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2001 ANNUAL REMEDIAL ACTION GROUND-WATER MONITORING REPORT ORMET CORPORATION SUPERFUND SITE HANNIBAL, OHIO

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Prepared for:

The Ormet Corporation
Hannibal, Ohio

Prepared by:

HMI
Environmental Consulting Services

HYDROSYSTEMS MANAGEMENT, INC.
Glass Works Center - Suite 109
331 S. Main Street
Washington, PA 15301
Phone: (724) 228-4310 Fax: (724) 228-4343

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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 2001, ground-water monitoring events were conducted during January 16 and 17, May 7 to 10, 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 2001 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, 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-29S & D
MW-7 (background)	MW-30
MW-8	MW-34S & D
MW-10	MW-39S & D
MW-11	MW-40S & D
MW-15	MW-41 (background)
MW-17	MW-42S & D
MW-19 (background)	

Water Sampling Log forms for each of the monitoring events conducted during 2001 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 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). Ground-water analyses were performed by Kemron Environmental Services, Inc. (Kemron) of

Marietta, OH. Kemron also provided analytical services during the RI, for treatability testing performed during Remedial Design, and during remedial construction. Methods used by Kemron to analyze ground-water samples from the RA monitoring events were as shown below.

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

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 2001 monitoring events are provided in Appendix B. The analytical results are summarized in Table 4. For purposes of comparison, Table 4 also includes historical results for the parameters and wells being monitored. Analytical results for the 2001

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 2001 REMEDIAL ACTION GROUND-WATER MONITORING

GROUND-WATER FLOW

Water-level elevation data collected during the 2001 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 2001 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 2001 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 apparent 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 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 two of the eleven compliance point wells (MW-12 and MW-28), 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 two of

the wells (MW-2 and MW-5), amenable cyanide concentrations exhibit an upward trend. The seven 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 four of the compliance wells (MW-5, MW-18, MW-36, and MW-37). The only compliance well in which the concentration of fluoride exhibits an increasing trend is MW-16. The remaining four compliance wells exhibit no consistent trend. As shown on the ground-water contour maps for the 2001 monitoring events, (Figures 2, 3, and 4), the MW-16 monitoring well is located downgradient of the FSPSA soil flushing area. Increases in concentrations of fluoride at MW-16 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 six of the eleven compliance point wells, MW-5, MW-12, MW-28, MW-32, 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 and MW-28, arsenic concentrations have been consistently below detection. Data for the MW-18 well shows an increasing trend while data for five of the compliance wells (MW-5, MW-31, MW-35, MW-36, 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 six of the compliance wells (MW-5, MW-12, MW-28, MW-32, 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-36, 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. Since the Phase I RI, beryllium has been consistently below the MCL in all samples analyzed, including samples from all of the compliance point monitoring wells during each of the 2001 monitoring events.

Manganese

Concentration versus time graphs for manganese are provided in Appendix D-6. Manganese results for MW-5, MW-31, and MW-37 show slight increasing trends during more recent monitoring events. Recent results for MW-16 and MW-35 show a decreasing trend. The data for the remaining six compliance wells exhibit no consistent trend with regard to manganese. As discussed above for other monitoring parameters, the MW-31 well is located near the downgradient edge of the FSPSA soil flushing area. Increases in manganese concentrations at this well 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 results for manganese are 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 2001 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. Since the Phase I RI, vanadium has been consistently below the cleanup goal in all samples analyzed, including samples from all of the compliance point monitoring wells during all of the 2001 monitoring events.

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-2 and MW-5; PCE levels have increased at MW-18 and MW-30. The cleanup goal for PCE is the MCL of 0.005 mg/L. The most recent results for PCE were at or below the MCL (also the detection limit) at MW-2 and MW-5, indicating that, since the RI, the area of the aquifer affected by PCE has decreased.

Contaminant Mass-in-Place

In accordance with Section II.3.C. of the Consent Decree SOW, data from the May 2001 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 5. For comparison, Table 5 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 2001 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 5, 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, 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. Using the 2001 monitoring data, the fluoride mass-in-place was estimated at 21,741 pounds, a decrease of about 20% from 2000.

The mass-in-place estimates for cyanide exhibit a similar pattern, with substantial decreases during the period from 1988 to 1998 (from over 6,800 pounds to about 2,600 pounds, a reduction of nearly 62%), an increase of over 100% in 1999 to nearly 5,600 pounds, followed by a decrease of about 16% in 2000 to under 4,700 pounds. The cyanide mass-in-place estimated for 2001 decreased by 379 pounds (about 8%) from 2000.

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 2000 through May 2001) were calculated and compared to the estimated masses in the aquifer. 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.

During the period from May 2000 to May 2001, approximately 19,650 pounds of fluoride and approximately 2,900 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 decreased by approximately 5,330 pounds and the estimated mass of cyanide decreased by approximately 380 lbs.

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. As discussed in the 1999 RA Ground-Water Monitoring Report, the increases in the mass of fluoride and cyanide in the aquifer that occurred between 1998 and 1999, despite the substantial masses of fluoride and cyanide removed from the aquifer during the same period through the pumping of the interceptor and Ranney wells, are attributed to an increase in the rate of leaching of residual spent potliner material in the FSPSA as a result of the start of soil flushing in that area. 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 again result in decreases in the contaminant mass-in-place. The reductions in the estimated fluoride and cyanide masses from 1999 to 2001 suggest such a trend. Figure 9 shows graphs of the estimated masses of fluoride and cyanide in the aquifer versus time. These graphs reflect the initial increases in the masses of these constituents in the aquifer caused by the start-up of soil flushing in the FSPSA, followed by declines as the leachable material in the FSPSA is depleted.

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 2001 sampling event. The results are summarized in Table 5. 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 5 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 increase in aquifer area above the cleanup goal between 1998 and 1999 was followed by a decrease of about 5% from 1999 to 2000. From 2000 to 2001, the area of the aquifer with fluoride concentrations above the clean-up goal decreased slightly (0.5%).

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 amenable cyanide that was calculated using data from the 2001 expanded monitoring event was 36.7 acres, compared to 36.5 acres in 2000.

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 less than the area with total cyanide above 0.2 mg/L.

SUMMARY/CONCLUSIONS

- Pumping of 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 had 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 2001 monitoring events suggest increased leaching 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 19,650 pounds of fluoride and approximately 2,900 pounds of cyanide from the alluvial aquifer during the period May 2000 to May 2001.

- During the same period, the estimated mass of fluoride in the aquifer decreased by about 5,330 pounds (nearly 20%) and the mass of cyanide in the aquifer decreased by about 380 pounds (about 8%).

- The decreases in the estimated masses of fluoride and cyanide in the aquifer are substantially less than the masses of fluoride and cyanide removed through pumping of the interceptor and Ranney wells. These data indicate the continued contribution of fluoride and cyanide to the aquifer, due largely to the enhanced leaching of residual spent potliner material in the FSPSA by soil flushing.

- 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. Decreases in the masses of fluoride and cyanide in the aquifer between 1999 and 2001 suggest such a trend.

- The estimated area of the alluvial aquifer with fluoride concentrations above the cleanup goal set forth in the ROD decreased by 0.5% between 2000 and 2001.

- The estimated area of the aquifer with amenable cyanide concentrations above the cleanup goal set forth in the ROD increased by 0.5% between 2000 and 2001.

- Reductions in the area of the plume in the alluvial aquifer and 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.

- Although the area of the aquifer with fluoride and cyanide concentrations above the clean-up goals has remained relatively unchanged over the past two years, overall concentration trends, decreases in the estimated masses of fluoride and cyanide in the alluvial aquifer, and the rates of fluoride and cyanide mass removal through pumping indicate continued improvement of ground-water quality in the alluvial aquifer.

TABLES

TABLE 1
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: JANUARY 16, 2001

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-1	668.07	55.63	612.44
MW-2	668.12	59.97	608.15
MW-3	645.17	32.78	612.39
MW-4	661.07	62.40	598.67
MW-5	668.16	67.97	600.19
MW-7	667.94	61.10	606.84
MW-8	667.71	74.69	593.02
MW-9	666.59	72.98	593.61
MW-10	667.16	74.66	592.50
MW-11	667.31	67.89	599.42
MW-12	636.73	25.30	611.43
MW-13	661.44	43.48	617.96
MW-14	653.59	39.88	613.71
MW-15	657.31	39.29	618.02
MW-16	662.72	50.96	611.76
MW-17	655.03	39.08	615.95
MW-18	660.91	40.86	620.05
MW-19	662.03	42.99	619.04
MW-20	632.33	13.41	618.92
MW-21s	664.02	69.90	594.12
MW-21d	663.60	69.49	594.11
MW-22s	667.47	73.72	593.75
MW-22d	667.21	73.49	593.72
MW-23s	663.18	68.79	594.39
MW-23d	663.41	69.16	594.25
MW-24s	667.88	74.84	593.04
MW-24d	667.75	74.76	592.99
MW-25	667.73	66.74	600.99
MW-26s	665.54	72.14	593.40
MW-26d	665.59	72.28	593.31
MW-27	667.86	68.72	599.14
MW-28	663.27	23.40	639.87
MW-29s	653.40	42.08	611.32
MW-29d	653.07	41.67	611.40
MW-30	667.58	49.86	617.72
MW-31	661.59	48.90	612.69
MW-32	656.66	41.69	614.97
MW-34s	655.67	39.13	616.54
MW-34d	654.67	37.20	617.47
MW-35	661.90	36.70	625.20
MW-36	655.14	39.92	615.22
MW-37	661.14	22.86	638.28
MW-38	666.64	21.53	645.11
MW-39s	657.30	42.83	614.47
MW-39d	657.18	42.52	614.66
MW-40s	662.22	54.02	608.20
MW-40d	661.95	53.88	608.07
MW-41	637.67	13.94	623.73
MW-42s	654.37	41.95	612.42
MW-42d	654.34	41.82	612.52
MW-44s	662.01	54.29	607.72
MW-44d	661.76	54.87	606.89

TABLE 1 (CONT.)
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: JANUARY 16, 2001

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
PPB-01*	663.24	22.25	640.99
PPB-02s*	663.14	18.12	645.02
PPB-02d+	662.78	44.76	618.02
PPB-04+	661.57	47.27	614.30
PPB-05*	661.62	21.68	639.94
PPB-06+	663.04	49.22	613.82
PPB-07*	661.71	Not Measured	--
PPB-09+	664.30	44.82	619.48
PPB-10*	663.45	16.54	646.91
PPB-14*	660.64	Not Measured	--
TH-3	667.81	61.28	606.53
TH-10	658.17	39.53	618.64
TH-11	659.08	37.74	621.34
TH-15	663.62	70.49	593.13
TH-16	664.62	70.61	594.01
TH-17	663.93	69.72	594.21
RP-1	643.17	19.78	623.39
RP-2	643.05	19.52	623.53

NOTE:

All MW-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 (RP) measuring points are located on the walkway below the dry scrubbers.

* - Designates a perched zone piezometer

+ - Designates an alluvial aquifer piezometer.

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TABLE 2
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: MAY 7, 2001

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-1	668.07	55.90	612.17
MW-2	668.12	59.97	608.15
MW-3	645.17	31.66	613.51
MW-4	661.07	63.13	597.94
MW-5	668.16	68.63	599.53
MW-7	667.94	61.44	606.50
MW-8	667.71	76.01	591.70
MW-9	666.59	74.53	592.06
MW-10	667.16	76.14	591.02
MW-11	667.31	68.60	598.71
MW-12	636.73	25.01	611.72
MW-13	661.44	42.91	618.53
MW-14	653.59	39.45	614.14
MW-15	657.31	38.64	618.67
MW-16	662.72	50.69	612.03
MW-17	655.03	38.55	616.48
MW-18	660.91	40.27	620.64
MW-19	662.03	42.35	619.68
MW-20	632.33	12.78	619.55
MW-21s	664.02	71.56	592.46
MW-21d	663.60	71.17	592.43
MW-22s	667.47	75.29	592.18
MW-22d	667.21	75.06	592.15
MW-23s	663.18	70.01	593.17
MW-23d	663.41	70.84	592.57
MW-24s	667.88	76.33	591.55
MW-24d	667.75	76.23	591.52
MW-25	667.73	67.04	600.69
MW-26s	665.54	73.66	591.88
MW-26d	665.59	73.81	591.78
MW-27	667.86	69.18	598.68
MW-28	663.27	22.34	640.93
MW-29s	653.40	41.82	611.58
MW-29d	653.07	41.41	611.66
MW-30	667.58	49.45	618.13
MW-31	661.59	48.45	613.14
MW-32	656.66	41.03	615.63
MW-34s	655.67	38.49	617.18
MW-34d	654.67	36.58	618.09
MW-35	661.90	36.38	625.52
MW-36	655.14	39.15	615.99
MW-37	661.14	21.93	639.21
MW-38	666.64	20.75	645.89
MW-39s	657.30	42.36	614.94
MW-39d	657.18	42.02	615.16
MW-40s	662.22	53.97	608.25
MW-40d	661.95	53.82	608.13
MW-41	637.67	13.28	624.39
MW-42s	654.37	41.58	612.79
MW-42d	654.34	41.45	612.89
MW-44s	662.01	54.31	607.70
MW-44d	661.76	54.91	606.85

TABLE 2 (CONT.)
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: MAY 7, 2001

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
PPB-01*	663.24	20.35	642.89
PPB-02s*	663.14	17.85	645.29
PPB-02d+	662.78	44.12	618.66
PPB-04+	661.57	46.79	614.78
PPB-05*	661.62	20.24	641.38
PPB-06+	663.04	48.72	614.32
PPB-07*	661.71	Not Measured	--
PPB-09+	664.30	44.23	620.07
PPB-10*	663.45	15.01	648.44
PPB-14*	660.64	Not Measured	--
TH-3	667.81	61.41	606.40
TH-10	658.17	38.89	619.28
TH-11	659.08	37.11	621.97
TH-15	663.62	71.93	591.69
TH-16	664.62	72.27	592.35
TH-17	663.93	71.38	592.55
RP-1	643.17	19.06	624.11
RP-2	643.05	18.72	624.33

NOTE:

All MW-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.

