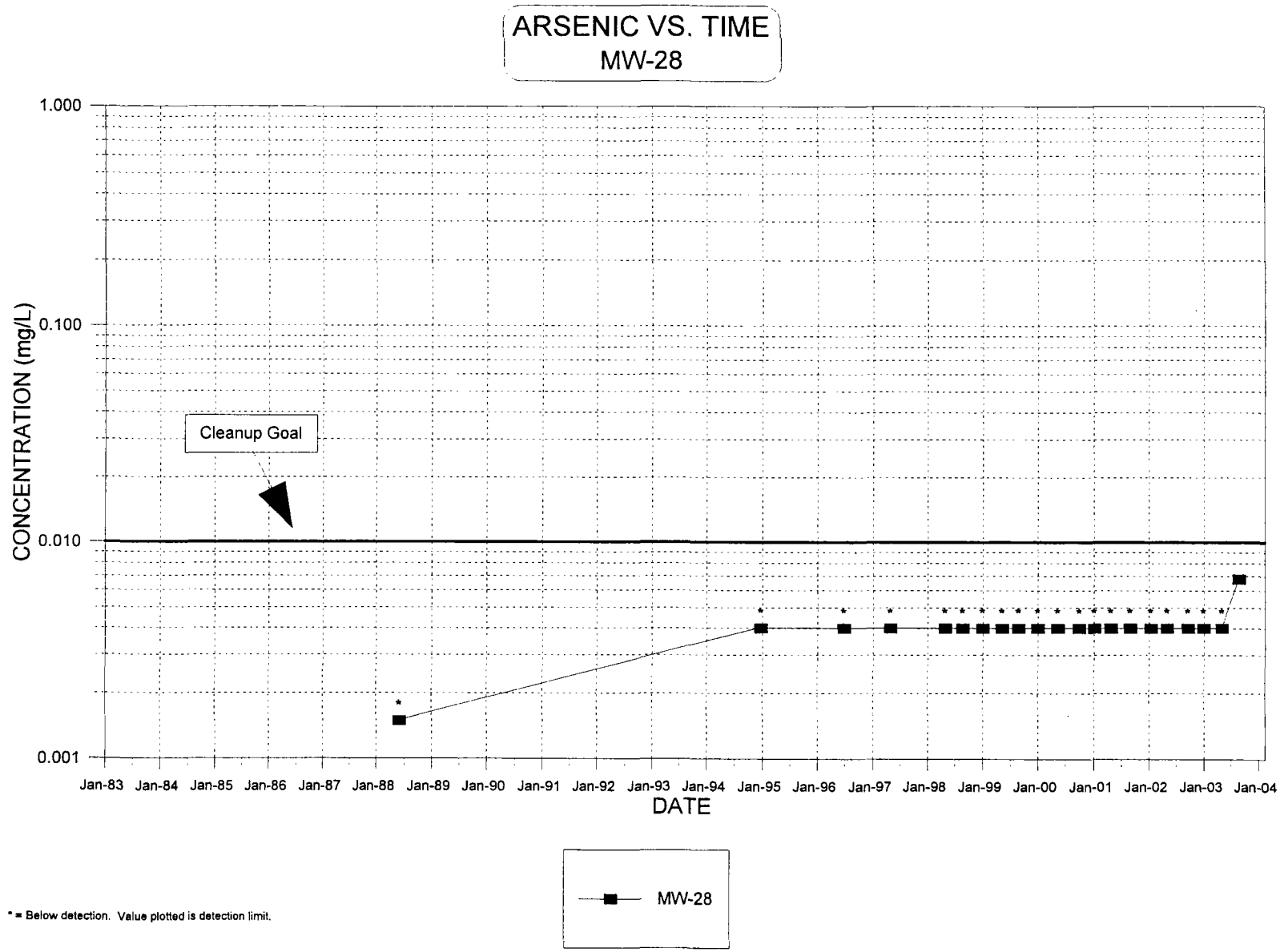


* = Below detection. Value plotted is detection limit.

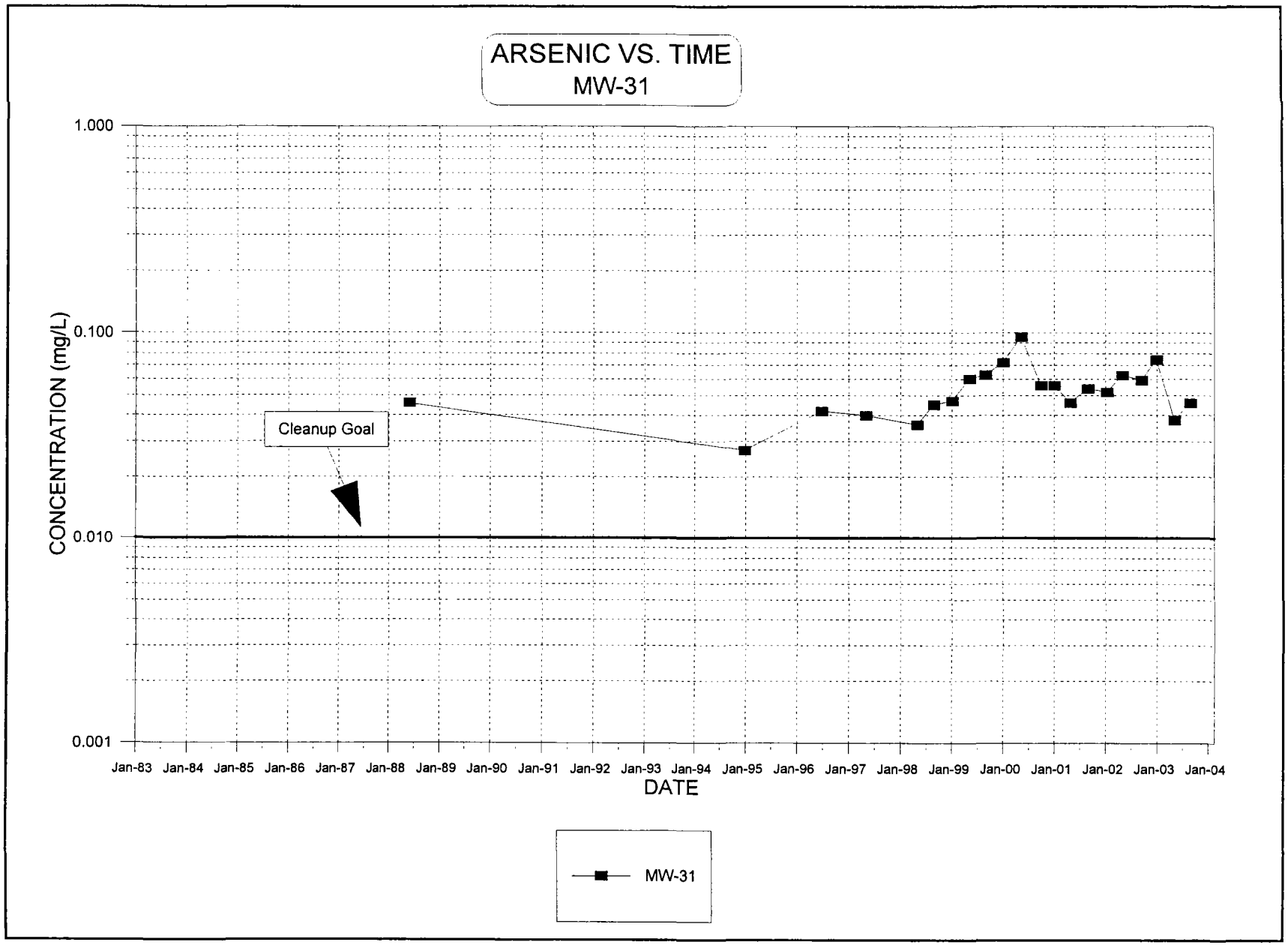


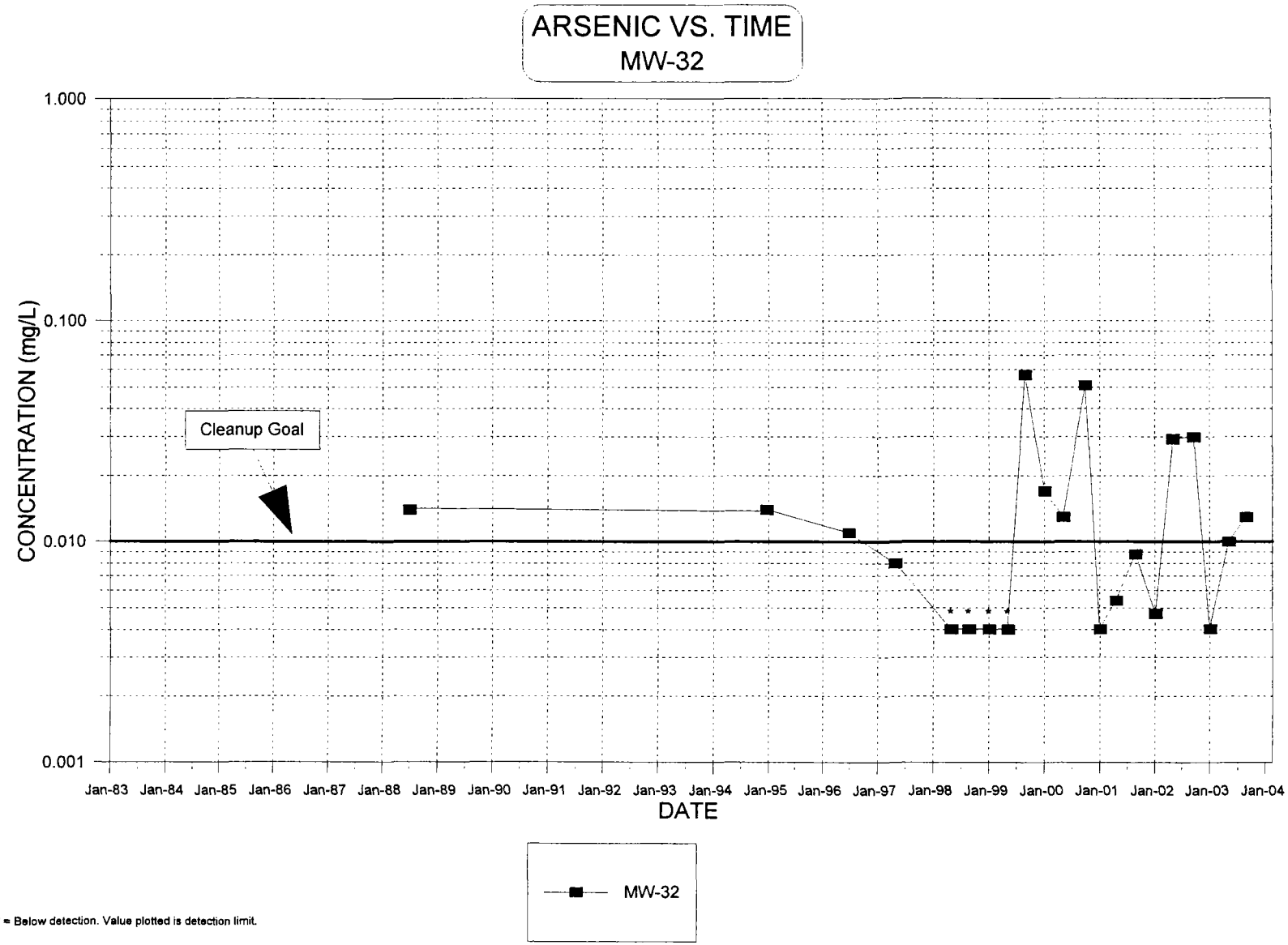
* = Below detection. Value plotted is detection limit.


ARSENIC VS. TIME
MW-18
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-18

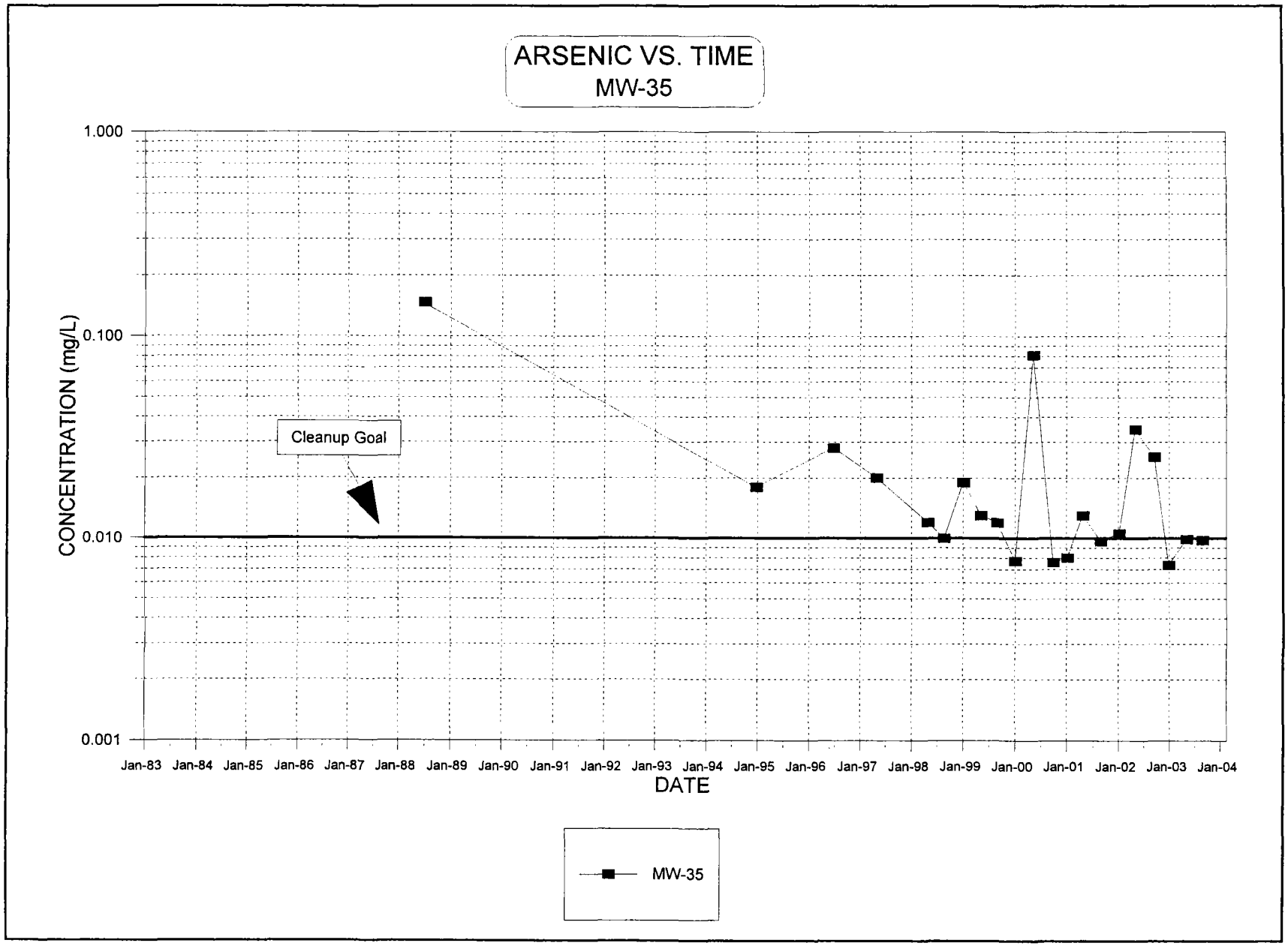


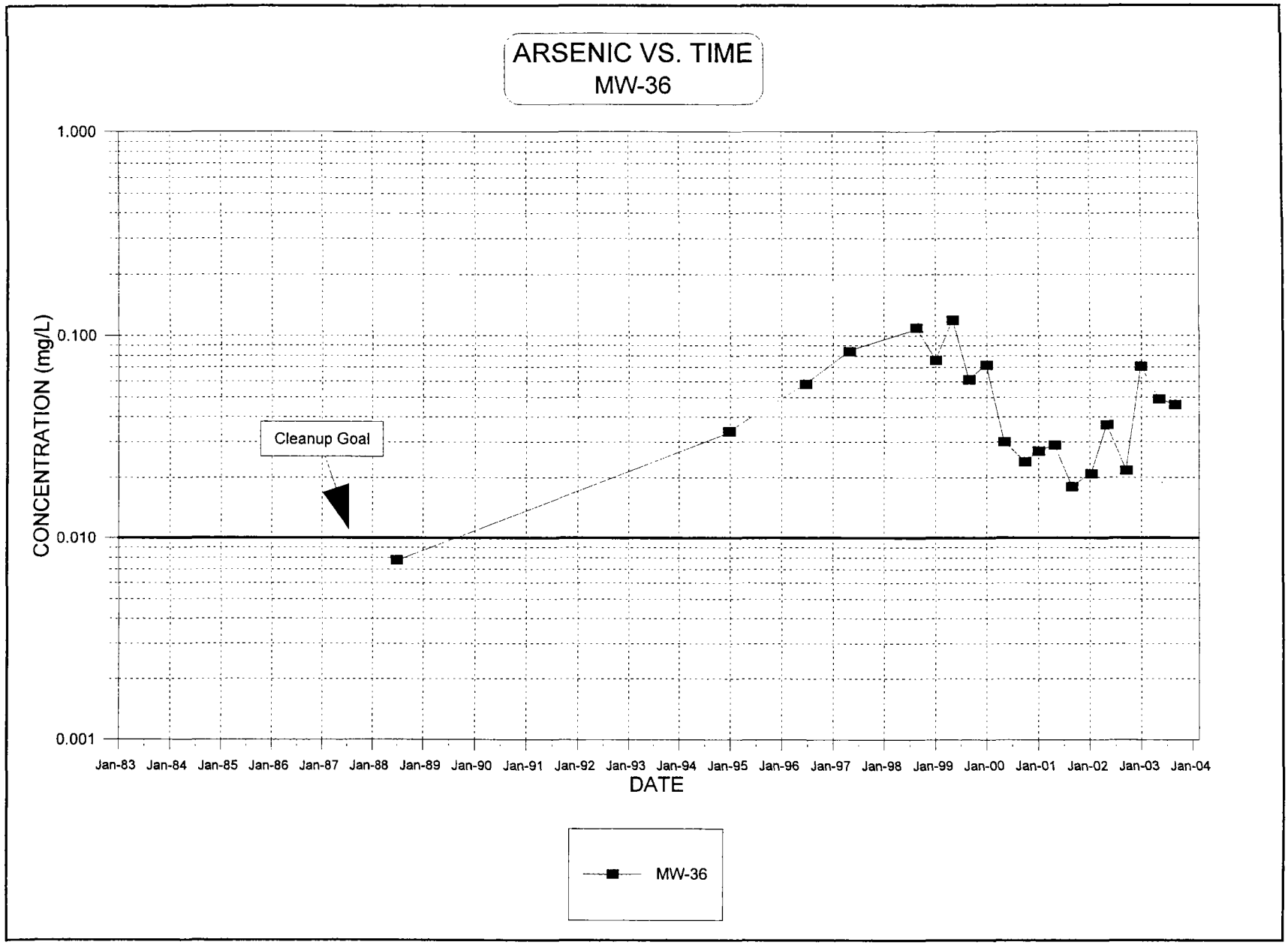
* = Below detection. Value plotted is detection limit.

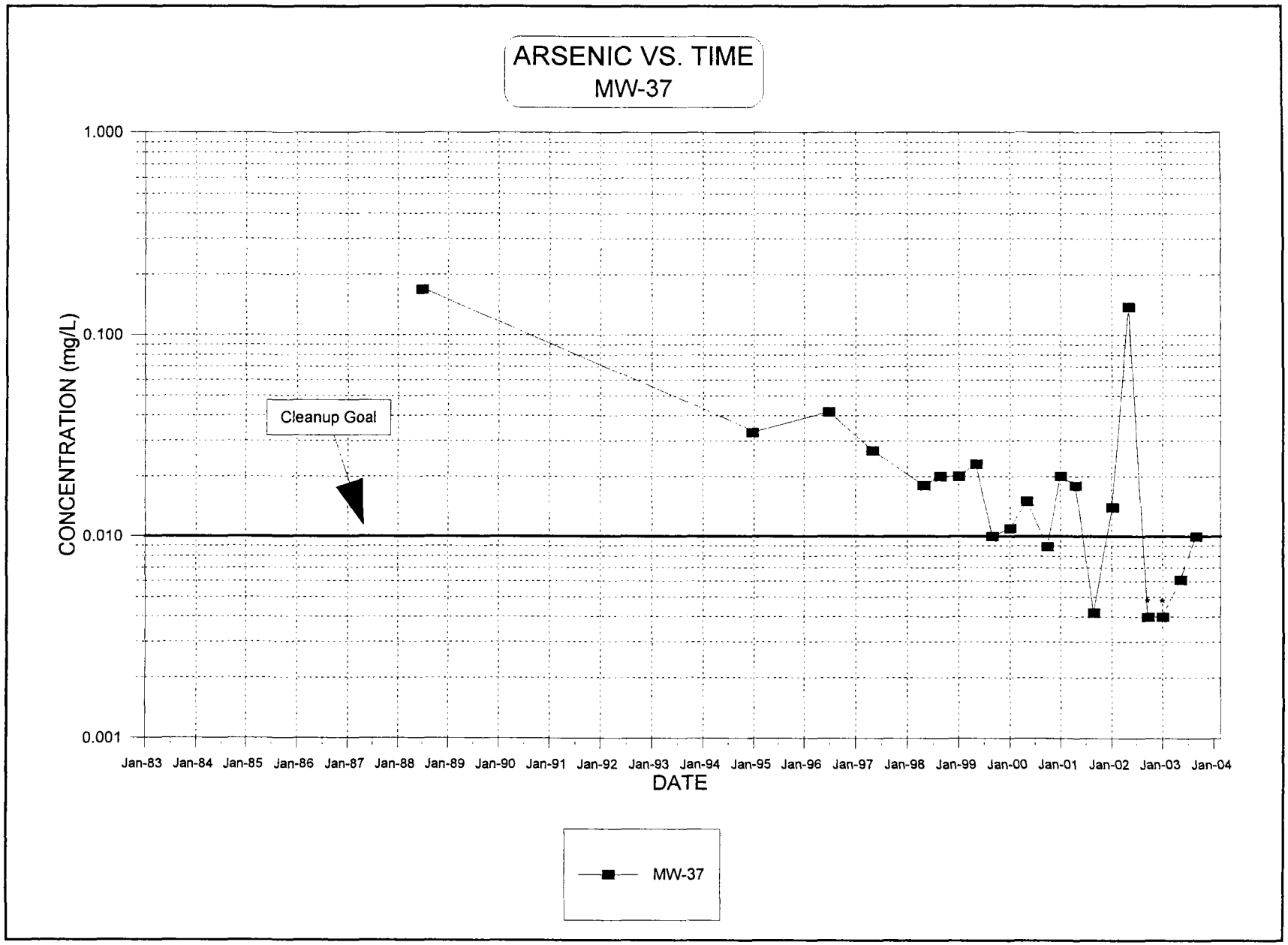

ARSENIC VS. TIME
MW-31
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-31



* = Below detection. Value plotted is detection limit.