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TABLE 3
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: SEPTEMBER 10, 2001

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-1	668.07	55.29	612.78
MW-2	668.12	58.20	609.92
MW-3	645.17	30.19	614.98
MW-4	661.07	60.23	600.84
MW-5	668.16	65.98	602.18
MW-7	667.94	60.75	607.19
MW-8	667.71	72.75	594.96
MW-9	666.59	70.83	595.76
MW-10	667.16	72.64	594.52
MW-11	667.31	65.86	601.45
MW-12	636.73	23.33	613.40
MW-13	661.44	41.78	619.66
MW-14	653.59	37.96	615.63
MW-15	657.31	37.55	619.76
MW-16	662.72	49.10	613.62
MW-17	655.03	37.27	617.76
MW-18	660.91	39.96	620.95
MW-19	662.03	41.53	620.50
MW-20	632.33	12.04	620.29
MW-21s	664.02	67.71	596.31
MW-21d	663.60	67.31	596.29
MW-22s	667.47	71.57	595.90
MW-22d	667.21	71.35	595.86
MW-23s	663.18	66.67	596.51
MW-23d	663.41	67.01	596.40
MW-24s	667.88	72.76	595.12
MW-24d	667.75	72.66	595.09
MW-25	667.73	65.83	601.90
MW-26s	665.54	70.03	595.51
MW-26d	665.59	70.16	595.43
MW-27	667.86	67.52	600.34
MW-28	663.27	20.40	642.87
MW-29s	653.40	40.15	613.25
MW-29d	653.07	39.74	613.33
MW-30	667.58	48.78	618.80
MW-31	661.59	46.83	614.76
MW-32	656.66	39.48	617.18
MW-34s	655.67	37.39	618.28
MW-34d	654.67	35.48	619.19
MW-35	661.90	35.93	625.97
MW-36	655.14	37.76	617.38
MW-37	661.14	19.71	641.43
MW-38	666.64	20.21	646.43
MW-39s	657.30	40.93	616.37
MW-39d	657.18	40.62	616.56
MW-40s	662.22	52.13	610.09
MW-40d	661.95	51.96	609.99
MW-41	637.67	13.13	624.54
MW-42s	654.37	40.00	614.37
MW-42d	654.34	39.89	614.45
MW-44s	662.01	52.32	609.69
MW-44d	661.76	52.84	608.92

TABLE 3 (CONT.)
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: SEPTEMBER 10, 2001

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
PPB-01*	663.24	20.74	642.50
PPB-02s*	663.14	18.12	645.02
PPB-02d+	662.78	43.16	619.62
PPB-04+	661.57	45.31	616.26
PPB-05*	661.62	20.32	641.30
PPB-06+	663.04	47.41	615.63
PPB-07*	661.71	Not Measured	--
PPB-09+	664.30	43.37	620.93
PPB-10*	663.45	15.34	648.11
PPB-14*	660.64	Not Measured	--
TH-3	667.81	59.34	608.47
TH-10	658.17	37.74	620.43
TH-11	659.08	36.67	622.41
TH-15	663.62	68.33	595.29
TH-16	664.62	68.42	596.20
TH-17	663.93	67.54	596.39
RP-1	643.17	18.86	624.31
RP-2	643.05	18.58	624.47

NOTE:

All MW-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.

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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	
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
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
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	3.6		0.22	13	<0.004	<0.0005		0.80	170	<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-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	
5/99	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	
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	
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	870	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	
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	7.84	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	

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-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	1.2	<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	
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	
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	
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	600	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	

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-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		564		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	0.26	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	
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
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	1,668	91		11	180	0.12	0.00099		0.3	520	0.024	0.027
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	

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-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	
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	1,665	0.18		<0.01	26	<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	
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	7.66	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	
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
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		660		
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	2,600	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

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															
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	8.89	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	630	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	
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	
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	6.5			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	
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	3.6	<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	
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	0.016	
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	81	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	

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-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	0.067	
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	
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		0.68	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	
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	18		<0.01	87	0.033	<0.01	8.5	0.58	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	
MW-39S															
5/86	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	
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	
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	7.61	950	693	0.25		0.25	13	<0.004	<0.0005		0.57	140	<0.01	

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

NS = Not sampled. Well damaged during remedial construction.

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-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	960	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	
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	0.016	<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	
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			0.88		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	
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	

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

HM03-01/DATA-SUM.123

TABLE 5
SUMMARY OF ESTIMATED AQUIFER AREAS ABOVE CLEANUP GOALS
AND CONTAMINANT MASS-IN-PLACE
ORMET CORPORATION
HANNIBAL REDUCTION DIVISION
HANNIBAL, OHIO

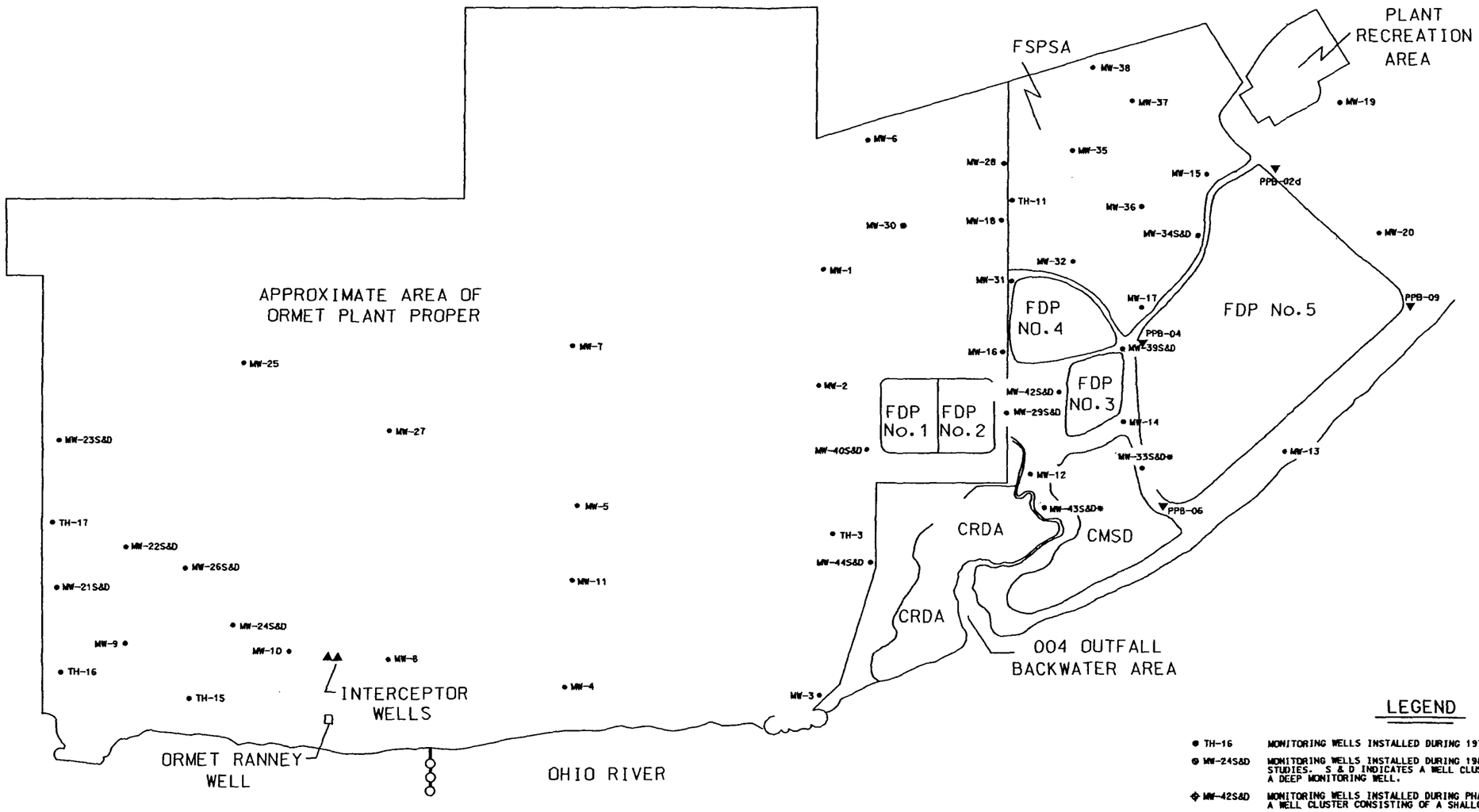
Sampling Date	Estimated Area of Aquifer Above 4 mg/L Fluoride	% Change	Estimated Area of Aquifer Above 0.2 mg/L Amenable CN	% Change
6/88	43.3 a.		24.5 a.	
1/95	48.4 a.	+11.6	5.9 a.	-75.8
5/97	43.7 a.	-9.7	21.3 a.	+259
5/98	36.9 a.	-15.6	10.5 a.	-50.6
5/99	43.7*a.	+18.4	27.5 a.	+161
5/00	41.6 a.	-4.8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

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

* - Value corrected due to omission during 1999 calculation.

0311ANN-01-5 123

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

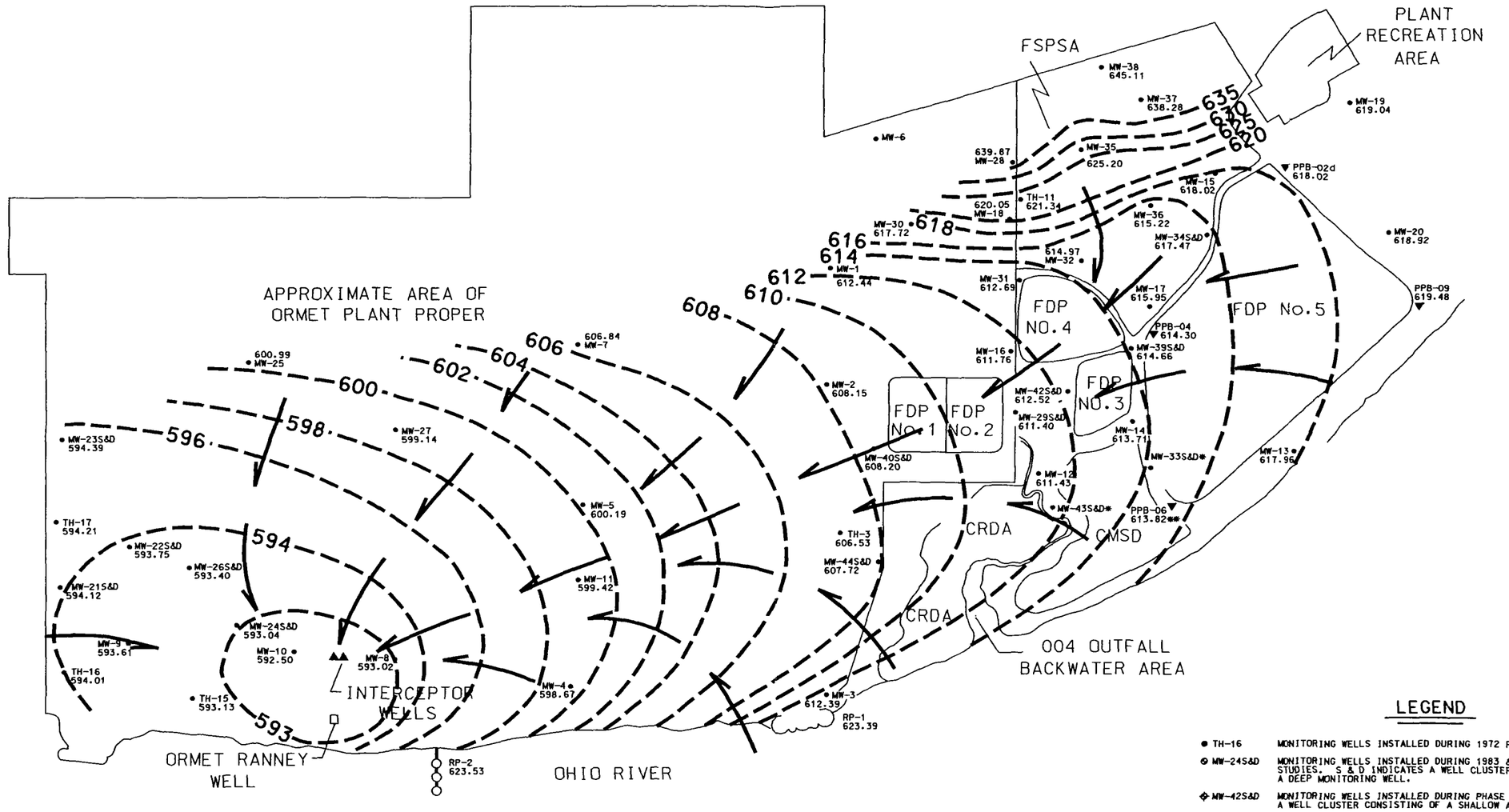
PROJECT NO.: HM00301	FILE NO:
DRAWING: BASEMAP	PLOT SIZE: 1"=300'
DRAFTED BY: SJP\EDA	DATE: 7/10/97
CHECKED BY:	DATE:
APPROVED BY:	DATE:
REVISION NO.:	DATE:

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.
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▼ 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
598	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

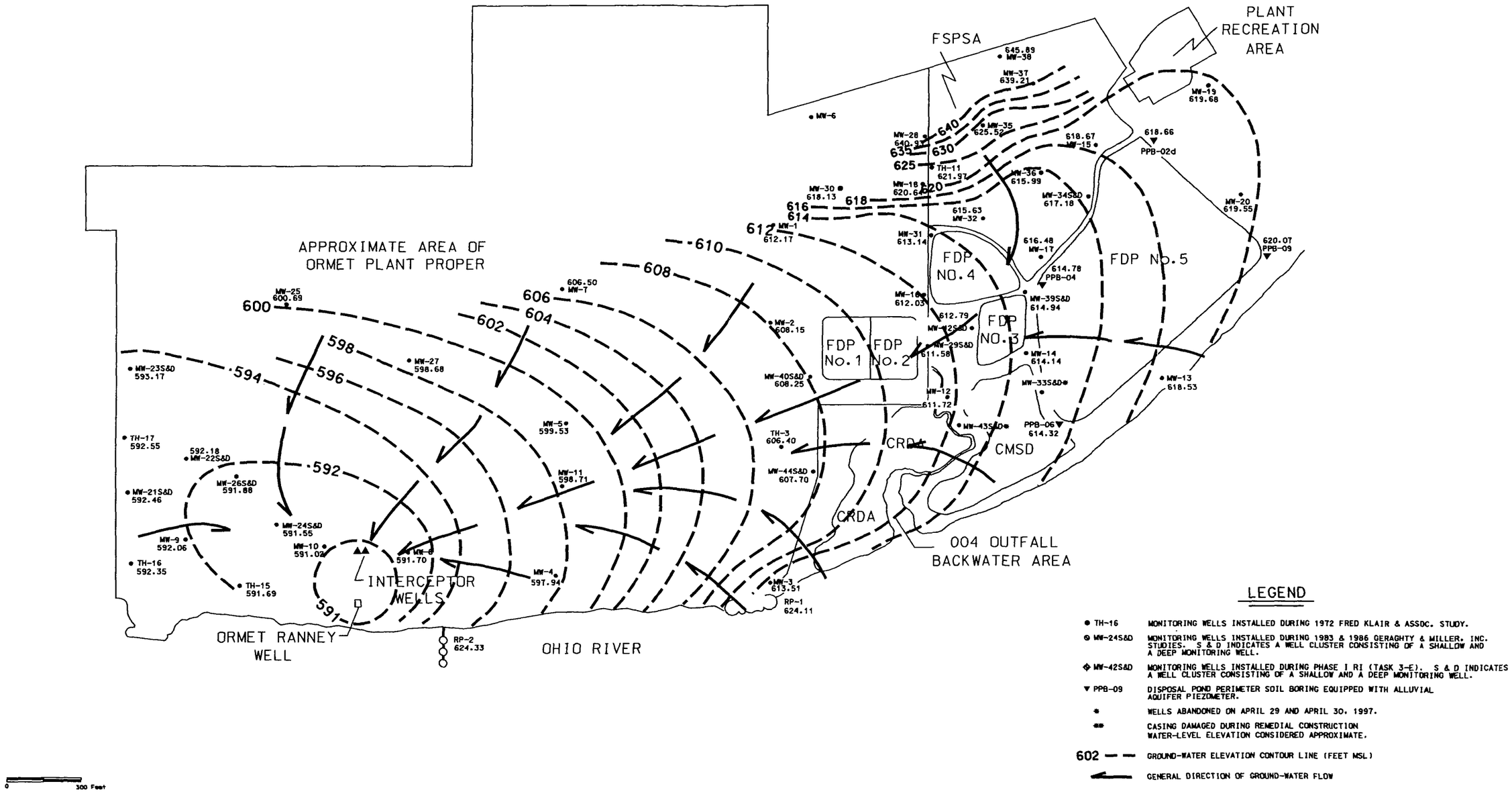
PROJECT NO.: HM00311	FILE NO:
DRAWING: C021401A	PLOT SIZE: 1"=300'
DRAFTED BY: JLM\EDA	DATE: 2/14/01
CHECKED BY:	DATE:
APPROVED BY:	DATE:
REVISION NO.:	DATE:

GROUND-WATER ELEVATION CONTOUR MAP (BASED ON DATA COLLECTED JANUARY 16, 2001)

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.
**	CASING DAMAGED DURING REMEDIAL CONSTRUCTION WATER-LEVEL ELEVATION CONSIDERED APPROXIMATE.
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

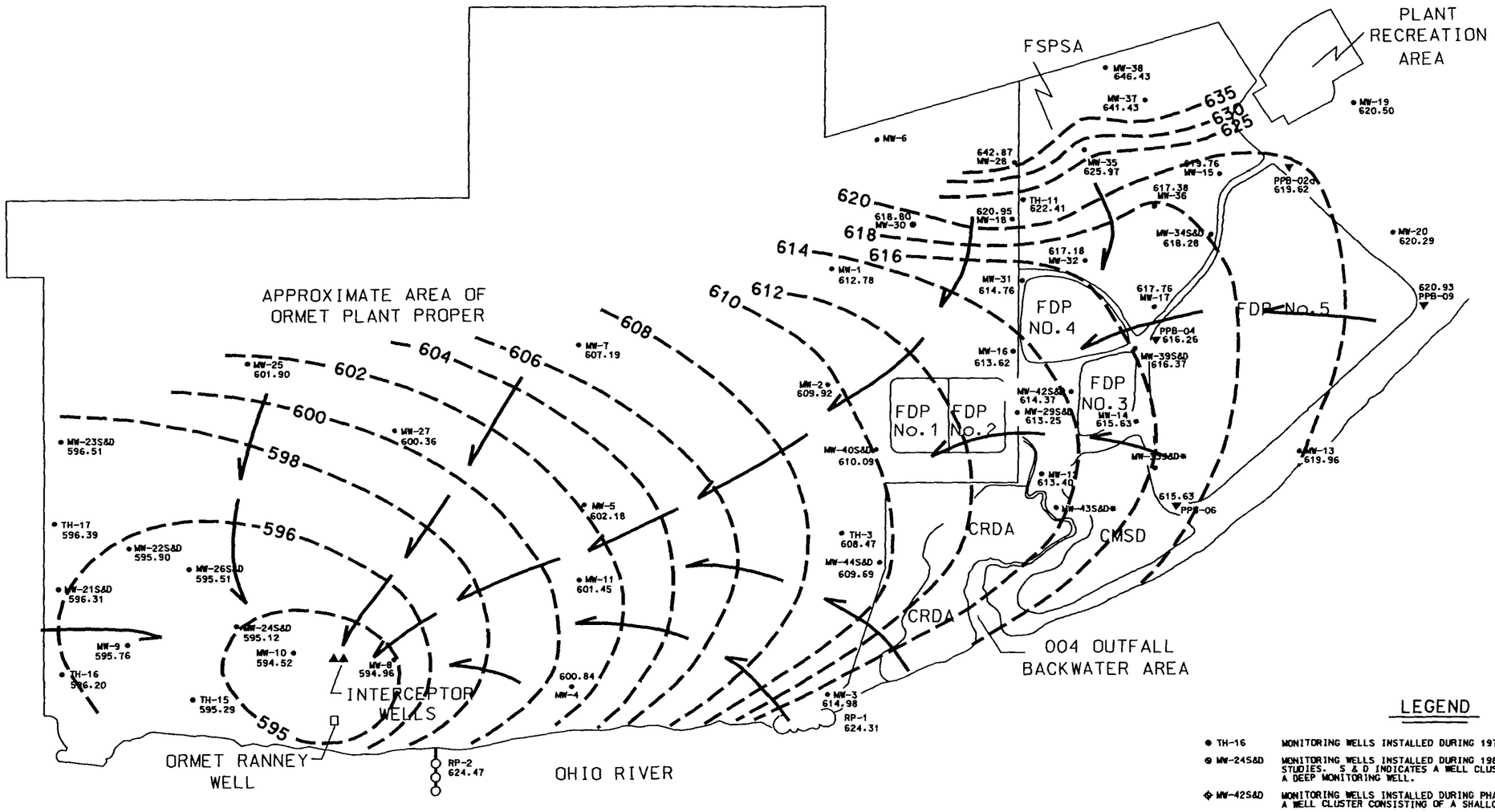
PROJECT NO.: HM00311	FILE NO:
DRAWING: C100101A	PLOT SIZE: 1"=300'
DRAFTED BY: JAW\EDA	DATE: 10/01/01
CHECKED BY:	DATE:
APPROVED BY:	DATE:
REVISION NO.:	DATE:

GROUND-WATER ELEVATION CONTOUR MAP (BASED ON DATA COLLECTED MAY 7, 2001)

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.
598 — —	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

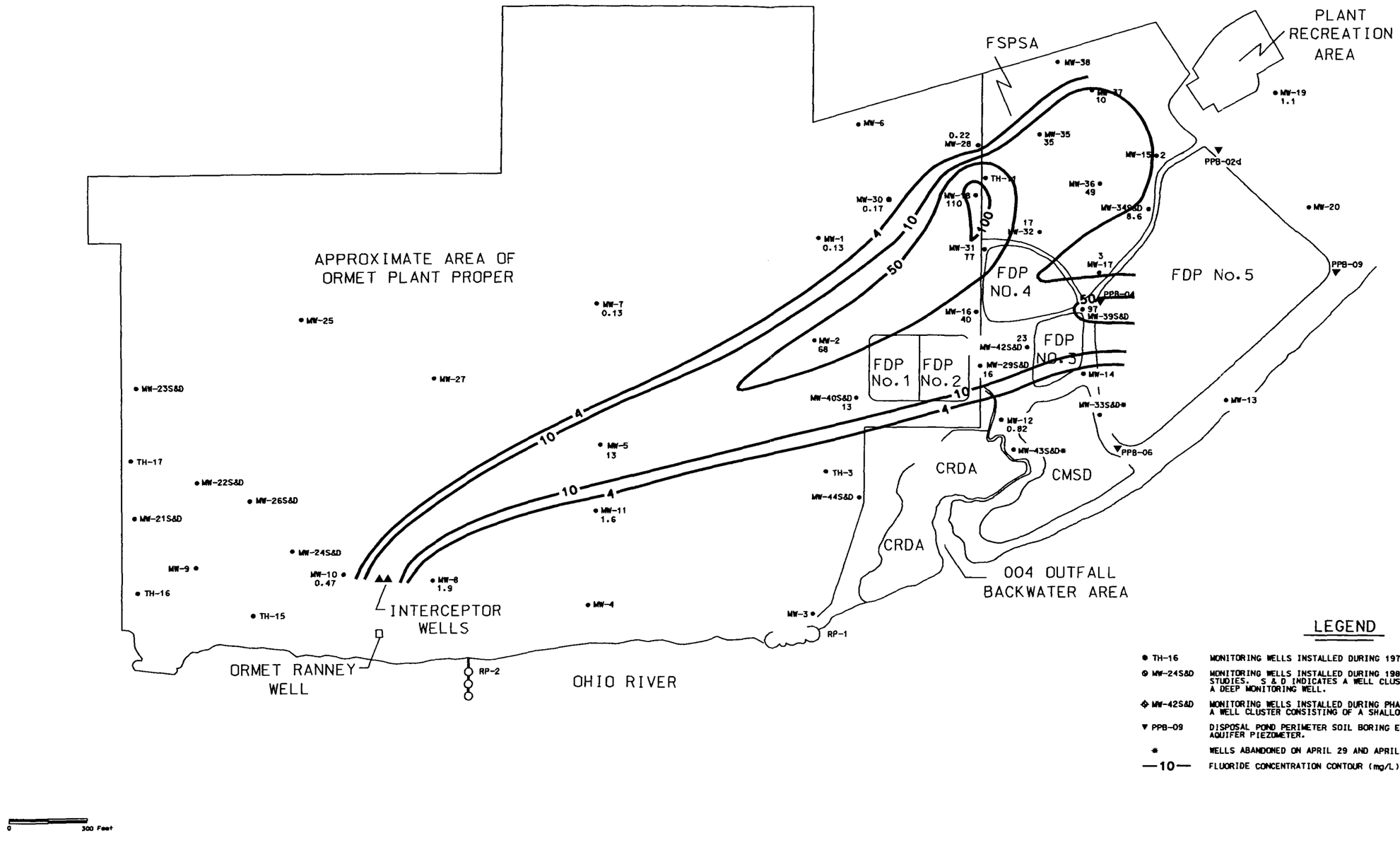
PROJECT NO.: HM00311	FILE NO:
DRAWING: C1001018	PLOT SIZE: 1"=300'
DRAFTED BY: JAW\EDA	DATE: 10/01/01
CHECKED BY:	DATE:
APPROVED BY:	DATE:
REVISION NO.:	DATE:

GROUND-WATER ELEVATION CONTOUR MAP (BASED ON DATA COLLECTED SEPTEMBER 10, 2001)

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)

HMI Environmental Consulting Services

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

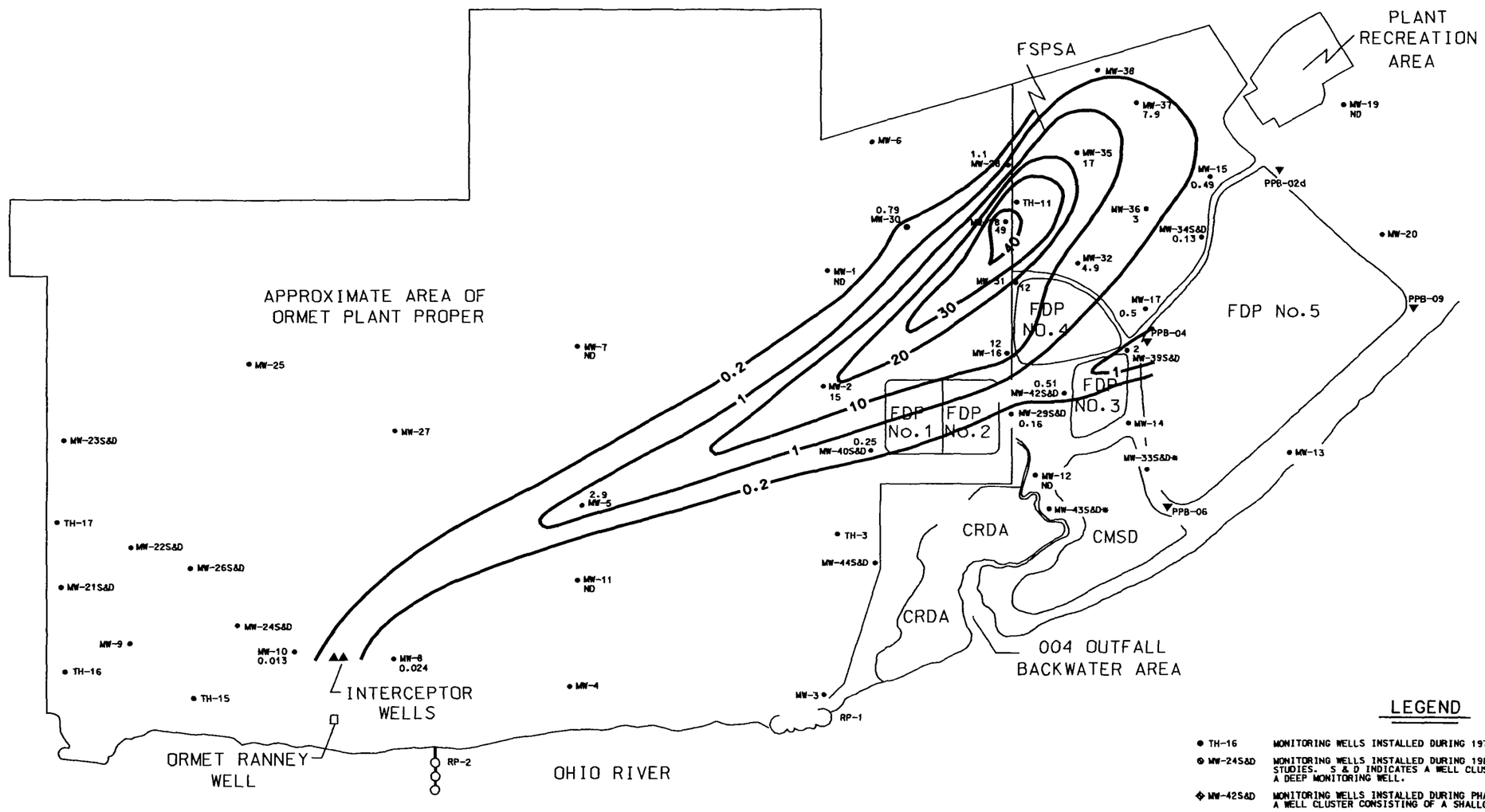
PROJECT NO.: HM00311	FILE NO:
DRAWING: C100101C	PLOT SIZE: 1"=300'
DRAFTED BY: JAW\EDA	DATE: 10/01/01
CHECKED BY:	DATE:
APPROVED BY:	DATE:
REVISION NO.:	DATE:

FLUORIDE ISOPLETH MAP FOR THE ALLUVIAL AQUIFER (BASED ON SAMPLES COLLECTED MAY 8-10, 2001)