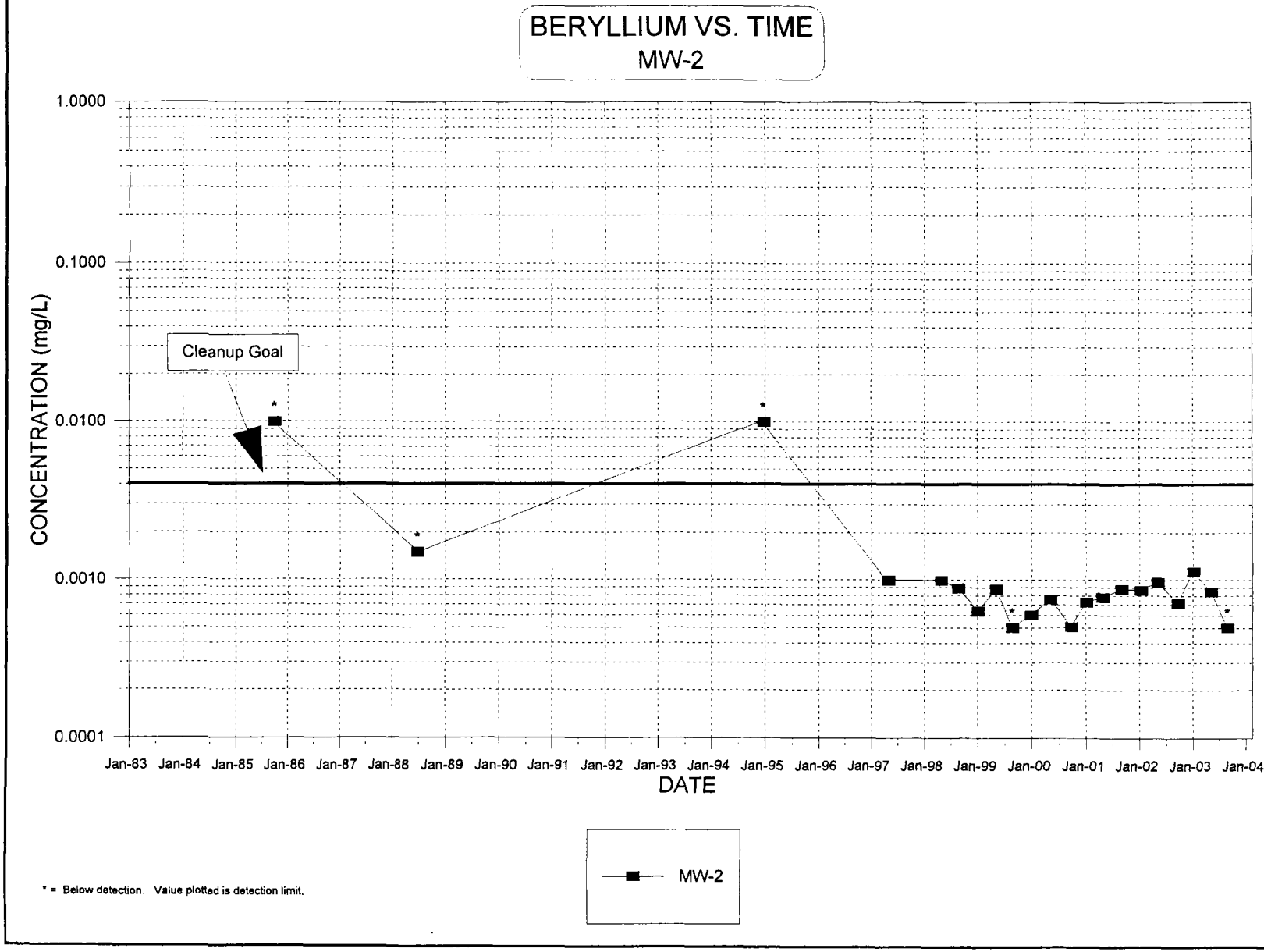

ARSENIC VS. TIME
MW-35
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-35

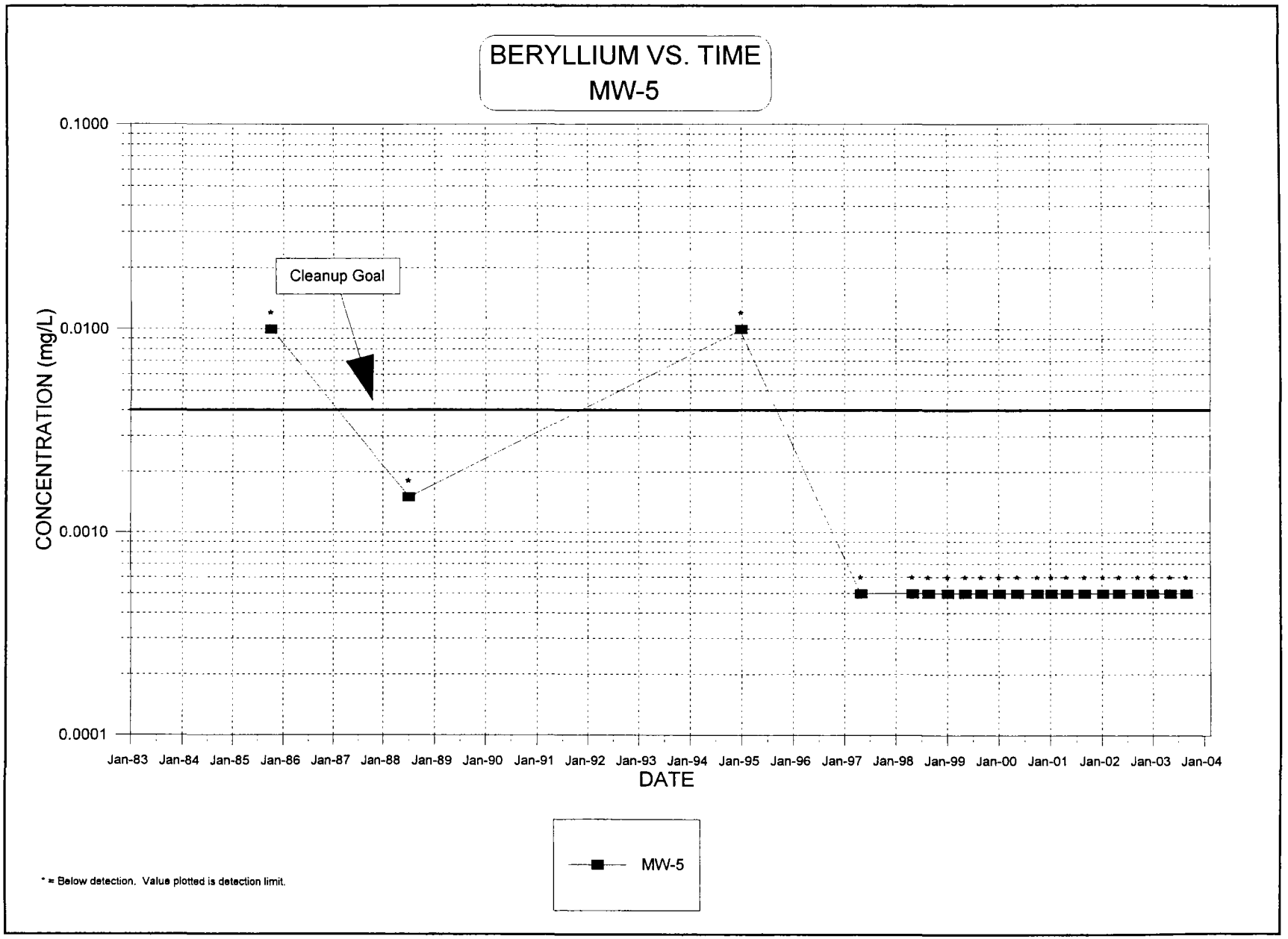

ARSENIC VS. TIME
MW-36
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-36

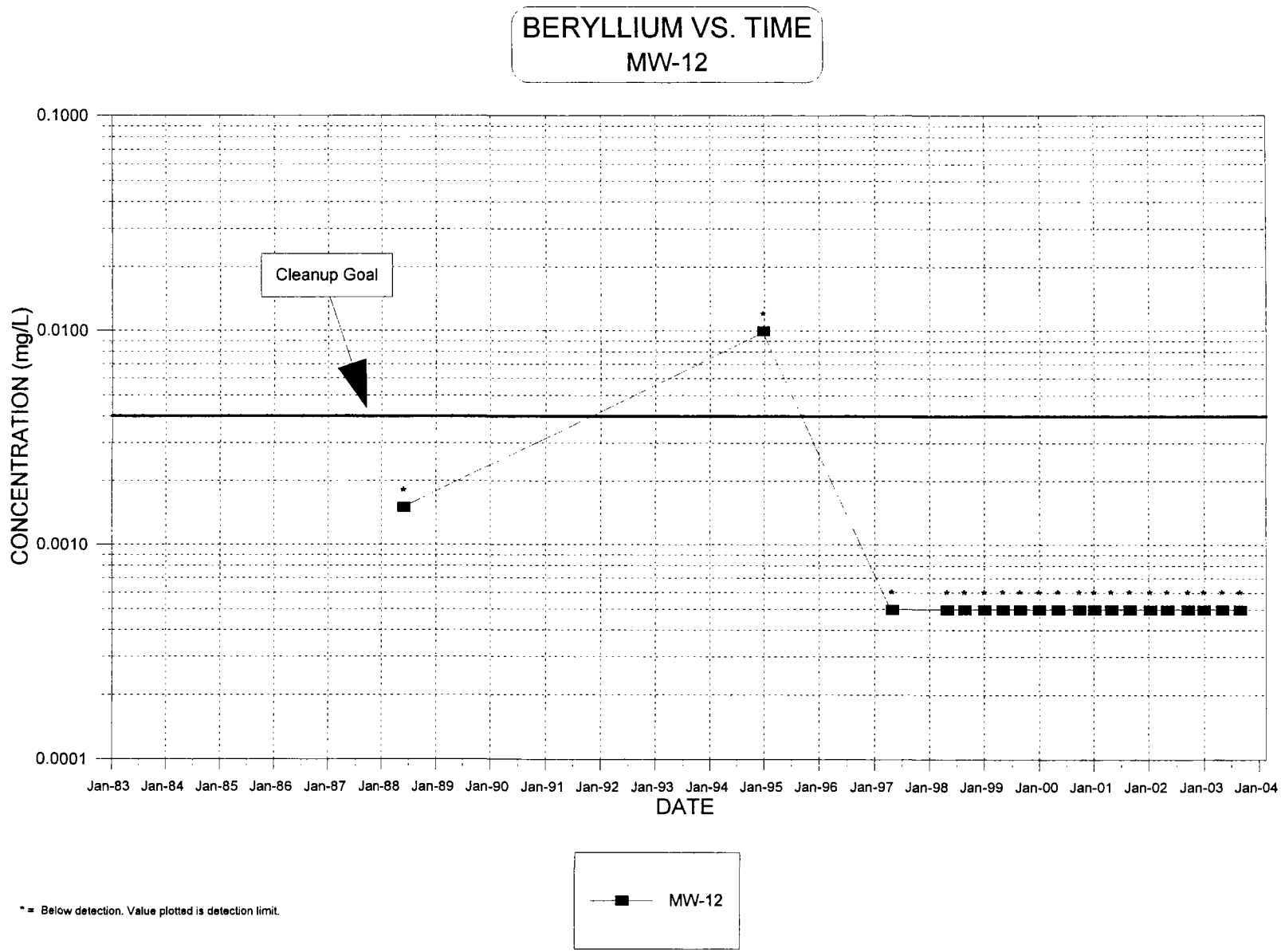

ARSENIC VS. TIME
MW-37
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-37

APPENDIX D-5

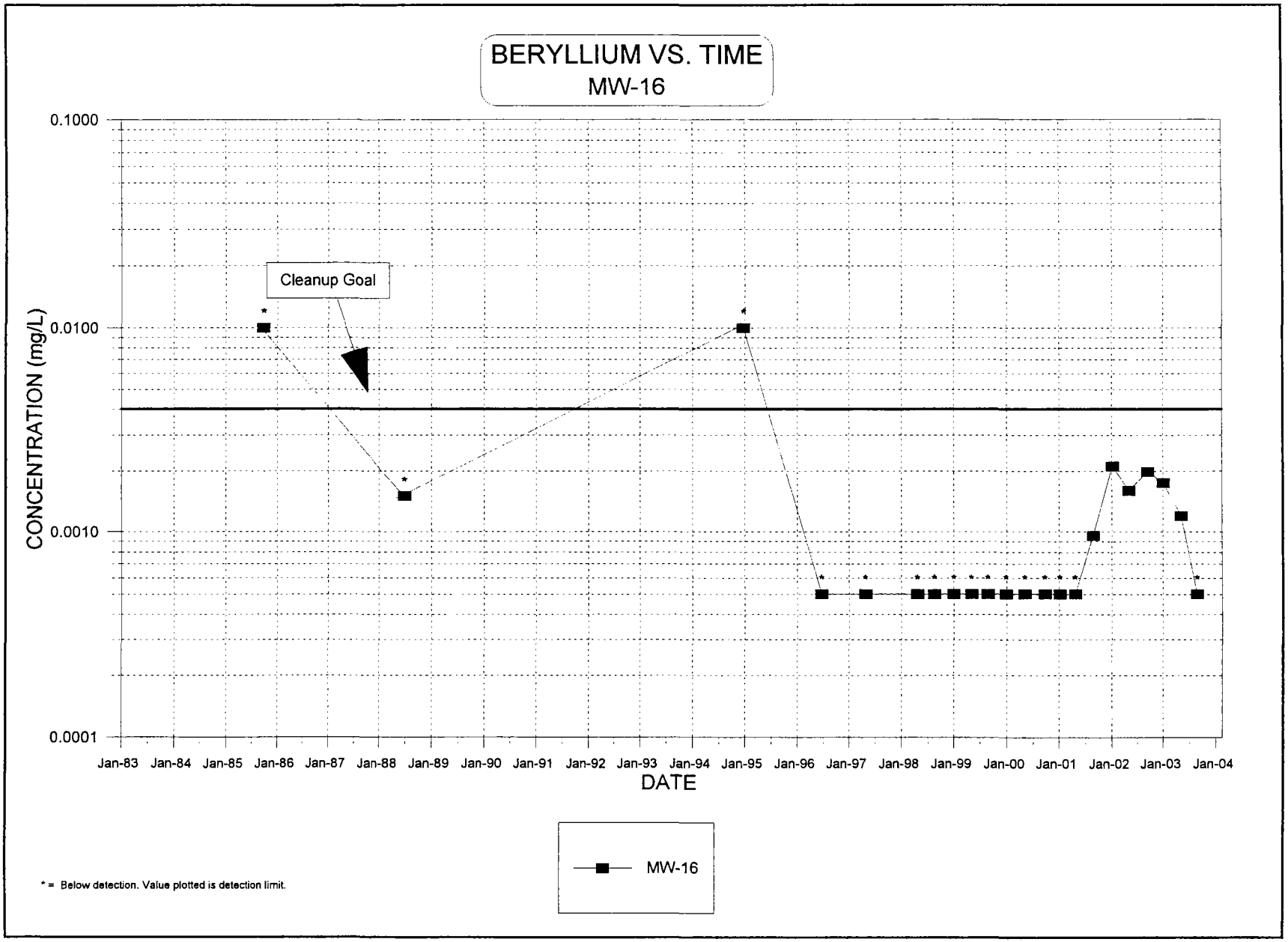
BERYLLIUM

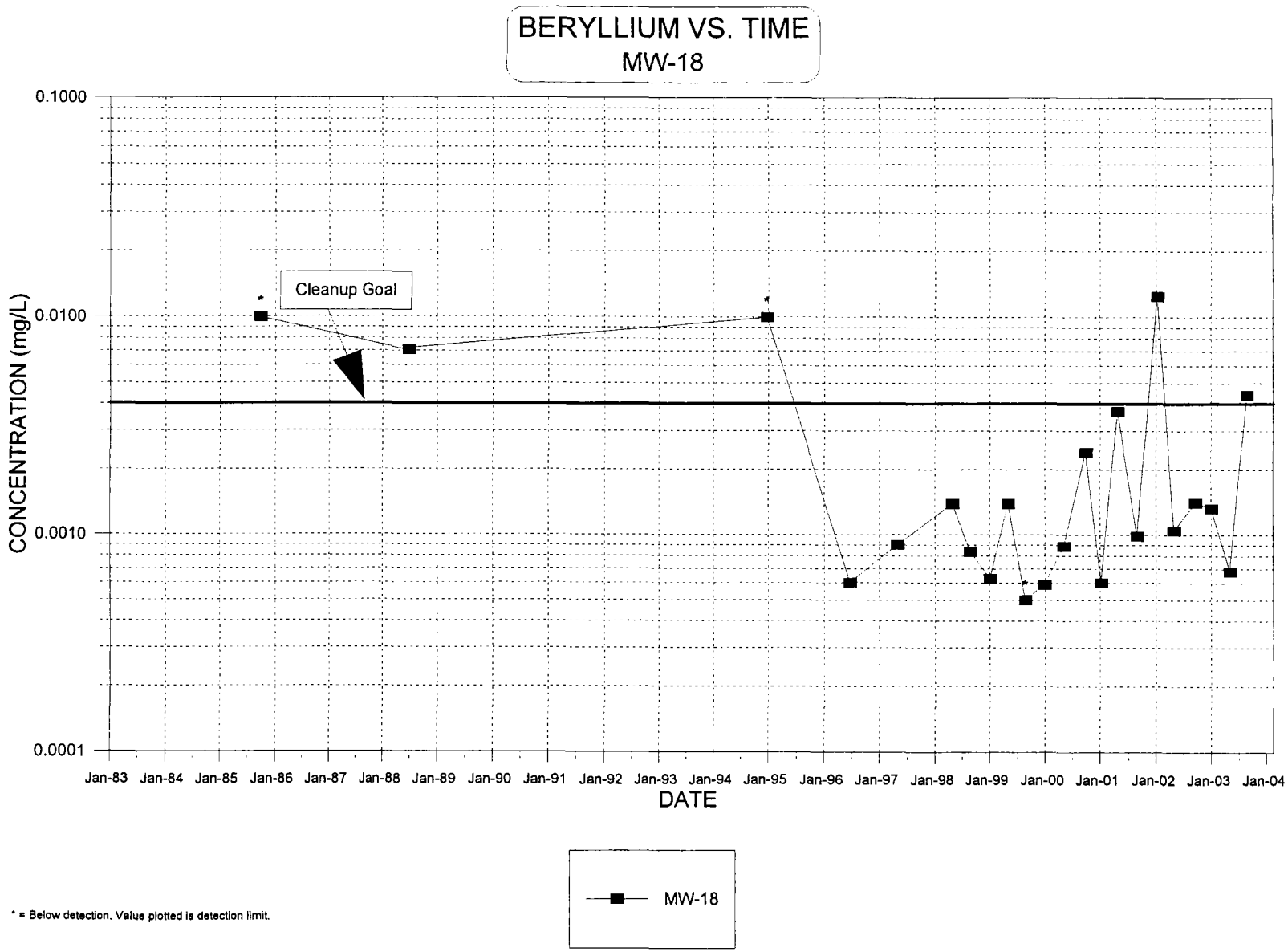

BERYLLIUM VS. TIME
MW-2
1.0000
0.1000
0.0100
0.0010
0.0001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-2
* = Below detection. Value plotted is detection limit.


BERYLLIUM VS. TIME
MW-5
0.1000
0.0100
0.0010
0.0001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-5
* = Below detection. Value plotted is detection limit.

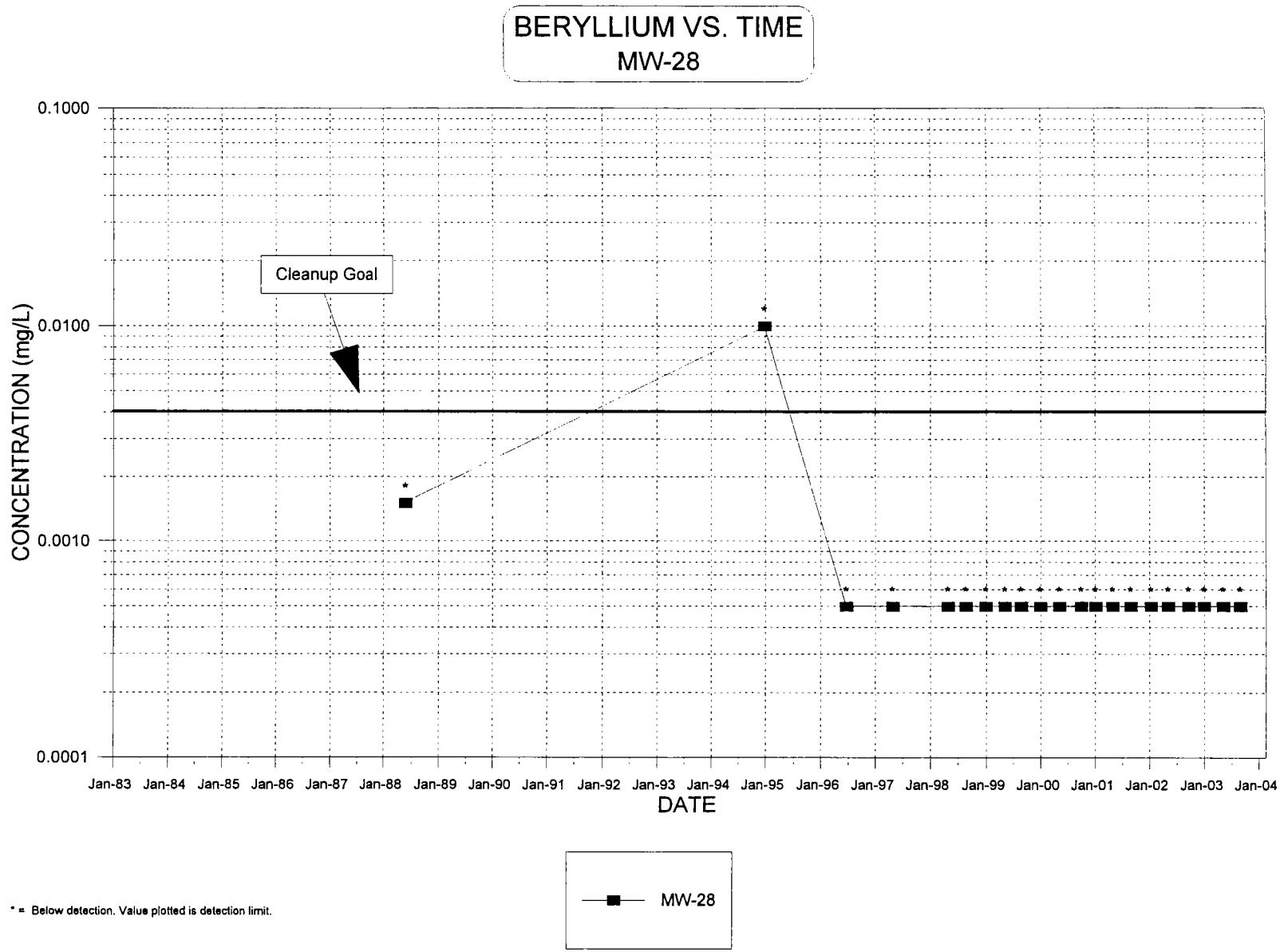


* = Below detection. Value plotted is detection limit.

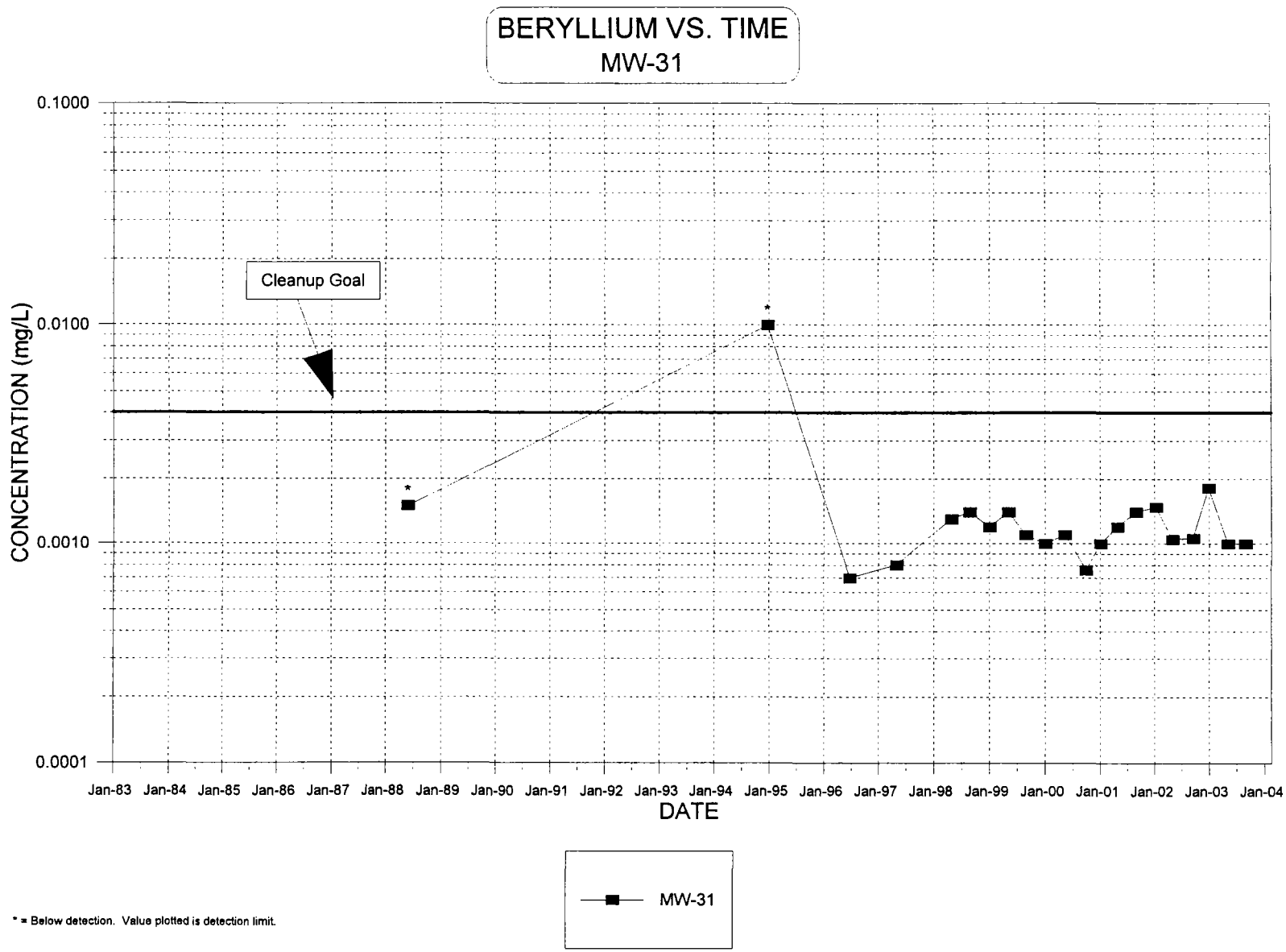

BERYLLIUM VS. TIME
MW-16
0.1000
0.0100
0.0010
0.0001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-16
* = Below detection. Value plotted is detection limit.



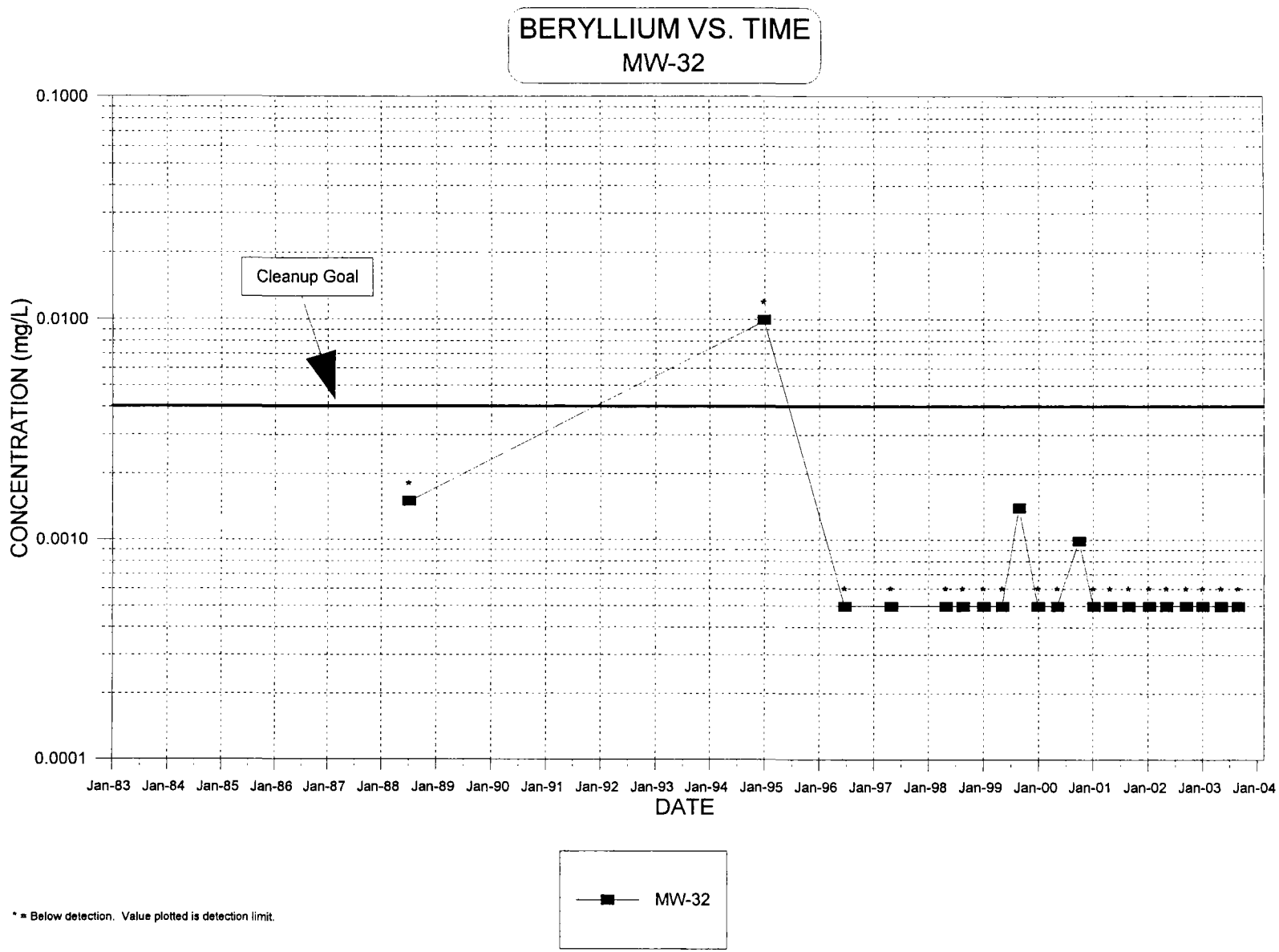
* = Below detection. Value plotted is detection limit.