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

0 300 Feet

HMI Environmental Consulting Services

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

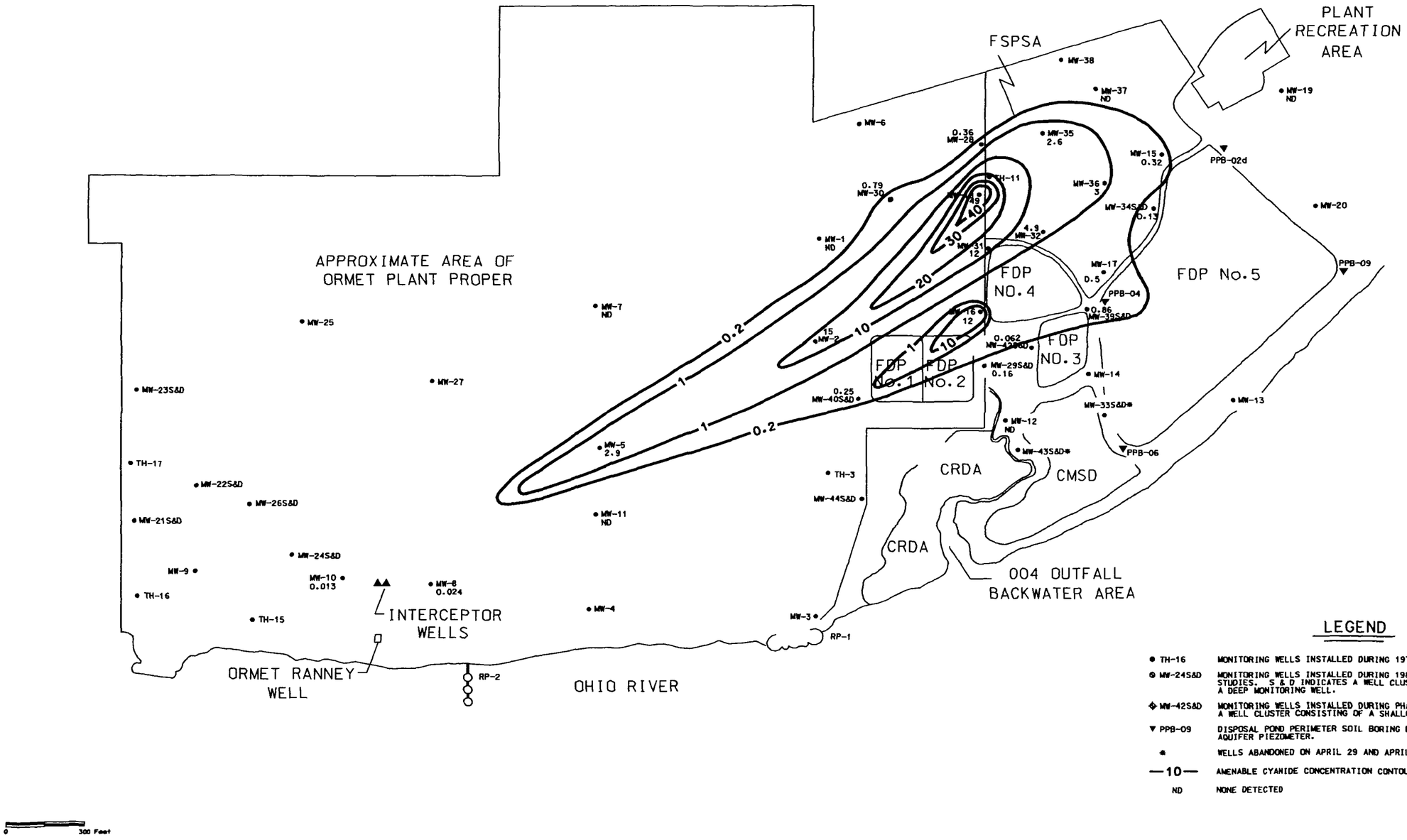
PROJECT NO.: HM00311	FILE NO:
DRAWING: C1001010	PLOT SIZE: 1"=300'
DRAFTED BY: JAW\EDA	DATE: 10/01/01
CHECKED BY:	DATE:
APPROVED BY:	DATE:
REVISION NO.:	DATE:

TOTAL CYANIDE ISOPLETH MAP FOR THE ALLUVIAL AQUIFER (BASED ON SAMPLES COLLECTED MAY 8-10, 2001)

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 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—	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

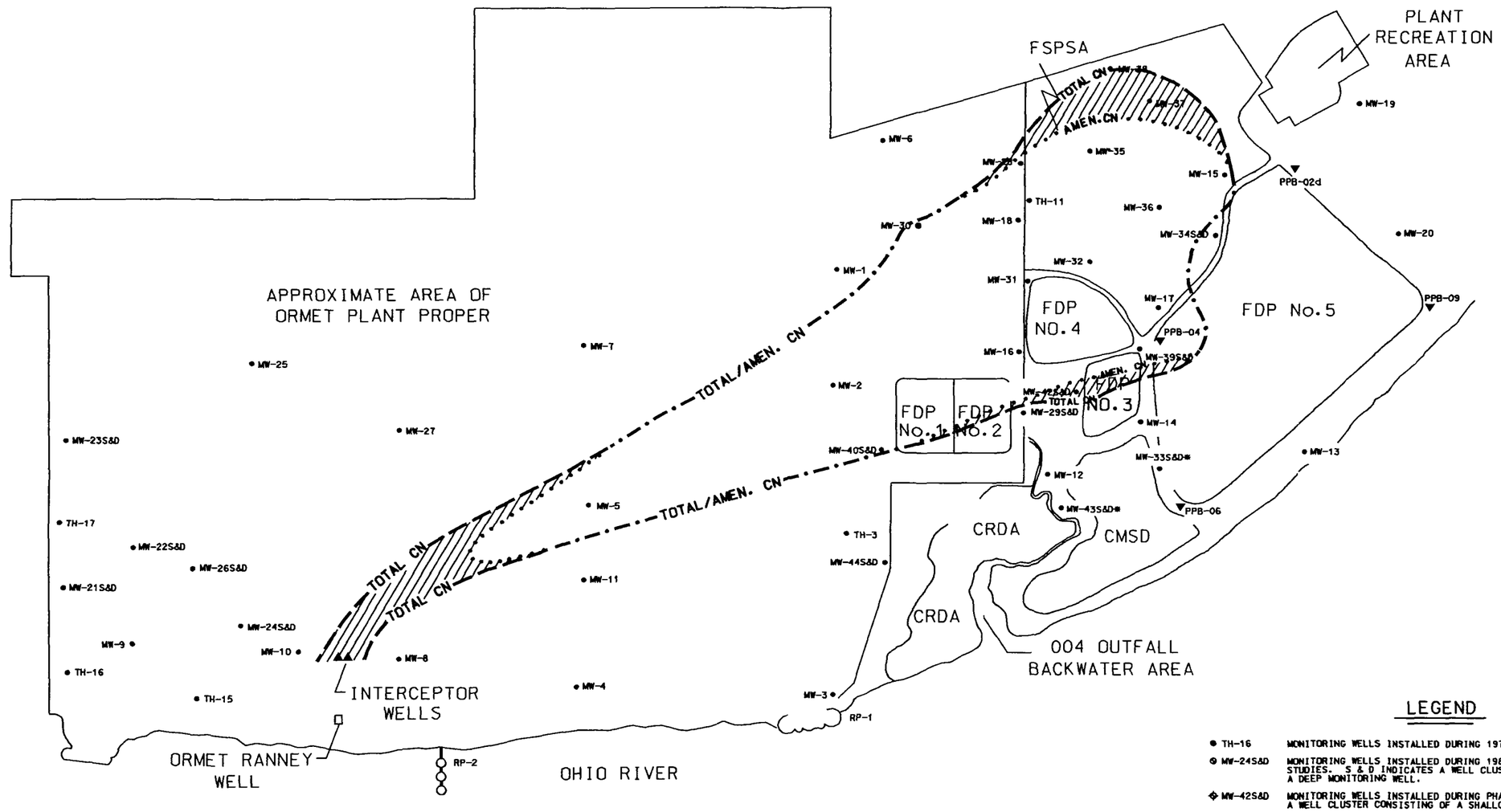
PROJECT NO.: HM00311	FILE NO:
DRAWING: C100101E	PLOT SIZE: 1"=300'
DRAFTED BY: JAW\EDA	DATE: 10/01/01
CHECKED BY:	DATE:
APPROVED BY:	DATE:
REVISION NO.:	DATE:

AMENABLE CYANIDE ISOPLETH MAP FOR THE ALLUVIAL AQUIFER (BASED ON SAMPLES COLLECTED MAY 8-10, 2001)

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.
**	CASING DAMAGED DURING REMEDIAL CONSTRUCTION.

HMI Environmental Consulting Services

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

PROJECT NO.: HM00311	FILE NO:
DRAWING: C100101F	PLOT SIZE: 1"=300'
DRAFTED BY: JAW\EDA	DATE: 10/01/01
CHECKED BY:	DATE:
APPROVED BY:	DATE:
REVISION NO.:	DATE:

2001 COMPARISON OF TOTAL vs. AMENABLE CYANIDE DISTRIBUTION IN GROUND-WATER (BASED ON 0.2 mg/L CONCENTRATION CONTOURS)

ORMET CORPORATION

HANNIBAL OHIO

FIGURE 8

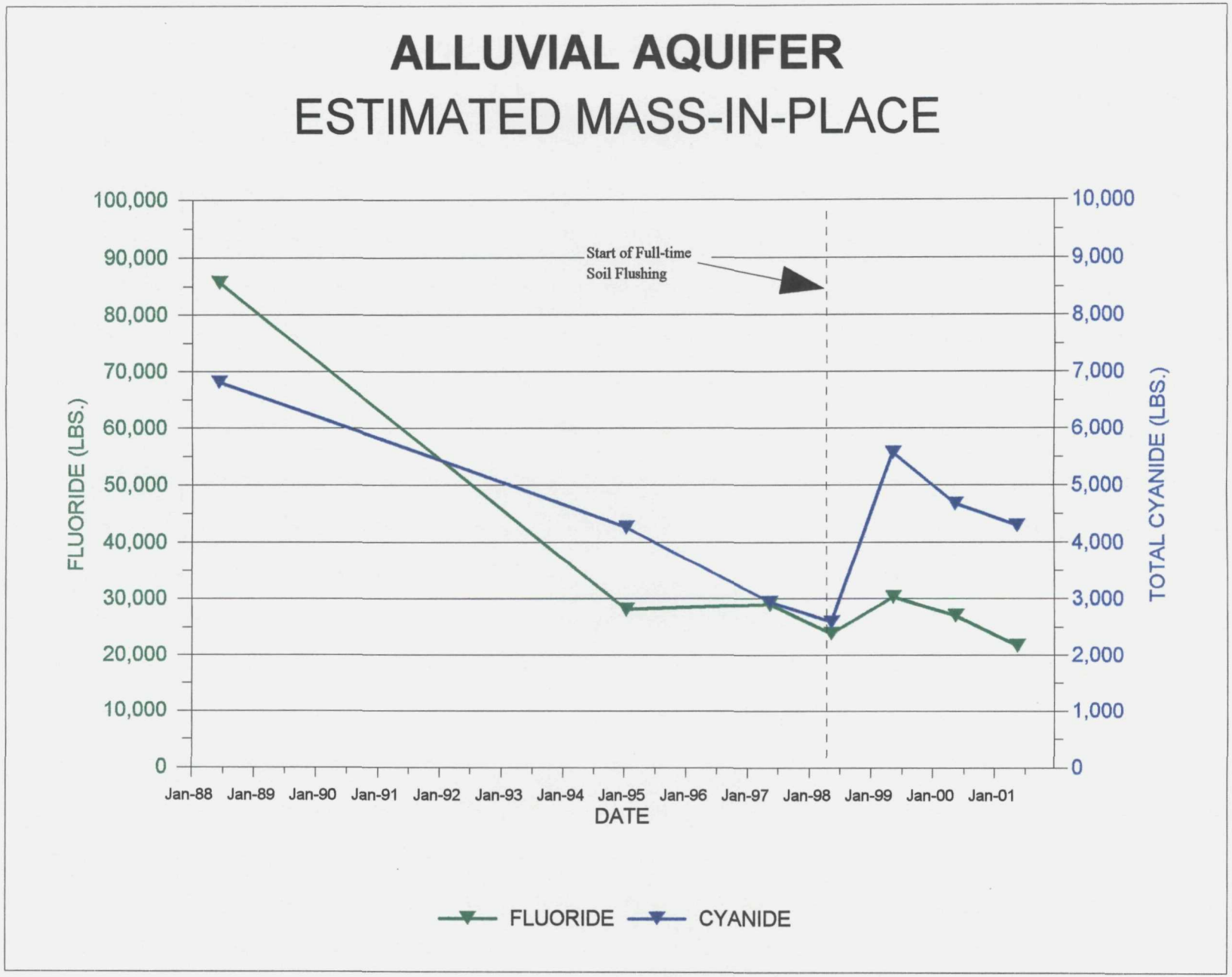

ALLUVIAL AQUIFER
ESTIMATED MASS-IN-PLACE
Start of Full-time
Soil Flushing
FLUORIDE (LBS.)
TOTAL CYANIDE (LBS.)
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95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

FIGURE 9

Appendix A

APPENDIX A

WATER SAMPLING LOG FORMS

Appendix A-1	Water Sampling Log Forms for January 2001 Monitoring Event
Appendix A-2	Water Sampling Log Forms for May 2001 Monitoring Event
Appendix A-3	Water Sampling Log Forms for September 2001 Monitoring Event

APPENDIX A-1

WATER SAMPLING LOG FORMS FOR JANUARY 2001 MONITORING EVENT

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: Ormet - Reduction Mill
Project Number: HM00311
Site Location: Hannibal, Ohio
Sampling Date: 1-17-0 Weather: Cloudy 30

Sample ID: MW-2
Replicate ID:
Time Sampling Began: 1336
Time Sampling Completed: 1402

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): 59.97
Water Column (WC) in Well [TD-DTW]: 22.28
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.5648 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 10.70

GALLONS PER FOOT (gpf)			
1½" = 0.08	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 poly rope

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk Brown, Coca Cola Odor: None Turbidity:

Well Volumes (gal.):	3.5	7.0	10.5	Final				
pH (s.u.):	10.91	11.10	11.30	11.34				
Sp. Cond. (µmhos/cm):	1664	1710	1719	1708				
Temperature (°C):	11°	11°	11°	11°				
Turbidity (N.T.U):	Stained	Stained	Stained	Stained				

Sampling Method and Material(s): Disposable bailer with poly rope

Parameters to be Analyzed	Container Description (From Lab X or HMI ___)	Preservative (preserved by: Lab X 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, Sp Cond, F	250 ml Plastic	4°C
PCE	2 x 40 ml Glass	HCL

Sampling Personnel: Steve Menosky, Joel Keller
Comments: Color does not filter out

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: Ormet - Reduction Mill
Project Number: HM00311
Site Location: Hannibal, Ohio
Sampling Date: 1-17-01 Weather: Cloudy 30

Sample ID: MW-5
Replicate ID: MW-5d
Time Sampling Began: 1250
Time Sampling Completed: 1332

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): 67.97
Water Column (WC) in Well [TD-DTW]: 24.03
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.8448 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 11.53

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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 poly rope

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear, brown tint Odor: None Turbidity: Stained

Well Volumes (gal.):	3.5	7.0	11.5	Final				
pH (s.u.):	9.20	9.26	9.24	9.27				
Sp. Cond. (µmhos/cm):	856	850	871	863				
Temperature (°C):	12°	12°	12°	12°				
Turbidity (N.T.U):	Stained	Stained	Stained	Stained				

Sampling Method and Material(s): Disposable bailer with poly rope

Parameters to be Analyzed	Container Description (From Lab X or HMI ___)	Preservative (preserved by: Lab X 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, Sp Cond, F	250 ml Plastic	4°C
PCE	2 x 40 ml Glass	HCL

Sampling Personnel: Steve Menosky, Joel Keller
Comments: Color does not filter out

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: Ormet - Reduction Mill
Project Number: HM00311
Site Location: Hannibal, Ohio
Sampling Date: 1-17-01 Weather: Cloudy 30

Sample ID: MW-12
Replicate ID:
Time Sampling Began: 1406
Time Sampling Completed: 1438

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): 25.30
Water Column (WC) in Well [TD-DTW]: 43.12
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.8992 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 21.00

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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 poly rope

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity:

Well Volumes (gal.):	7	14	21.00	Final				
pH (s.u.):	8.59	8.08	7.95	7.69				
Sp. Cond. (µmhos/cm):	504	497	484	484				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):	Clear	clear	clear	clear				

Sampling Method and Material(s): Disposable bailer with poly rope

Parameters to be Analyzed	Container Description (From Lab X or HMI ___)	Preservative (preserved by: Lab X 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, Sp Cond, F	250 ml Plastic	4°C

Sampling Personnel: Steve Menosky, Joel Keller

Comments:

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: Ormet - Reduction Mill
Project Number: HM00311
Site Location: Hannibal, Ohio
Sampling Date: 1-17-01 Weather: Cloudy 30's

Sample ID: MW-16
Replicate ID: MW-16d
Time Sampling Began: 1058
Time Sampling Completed: 1131

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): 50.96
Water Column (WC) in Well [TD-DTW]: 32.16
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 5.1456 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 15.5

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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 poly rope

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown - Stained Odor: None Turbidity:

Well Volumes (gal.):	5	10	15.5	Final				
pH (s.u.):	6.84	7.30	7.40	7.42				
Sp. Cond. (µmhos/cm):	962	965	989	939				
Temperature (°C):	12°	12°	12°	12°				
Turbidity (N.T.U):	Stained	Stained	Stained	Stained				

Sampling Method and Material(s): Disposable bailer with poly rope

Parameters to be Analyzed	Container Description (From Lab X or HMI ___)	Preservative (preserved by: Lab X 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, Sp Cond, F	250 ml Plastic	4° C

Sampling Personnel: Steve Menosky, Joel Keller
Comments: Brown color filters out leaving sample clear with yellow tint

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: Ormet - Reduction Mill
Project Number: HM00311
Site Location: Hannibal, Ohio
Sampling Date: 1-17-01 Weather: Cloudy 30's

Sample ID: MW-18
Replicate ID:
Time Sampling Began: 1010
Time Sampling Completed: 1017

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): 40.86
Water Column (WC) in Well [TD-DTW]: 20.30
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.248 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 10.0

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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 poly rope

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown (Stained) Odor: 7.5 Turbidity:

Well Volumes (gal.):	3.5	7.0	[illegible]	Final				
pH (s.u.):	10.85	10.66	10.60	10.82				
Sp. Cond. (µmhos/cm):	2,090	1,990	1,950	1,980				
Temperature (°C):	13°	13°	13°	13°				
Turbidity (N.T.U):	Silty	Silty	Silty	Silty				

Sampling Method and Material(s): Disposable bailer with poly rope

Parameters to be Analyzed	Container Description (From Lab X or HMI ___)	Preservative (preserved by: Lab X 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, Sp Cond, F	250 ml Plastic	4°C
PCE	2 x 40 ml Glass	HCL

Sampling Personnel: Steve Menosky, Joel Keller

Comments: Bailed dry at 7.0 gal, Sampled upon recovery, Color does not filter out Wispy sheen

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: Ormet - Reduction Mill
Project Number: HM00311
Site Location: Hannibal, Ohio
Sampling Date: 1-17-01 Weather: Cloudy 30's

Sample ID: MW-28
Replicate ID: 6
Time Sampling Began: 1024
Time Sampling Completed: 1046

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): 23.40
Water Column (WC) in Well [TD-DTW]: 22.80
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.648 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 11.0

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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 poly rope

SAMPLING DATA AND FIELD PARAMETERS

Color: Lt. tan, clear Odor: None Turbidity:

Well Volumes (gal.):	4	8	11	Final				
pH (s.u.):	6.39	6.20	6.00	5.45				
Sp. Cond. (µmhos/cm):	430	423	426	412				
Temperature (°C):	13°	13°	13°	13°				
Turbidity (N.T.U):	Trans	Trans	Trans	Trans				

Sampling Method and Material(s): Disposable bailer with poly rope

Parameters to be Analyzed	Container Description (From Lab X or HMI ___)	Preservative (preserved by: Lab X 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, Sp Cond, F	250 ml Plastic	4°C

Sampling Personnel: Steve Menosky, Joel Keller
Comments: Color filters out

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: Ormet - Reduction Mill
Project Number: HM00311
Site Location: Hannibal, Ohio
Sampling Date: 1-17-01 Weather: Cloudy 30's

Sample ID: MW-31
Replicate ID:
Time Sampling Began: 0935
Time Sampling Completed: 0940

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): 48.90
Water Column (WC) in Well [TD-DTW]: 18.68
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.9888 = 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" = 0.08	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 poly rope

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity:

Well Volumes (gal.):	3	6	9	Final				
pH (s.u.):	11.15	11.14	11.17	11.21				
Sp. Cond. (µmhos/cm):	1,920	1,940	1,980	1,900				
Temperature (°C):	12°	12°	12°	12°				
Turbidity (N.T.U):	Stained	Stained	Stained	Stained				

Sampling Method and Material(s): Disposable bailer with poly rope

Parameters to be Analyzed	Container Description (From Lab X or HMI ___)	Preservative (preserved by: Lab X 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, Sp Cond, F	250 ml Plastic	4°C
PCE	2 x 40 ml Glass	HCL

Sampling Personnel: Steve Menosky, Joel Keller
Comments: Color does not filter out

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: Ormet - Reduction Mill
Project Number: HM00311
Site Location: Hannibal, Ohio
Sampling Date: 1-17-04 Weather: Cloudy 30's

Sample ID: MW-32
Replicate ID:
Time Sampling Began: 1547
Time Sampling Completed: 1600

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): 41.69
Water Column (WC) in Well [TD-DTW]: 15.67
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.5072 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 7.5

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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 poly rope

SAMPLING DATA AND FIELD PARAMETERS

Color: Dark Brown (Stained) / Turbid Odor: None Turbidity: Stained

Well Volumes (gal.):	1.5	3.5 Dry			2.5	5.0	7.5	Final
pH (s.u.):					9.40	9.42	9.34	9.24
Sp. Cond. (µmhos/cm):					698	686	666	675
Temperature (°C):					13°	13°	13°	13°
Turbidity (N.T.U):								

Sampling Method and Material(s): Disposable bailer with poly rope

Parameters to be Analyzed	Container Description (From Lab X or HMI ___)	Preservative (preserved by: Lab X 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, Sp Cond, F	250 ml Plastic	4°C

Sampling Personnel: Steve Menosky, Joel Keller
Comments: Color does not filter out

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: Ormet - Reduction Mill
Project Number: HM00311
Site Location: Hannibal, Ohio
Sampling Date: 1-17-01 Weather: Cloudy 30

Sample ID: MW-35
Replicate ID:
Time Sampling Began: 1441
Time Sampling Completed: 1500

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): 36.70
Water Column (WC) in Well [TD-DTW]: 10.24
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 1.6384 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 5.0

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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 poly rope

SAMPLING DATA AND FIELD PARAMETERS

Color: Dark Brown / Stained Odor: None Turbidity:

Well Volumes (gal.):	1.5	3.0	5.0	Final 3.5 gal				
pH (s.u.):	10.10	9.78		9.59				
Sp. Cond. (µmhos/cm):	655	483		549				
Temperature (°C):	12°	12°		12°				
Turbidity (N.T.U):	Stained	Stained		Stained				

Sampling Method and Material(s): Disposable bailer with poly rope

Parameters to be Analyzed	Container Description (From Lab X or HMI ___)	Preservative (preserved by: Lab X 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, Sp Cond, F	250 ml Plastic	4° C

Sampling Personnel: Steve Menosky, Joel Keller
Comments:

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: Ormet - Reduction Mill
Project Number: HM00311
Site Location: Hannibal, Ohio
Sampling Date: 1-17-01 Weather: Cloudy 30's

Sample ID: MW-36
Replicate ID:
Time Sampling Began: 1531
Time Sampling Completed: 1545

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): 39.92
Water Column (WC) in Well [TD-DTW]: 12.16
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 1.9456 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 6.0

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 poly rope

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown/Stained Odor: None Turbidity: Stained

Well Volumes (gal.):	2	4	6	Final				
pH (s.u.):	10.60	10.71	10.86	11.00				
Sp. Cond. (µmhos/cm):	1545	1707	1707	1567				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): Disposable bailer with poly rope

Parameters to be Analyzed	Container Description (From Lab X or HMI ___)	Preservative (preserved by: Lab X 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, Sp Cond, F	250 ml Plastic	4°C

Sampling Personnel: Steve Menosky, Joel Keller
Comments: Color does not filter out

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: Ormet - Reduction Mill
Project Number: HM00311
Site Location: Hannibal, Ohio
Sampling Date: 1-17-01 Weather: Cloudy 30's

Sample ID: MW-37
Replicate ID:
Time Sampling Began: 1503
Time Sampling Completed: 1526

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): 22.86
Water Column (WC) in Well [TD-DTW]: 14.04
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.2464 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 6.75
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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 poly rope

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown/Turbid Odor: None Turbidity: Silty

Well Volumes (gal.):	2	4	7	Final				
pH (s.u.):	9.16	9.03	8.99	8.99				
Sp. Cond. (µmhos/cm):	664	681	701	678				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):	Very Silty	Very Silty	Very Silty	Very Silty				

Sampling Method and Material(s): Disposable bailer with poly rope

Parameters to be Analyzed	Container Description From Lab X or HMI ___	Preservative preserved by: Lab X 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, Sp Cond, F	250 ml Plastic	4°C

Sampling Personnel: Steve Menosky, Joel Keller
Comments: Color does not filter out

APPENDIX A-2

WATER SAMPLING LOG FORMS FOR MAY 2001 MONITORING EVENT

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-9-01 Weather: cloudy 60's

Sample ID: MW-1
Replicate ID: ~
Time Sampling Began: 0735
Time Sampling Completed: 0806

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): 55.90
Water Column (WC) in Well [TD-DTW]: 15.21
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.43 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 7.3 (7.5)

GALLONS PER FOOT (gpf)			
1½" = 0.08	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:

Well Volumes (gal.):	3	6	9	Final				
pH (s.u.):	6.79	6.76	6.54	6.35				
Sp. Cond. (µmhos/cm):	400	407	392	392				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):	Silty	Silty	Silty	Silty				

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	500ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250ml. PLASTIC	NAOH
pH, SPEC. COND., F	250ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: Purged 15 gallons. First time well has been sampled since repaired

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-8-01 Weather: cloudy 70's

Sample ID: MW-2
Replicate ID: MW-2D
Time Sampling Began: 0900
Time Sampling Completed: 0932

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): 59.97
Water Column (WC) in Well [TD-DTW]: 25.26
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.04 = Well Casing Volume (WCV)

= Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 12.12 (12.5)

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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 Stained Odor: None Turbidity: Silty

Well Volumes (gal.):	4	8	12	Final				
pH (s.u.):	10.42	10.59	10.65	10.66				
Sp. Cond. (µmhos/cm):	1585	1623	1647	1621				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):	Stained	Stained	Stained	Stained				

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 CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C
TETRACHLOROETHENE	2x40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-8-01 Weather: Cloudy 70

Sample ID: MW-5
Replicate ID: ~
Time Sampling Began: 0820
Time Sampling Completed: 0853

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): 68.63
Water Column (WC) in Well [TD-DTW]: 23.25
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.72 = Well Casing Volume (WCV)

= Diameter of Well Casing: 2.0"
Gallons to be Purged: 11.12 (11.5)
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1½" = 0.08	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/Stained Odor: None Turbidity:

Well Volumes (gal.):	3.5	7.0	11.5	Final				
pH (s.u.):	9.69	9.60	9.45	8.99				
Sp. Cond. (µmhos/cm):	780	773	765	791				
Temperature (°C):	14°	14°	14°	15°				
Turbidity (N.T.U):	cloudy	cloudy	cloudy	cloudy				

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 ___
Diss. As, Be, Mn, Na, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, Amenable CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C
TETRACHLOROETHENE	2x40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-9-01 Weather: Sunny 60's

Sample ID: MW-7
Replicate ID: ~
Time Sampling Began: 0955
Time Sampling Completed: 1020

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): 61.44
Water Column (WC) in Well [TD-DTW]: 18.26
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.92 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 8.76 (9)

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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, turbid Odor: None Turbidity:

Well Volumes (gal.):	3	6	9	Final				
pH (s.u.):	5.28	5.22	5.18	5.27				
Sp. Cond. (µmhos/cm):	819	763	800	771				
Temperature (°C):	34°	34°	39°	38°				
Turbidity (N.T.U):	Silty	Silty	Silty	Silty				

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 CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-10-01 Weather: Sunny 60's

Sample ID: MW-8
Replicate ID: ~
Time Sampling Began: 0815
Time Sampling Completed: 0902

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): 76.01
Water Column (WC) in Well [TD-DTW]: 23.77
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.80 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 11.4 (11.5)

GALLONS PER FOOT (gpf)			
1½" = 0.08	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:

Well Volumes (gal.):	4	8	11.5	Final				
pH (s.u.):	7.32	7.42	7.47	7.48				
Sp. Cond. (µmhos/cm):	481	479	486	482				
Temperature (°C):	15°	14°	14°	14°				
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	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: ~~[illegible]~~ 5-10-01 Weather: 60's

Sample ID: MW-10
Replicate ID: ~
Time Sampling Began: 0740
Time Sampling Completed: 0810

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): 76.14
Water Column (WC) in Well [TD-DTW]: 24.58
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.93 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 11.79 (12)

GALLONS PER FOOT (gpf)			
1½" = 0.08	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 slight tan tint Odor: None Turbidity:

Well Volumes (gal.):	4	8	12	Final				
pH (s.u.):	8.00	7.44	7.42	7.21				
Sp. Cond. (µmhos/cm):	562	538	5.33	502				
Temperature (°C):	17°	17°	17°	17°				
Turbidity (N.T.U):	Trans	Trans	Trans	Trans				

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 CN, Amenable CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-9-01 Weather: Sunny 70's

Sample ID: MW-11
Replicate ID: ~
Time Sampling Began: 1025
Time Sampling Completed: 1100

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): 68.60
Water Column (WC) in Well [TD-DTW]: 28.75
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.60

- Diameter of Well Casing: 2.0"
Gallons to be Purged: 13.8 (1H)
(3 WCVs, 5 WCVs, etc.)
= Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1½" = 0.08	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:

Well Volumes (gal.):	5	10	14	Final				
pH (s.u.):	6.43	6.95	7.01	7.26				
Sp. Cond. (µmhos/cm):	457	484	469	458				
Temperature (°C):	15°	16°	16°	16°				
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	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311

Site Location: HANNIBAL, OHIO

Sampling Date: 5-9-01 Weather: Sunny, 70's

Sample ID: MW-12

Replicate ID: ~

Time Sampling Began: 1116

Time Sampling Completed: 1140

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): 25.01

Water Column (WC) in Well [TD-DTW]: 43.23

Gallons per foot (GPF); from chart: 0.16

Gallons in Well [WC x GPF]: 6.92 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"

Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 20.75 (21)

GALLONS PER FOOT (gpf)			
1½" = 0.08	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.28	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:

Well Volumes (gal.):	7	14	21	Final				
pH (s.u.):	7.47	7.22	7.16	7.13				
Sp. Cond. (µmhos/cm):	431	412	422	442				
Temperature (°C):	15°	16°	16°	16°				
Turbidity (N.T.U):	clear	clear	clear	clear				

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 ___)
DISS. As, Be, Mn, Na, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-8-01 Weather: Rain 70's