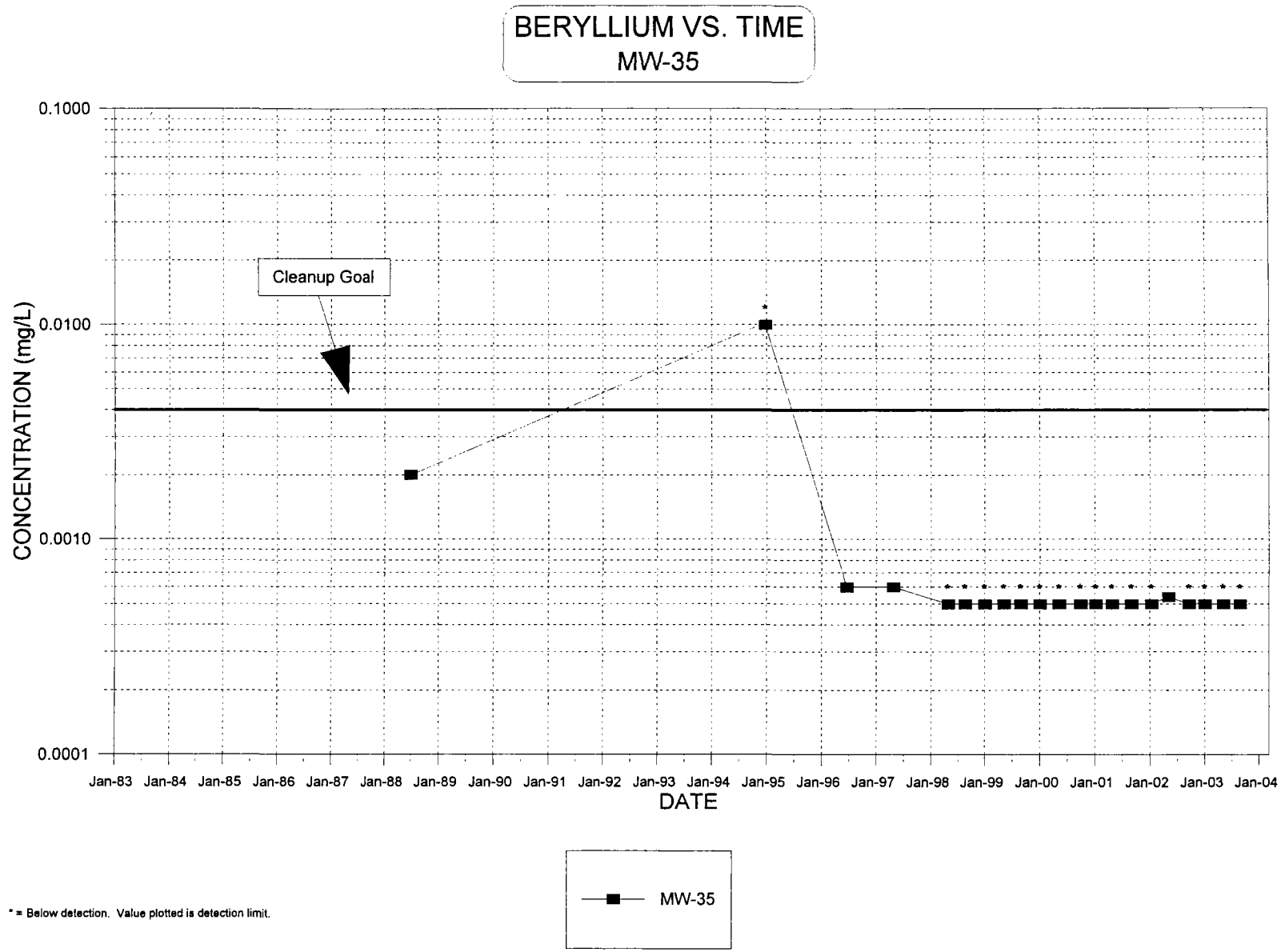
* = Below detection. Value plotted is detection limit.



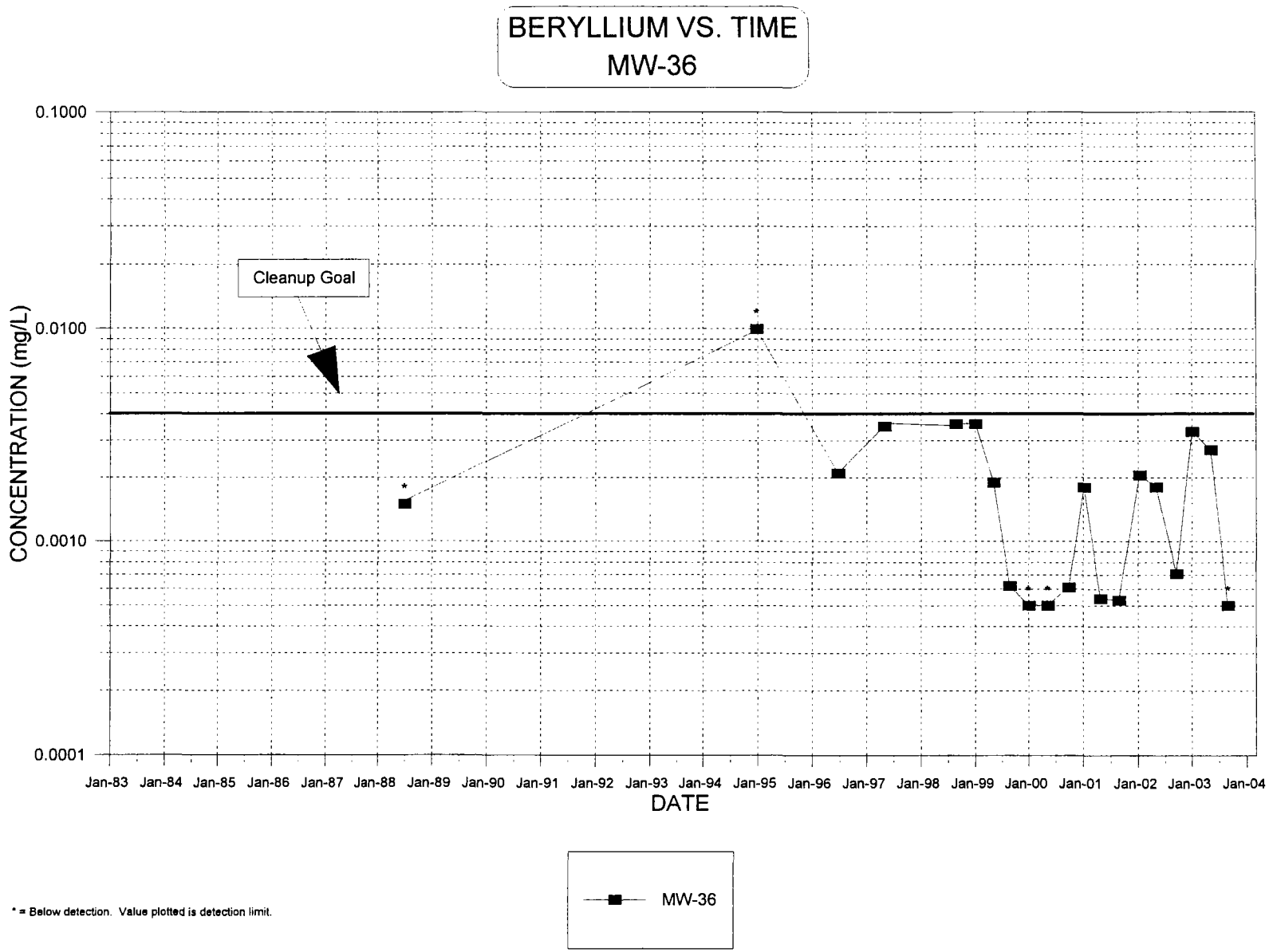
* = Below detection. Value plotted is detection limit.



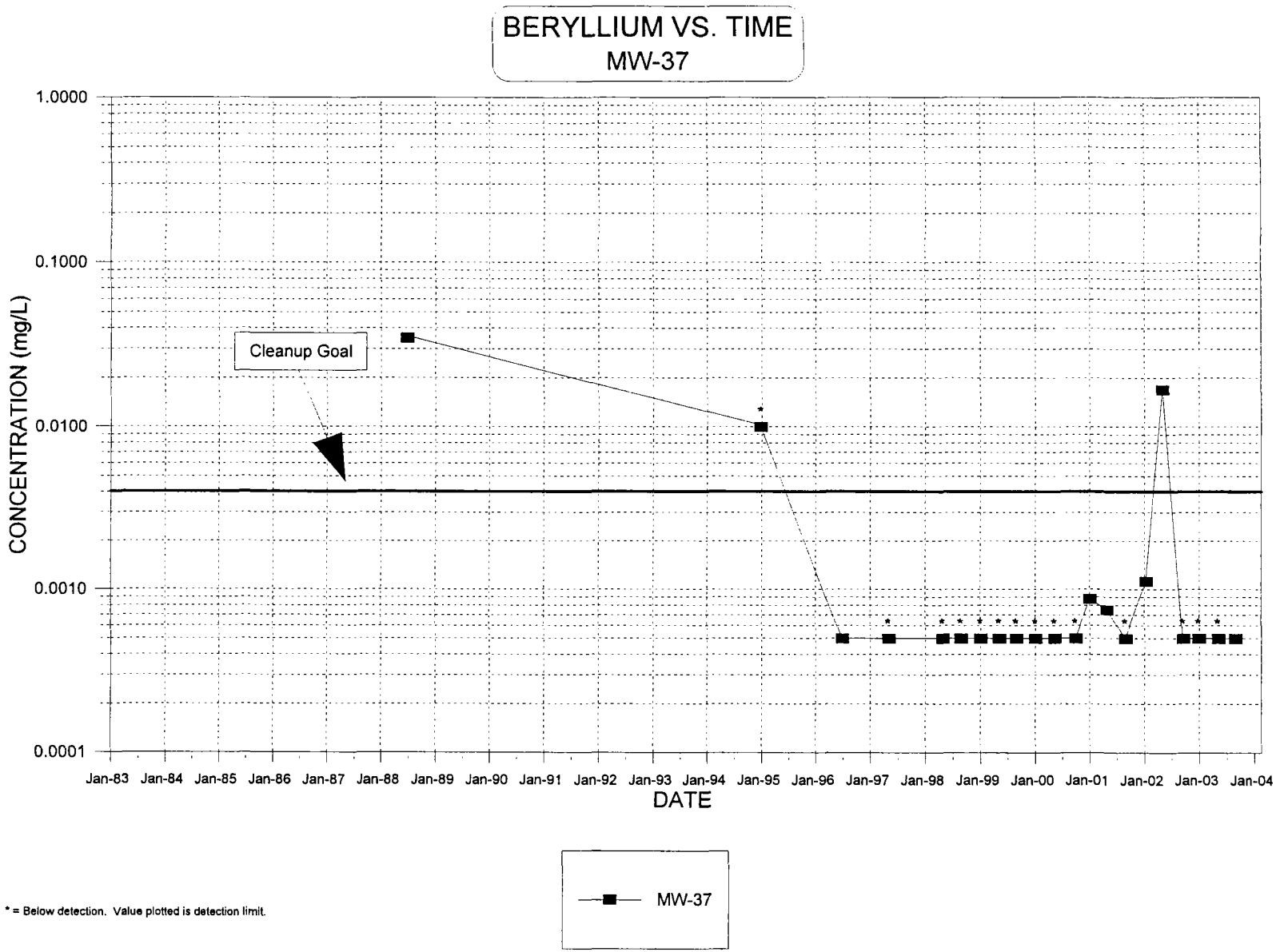
* = Below detection. Value plotted is detection limit.



* = Below detection. Value plotted is detection limit.



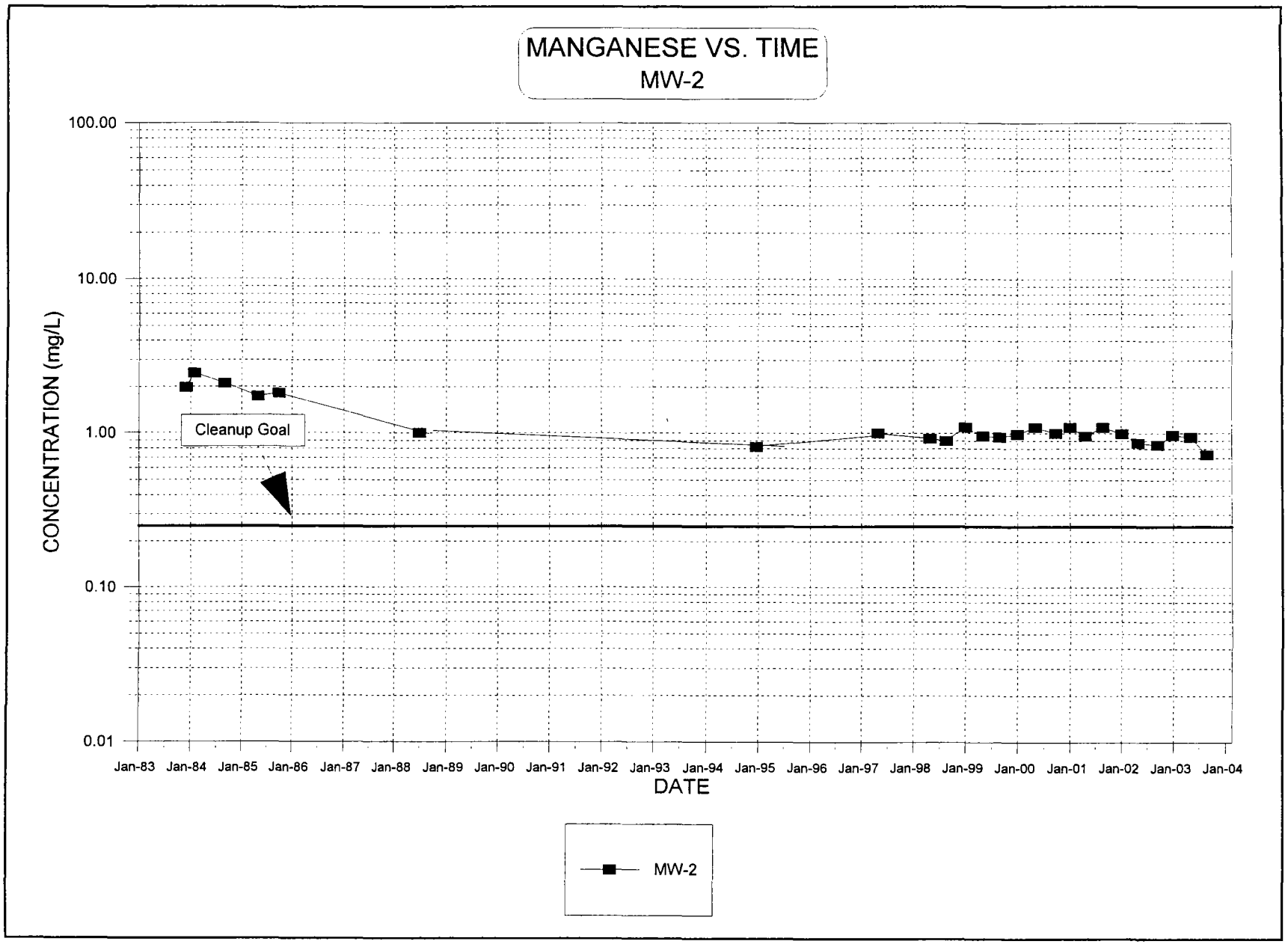
* = Below detection. Value plotted is detection limit.

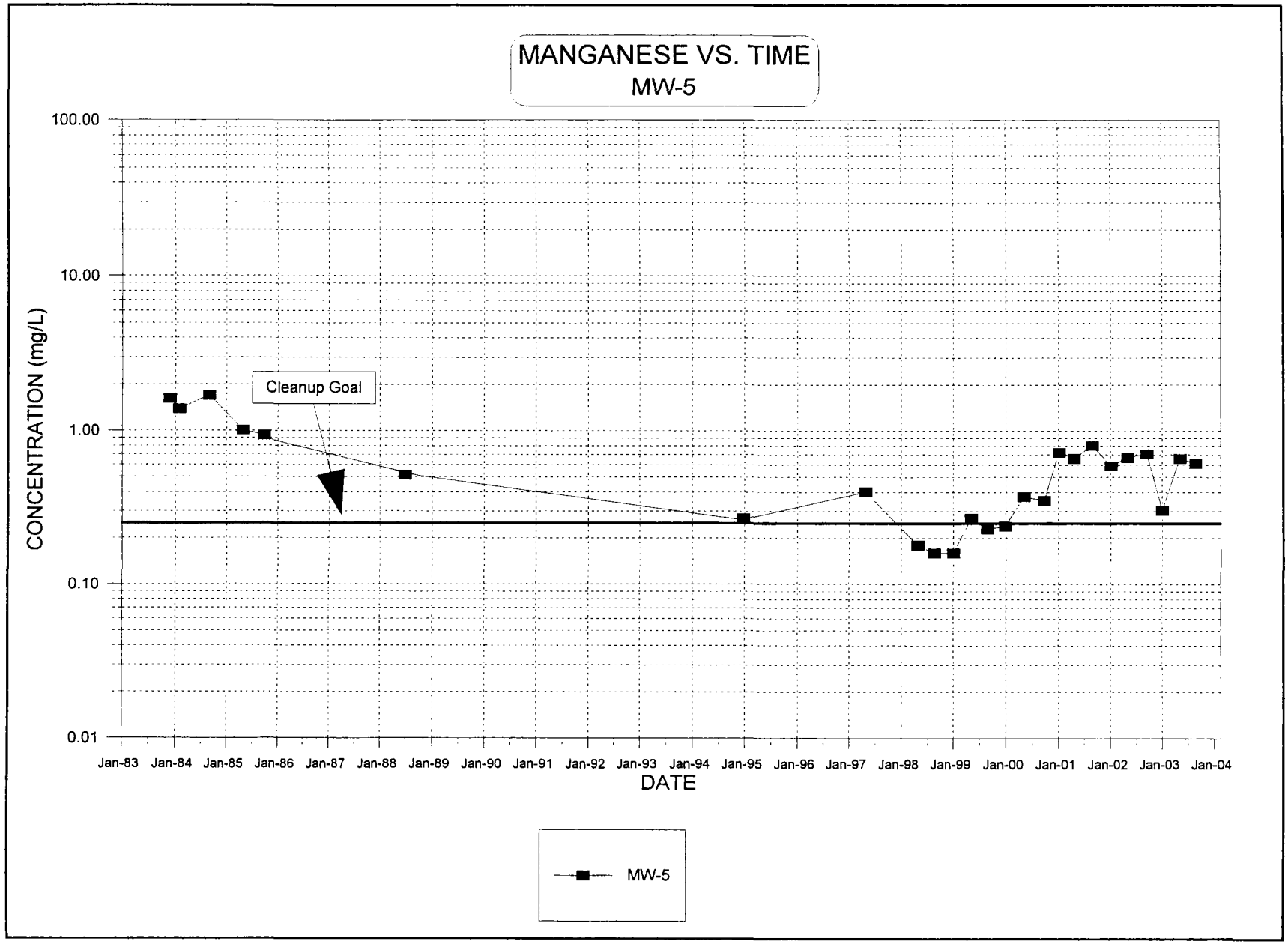


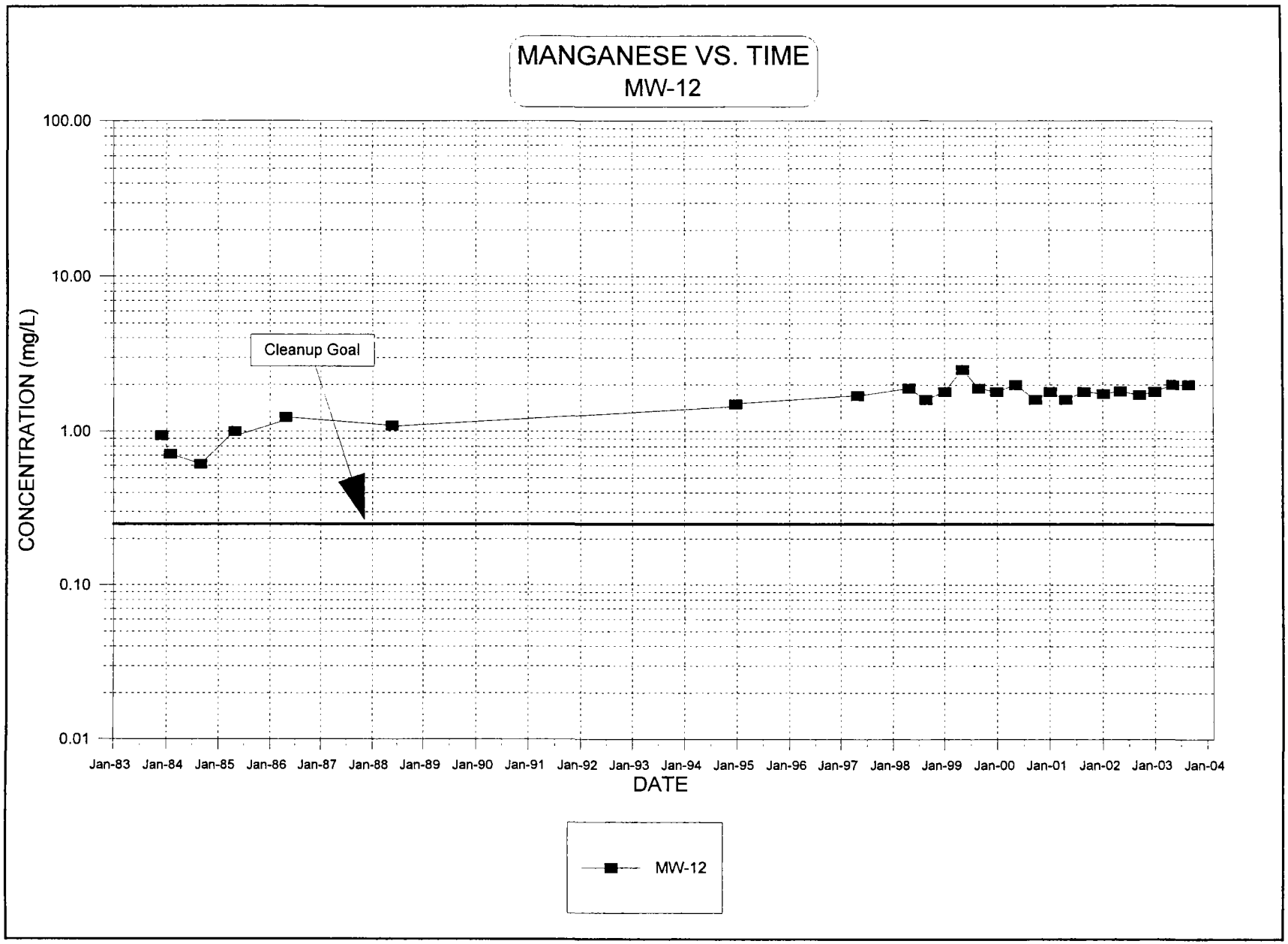
* = Below detection. Value plotted is detection limit.