Sample ID: MW-15
Replicate ID: ~
Time Sampling Began: 1445
Time Sampling Completed: 1505

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): 38.64
Water Column (WC) in Well [TD-DTW]: 19.22
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.08 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 9.22 (9.5)

GALLONS PER FOOT (gpf)			
1½" = 0.08	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:

Well Volumes (gal.):	3	6	10	Final				
pH (s.u.):	6.83	6.79	6.83	6.83				
Sp. Cond. (µmhos/cm):	492	497	500	501				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):	Stained	Stained	Stained	Stained				

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 CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 ml. 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
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-8-01 Weather: cloudy 70s

Sample ID: MW-16
Replicate ID: MW-16D
Time Sampling Began: 1135
Time Sampling Completed: 1209

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): 50.69
Water Column (WC) in Well [TD-DTW]: 32.42
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 5.18 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 15.56

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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, clear, Odor: None, Turbidity:

Well Volumes (gal.):	5	10	16	Final				
pH (s.u.):	8.99	8.29	8.22	8.04				
Sp. Cond. (µmhos/cm):	1040	926	922	920				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):	Stained	Stained	Stained	Stained				

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 CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-10-01 Weather: Sunny 70's

Sample ID: MW-17
Replicate ID: ~
Time Sampling Began: 1031
Time Sampling Completed:

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): 38.55
Water Column (WC) in Well [TD-DTW]: 39.36
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.30 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 18.89 (19)
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)

1¼" = 0.08	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:

Well Volumes (gal.):	7	14	19	Final				
pH (s.u.):	7.72	7.59	7.41	7.36				
Sp. Cond. (µmhos/cm):	446	466	442	460				
Temperature (°C):	14°	14°	14°	15°				
Turbidity (N.T.U):	cloudy	cloudy	cloudy	cloudy				

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 ___
Diss. As, Be, Mn, Na, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, Amenable CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C

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

HM07-OFWS-LOG.WK3

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-8-01 Weather: Cloudy 70's

Sample ID: MW-18
Replicate ID: MW-18D
Time Sampling Began: 1010
Time Sampling Completed: 1044

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): 40.27
Water Column (WC) in Well [TD-DTW]: 16.73
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.67 = Well Casing Volume (WCV)

= Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 8.03

GALLONS PER FOOT (gpf)

1¼" = 0.08	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:

Well Volumes (gal.):	3	6	8.03	Final				
pH (s.u.):	9.75	9.98	10.05	10.36				
Sp. Cond. (µmhos/cm):	1693	1867	1803	1780				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):	Muddy	Muddy	Muddy	Muddy				

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 CN, Amenable CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C
TETRACHLOROETHENE	2 x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: Dewatered at 6.5 gallons, sampled upon recovery
Color does not filter out

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-8-01 Weather: Rain 70's

Sample ID: MW-19
Replicate ID: ~
Time Sampling Began: 1415
Time Sampling Completed: 1437

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): 42.35
Water Column (WC) in Well [TD-DTW]: 22.85
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.66

= Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 10.97 (11)
= Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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:

Well Volumes (gal.):	3.5	7.0	11.0	Final				
pH (s.u.):	6.74	6.87	6.95	6.96				
Sp. Cond. (µmhos/cm):	475	488	485	494				
Temperature (°C):	12°	12°	12°	12°				
Turbidity (N.T.U):	cloudy	cloudy	cloudy	cloudy				

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 ___
Diss. As, Be, Mn, Na, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, Amenable CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-9-01 Weather: P-Cloudy 60's

Sample ID: MW-28
Replicate ID: ~
Time Sampling Began: 0815
Time Sampling Completed: 0840

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): 22.34
Water Column (WC) in Well [TD-DTW]: 23.72
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.80 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 11.38

GALLONS PER FOOT (gpf)			
1¼" = 0.08	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.28	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: TAN Odor: NONE Turbidity:

Well Volumes (gal.):	4	8	12	Final				
pH (s.u.):	5.46	5.22	5.19	5.20				
Sp. Cond. (µmhos/cm):	387	391	386	391				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):	cloudy	cloudy	cloudy	cloudy				

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 CN, Amenable CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-9-01 Weather: Sunny, 70's

Sample ID: MW-29S
Replicate ID: ~
Time Sampling Began: 0930
Time Sampling Completed: 0950

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): 41.82
Water Column (WC) in Well [TD-DTW]: 19.53
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.12 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 9.37 (9.5)

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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, gold tint Odor: None Turbidity:

Well Volumes (gal.):	3.5	7.0	10.0	Final				
pH (s.u.):	7.20	7.45	7.50	7.54				
Sp. Cond. (µmhos/cm):	788	830	823	828				
Temperature (°C):	14°	14°	14°	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	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
Total CN, Amenable CN	250 ml. PLASTIC	NaOH
pH, Spec. Cond., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-9-01 Weather: P-Cloudy 60's

Sample ID: MW-29D
Replicate ID: ~
Time Sampling Began: 0848
Time Sampling Completed: 0930

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): 41.41
Water Column (WC) in Well [TD-DTW]: 40.57
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.49 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 19.47 (19.5)

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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:

Well Volumes (gal.):	7	14	20	Final				
pH (s.u.):	6.81	6.71	6.80	6.82				
Sp. Cond. (µmhos/cm):	496	488	496	489				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):	clear	clear	clear	clear				

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 ___)
Diss. As, Be, Mn, Na, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-8-01 Weather: Cloudy 70's

Sample ID: MW-30
Replicate ID: ~
Time Sampling Began: 0945
Time Sampling Completed: 1000

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): 49.45
Water Column (WC) in Well [TD-DTW]: 10.96
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 1.75 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 5.26 (5.5)
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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:

Well Volumes (gal.):	1.5	3.0	5.5	Final				
pH (s.u.):	8.01			6.21				
Sp. Cond. (µmhos/cm):	417			409				
Temperature (°C):	14°			14°				
Turbidity (N.T.U):	Very Silty			Silty				

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 CN, Amenable CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C
TETRACHLOROETHENE	2x40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: Dewatered at 2.5 gallons, Sampled upon recovery

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-8-01 Weather: Cloudy 70's

Sample ID: MW-31
Replicate ID: ~
Time Sampling Began: 1053
Time Sampling Completed: 1116

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): 48.45
Water Column (WC) in Well [TD-DTW]: 19.06
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.05 = Well Casing Volume (WCV)

= Diameter of Well Casing: 2.0"
Gallons to be Purged: 9.15 (9.5)
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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:

Well Volumes (gal.):	3	6	9	Final				
pH (s.u.):	10.69	10.80	10.84	10.85				
Sp. Cond. (µmhos/cm):	1884	1923	1922	1866				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):	Stained	Stained	Stained	Stained				

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 ___)
Diss. As, Be, Mn, Na, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C
TETRACHLOROETHENE	2 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-8-01 Weather: Rain 70's

Sample ID: MW-32
Replicate ID: ~
Time Sampling Began: 1530
Time Sampling Completed:

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): 41.03
Water Column (WC) in Well [TD-DTW]: 16.15
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.58 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 7.75 (8.0)

GALLONS PER FOOT (gpf)			
1½" = 0.08	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.28	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Black, green Odor: None Turbidity:

Well Volumes (gal.):	3	6	8.0	Final				
pH (s.u.):	9.05	8.96	8.94	8.84				
Sp. Cond. (µmhos/cm):	637	635	636	624				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):	Stained	Stained	Stained	Stained				

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 CN, Amenable CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 ml. 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
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-10-01 Weather: Sunny 70's

Sample ID: MW-34S
Replicate ID: ~
Time Sampling Began: 1140
Time Sampling Completed: 1155

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): 38.49
Water Column (WC) in Well [TD-DTW]: 10.86
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 1.74 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 5.21 (5.5)

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:

Well Volumes (gal.):	2	4	5.5	Final				
pH (s.u.):	7.38	7.30	7.25	7.34				
Sp. Cond. (µmhos/cm):	506	520	533	537				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):	Silty	Silty	Silty	Silty				

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 ___)
DISS. AS, BE, MN, NA, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311

Site Location: HANNIBAL, OHIO

Sampling Date: 5-10-01 Weather: Sunny 70's

Sample ID: MW-34D

Replicate ID: ~

Time Sampling Began: 1107

Time Sampling Completed: 1139

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): 36.58

Water Column (WC) in Well [TD-DTW]: 31.66

Gallons per foot (GPF); from chart: 0.16

Gallons in Well [WC x GPF]: 5.06 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"

Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 15.2 (15.5)

GALLONS PER FOOT (gpf)			
1½" = 0.08	2" = 0.16	3" = 0.37	4" = 0.65
1¼" = 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: Trans tan tint Odor: None Turbidity:

Well Volumes (gal.):	5	10	15.5	Final				
pH (s.u.):	7.27	7.26	7.17	7.16				
Sp. Cond. (µmhos/cm):	440	419	435	453				
Temperature (°C):	14°	14°	14°	15°				
Turbidity (N.T.U):	Trans	Trans	Trans	Trans				

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 ___)
Diss. As, Be, Mn, Na, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-9-01 Weather: Sunny 70's

Sample ID: MW-35
Replicate ID: ~
Time Sampling Began: 1330
Time Sampling Completed: 1355

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)	46.70	Gallons to be Purged	4.95 (5.0)
Depth to Water Below MP (DTW)	36.38	(3 WCVs, 5 WCVs, etc.)	
Water Column (WC) in Well [TD-DTW]	10.32		
Gallons per foot (GPF); from chart	0.16		
Gallons in Well [WC x GPF]	1.65	= Well Casing Volume (WCV)	

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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: None Turbidity:

Well Volumes (gal.):	2	4	5.0	Final				
pH (s.u.):	8.88	8.90		9.43				
Sp. Cond. (µmhos/cm):	501	463		790				
Temperature (°C):	16°	16°		16°				
Turbidity (N.T.U):	Stained	Stained		Stained				

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 ___)
Diss. As, Be, Mn, Na, V	500ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250ml. PLASTIC	NAOH
pH, SPEC. COND., F	250ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: Dewatered at 4 gal. Sampled upon recovery
Color does not filter out

HMI-GWS-LOG.WK3

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL

Project Number: HM00311

Site Location: HANNIBAL, OHIO

Sampling Date: 5-8-01 Weather: Rain 70's

Sample ID: MW-36

Replicate ID: ~

Time Sampling Began: 1510

Time Sampling Completed: 1525

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): 39.15

Water Column (WC) in Well [TD-DTW]: 12.93

Gallons per foot (GPF); from chart: 0.16

Gallons in Well [WC x GPF]: 2.07 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"

Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 6.21 (6.5)

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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:

Well Volumes (gal.):	2	4	6.5	Final				
pH (s.u.):	9.38	9.95	9.96	10.28				
Sp. Cond. (µmhos/cm):	1046	1127	1123	1109				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):	cloudy	cloudy	cloudy	cloudy				

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 ___)
Diss. As, Be, Mn, Na, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-9-01 Weather: Sunny 70's

Sample ID: MW-37
Replicate ID: ~
Time Sampling Began: 1300
Time Sampling Completed: 1324

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 36.98
Depth to Water Below MP (DTW): 21.93
Water Column (WC) in Well [TD-DTW]: 15.05
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.41

= Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 7.2 (7.5)
= Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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 turbid Odor: None Turbidity:

Well Volumes (gal.):	3	5	7.5	Final				
pH (s.u.):	8.20	8.02	7.91	7.97				
Sp. Cond. (µmhos/cm):	523	512	507	528				
Temperature (°C):	15°	16°	15°	14°				
Turbidity (N.T.U):	Silty	Silty	Silty	Silty				

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 ___
Diss. As, Be, Mn, Na, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, Amenable CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-9-01 Weather: Sunny 70's

Sample ID: MW-39s
Replicate ID: ~
Time Sampling Began: 1435
Time Sampling Completed: 1458

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 60.23
Depth to Water Below MP (DTW): 42.36
Water Column (WC) in Well [TD-DTW]: 17.87
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.86 = Well Casing Volume (WCV)

= Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 8.57

GALLONS PER FOOT (gpf)

1½" = 0.08	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: Tan cloudy Odor: None Turbidity:

Well Volumes (gal.):	3	6	9	Final				
pH (s.u.):	8.74	9.09	9.18	9.38				
Sp. Cond. (µmhos/cm):	2660	2790	2750	2820				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):	cloudy	cloudy	cloudy	cloudy				

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 CN, Amenable CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-9-01 Weather: Sunny 70's

Sample ID: MW-39D
Replicate ID: ~
Time Sampling Began: 1355
Time Sampling Completed: 1431

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): 42.02
Water Column (WC) in Well [TD-DTW]: 38.19
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.11 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 18.33 (18.5)

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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:

Well Volumes (gal.):	6	12	18.5	Final				
pH (s.u.):	8.90	8.36	8.11	7.83				
Sp. Cond. (µmhos/cm):	432	404	379	423				
Temperature (°C):	14°	17°	14°	16°				
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	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-10-01 Weather: Sunny 70's

Sample ID: MW-40S
Replicate ID: ~
Time Sampling Began: 0951
Time Sampling Completed: 1017

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): 53.97
Water Column (WC) in Well [TD-DTW]: 16.43
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.62 = Well Casing Volume (WCV)

= Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 7.88 (8.0)

GALLONS PER FOOT (gpf)			
1½" = 0.08	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 slight tan tint Odor: None Turbidity:

Well Volumes (gal.):	3	6	8	Final				
pH (s.u.):	7.51	7.60	7.60	7.61				
Sp. Cond. (µmhos/cm):	631	669	674	693				
Temperature (°C):	15°	15°	14°	15°				
Turbidity (N.T.U):	clear	clear	clear	clear				

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 ___
Diss. As, Be, Mn, Na, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, Amenable CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-10-01 Weather: Sunny 60's

Sample ID: MW-40D
Replicate ID: ~
Time Sampling Began: 0906
Time Sampling Completed: 0951

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): 53.82
Water Column (WC) in Well [TD-DTW]: 36.58
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 5.85 = Well Casing Volume (WCV)

= Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 17.56

GALLONS PER FOOT (gpf)			
1½" = 0.08	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.28	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:

Well Volumes (gal.):	6	12	18	Final				
pH (s.u.):	7.47	7.43	7.48	7.45				
Sp. Cond. (µmhos/cm):	612	584	592	611				
Temperature (°C):	14°	14°	16°	14°				
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	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, Amenable CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311

Site Location: HANNIBAL, OHIO

Sampling Date: 5-8-01 Weather: Rain 70's

Sample ID: MW-41

Replicate ID: ~

Time Sampling Began: 1343

Time Sampling Completed: 1410

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): 13.28

Water Column (WC) in Well [TD-DTW]: 48.98

Gallons per foot (GPF); from chart: 0.16

Gallons in Well [WC x GPF]: 7.83 = Well Casing Volume (WCV)

= Diameter of Well Casing: 2.0"

Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 23.51

GALLONS PER FOOT (gpf)			
1½" = 0.08	2" = 0.16	3" = 0.37	4" = 0.65
1¼" = 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	24	Final				
pH (s.u.):	6.95	6.97	6.99	7.0				
Sp. Cond. (µmhos/cm):	390	385	401	421				
Temperature (°C):	14°	14°	14°	14°				
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	500ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250ml. PLASTIC	NAOH
pH, SPEC. COND., F	250ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 5-9-01 Weather: Sunny 70's