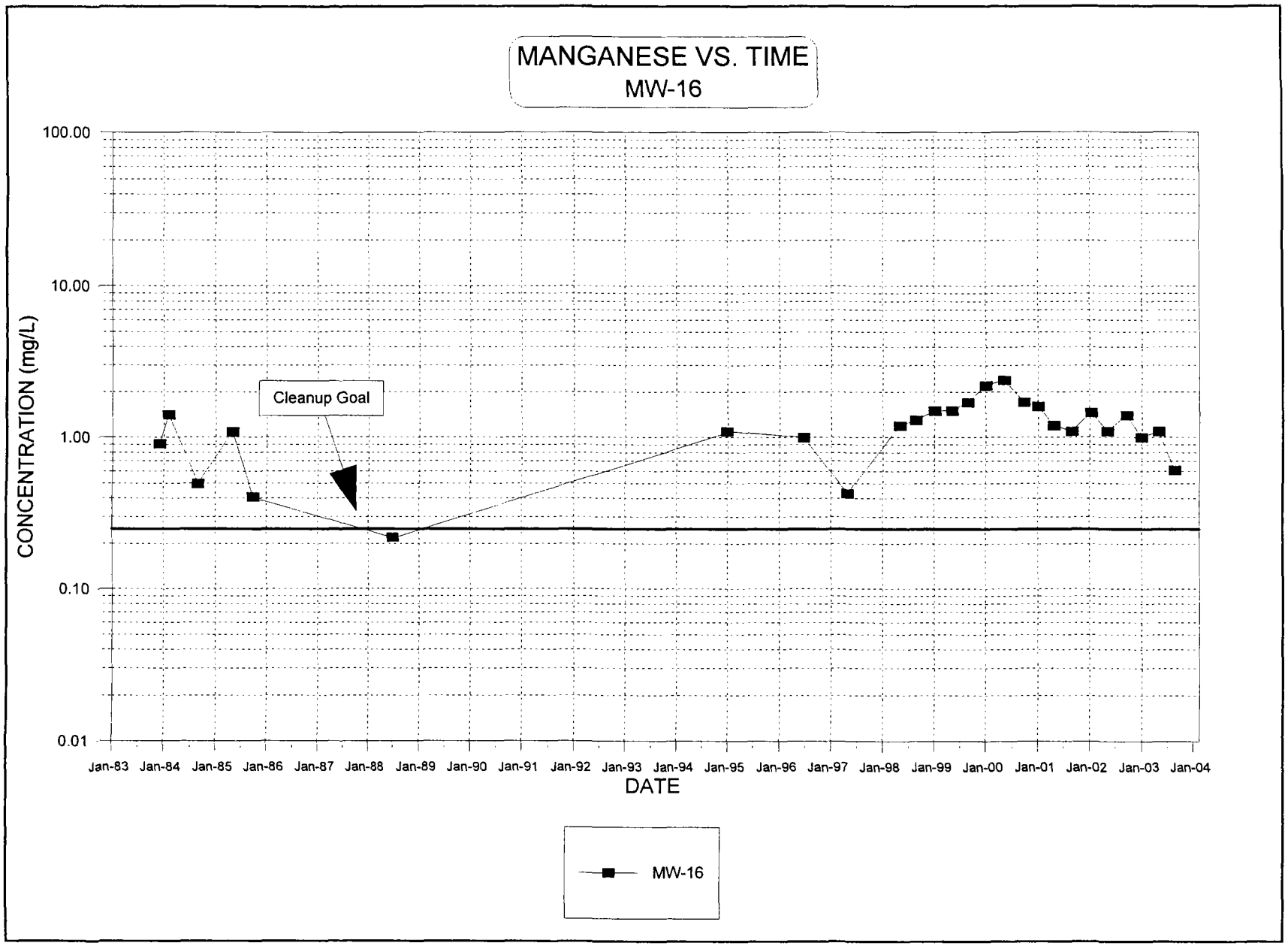
APPENDIX D-6

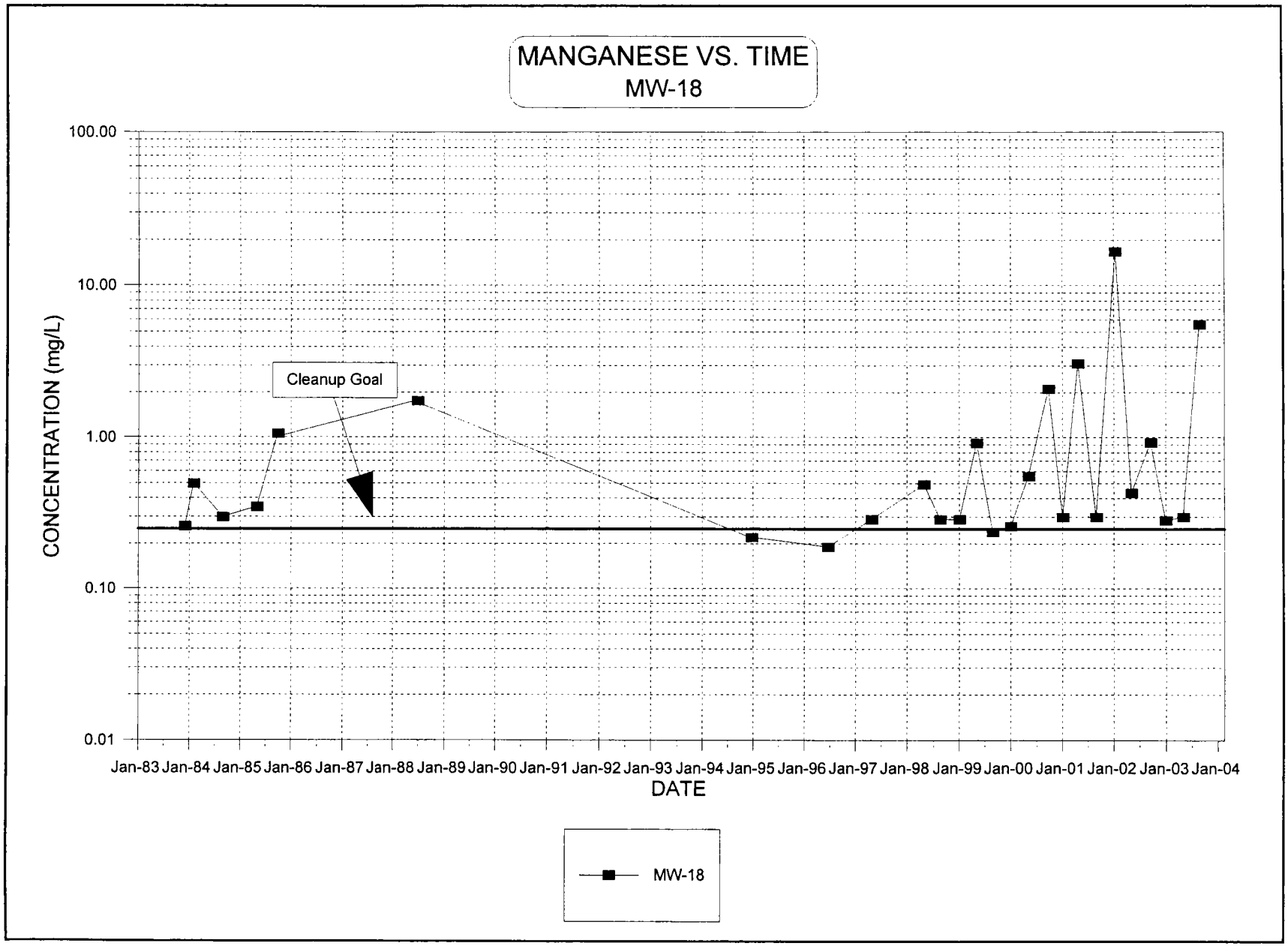
MANGANESE

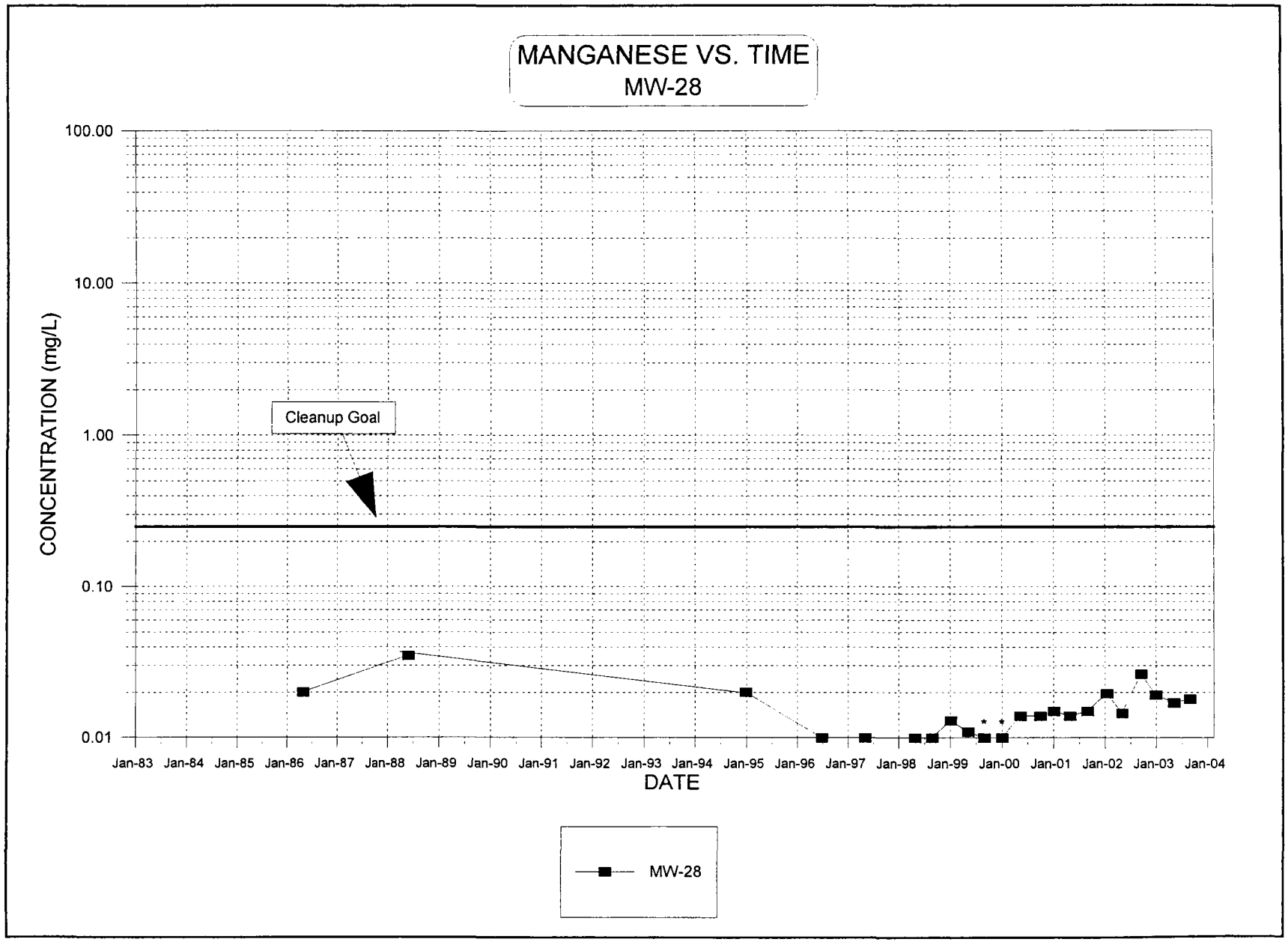

MANGANESE VS. TIME
MW-2
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-2

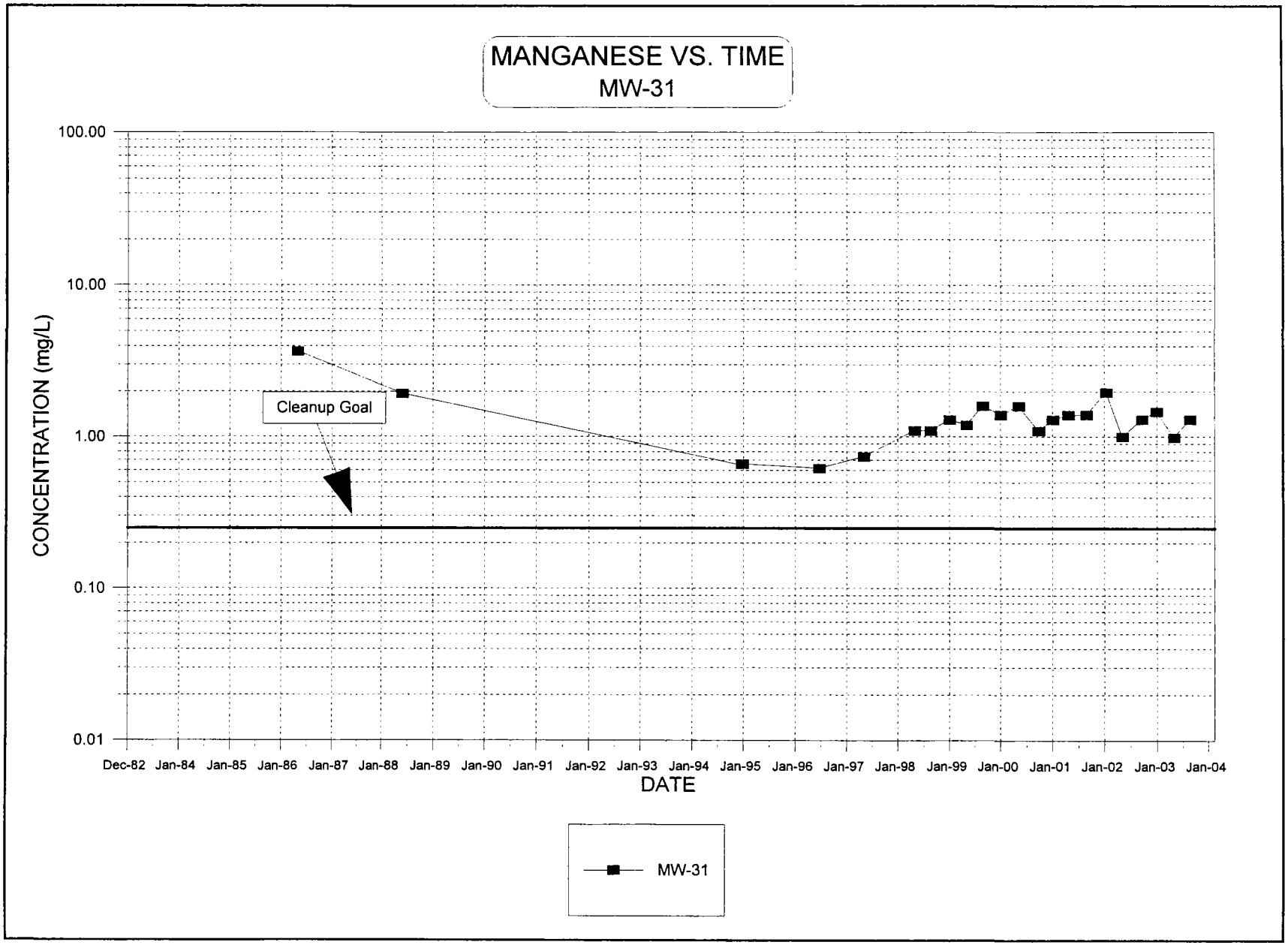

MANGANESE VS. TIME
MW-5
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-5

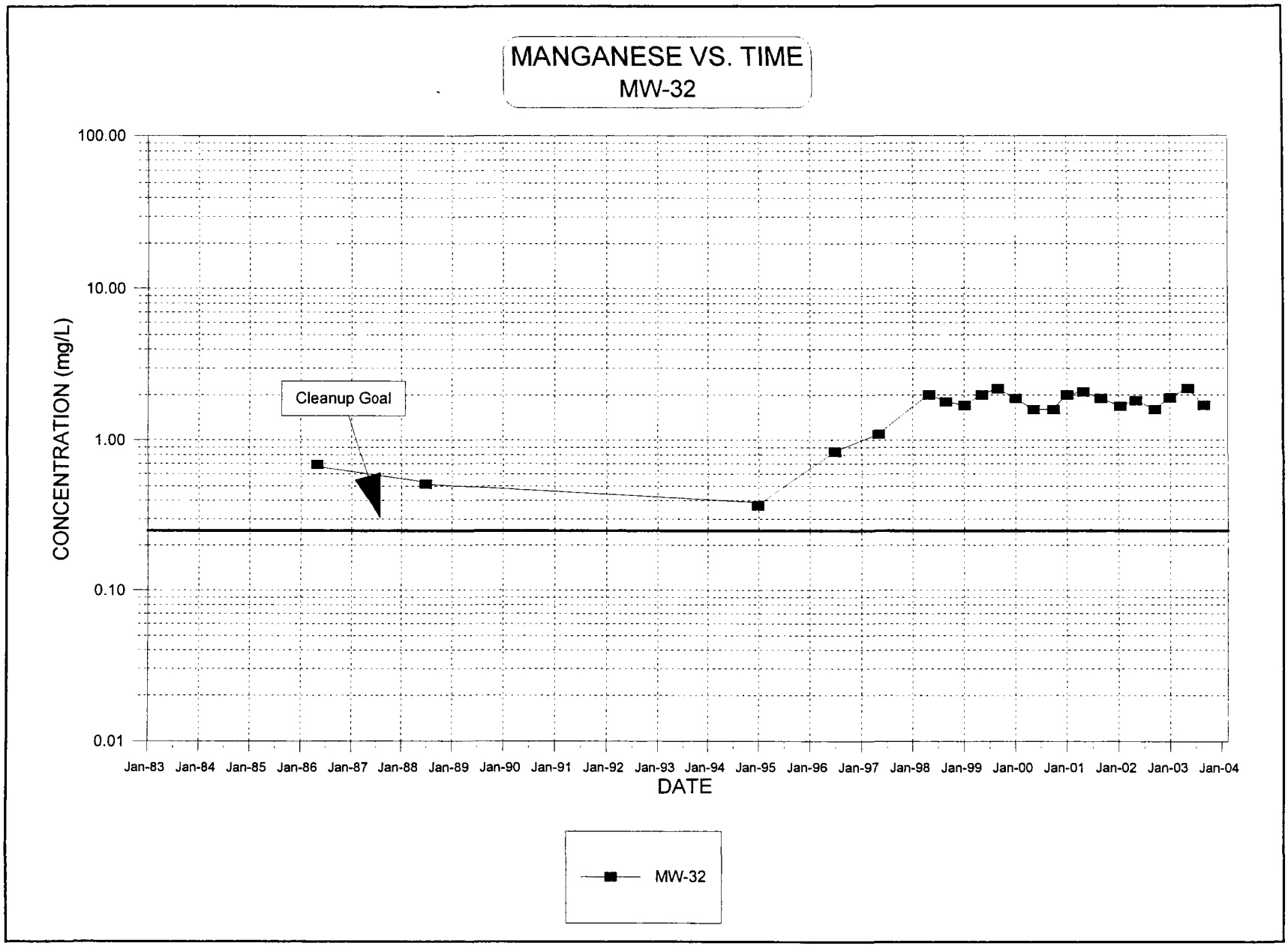

MANGANESE VS. TIME
MW-12
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-12

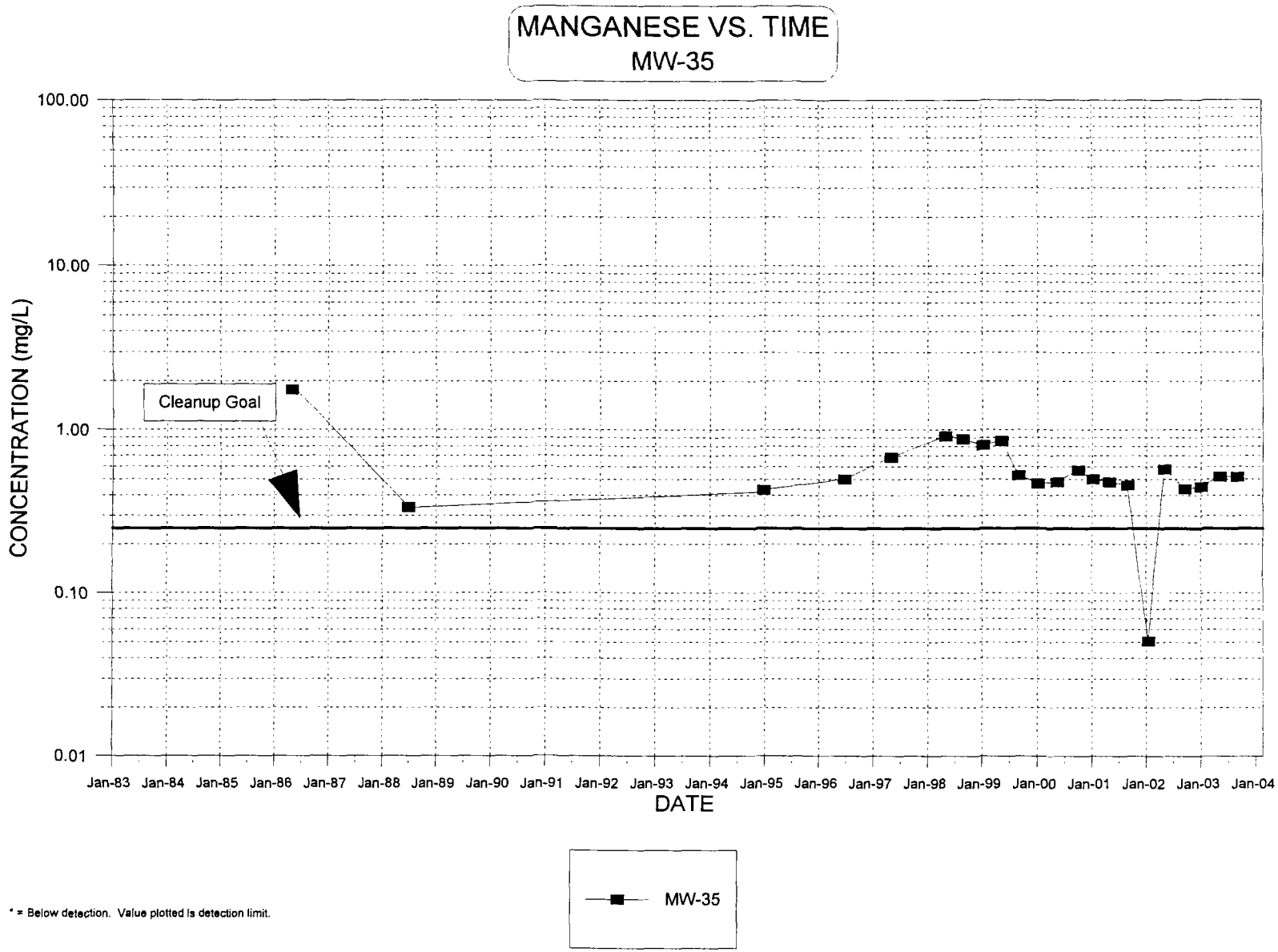

MANGANESE VS. TIME
MW-16
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-16


MANGANESE VS. TIME
MW-18
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04
DATE
MW-18

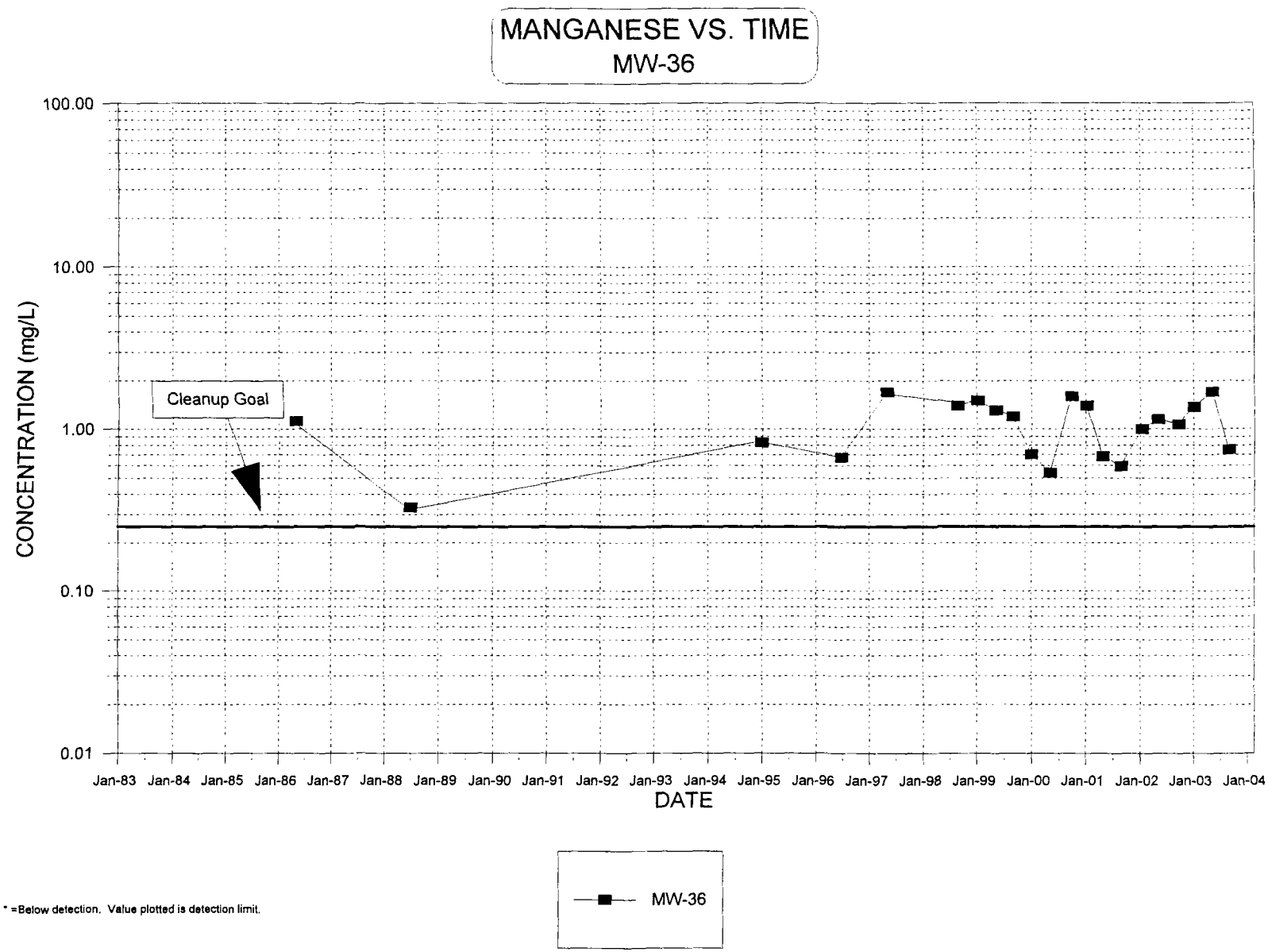

MANGANESE VS. TIME
MW-28
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-28


MANGANESE VS. TIME
MW-31
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Dec-82
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-31

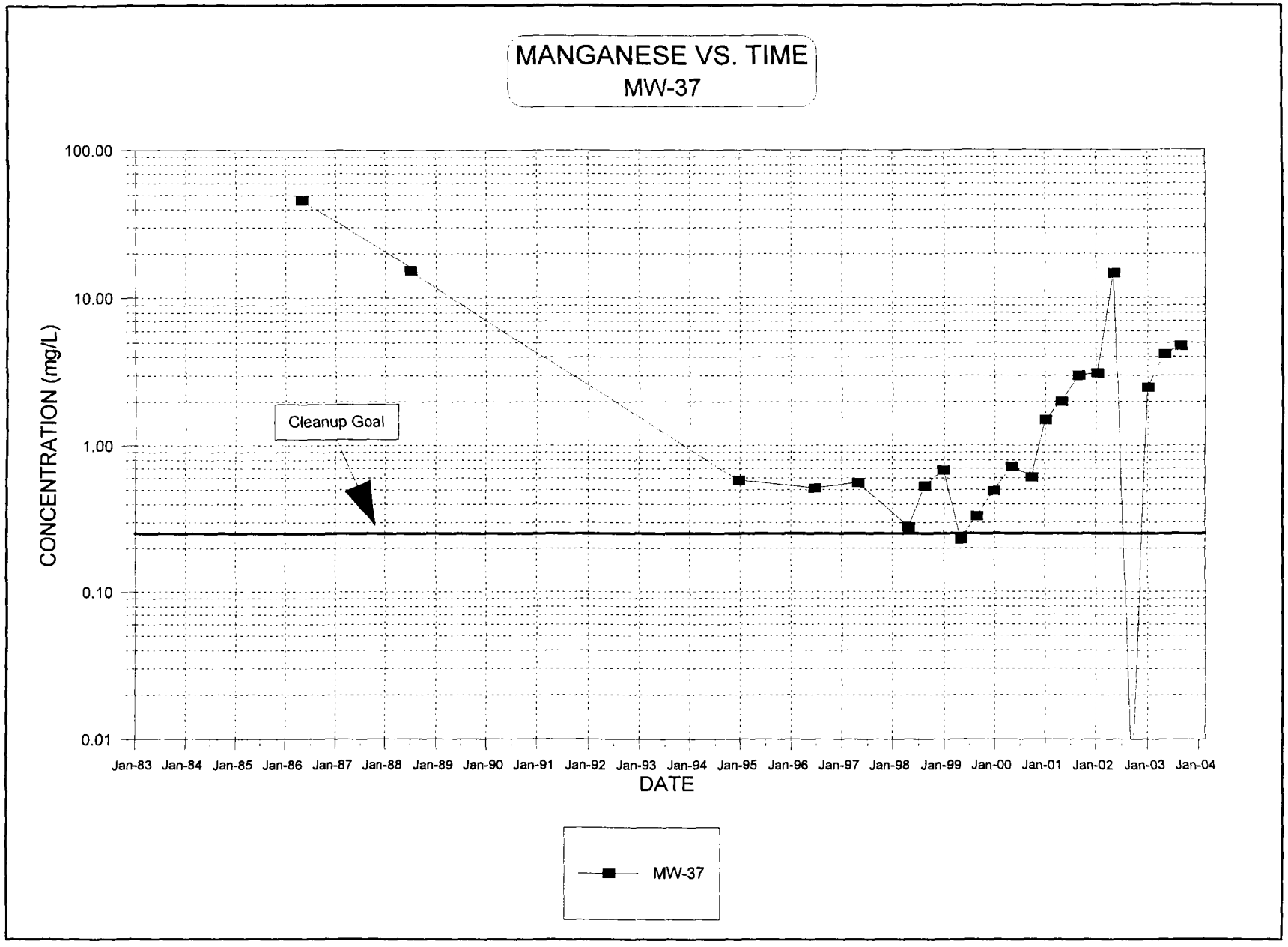

MANGANESE VS. TIME
MW-32
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-32



* = Below detection. Value plotted is detection limit.

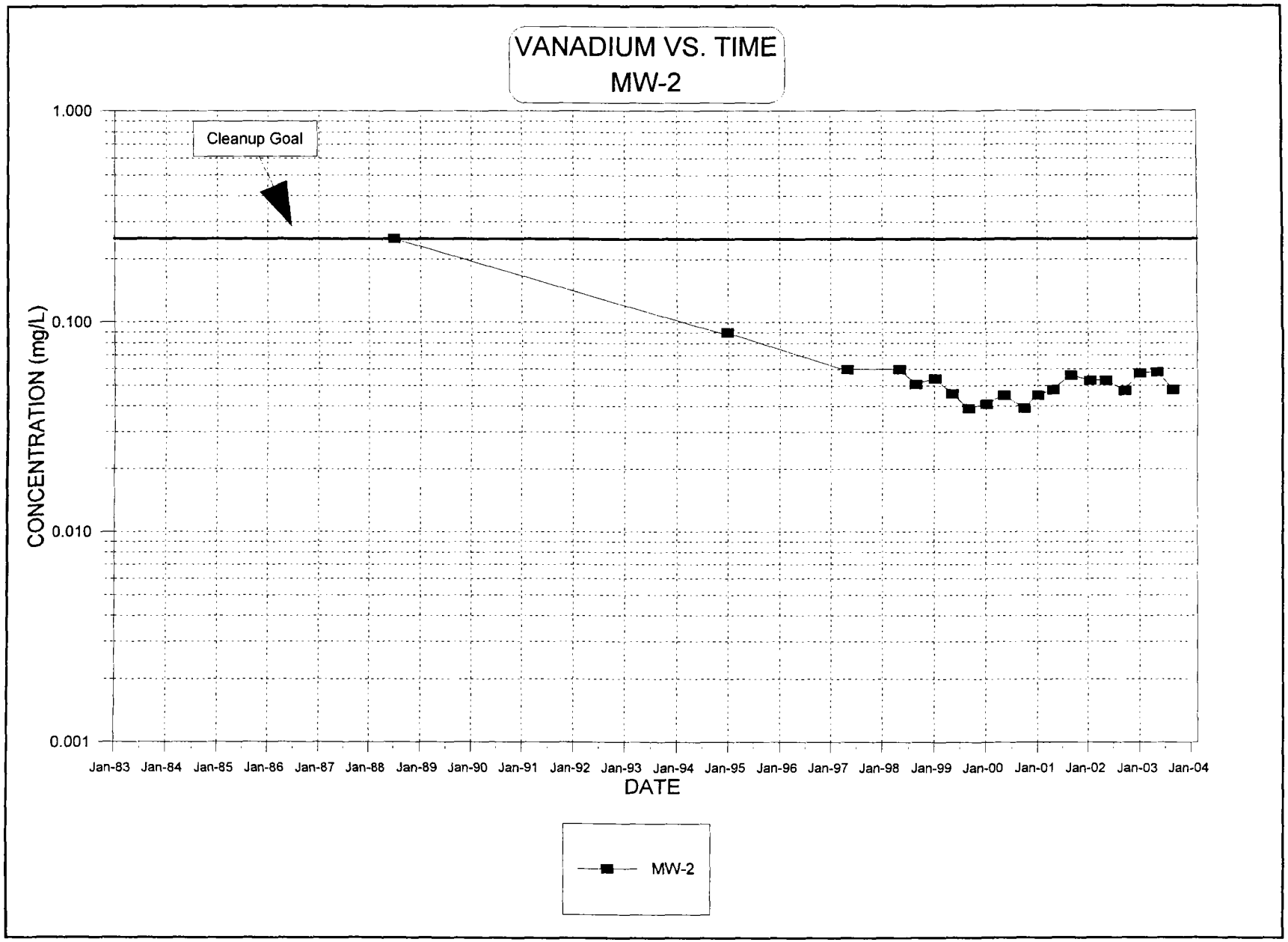


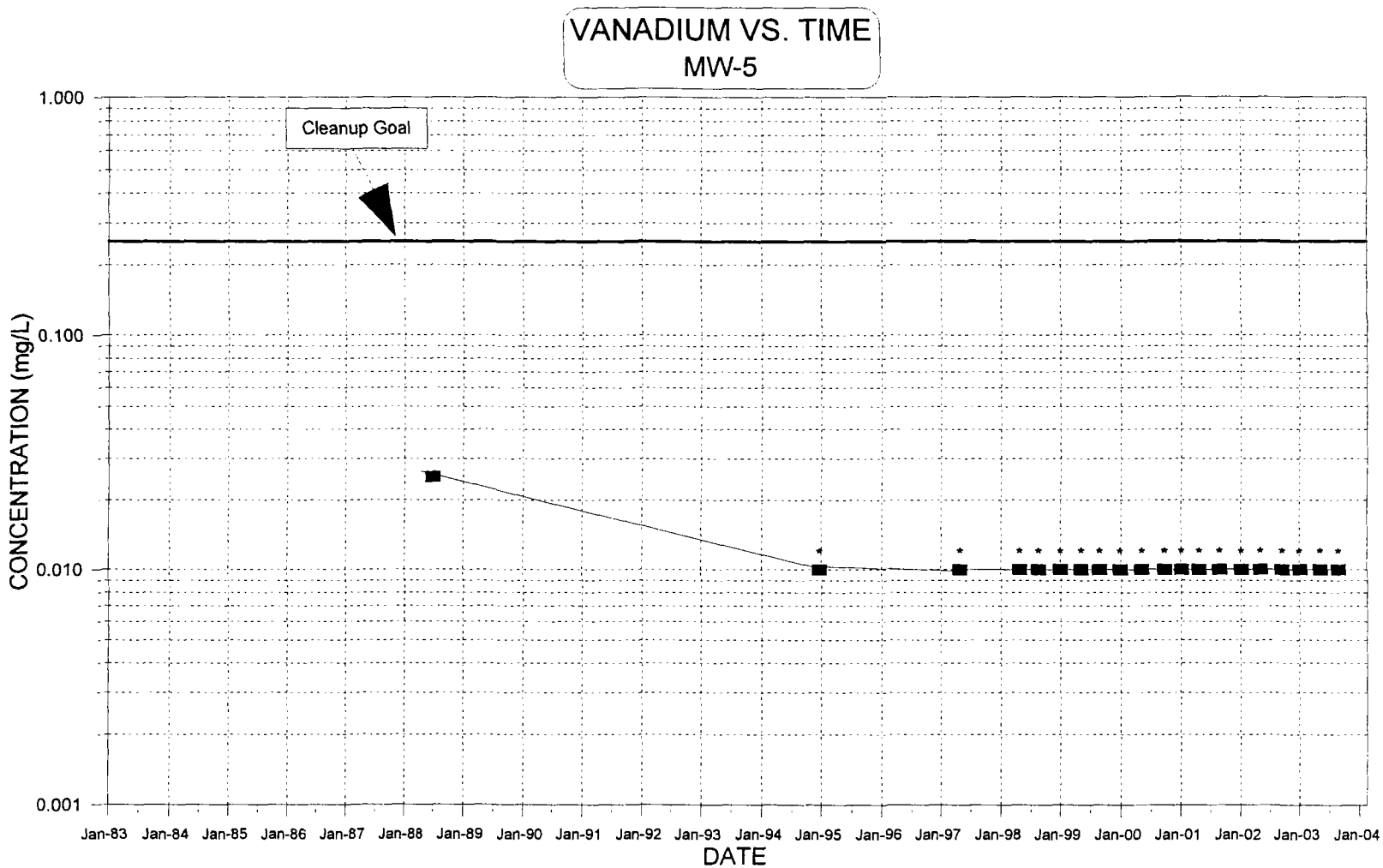
* =Below detection. Value plotted is detection limit.


MANGANESE VS. TIME
MW-37
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-37

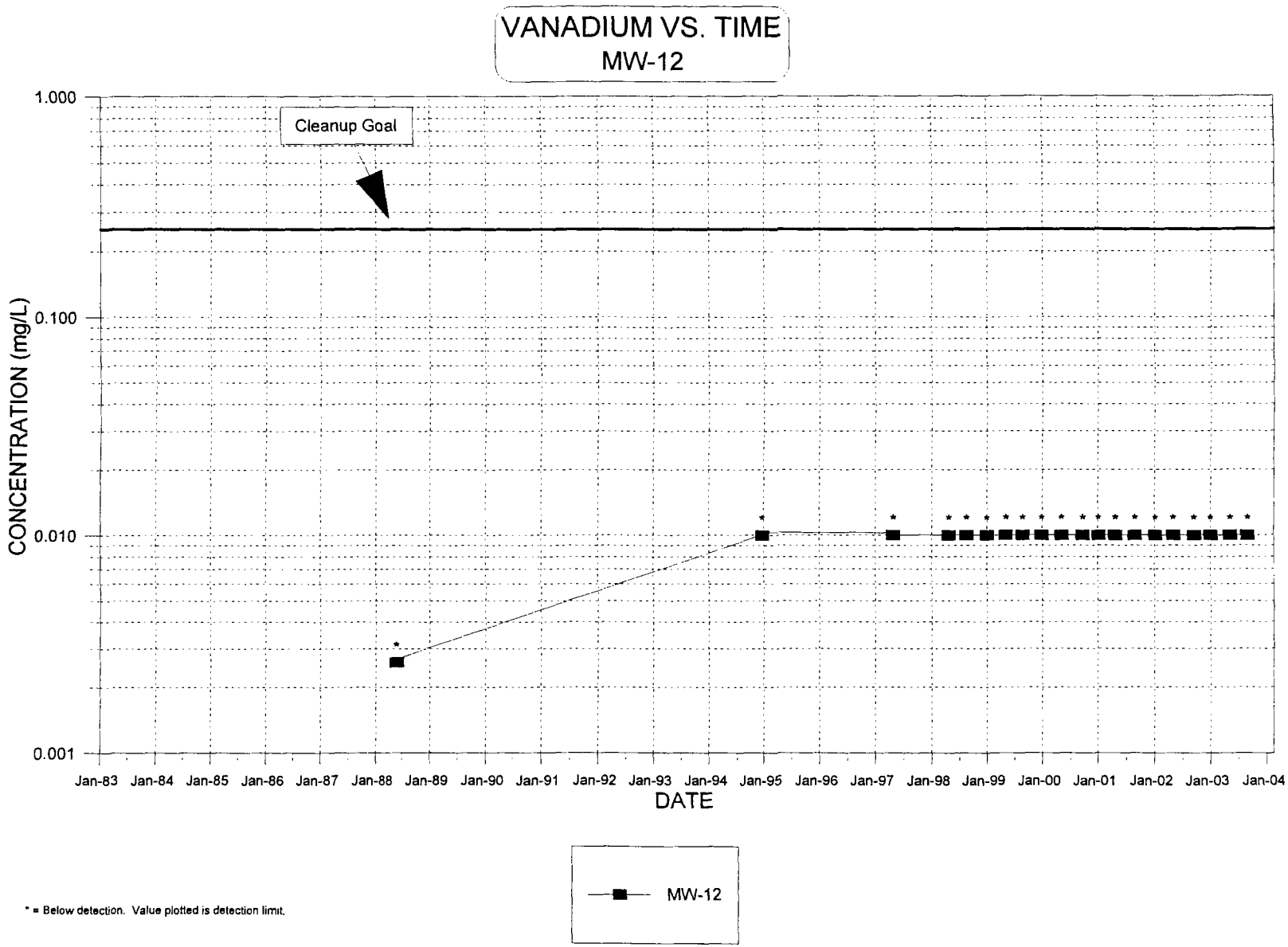
APPENDIX D-7

VANADIUM

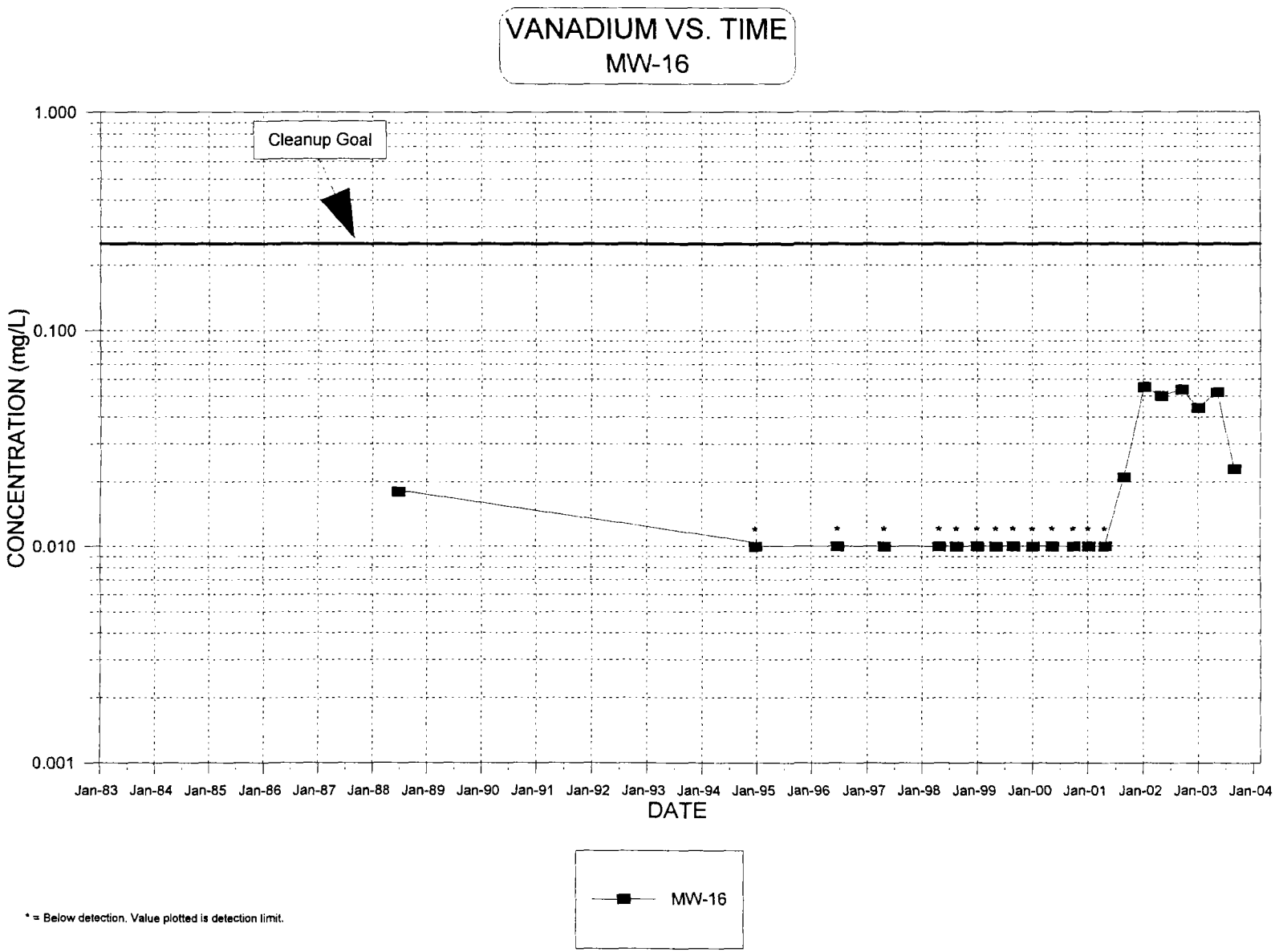

VANADIUM VS. TIME
MW-2
Cleanup Goal
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-2

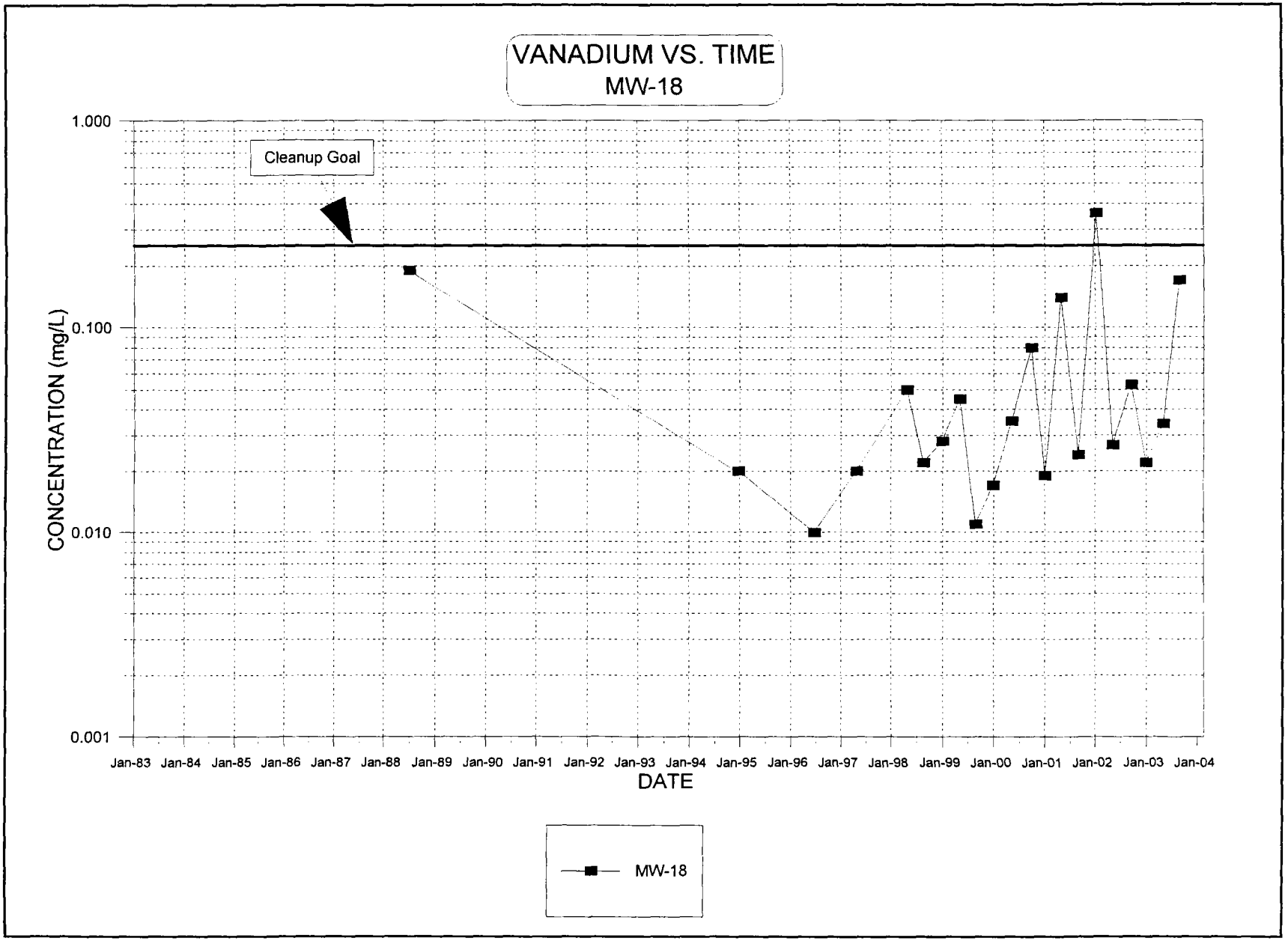


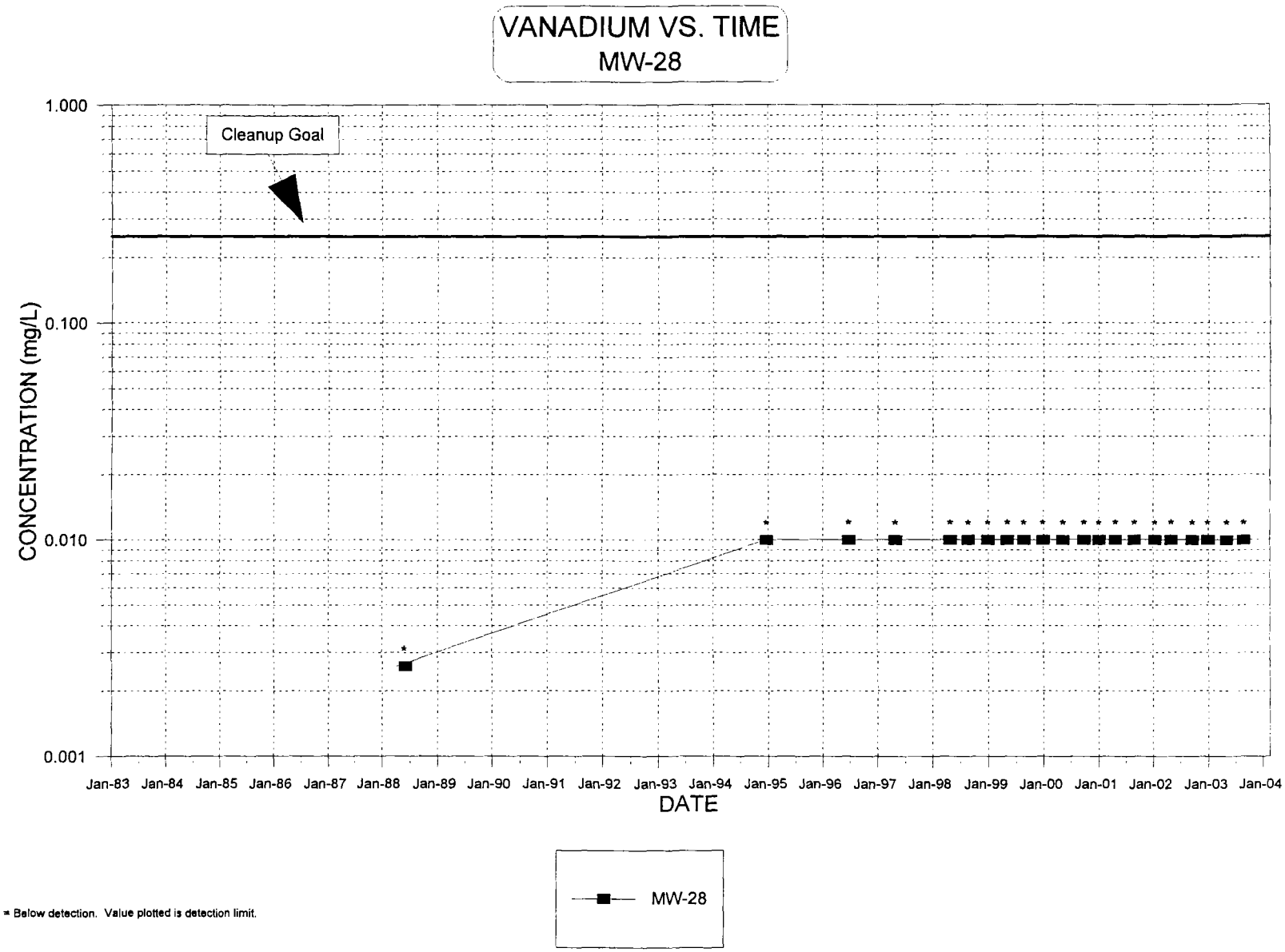
* = Below detection. Value plotted is detection limit.



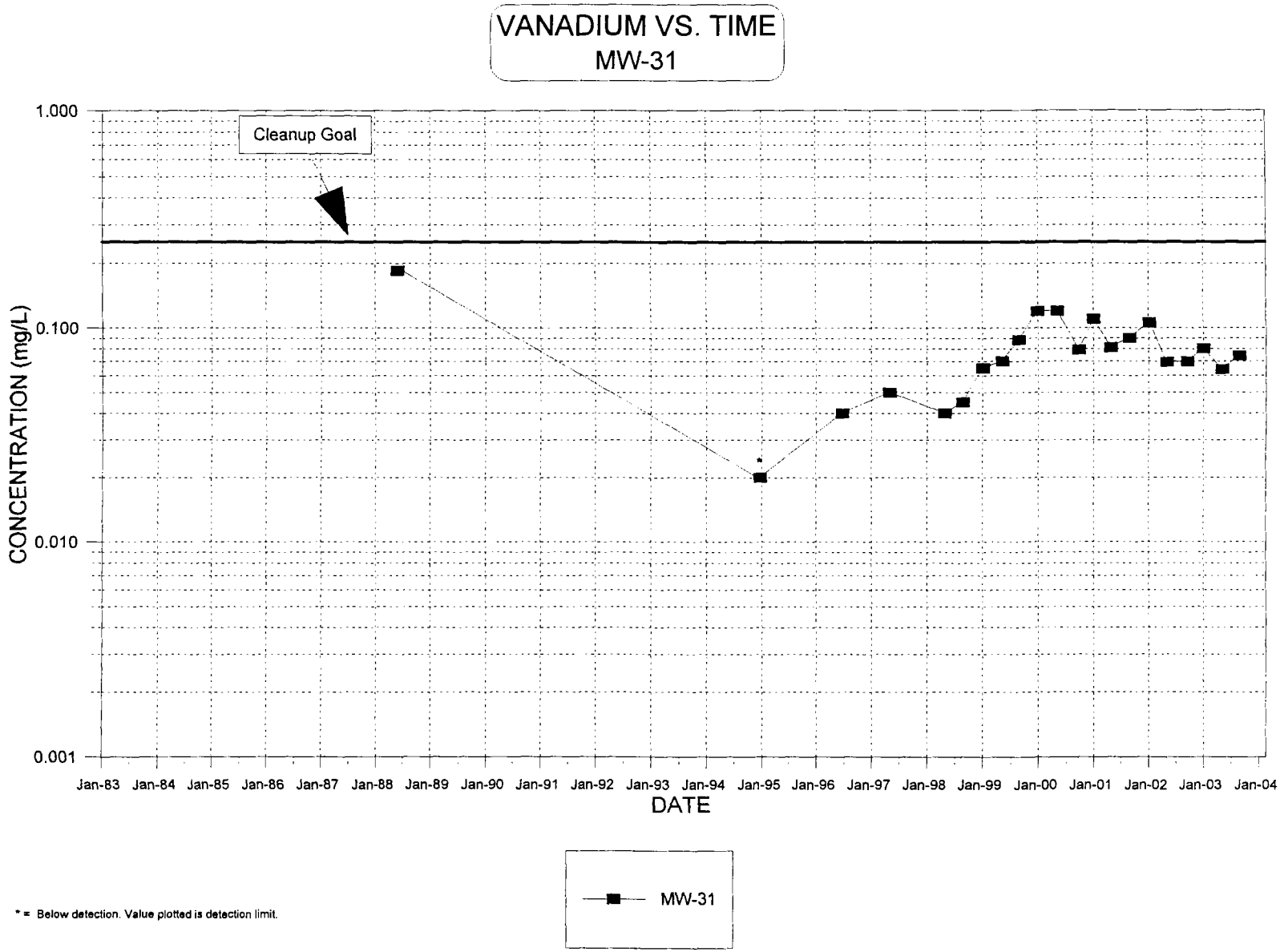
* = Below detection. Value plotted is detection limit.


VANADIUM VS. TIME
MW-16
Cleanup Goal
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-16
* = Below detection. Value plotted is detection limit.