Sample ID: MW-42S
Replicate ID: ~
Time Sampling Began: 1541
Time Sampling Completed: 1555

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): 41.58
Water Column (WC) in Well [TD-DTW]: 10.72
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 1.72

= Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 5.14
= Well Casing Volume (WCV)

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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 brown tint Odor: None Turbidity:

Well Volumes (gal.):	1.5	3.0	5.2	Final				
pH (s.u.):	7.79	7.91	7.96	8.03				
Sp. Cond. (µmhos/cm):	1088	1167	1187	1208				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):	tint	tint	tint	tint				

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 ___
Diss. As, Be, Mn, Na, V	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, Amenable CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 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: HM00311

Site Location: HANNIBAL, OHIO

Sampling Date: 5-9-01 Weather: Sunny 70's

Sample ID: MW-42D

Replicate ID: ~

Time Sampling Began: 1500

Time Sampling Completed: 1540

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): 41.45

Water Column (WC) in Well [TD-DTW]: 43.65

Gallons per foot (GPF); from chart: 0.16

Gallons in Well [WC x GPF]: 6.98 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"

Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 20.9 (21)

GALLONS PER FOOT (gpf)			
1½" = 0.08	2" = 0.16	3" = 0.37	4" = 0.65
1¼" = 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:

Well Volumes (gal.):	7	14	21	Final				
pH (s.u.):	8.60	8.10	7.99	7.68				
Sp. Cond. (µmhos/cm):	495	450	416	462				
Temperature (°C):	15°	15°	15°	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	500 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	250 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

APPENDIX A-3

WATER SAMPLING LOG FORMS FOR SEPTEMBER 2001
MONITORING EVENT

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-01 Weather: Sunny 80

Sample ID: MW-2
Replicate ID: ~
Time Sampling Began: 1524
Time Sampling Completed: 1550

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): 58.20
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 (3 WCVs, 5 WCVs, etc.): 11.54

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 POLY ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. Brown/Black Odor: None Turbidity: Stained, Silty

Well Volumes (gal.):	4.0	8.0	12.0	Final				
pH (s.u.):	9.88	10.02	10.06	10.14				
Sp. Cond. (µmhos/cm):	1,356	1,464	1,510	1,635				
Temperature (°C):	15°	16°	15°	16°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLY 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
TOTAL + AMENABLE Cn	250 ml. GLASS	NAOH
pH, SP. 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

HM07-07WS-LOG.WK3

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-01 Weather: Sunny 80

Sample ID: MW-5
Replicate ID: MW-5d
Time Sampling Began: 1435
Time Sampling Completed: 1512

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): 65.98
Water Column (WC) in Well [TD-DTW]: 26.02
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.1632

- Diameter of Well Casing: 2.0
Gallons to be Purged: 12.5
(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 POLY ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear, slight tan tint Odor: None Turbidity: Clear

Well Volumes (gal.):	4.0	8.0	12.5	Final				
pH (s.u.):	8.95	8.84	8.80	8.69				
Sp. Cond. (µmhos/cm):	830	750	719	708				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLY 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
TOTAL + AMENABLE Cn	250 ml. GLASS	NAOH
pH, SP. COND., F	250 ml. PLASTIC	4°C
PCE	2 x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-01 Weather: Sunny 70's

Sample ID: MW-12
Replicate ID: ~
Time Sampling Began: 1212
Time Sampling Completed: 1242

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): 23.33
Water Column (WC) in Well [TD-DTW]: 45.09
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.2144 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0
Gallons to be Purged: 21.7
(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 POLY ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	7.0	14.0	21.7	Final				
pH (s.u.):	8.15	8.00	7.90	7.96				
Sp. Cond. (µmhos/cm):	478	452	458	460				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLY 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
TOTAL + AMENABLE Cn	250 ml. GLASS	NAOH
pH, SP. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-01 Weather: Cloudy 70's

Sample ID: MW-16
Replicate ID: MW-16d
Time Sampling Began: 0810
Time Sampling Completed: 0905

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): 49.10
Water Column (WC) in Well [TD-DTW]: 34.02
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 5.4432 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 16.3

GALLONS PER FOOT (gpf)			
1¼" = 0.08	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 POLY ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. Brown Odor: None Turbidity: Stained

Well Volumes (gal.):	6.0	12.0	16.5	Final				
pH (s.u.):	8.99	8.64	8.21	7.86				
Sp. Cond. (µmhos/cm):	1,058	988	966	754				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLY 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
TOTAL + AMENABLE Cn	250 ml. GLASS	NAOH
pH, SP. COND., F	250 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
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-01 Weather: Sunny 70's

Sample ID: MW-18
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): 61.16
Depth to Water Below MP (DTW): 39.96
Water Column (WC) in Well [TD-DTW]: 21.20
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.392

Diameter of Well Casing: 2.0
Gallons to be Purged: 10.2
(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	5" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLY ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. Brown Odor: None Turbidity: Silty, Stained

Well Volumes (gal.):	3.0	6.0 *	10.2 *	Final				
pH (s.u.):	9.17	9.51	9.62	9.75				
Sp. Cond. (µmhos/cm):	1,435	1,618	1,621	1,668				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLY 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
TOTAL + AMENABLE Cn	250 ml. GLASS	NAOH
pH, SP. COND., F	250 ml. PLASTIC	4°C
PCE	2 x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: Dewatered at 3.5 Gallons
* Parameters measured at 3.5 and 5.0 gallons
Color does not filter out

HM07-07WB-LOG.WK3

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-01 Weather: Sunny 70's

Sample ID: MW-28
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): 46.20
Depth to Water Below MP (DTW): 20.40
Water Column (WC) in Well [TD-DTW]: 25.80
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.128 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0
Gallons to be Purged: 12.4
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)			
1½" = 0.08	2" = 0.16	3" = 0.37	4" = 0.65
1¼" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLY ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear, Tan Tint Odor: None Turbidity: Clear

Well Volumes (gal.):	4.0	8.0	12.4	Final				
pH (s.u.):	7.24	6.71	6.60	6.01				
Sp. Cond. (µmhos/cm):	443	407	429	415				
Temperature (°C):	15°	14°	14°	14°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLY 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
TOTAL + AMENABLE Cn	250 ml. GLASS	NAOH
pH, SP. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-01 Weather: Sunny 70's

Sample ID: MW-31
Replicate ID: ~
Time Sampling Began: 1401
Time Sampling Completed: 1425

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): 46.83
Water Column (WC) in Well [TD-DTW]: 20.75
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.32 = Well Casing Volume (WCV)

- Diameter of Well Casing: 2.0
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 10.0

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 POLY ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. Brown/Black Odor: None Turbidity: Stained

Well Volumes (gal.):	3.0	6.0	10.0	Final				
pH (s.u.):	9.73	9.87	9.90	9.98				
Sp. Cond. (µmhos/cm):	1,801	1,870	1,898	1,877				
Temperature (°C):	17°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLY 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
TOTAL + AMENABLE Cn	250 ml. GLASS	NAOH
pH, SP. 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

HM07-97WS-LOG.WK3

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-01 Weather: Sunny, 70's

Sample ID: MW-32
Replicate ID: ~
Time Sampling Began: 1114
Time Sampling Completed: 1135

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): 39.48
Water Column (WC) in Well [TD-DTW]: 17.88
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.8608 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 8.6

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 POLY ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. Black Odor: None Turbidity: Stained

Well Volumes (gal.):	3.0	6.0	9.0	Final				
pH (s.u.):	8.51	8.55	8.60	8.74				
Sp. Cond. (µmhos/cm):	544	546	583	606				
Temperature (°C):	16°	15°	16°	16°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLY 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
TOTAL + AMENABLE Cn	250 ml. GLASS	NAOH
pH, SP. COND., F	250 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: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-01 Weather: Sunny 70's

Sample ID: MW-35
Replicate ID: ~
Time Sampling Began: 1047
Time Sampling Completed: 1107

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): 35.93
Water Column (WC) in Well [TD-DTW]: 11.01
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 1.7616 = Well Casing Volume (WCV)

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

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 POLY ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. Brown/Black Odor: None Turbidity: Stained

Well Volumes (gal.):	2.0	4.0	5.3	Final				
pH (s.u.):	8.32	8.93	8.88	9.03				
Sp. Cond. (µmhos/cm):	556	830	726	749				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLY 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
TOTAL + AMENABLE Cn	250 ml. GLASS	NAOH
pH, SP. COND., F	250 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
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-01 Weather: Sunny 70's

Sample ID: MW-36
Replicate ID:
Time Sampling Began: 1140
Time Sampling Completed: 1204

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 (3 WCVs, 5 WCVs, etc.): 6.9

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 POLY ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown, Stained Odor: None Turbidity: Silty

Well Volumes (gal.):	2.5	5.0	7.0	Final				
pH (s.u.):	9.68	9.72	9.75	9.75				
Sp. Cond. (µmhos/cm):	866	890	966	960				
Temperature (°C):	15°	15°	15°	16°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLY 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
TOTAL + AMENABLE Cn	250 ml. GLASS	NAOH
pH, SP. COND., F	250 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
Project Number: HM00311
Site Location: HANNIBAL, OHIO
Sampling Date: 9-11-01 Weather: Sunny 70's

Sample ID: MW-37
Replicate ID: ~
Time Sampling Began: 1015
Time Sampling Completed: 1040

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): 19.71
Water Column (WC) in Well [TD-DTW]: 17.19
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.7504 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 8.3

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 POLY ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: Silty

Well Volumes (gal.):	3.0	6.0	8.3	Final				
pH (s.u.):	6.51	7.02	7.24	7.54				
Sp. Cond. (µmhos/cm):	623	652	640	590				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

Sampling Method and Material(s): DISPOSABLE BAILER WITH POLY 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
TOTAL + AMENABLE Cn	250 ml. GLASS	NAOH
pH, SP. COND., F	250 ml. PLASTIC	4°C

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

APPENDIX B

LABORATORY ANALYTICAL REPORTS

Appendix B-1 Laboratory Analytical Report for January 2001 Monitoring Event

Appendix B-2 Laboratory Analytical Report for May 2001 Monitoring Event

Appendix B-3 Laboratory Analytical Report for September 2001 Monitoring Event

APPENDIX B-1

LABORATORY ANALYTICAL REPORT FOR JANUARY 2001 MONITORING EVENT

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

Ormet Corporation
Hydrosystems Management Inc.
331 S. Main Street, Suite 109
Washington, PA 15301
Attention: Steve Menoski

PO Number: HRDS77653
Account Number: ORMET-086
Invoice Number: 550910

Login #: L0101354
Report Date: 04/09/01
Work ID: HM00311/ORMET-REDUCTION MILL
Date Received: 01/17/01

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
L0101354-01	MW-2	L0101354-02	MW-5
L0101354-03	MW-5D	L0101354-04	MW-18
L0101354-05	MW-31	L0101354-06	FIELD BLANK
L0101354-07	MW-12	L0101354-08	MW-16
L0101354-09	MW-16D	L0101354-10	MW-28
L0101354-11	MW-32	L0101354-12	MW-35
L0101354-13	MW-36	L0101354-14	MW-37
L0101354-15	TRIP BLANK		

REVISED REPORT

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

Certified By
David L. Bumgarner

KEMRON
ENVIRONMENTAL SERVICES

Login #L0101354
April 9, 2001 11:08 am

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0101354-01
Client Sample ID: MW-2
Site/Work ID: HM00311/ORMET-REDUCTION MILL

Matrix: Water
Collected: 01/17/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	18		0.50	50	N/A	JMM	01/22/01	09:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	3.4		0.50	50	N/A	JMM	01/24/01	08:00	335.1
Specific Conductance.....	umhos/cm	1900		1.0	1	N/A	JWR	01/24/01	11:00	120.1
Fluoride.....	mg/L	68		1.0	10	N/A	DLP	01/23/01	13:15	SM4500-F-C
pH	UNITS	9.91			1	N/A	DLN	01/18/01	14:20	150.1
Arsenic, Dissolved.....	mg/L	0.082		0.004	1	N/A	SLP	01/27/01	00:50	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.00073		0.0005	1	N/A	SLP	01/27/01	00:50	6010B\3005A
Manganese, Dissolved.....	mg/L	1.1		0.01	1	N/A	SLP	01/27/01	00:50	6010B\3005A
Sodium, Dissolved.....	mg/L	450		5.0	10	RE	ALT	01/31/01	20:37	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.045		0.01	1	N/A	SLP	01/27/01	00:50	6010B\3005A

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0101354-01
Client Sample ID: MW-2
Site/Work ID: HM00311/ORMET-REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 01/17/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/19/01 Time: 08:26

Instrument: HPMS9
Analyst: MES
Lab File ID: 9M14332

Method: 8260B
Run ID: R111721
Batch : WG90458

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L		ND	5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	88.2	(86 - 118%)
1,2-Dichloroethane-d4.....	83.6	(80 - 120%)
Toluene-d8.....	103	(88 - 110%)
4-Bromofluorobenzene.....	109	(86 - 115%)

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0101354-02
Client Sample ID: MW-5
Site/Work ID: HM00311/ORMET-REDUCTION MILL

Matrix: Water
Collected: 01/17/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	2.7		0.10	10	N/A	JMM	01/22/01	09:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.13		0.10	10	N/A	JMM	01/24/01	08:00	335.1
Specific Conductance.....	umhos/cm	1000		1.0	1	N/A	JWR	01/24/01	11:00	120.1
Fluoride.....	mg/L	13		0.20	2	N/A	DLP	01/23/01	13:15	SM4500-F-C
pH	UNITS	8.65			1	N/A	DLN	01/18/01	14:20	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	SLP	01/27/01	00:06	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	SLP	01/27/01	00:06	6010B\3005A
Manganese, Dissolved.....	mg/L	0.72		0.01	1	N/A	SLP	01/27/01	00:06	6010B\3005A
Sodium, Dissolved.....	mg/L	190		5.0	10	RE	ALT	01/31/01	19:45	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	SLP	01/27/01	00:06	6010B\3005A

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0101354-02
Client Sample ID: MW-5
Site/Work ID: HM00311/ORMET-REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 01/17/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/19/01 Time: 06:19

Instrument: HPMS9
Analyst: MES
Lab File ID: 9M14328

Method: 8260B
Run ID: R111721
Batch : WG90458

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L		ND	5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	88.2	(86 - 118%)
1,2-Dichloroethane-d4.....	83.7	(80 - 120%)
Toluene-d8.....	102	(88 - 110%)
4-Bromofluorobenzene.....	111	(86 - 115%)

RL = Reporting Limit

Login #L0101354
April 9, 2001 11:08 am

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0101354-03
Client Sample ID: MW-5D
Site/Work ID: HM00311/ORMET-REDUCTION MILL

Matrix: Water
Collected: 01/17/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	2.8		0.10	10	N/A	JMM	01/22/01	09:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.33		0.10	10	N/A	JMM	01/24/01	08:00	335.1
Specific Conductance.....	umhos/cm	1000		1.0	1	N/A	JWR	01/24/01	11:00	120.1
Fluoride.....	mg/L	14		0.20	2	N/A	DLP	01/23/01	13:15	SM4500-F-C
pH	UNITS	8.65			1	N/A	DLN	01/18/01	14:20	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	SLP	01/27/01	00:55	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	SLP	01/27/01	00:55	6010B\3005A
Manganese, Dissolved.....	mg/L	0.58		0.01	1	N/A	SLP	01/27/01	00:55	6010B\3005A
Sodium, Dissolved.....	mg/L	210		5.0	10	RE	ALT	01/31/01	20:43	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	SLP	01/27/01	00:55	6010B\3005A