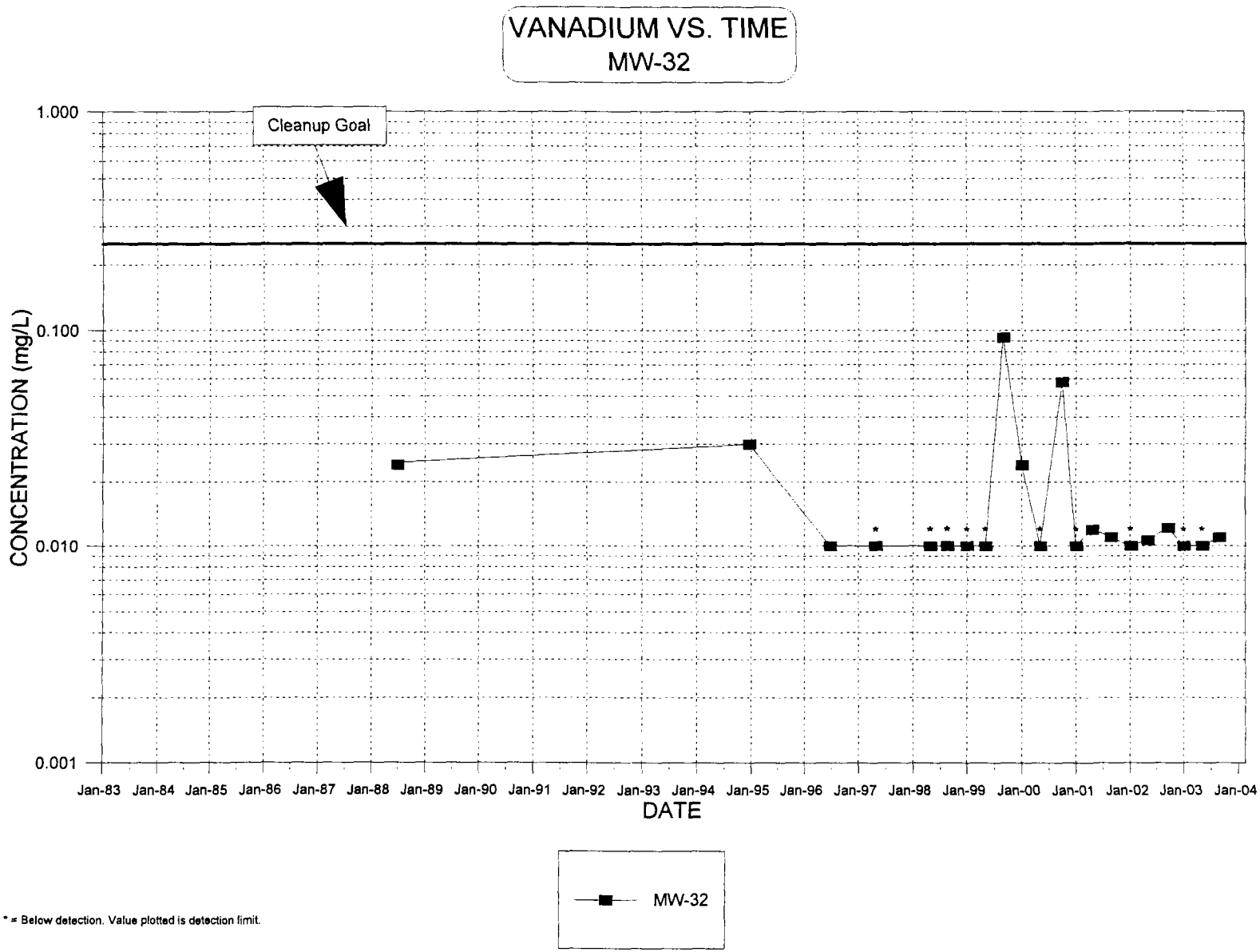

VANADIUM VS. TIME
MW-18
Cleanup Goal
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-18



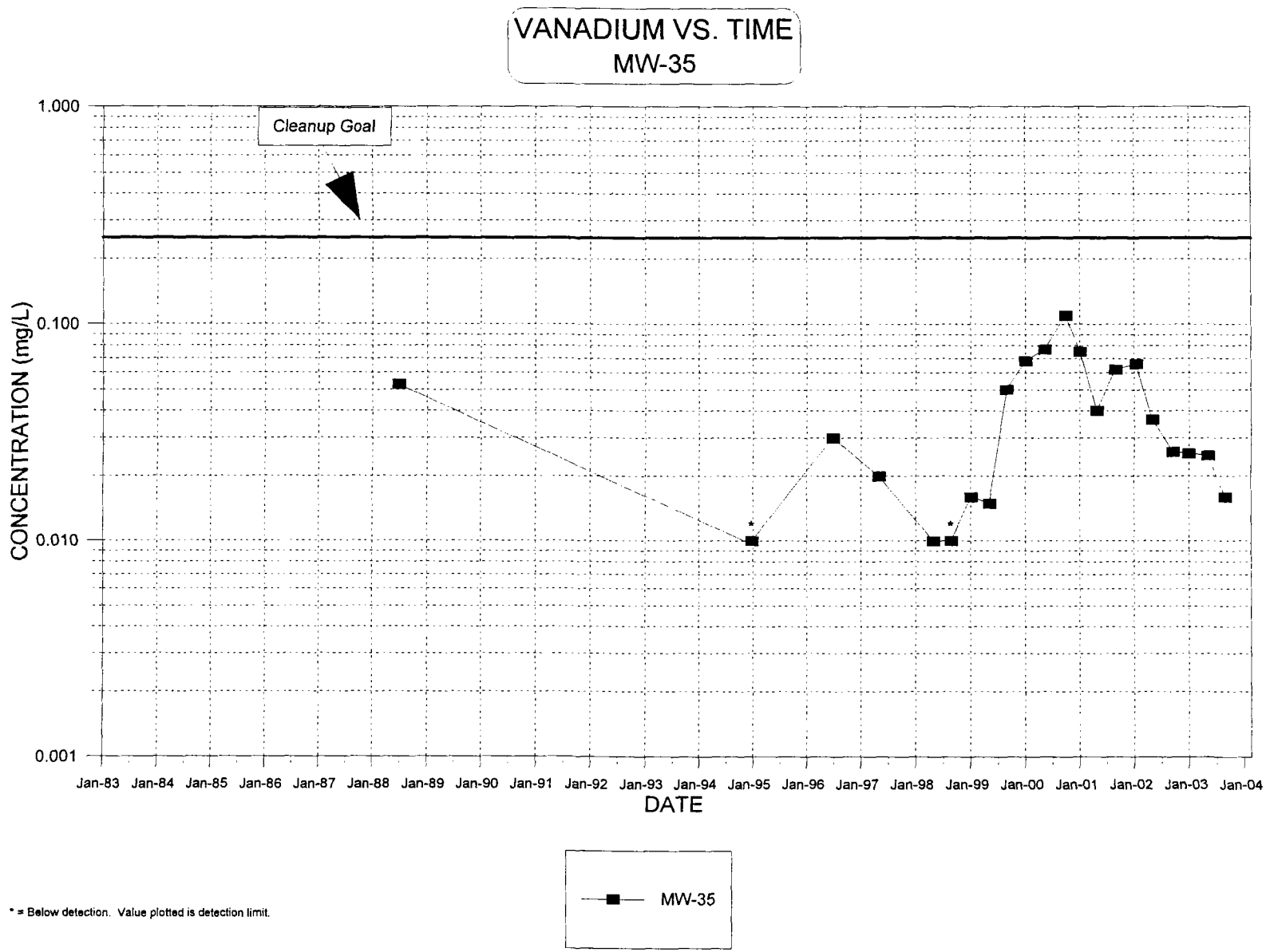
* = Below detection. Value plotted is detection limit.



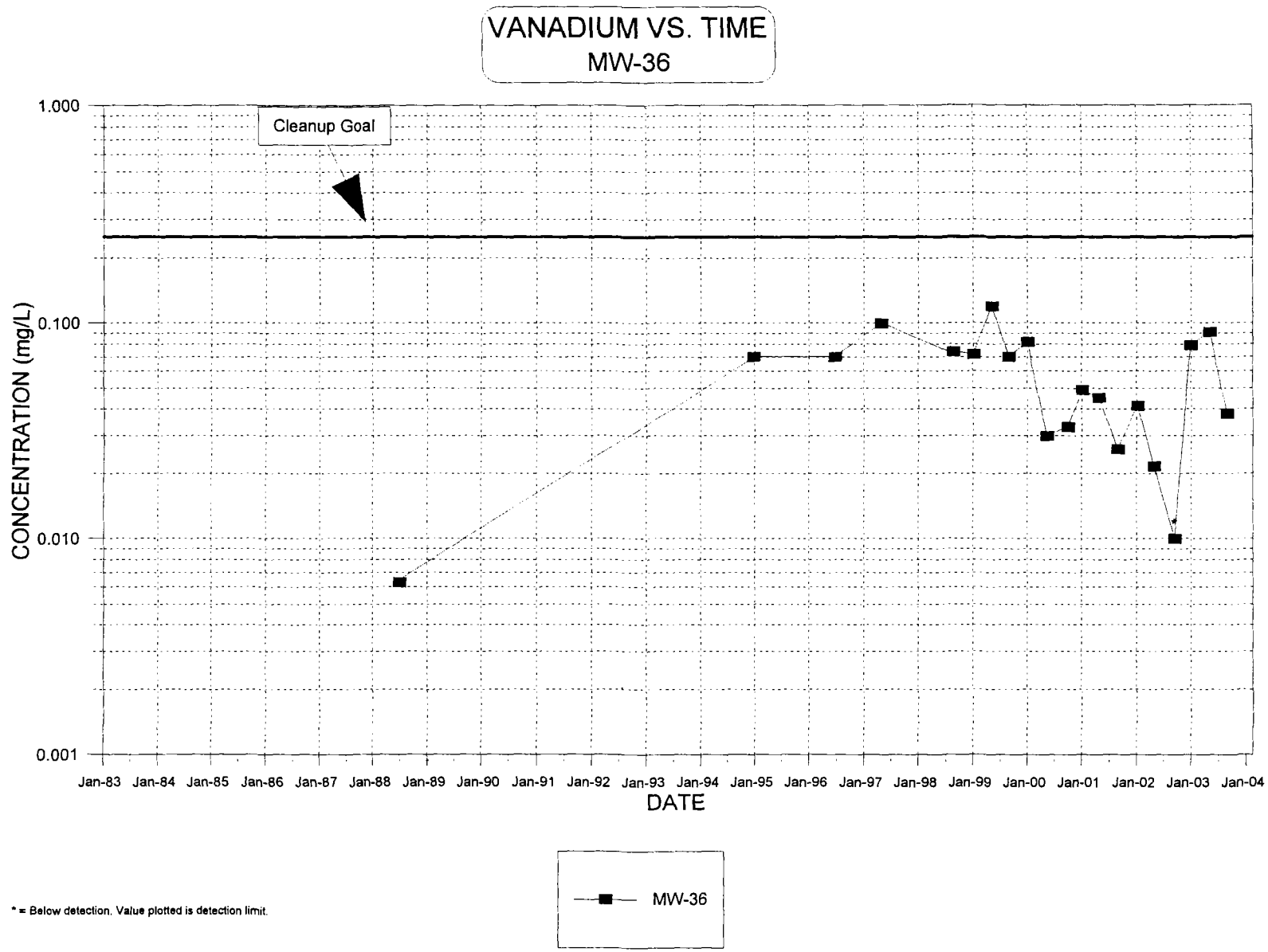
* = Below detection. Value plotted is detection limit.



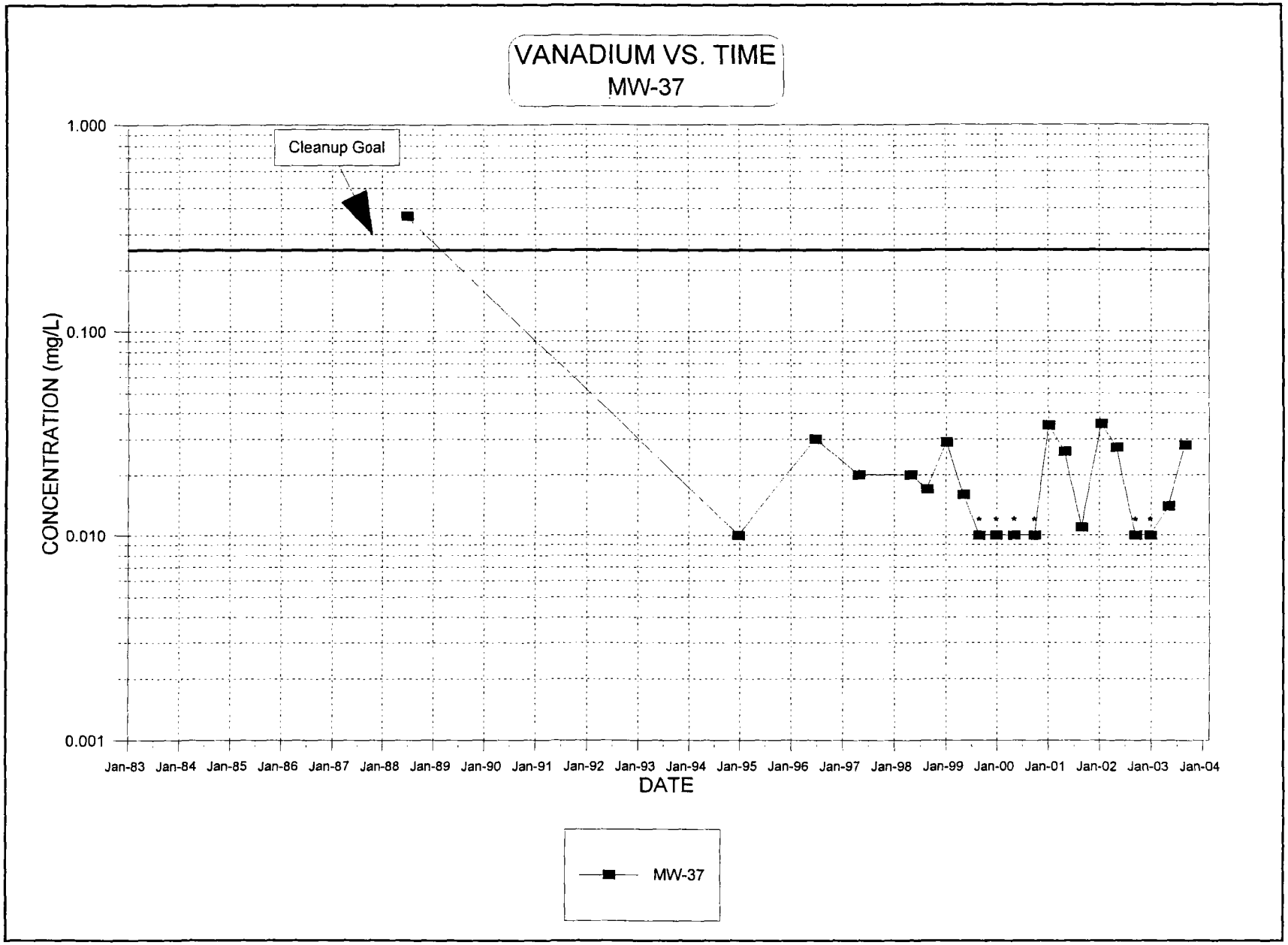
* = Below detection. Value plotted is detection limit.



* = Below detection. Value plotted is detection limit.

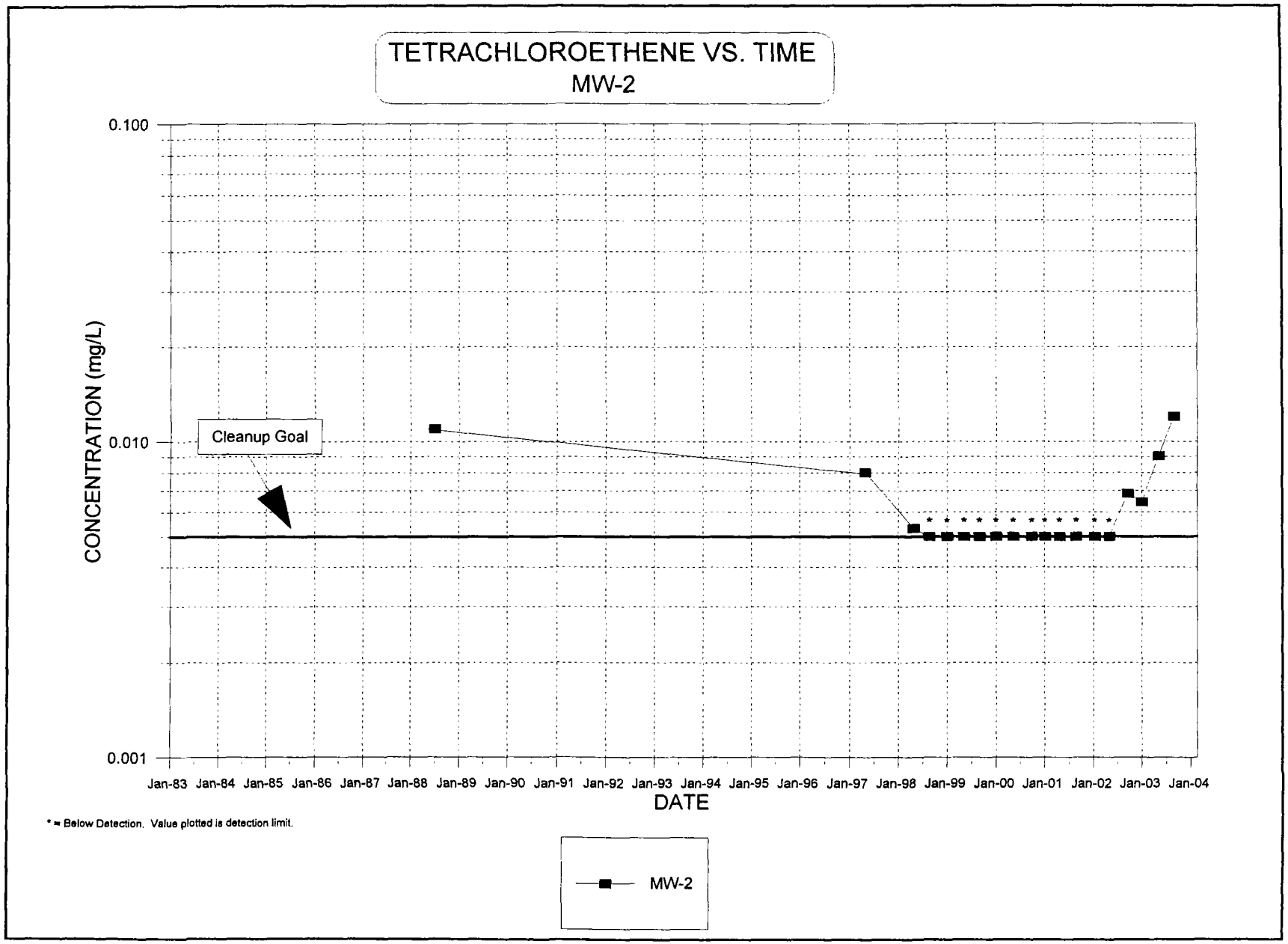


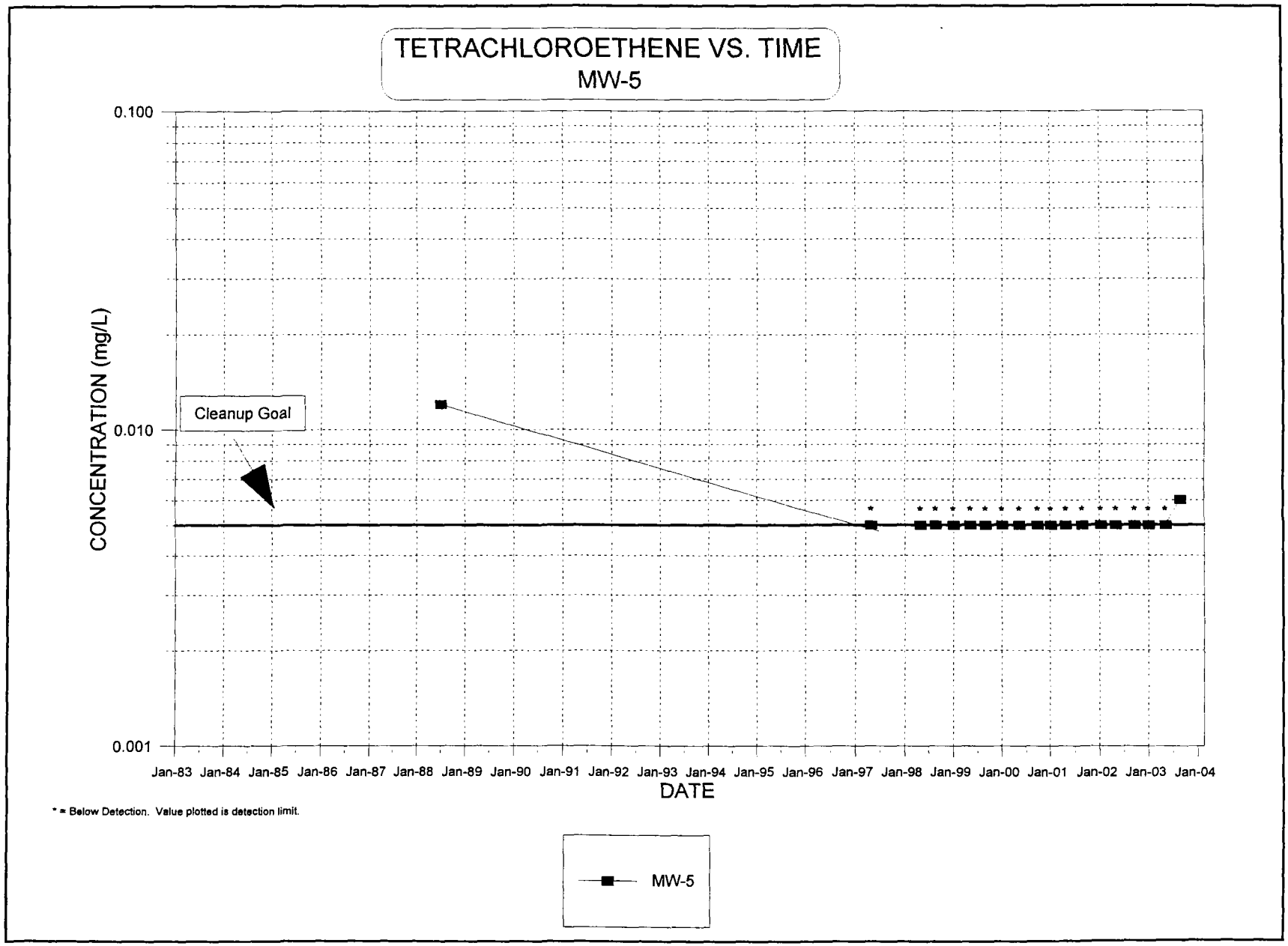
* = Below detection. Value plotted is detection limit.

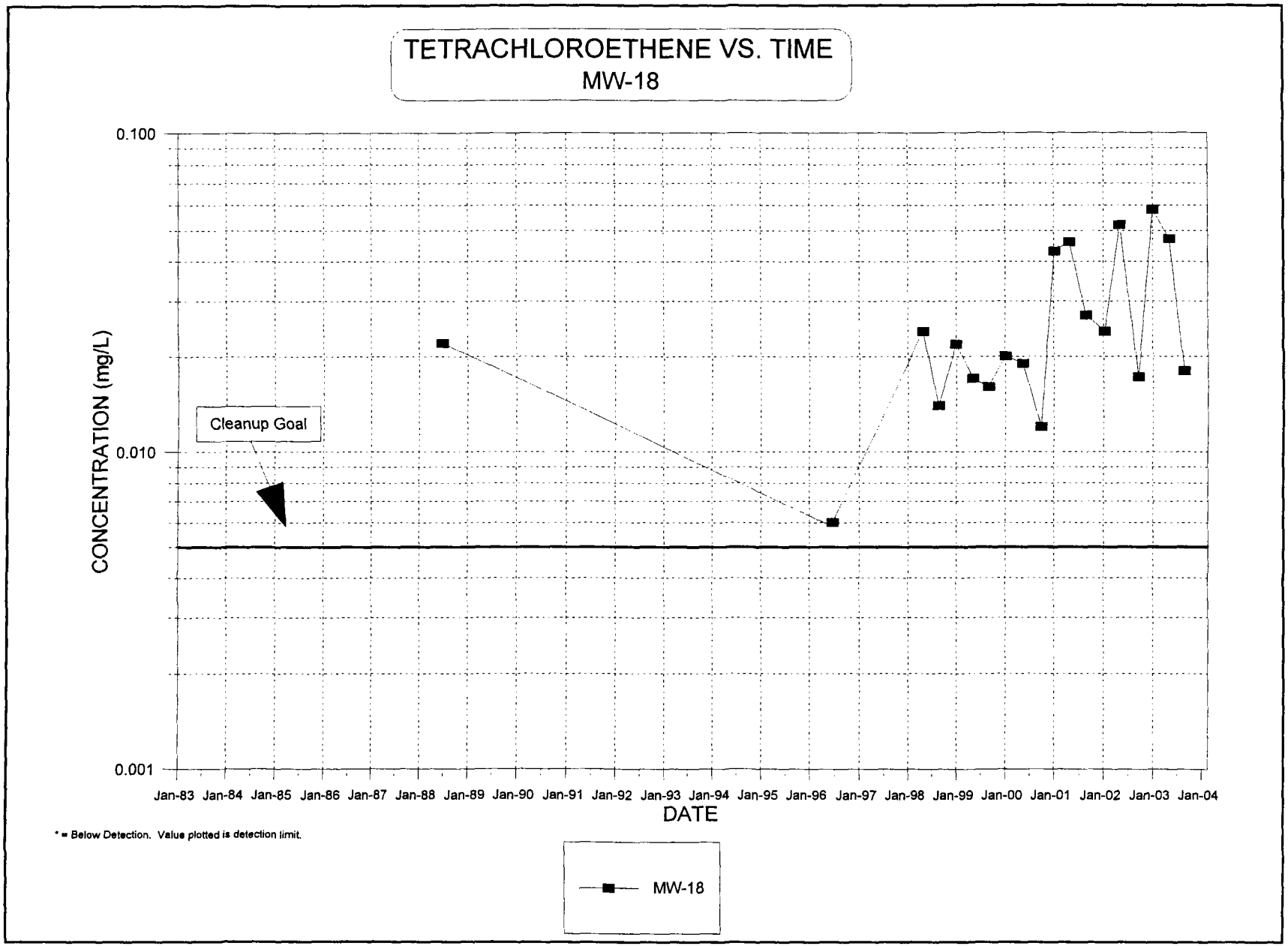

VANADIUM VS. TIME
MW-37
Cleanup Goal
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-37

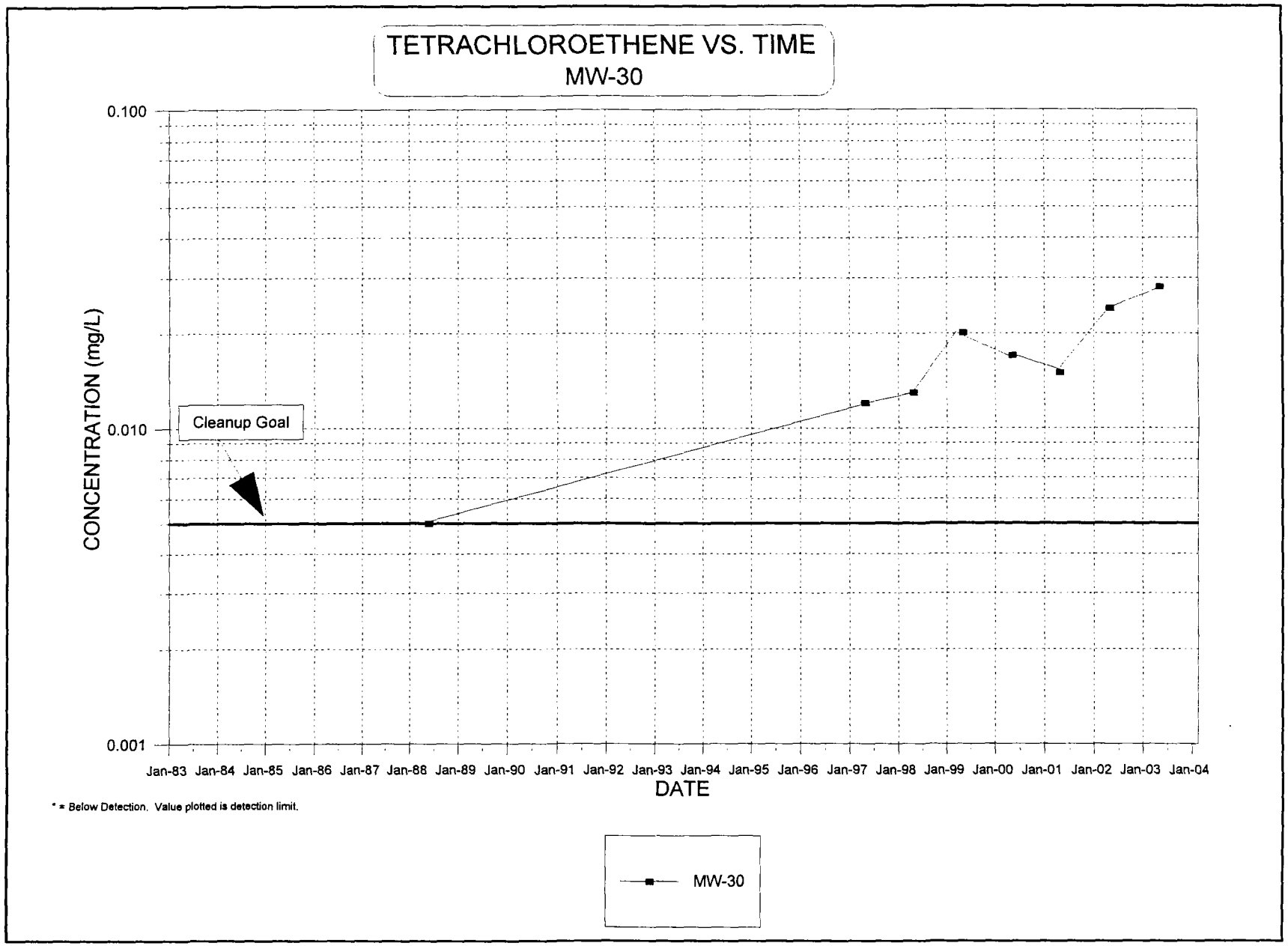
APPENDIX D-8

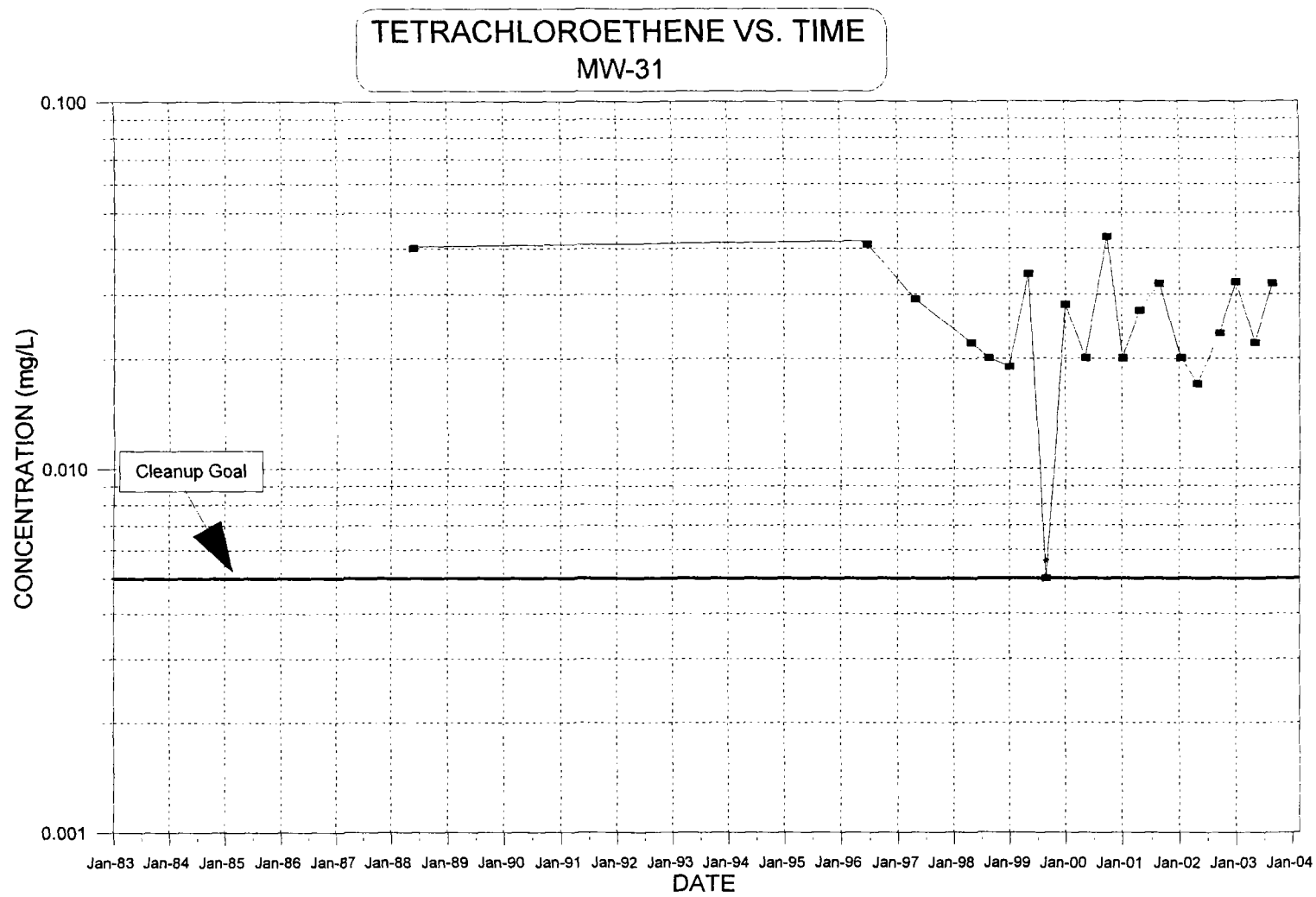
TETRACHLOROETHENE


TETRACHLOROETHENE VS. TIME
MW-2
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04
DATE
* = Below Detection. Value plotted is detection limit.
MW-2


TETRACHLOROETHENE VS. TIME
MW-5
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04
DATE
* = Below Detection. Value plotted is detection limit.
MW-5

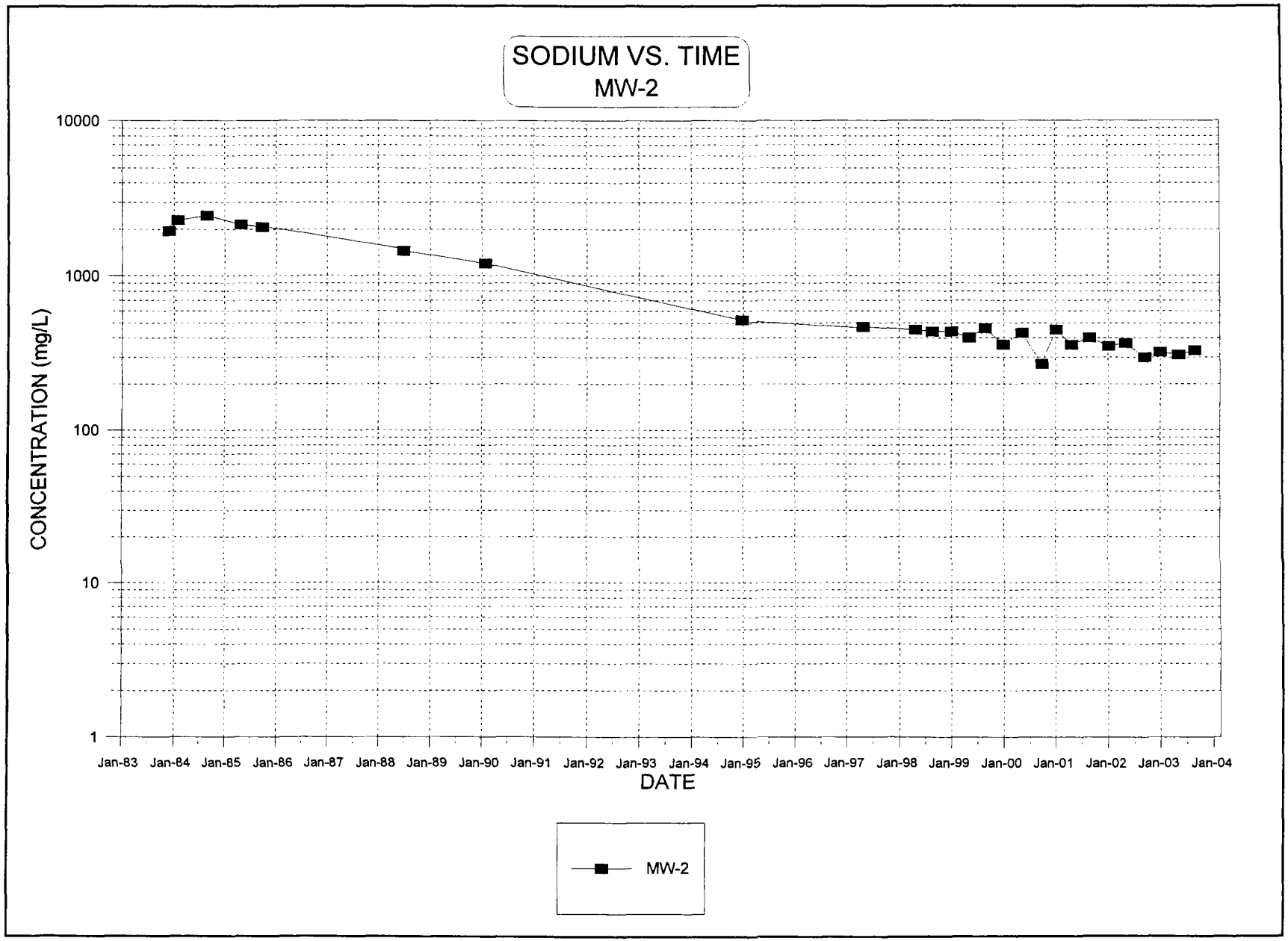

TETRACHLOROETHENE VS. TIME
MW-18
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04
DATE
* = Below Detection. Value plotted is detection limit.
MW-18

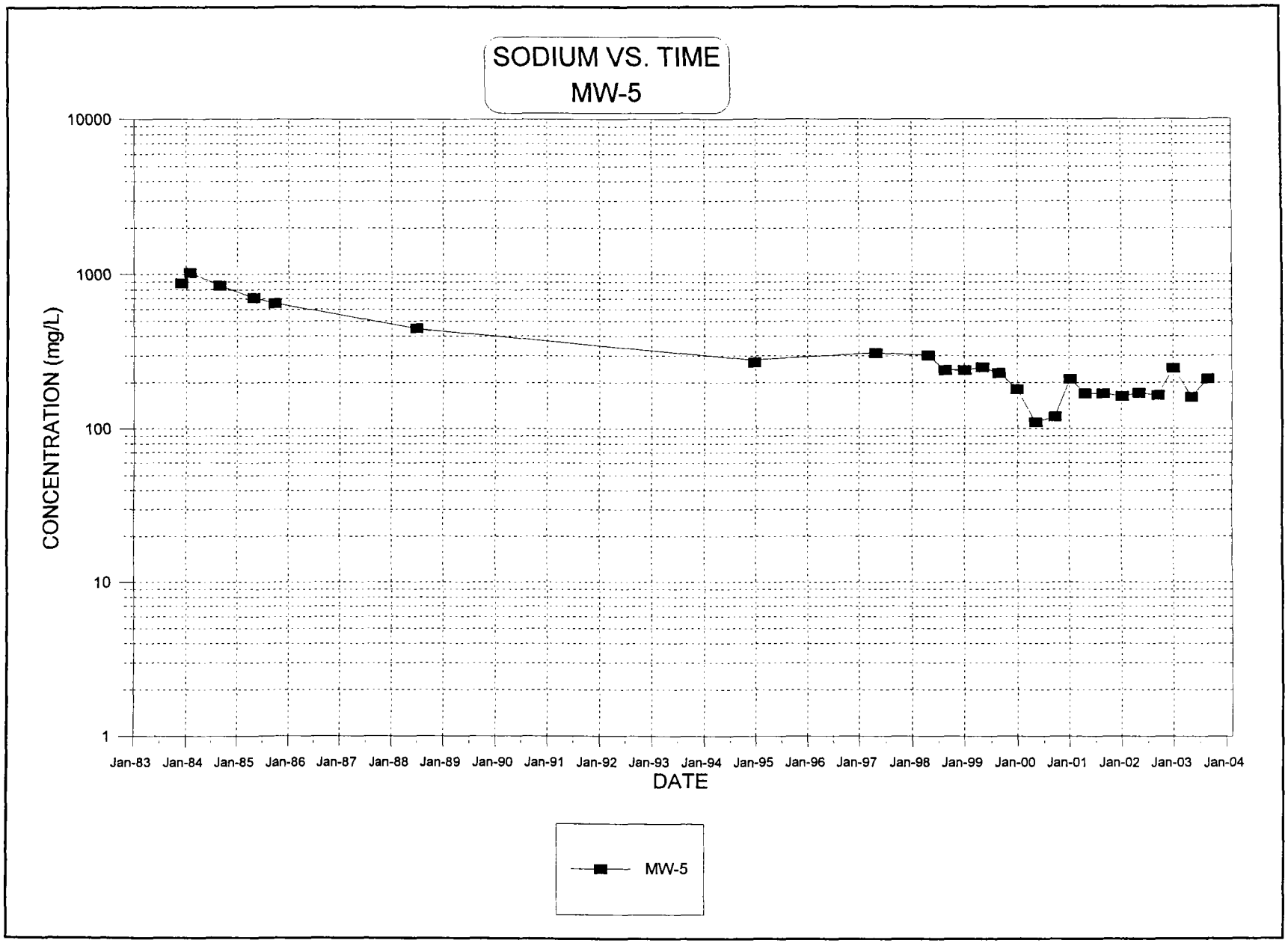

TETRACHLOROETHENE VS. TIME
MW-30
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04
DATE
* = Below Detection. Value plotted is detection limit.
MW-30

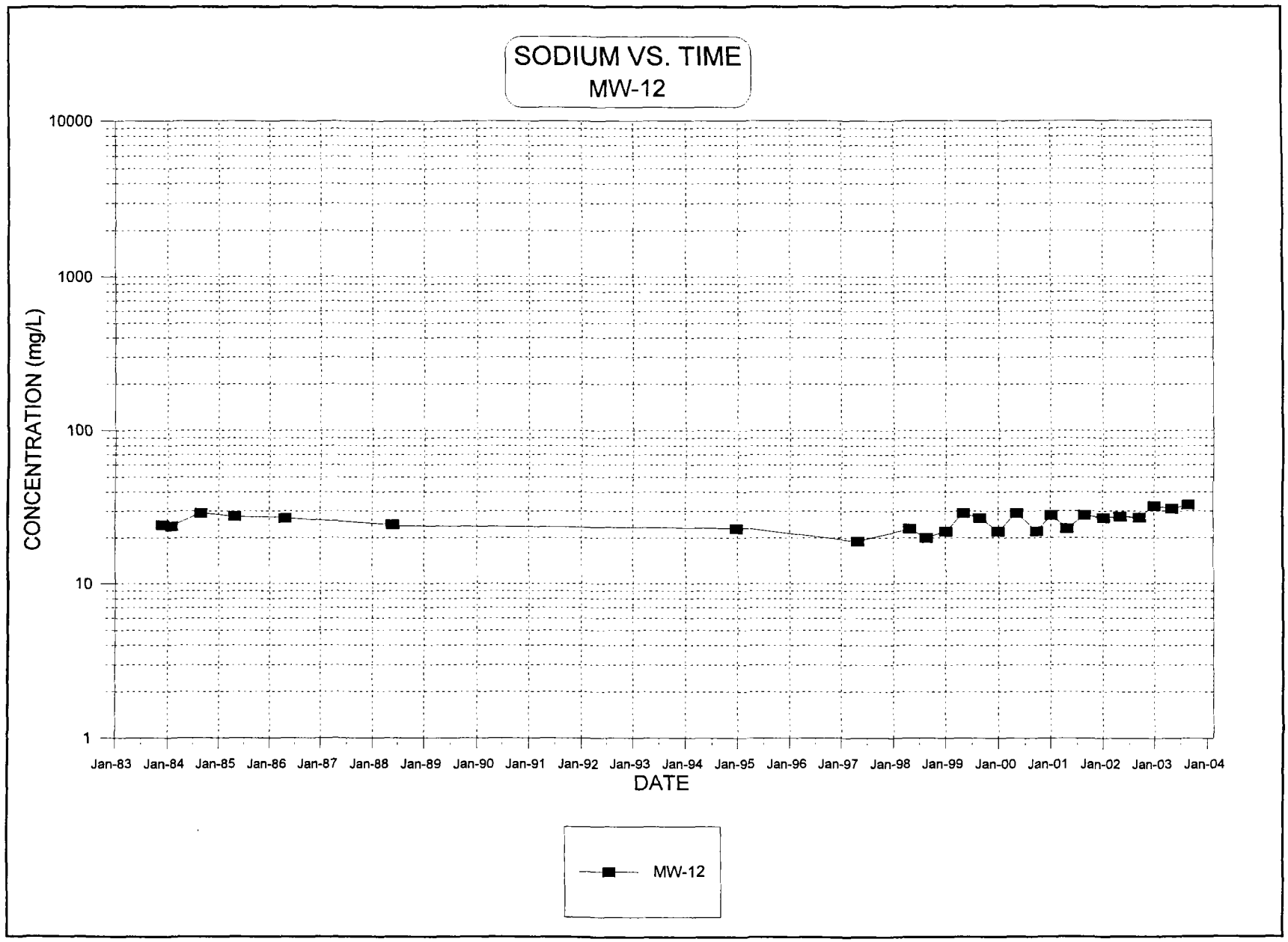

TETRACHLOROETHENE VS. TIME
MW-31
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04
DATE
* = Below Detection. Value plotted is detection limit.
MW-31

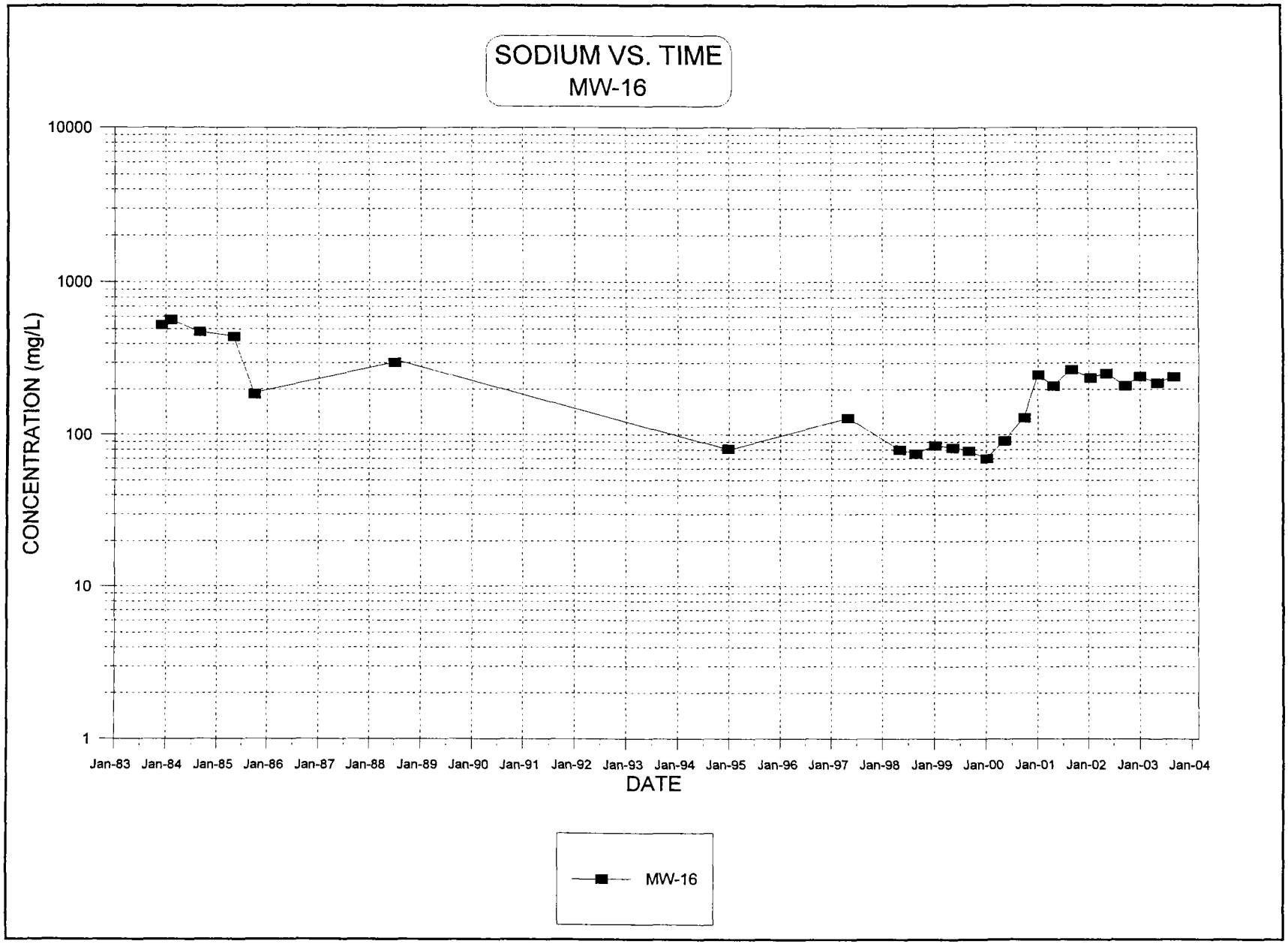
APPENDIX D-9

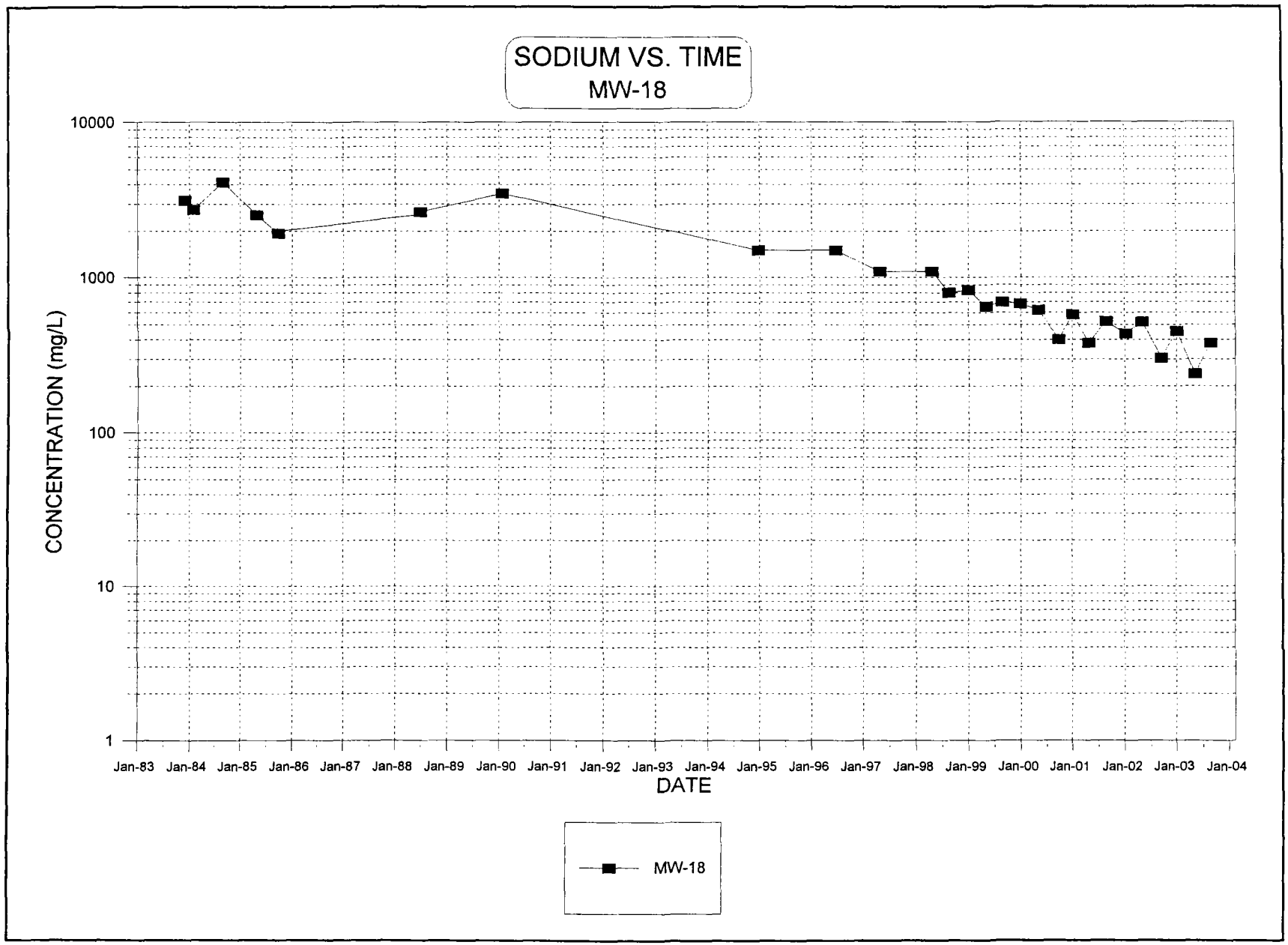
SODIUM


SODIUM VS. TIME
MW-2
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-2


SODIUM VS. TIME
MW-5
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-5


SODIUM VS. TIME
MW-12
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-12


SODIUM VS. TIME
MW-16
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-16


SODIUM VS. TIME
MW-18
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
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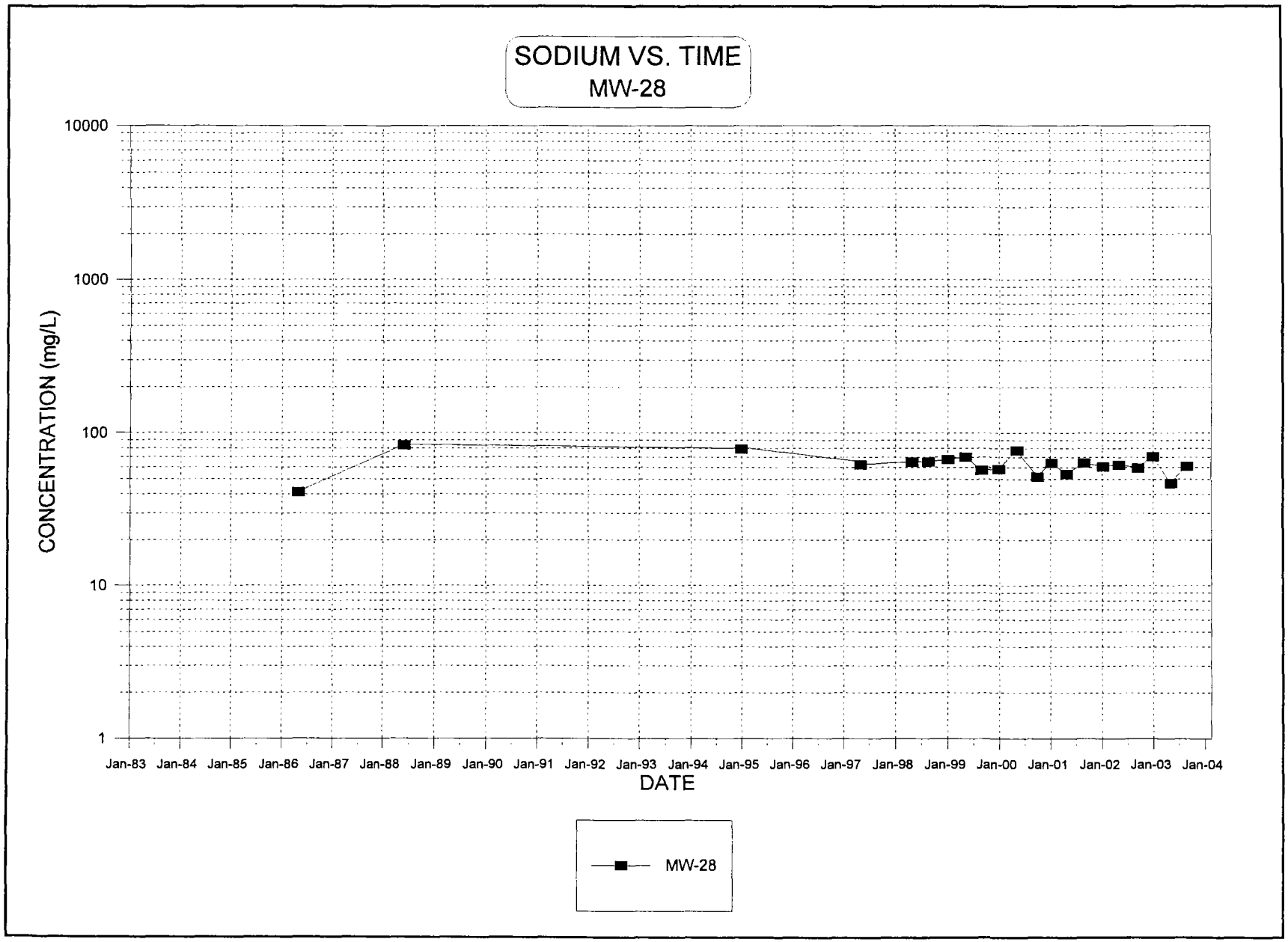
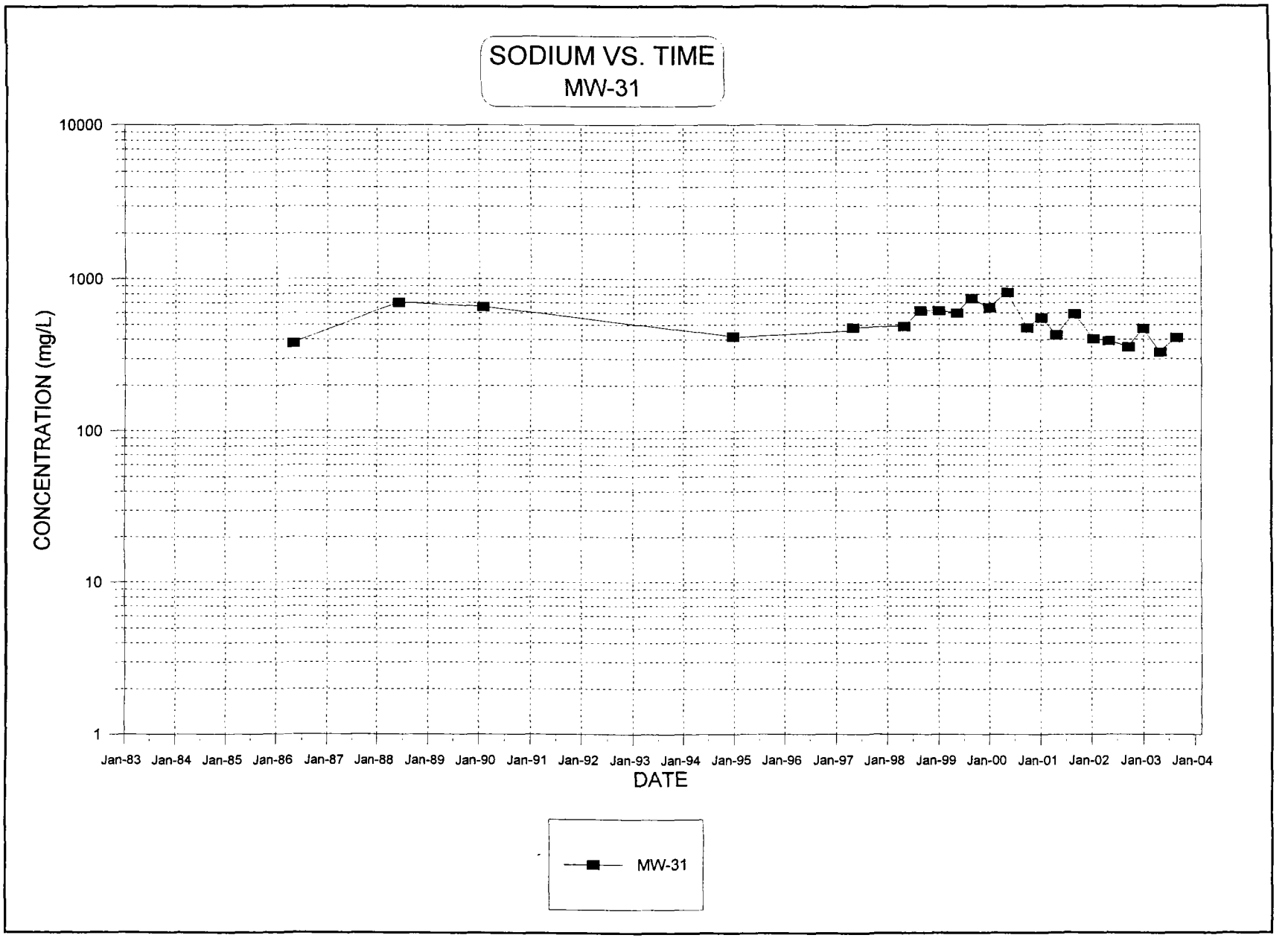
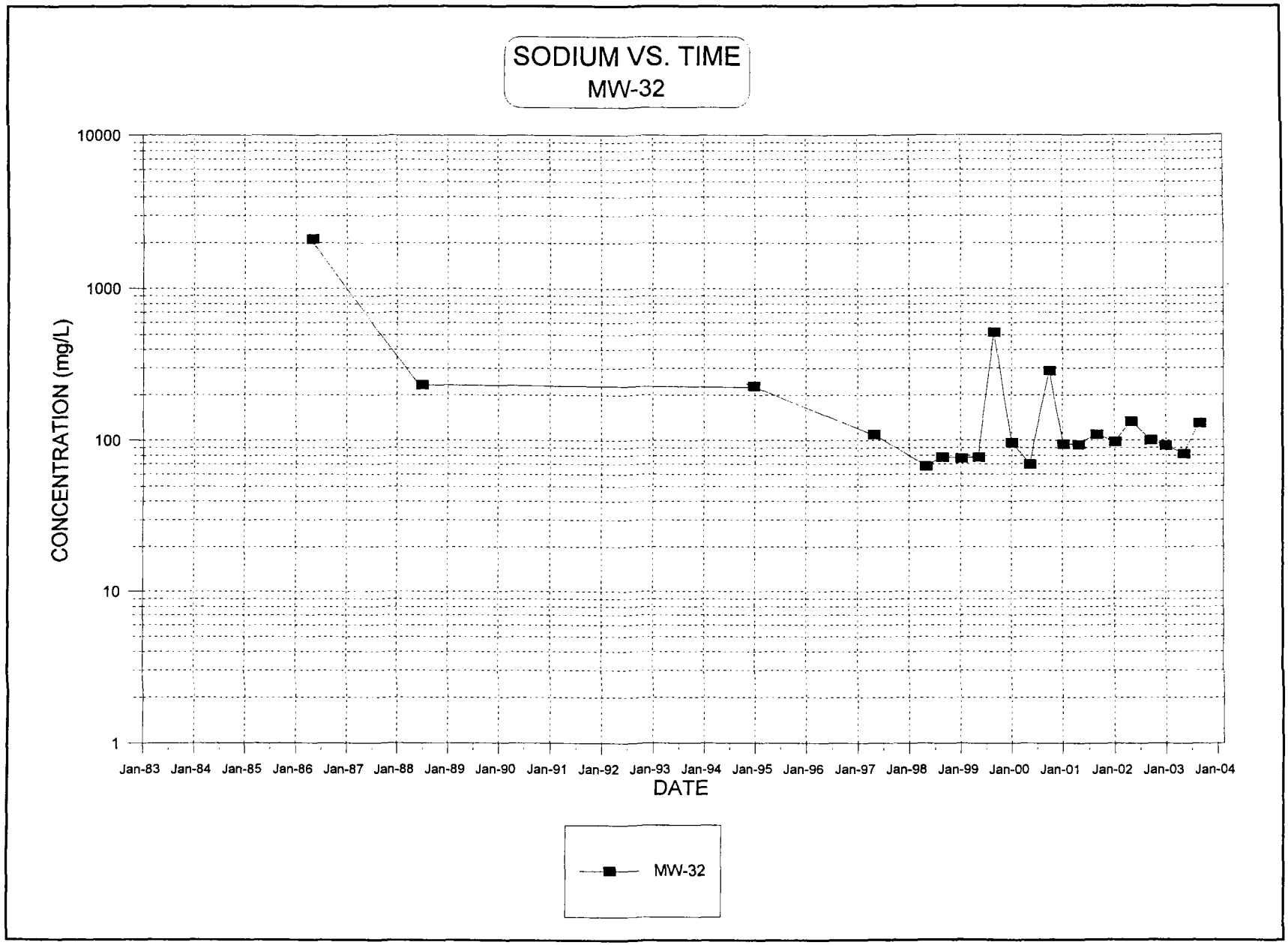
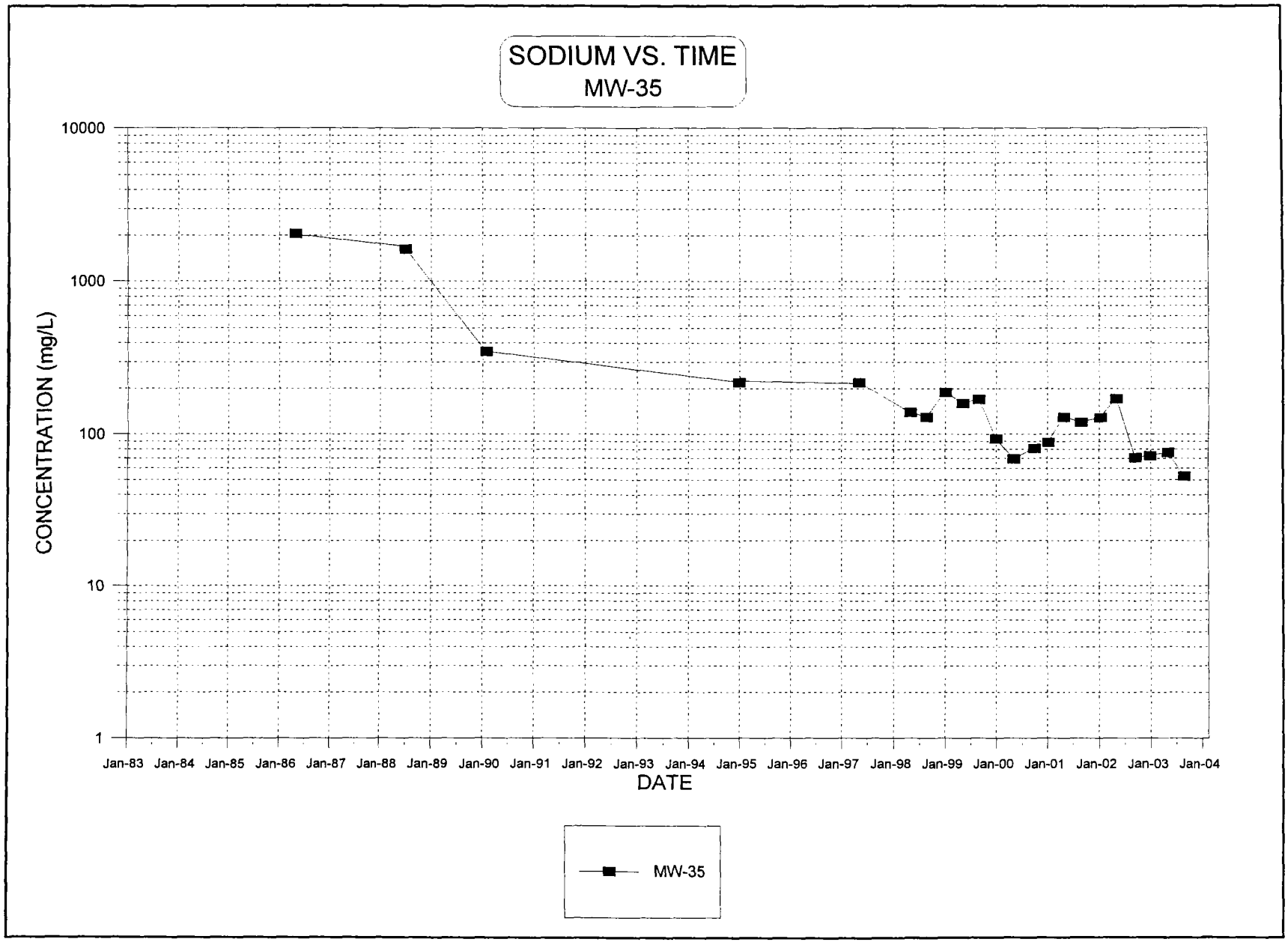
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-18


SODIUM VS. TIME
MW-28
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-28


SODIUM VS. TIME
MW-31
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-31


SODIUM VS. TIME
MW-32
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-32


SODIUM VS. TIME
MW-35
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
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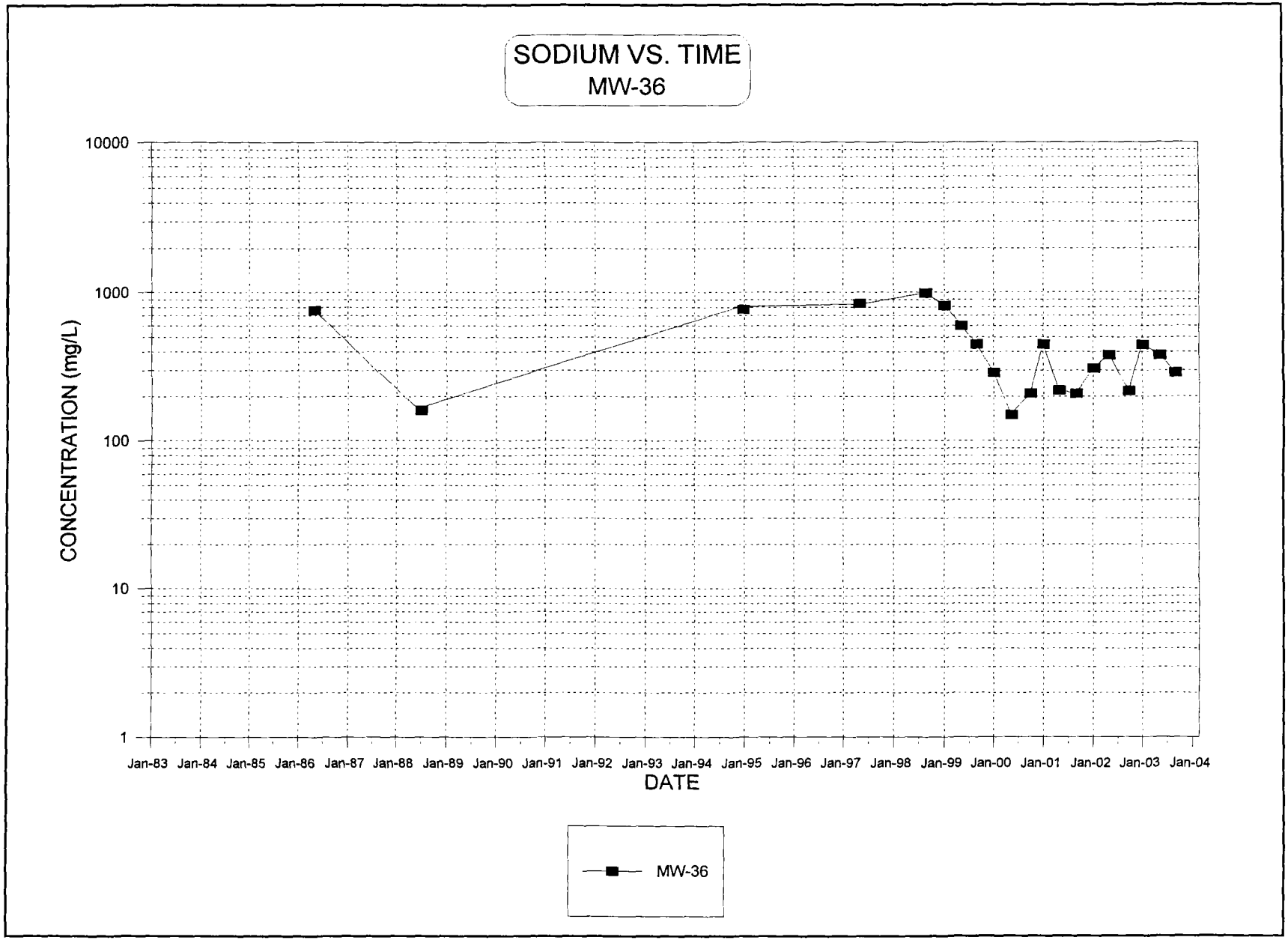
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-35


SODIUM VS. TIME
MW-36
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
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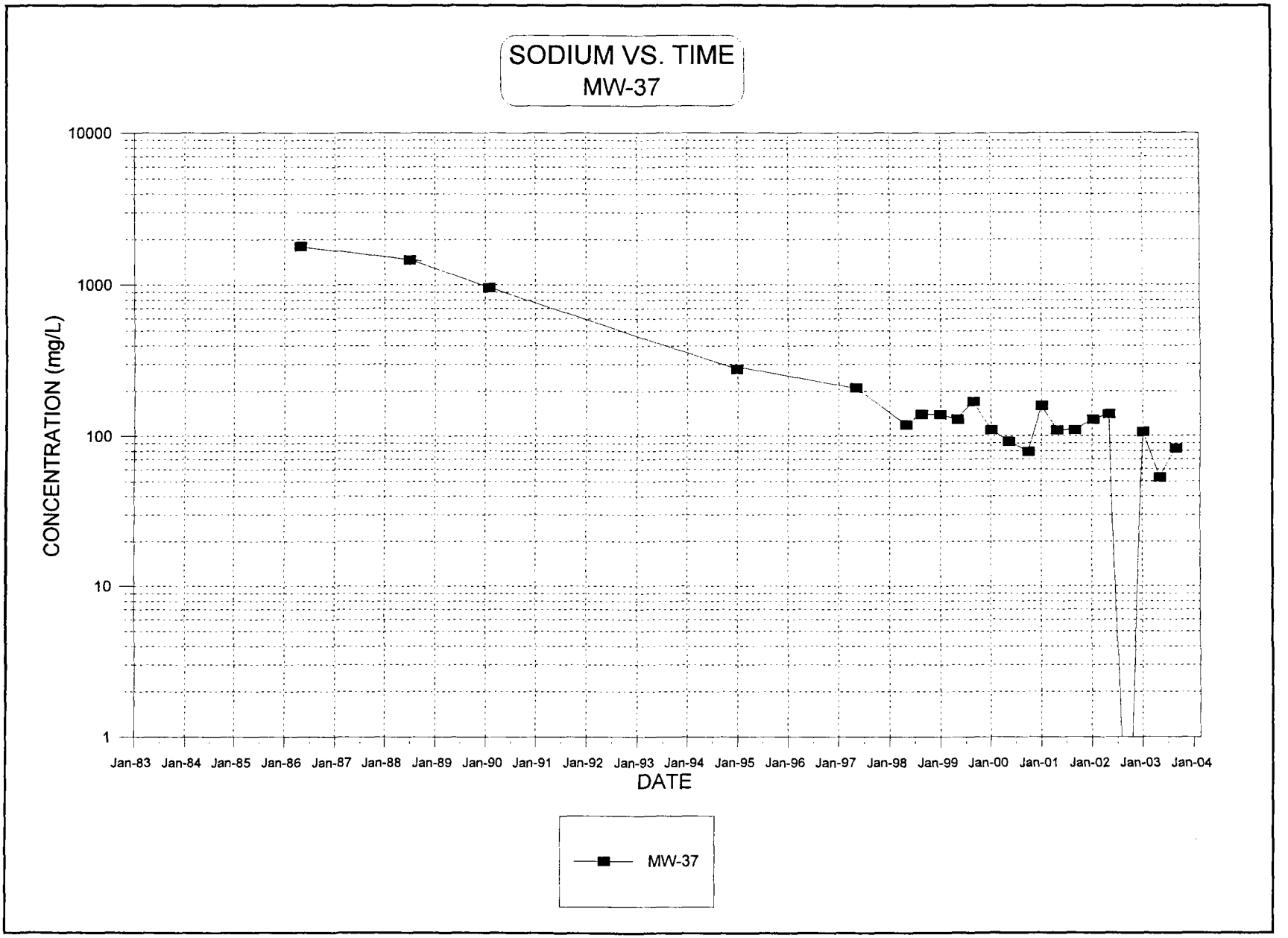
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-36


SODIUM VS. TIME
MW-37
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
DATE
MW-37

APPENDIX E

CONTAMINANT MASS-IN-PLACE ESTIMATION SUPPORTING DATA

MAY 2003 MONITORING EVENT

APPENDIX E-1
ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES
COLLECTED MAY 2003

ORMET CORPORATION
HANNIBAL, OHIO

SAMPLE I.D.:	MW-1	MW-2	MW-5	MW-7	MW-8	MW-10	MW-11	MW-12	MW-14	MW-15	MW-16	MW-17
Cyanide, Total	<0.01	14/14	3.8	0.098	0.023	0.13	0.016	<0.01	0.014	0.8	5.5/5.9	0.41
Fluoride	0.25	74/82	25	<0.1	2.4	1.0	2.1	0.76	2.1	1.6	58/52	9.8

SAMPLE I.D.:	MW-18	MW-19	MW-28	MW-29S	MW-29D	MW-30	MW-31	MW-32	MW-34S	MW-34D	MW-35	MW-36
Cyanide, Total	15/20	<0.01	0.38	0.21	0.13	0.019	15	3.6	0.14	0.047	6.6	9.3
Fluoride	88/83	2.2	0.13	9.1	3.6	0.16	80	21	13	4.4	31	120

SAMPLE I.D.:	MW-37	MW-39S	MW-39D	MW-40S	MW-40D	MW-41	MW-42S	MW-42D
Cyanide, Total	6.3	3.1	0.033	0.58	0.13	<0.01	0.94	0.017
Fluoride	9.8	140	4.0	21	9.6	0.28	51	4.0

NOTE: All results in mg/L.

0317-ANN-E1a.XLS

APPENDIX E-1 (CONT.)
PLUME CONTOUR AREA CALCULATIONS
FOR TOTAL CYANIDE AND FLUORIDE
BASED ON RESULTS OF SAMPLING CONDUCTED MAY 2003

ORMET CORPORATION
HANNIBAL, OHIO

TOTAL CYANIDE	CONTOUR INTERVAL (from Figure 6)	CONTOUR AREA in sqare feet (estimated using CAD* software)
	>10 mg/L	257,989
	1-10 mg/L	675,978
	>1 mg/L	22,735
	0.2-1 mg/L	664,996

TOTAL FLUORIDE	CONTOUR INTERVAL (from Figure 5)	CONTOUR AREA in sqare feet (estimated using CAD* software)
	>100 (top) mg/L	14,299
	>100 (bottom) mg/L	21,561
	50-100 mg/L	522,583
	10-50 mg/L	799,565
	4-10 mg/L	331,975

* CAD - Computer Aided Drafting

0317-ANN-E1b.123

APPENDIX E-1 (CONT.)
AVERAGE AQUIFER THICKNESS CALCULATIONS
WITHIN EACH PLUME CONTOUR INTERVAL
BASED ON RESULTS OF SAMPLING CONDUCTED MAY 2003

ORMET CORPORATION
HANNIBAL, OHIO

TOTAL CYANIDE

CONTOUR INTERVAL (from Figure 6)	MONITORING WELL ID	AQUIFER THICKNESS (in feet)	AVERAGE AQUIFER THICKNESS (b, in feet)
>10 mg/L	MW-2	28	23
	MW-18	20	
	MW-31	20	
1-10 mg/L	MW-5	28	20
	MW-16	35	
	MW-32	17	
	MW-35	11	
	MW-36	14	
	MW-37	15	
>1 mg/L	MW-39D	42	42
0.2-1 mg/L	MW-5	28	33
	MW-15	21	
	MW-17	41	
	MW-28	25	
	MW-34D	32	
	MW-40D	38	
	MW-42D	45	

0317-ANN-E1c.123

APPENDIX E-1 (CONT.)
AVERAGE AQUIFER THICKNESS CALCULATIONS
WITHIN EACH PLUME CONTOUR INTERVAL
BASED ON RESULTS OF SAMPLING CONDUCTED MAY 2003

ORMET CORPORATION
HANNIBAL, OHIO

FLUORIDE

CONTOUR INTERVAL (from Figure 5)	MONITORING WELL ID	AQUIFER THICKNESS (in feet)	AVERAGE AQUIFER THICKNESS (b, in feet)
>100 (top) mg/L	MW-36	14	14
>100 (bottom) mg/L	MW-39D	42	42
50-100 mg/L	MW-2	28	30
	MW-16	35	
	MW-18	20	
	MW-31	20	
	MW-42D	45	
10-50 mg/L	MW-5	28	32
	MW-17	41	
	MW-29D	41	
	MW-32	17	
	MW-34D	32	
	MW-35	11	
	MW-40D	38	
	MW-42D	45	
4-10 mg/L	MW-14	50	32
	MW-15	21	
	MW-17	41	
	MW-28	25	
	MW-29D	41	
	MW-37	15	

0317-ANN-E1d.123

APPENDIX E-1 (CONT.)
TOTAL CYANIDE AND FLUORIDE MASS-IN-PLACE
CALCULATION WORKSHEET
BASED ON RESULTS OF SAMPLING CONDUCTED MAY 2002

ORMET CORPORATION
HANNIBAL, OHIO

	Contour Interval (from Figure 6)	Contour Interval Area (in square feet) A	Average Aquifer Thickness (in feet) b	1. Aquifer Volume (in cubic feet) VA	Aquifer Porosity n	2. Volume of Ground Water (in cubic feet) Vgw	3. Volume of Ground Water (in Liters) Vgw	Average Concentration (mg/L) Cwi	4. Mass-in-Place for each interval (in mg) Mi	5. Mass-in-Place for each interval (in lbs) Mi
TOTAL CYANIDE	>10 mg/L	257,989	23	5,933,747	0.25	1,483,437	42,010,936	16	672,174,976	1,482
	1-10 mg/L	675,978	20	13,519,560	0.25	3,379,890	95,718,485	5	478,592,425	1,055
	>1 mg/L	22,735	42	954,870	0.25	238,718	6,760,494	2	13,520,988	30
	0.2-1 mg/L	664,996	33	21,944,868	0.25	5,486,217	155,369,665	0.6	93,221,799	206
									Total Cyanide Mw:	2,773
FLUORIDE	>100 (top) mg/L	14,299	14	200,186	0.25	50,047	1,417,331	110	155,906,410	344
	>100 (bottom) mg/L	21,561	42	905,562	0.25	226,391	6,411,393	20	128,227,860	283
	50-100 mg/L	522,583	30	15,677,490	0.25	3,919,373	110,996,643	75	8,324,748,225	18,356
	10-50 mg/L	799,565	32	25,586,080	0.25	6,396,520	181,149,446	30	5,434,483,380	11,983
	4-10 mg/L	331,975	32	10,623,200	0.25	2,655,800	75,212,256	7	526,485,792	1,161
									Total Fluoride Mw:	32,127

1. VA = A x b
2. Vgw = VA x n
3. Vgw in ft3 multiplied by 28.32 L/ft3 = Vgw in Liters
4. Mi = Vgw x Cwi
5. Mi in mg divided by 1000 mg/g multiplied by 2.205x10-3 lb/g = Mi in pounds

0317-ANN-E1e.123