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0101354-03
Client Sample ID: MW-5D
Site/Work ID: HM00311/ORMET-REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 01/17/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/19/01 Time: 06:51

Instrument: HPMS9
Analyst: MES
Lab File ID: 9M14329

Method: 8260B
Run ID: R111721
Batch : WG90458

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L		ND	5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	88.2	(86 - 118%)
1,2-Dichloroethane-d4.....	85.4	(80 - 120%)
Toluene-d8.....	102	(88 - 110%)
4-Bromofluorobenzene.....	110	(86 - 115%)

RL = Reporting Limit

Login #L0101354
April 9, 2001 11:08 am

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0101354-04
Client Sample ID: MW-18
Site/Work ID: HM00311/ORMET-REDUCTION MILL

Matrix: Water
Collected: 01/17/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	53		5.0	500	N/A	DLN	01/23/01	09:30	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	9.2		5.0	500	N/A	JMM	01/24/01	08:00	335.1
Specific Conductance.....	umhos/cm	2500		1.0	1	N/A	JWR	01/24/01	11:00	120.1
Fluoride.....	mg/L	170		2.5	25	N/A	DLP	01/23/01	13:15	SM4500-F-C
pH	UNITS	9.62			1	N/A	DLN	01/18/01	14:20	150.1
Arsenic, Dissolved.....	mg/L	0.067		0.004	1	N/A	SLP	01/27/01	00:59	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.0006		0.0005	1	N/A	SLP	01/27/01	00:59	6010B\3005A
Manganese, Dissolved.....	mg/L	0.30		0.01	1	N/A	SLP	01/27/01	00:59	6010B\3005A
Sodium, Dissolved.....	mg/L	580		5.0	10	RE	ALT	01/31/01	20:48	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.019		0.01	1	N/A	SLP	01/27/01	00:59	6010B\3005A

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0101354-04
Client Sample ID: MW-18
Site/Work ID: HM00311/ORMET-REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 01/17/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/19/01 Time: 07:23

Instrument: HPMS9
Analyst: MES
Lab File ID: 9M14330

Method: 8260B
Run ID: R111721
Batch : WG90458

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L	43		5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	87.8	(86 - 118%)
1,2-Dichloroethane-d4.....	85.4	(80 - 120%)
Toluene-d8.....	101	(88 - 110%)
4-Bromofluorobenzene.....	108	(86 - 115%)

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0101354-05
Client Sample ID: MW-31
Site/Work ID: HM00311/ORMET-REDUCTION MILL

Matrix: Water
Collected: 01/17/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	13		0.50	50	N/A	JMM	01/22/01	09:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	1.5		0.50	50	N/A	JMM	01/24/01	08:00	335.1
Specific Conductance.....	umhos/cm	2100		1.0	1	N/A	JWR	01/24/01	11:00	120.1
Fluoride.....	mg/L	110		2.5	25	N/A	DLP	01/23/01	13:15	SM4500-F-C
pH	UNITS	10.1			1	N/A	DLN	01/18/01	14:20	150.1
Arsenic, Dissolved.....	mg/L	0.056		0.004	1	N/A	SLP	01/27/01	01:03	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.001		0.0005	1	N/A	SLP	01/27/01	01:03	6010B\3005A
Manganese, Dissolved.....	mg/L	1.3		0.01	1	N/A	SLP	01/27/01	01:03	6010B\3005A
Sodium, Dissolved.....	mg/L	560		5.0	10	RE	ALT	01/31/01	20:53	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.11		0.01	1	N/A	SLP	01/27/01	01:03	6010B\3005A

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0101354-05
Client Sample ID: MW-31
Site/Work ID: HM00311/ORMET-REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 01/17/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/19/01 Time: 07:54

Instrument: HPMS9
Analyst: MES
Lab File ID: 9M14331

Method: 8260B
Run ID: R111721
Batch : WG90458

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L	20		5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	87.6	(86 - 118%)
1,2-Dichloroethane-d4.....	83.5	(80 - 120%)
Toluene-d8.....	102	(88 - 110%)
4-Bromofluorobenzene.....	108	(86 - 115%)

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0101354-06
Client Sample ID: FIELD BLANK
Site/Work ID: HM00311/ORMET-REDUCTION MILL

Matrix: Water
Collected: 01/17/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L		ND	0.01	1	N/A	JMM	01/22/01	09:00	9010B\9014
Specific Conductance.....	umhos/cm	1.1		1.0	1	N/A	JWR	01/24/01	11:00	120.1
Fluoride.....	mg/L		ND	0.10	1	N/A	DLP	01/23/01	13:15	SM4500-F-C
pH	UNITS	5.82			1	N/A	DLN	01/18/01	14:20	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	SLP	01/27/01	01:07	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	SLP	01/27/01	01:07	6010B\3005A
Manganese, Dissolved.....	mg/L		ND	0.01	1	N/A	SLP	01/27/01	01:07	6010B\3005A
Sodium, Dissolved.....	mg/L	1.2		0.50	1	RE	ALT	01/31/01	21:53	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	SLP	01/27/01	01:07	6010B\3005A

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0101354-06
Client Sample ID: FIELD BLANK
Site/Work ID: HM00311/ORMET-REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 01/17/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/19/01 Time: 10:32

Instrument: HPMS2
Analyst: CMS
Lab File ID: 2M41475

Method: 8260B
Run ID: R111215
Batch : WG90466

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L		ND	5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	95.1	(86 - 118%)
1,2-Dichloroethane-d4.....	90.2	(80 - 120%)
Toluene-d8.....	97.5	(88 - 110%)
4-Bromofluorobenzene.....	99.2	(86 - 115%)

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0101354-07
Client Sample ID: MW-12
Site/Work ID: HM00311/ORMET-REDUCTION MILL

Matrix: Water
Collected: 01/17/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L		ND	0.01	1	N/A	JMM	01/22/01	09:00	9010B\9014
Specific Conductance.....	umhos/cm	530		1.0	1	N/A	JWR	01/24/01	11:00	120.1
Fluoride.....	mg/L	0.92		0.10	1	N/A	DLP	01/23/01	13:15	SM4500-F-C
pH	UNITS	7.56			1	N/A	DLN	01/18/01	14:20	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	SLP	01/27/01	01:07	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	SLP	01/27/01	01:07	6010B\3005A
Manganese, Dissolved.....	mg/L	1.8		0.01	1	N/A	SLP	01/27/01	01:07	6010B\3005A
Sodium, Dissolved.....	mg/L	1.2		0.50	1	RE	ALT	01/31/01	21:53	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	SLP	01/27/01	01:07	6010B\3005A

Lab Sample ID: L0101354-08
Client Sample ID: MW-16
Site/Work ID: HM00311/ORMET-REDUCTION MILL

Matrix: Water
Collected: 01/17/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	16		0.50	50	N/A	JMM	01/22/01	09:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	3.2		0.50	50	N/A	JMM	01/24/01	08:00	335.1
Specific Conductance.....	umhos/cm	1200		1.0	1	N/A	JWR	01/24/01	11:00	120.1
Fluoride.....	mg/L	24		0.50	5	N/A	DLP	01/23/01	13:15	SM4500-F-C
pH	UNITS	7.84			1	N/A	DLN	01/18/01	14:20	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	SLP	01/27/01	01:11	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	SLP	01/27/01	01:11	6010B\3005A
Manganese, Dissolved.....	mg/L	1.6		0.01	1	N/A	SLP	01/27/01	01:11	6010B\3005A
Sodium, Dissolved.....	mg/L	250		5.0	10	RE	ALT	01/31/01	21:04	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	SLP	01/27/01	01:11	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0101354-09
Client Sample ID: MW-16D
Site/Work ID: HM00311/ORMET-REDUCTION MILL

Matrix: Water
Collected: 01/17/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	17		0.50	50	N/A	JMM	01/22/01	09:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	2.5		0.50	50	N/A	JMM	01/24/01	08:00	335.1
Specific Conductance.....	umhos/cm	1200		1.0	1	N/A	JWR	01/24/01	11:00	120.1
Fluoride.....	mg/L	24		0.50	5	N/A	DLP	01/23/01	13:15	SM4500-F-C
pH	UNITS	7.85			1	N/A	DLN	01/18/01	14:20	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	SLP	01/27/01	01:15	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	SLP	01/27/01	01:15	6010B\3005A
Manganese, Dissolved.....	mg/L	1.6		0.01	1	N/A	SLP	01/27/01	01:15	6010B\3005A
Sodium, Dissolved.....	mg/L	250		5.0	10	RE	ALT	01/31/01	21:09	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	SLP	01/27/01	01:15	6010B\3005A

Lab Sample ID: L0101354-10
Client Sample ID: MW-28
Site/Work ID: HM00311/ORMET-REDUCTION MILL

Matrix: Water
Collected: 01/17/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.90		0.05	5	N/A	JMM	01/22/01	09:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.90		0.05	5	N/A	JMM	01/24/01	08:00	335.1
Specific Conductance.....	umhos/cm	460		1.0	1	N/A	JWR	01/24/01	11:00	120.1
Fluoride.....	mg/L	0.32		0.10	1	N/A	DLP	01/23/01	13:15	SM4500-F-C
pH	UNITS	5.75			1	N/A	DLN	01/18/01	14:20	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	SLP	01/27/01	01:20	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	SLP	01/27/01	01:20	6010B\3005A
Manganese, Dissolved.....	mg/L	0.015		0.01	1	N/A	SLP	01/27/01	01:20	6010B\3005A
Sodium, Dissolved.....	mg/L	64		5.0	10	RE	ALT	01/31/01	21:14	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	SLP	01/27/01	01:20	6010B\3005A

RL = Reporting Limit

Login #L0101354
April 9, 2001 11:08 am

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0101354-11
Client Sample ID: MW-32
Site/Work ID: HM00311/ORMET-REDUCTION MILL

Matrix: Water
Collected: 01/17/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	4.3		0.25	25	N/A	JMM	01/22/01	09:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.82		0.25	25	N/A	JMM	01/24/01	08:00	335.1
Specific Conductance.....	umhos/cm	740		1.0	1	N/A	JWR	01/24/01	11:00	120.1
Fluoride.....	mg/L	13		0.20	2	N/A	DLP	01/23/01	13:15	SM4500-F-C
pH	UNITS	8.46			1	N/A	DLN	01/18/01	14:20	150.1
Arsenic, Dissolved.....	mg/L	0.004		0.004	1	N/A	SLP	01/27/01	01:24	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	SLP	01/27/01	01:24	6010B\3005A
Manganese, Dissolved.....	mg/L	2.0		0.01	1	N/A	SLP	01/27/01	01:24	6010B\3005A
Sodium, Dissolved.....	mg/L	95		5.0	10	RE	ALT	01/31/01	21:19	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	SLP	01/27/01	01:24	6010B\3005A

Lab Sample ID: L0101354-12
Client Sample ID: MW-35
Site/Work ID: HM00311/ORMET-REDUCTION MILL

Matrix: Water
Collected: 01/17/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	10		0.50	50	N/A	JMM	01/22/01	09:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	3.1		0.50	50	N/A	JMM	01/24/01	08:00	335.1
Specific Conductance.....	umhos/cm	530		1.0	1	N/A	JWR	01/24/01	11:00	120.1
Fluoride.....	mg/L	19		0.20	2	N/A	DLP	01/23/01	13:15	SM4500-F-C
pH	UNITS	8.86			1	N/A	DLN	01/18/01	14:20	150.1
Arsenic, Dissolved.....	mg/L	0.008		0.004	1	N/A	SLP	01/27/01	01:28	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	SLP	01/27/01	01:28	6010B\3005A
Manganese, Dissolved.....	mg/L	0.50		0.01	1	N/A	SLP	01/27/01	01:28	6010B\3005A
Sodium, Dissolved.....	mg/L	89		5.0	10	RE	ALT	01/31/01	21:25	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.075		0.01	1	N/A	SLP	01/27/01	01:28	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0101354-13
Client Sample ID: MW-36
Site/Work ID: HM00311/ORMET-REDUCTION MILL

Matrix: Water
Collected: 01/17/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	12		1.0	100	N/A	DLN	01/23/01	09:30	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	2.0		1.0	100	N/A	JMM	01/24/01	08:00	335.1
Specific Conductance.....	umhos/cm	1700		1.0	1	N/A	JWR	01/24/01	11:00	120.1
Fluoride.....	mg/L	89		1.0	10	N/A	DLP	01/23/01	13:15	SM4500-F-C
pH	UNITS	9.79			1	N/A	DLN	01/18/01	14:20	150.1
Arsenic, Dissolved.....	mg/L	0.027		0.004	1	N/A	SLP	01/27/01	01:40	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.0018		0.0005	1	N/A	SLP	01/27/01	01:40	6010B\3005A
Manganese, Dissolved.....	mg/L	1.4		0.01	1	N/A	SLP	01/27/01	01:40	6010B\3005A
Sodium, Dissolved.....	mg/L	450		5.0	10	RE	ALT	01/31/01	21:40	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.049		0.01	1	N/A	SLP	01/27/01	01:40	6010B\3005A

Lab Sample ID: L0101354-14
Client Sample ID: MW-37
Site/Work ID: HM00311/ORMET-REDUCTION MILL

Matrix: Water
Collected: 01/17/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	8.8		0.25	25	N/A	JMM	01/22/01	09:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	2.7		0.25	25	N/A	JMM	01/24/01	08:00	335.1
Specific Conductance.....	umhos/cm	780		1.0	1	N/A	JWR	01/24/01	11:00	120.1
Fluoride.....	mg/L	29		0.50	5	N/A	DLP	01/23/01	13:15	SM4500-F-C
pH	UNITS	8.42			1	N/A	DLN	01/18/01	14:20	150.1
Arsenic, Dissolved.....	mg/L	0.02		0.004	1	N/A	SLP	01/27/01	01:44	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.00088		0.0005	1	N/A	SLP	01/27/01	01:44	6010B\3005A
Manganese, Dissolved.....	mg/L	1.5		0.01	1	N/A	SLP	01/27/01	01:44	6010B\3005A
Sodium, Dissolved.....	mg/L	160		5.0	10	RE	ALT	01/31/01	01:44	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.035		0.01	1	N/A	SLP	01/27/01	01:44	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0101354-15
Client Sample ID: TRIP BLANK
Site/Work ID: HM00311/ORMET-REDUCTION MILL
Matrix: Water

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 01/19/01 Time: 11:08

Dil. Type: N/A
COC Info: N/A

Date Collected: 01/17/01

Instrument: HPMS2
Analyst: CMS
Lab File ID: 2M41476

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

% Solid: N/A

Method: 8260B
Run ID: R111215
Batch : WG90466

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L		ND	5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	97.4	(86 - 118%)
1,2-Dichloroethane-d4.....	91.3	(80 - 120%)
Toluene-d8.....	96.2	(88 - 110%)
4-Bromofluorobenzene.....	98.8	(86 - 115%)

RL = Reporting Limit

Order #: 01-01-354
April 9, 2001 11:08 am

KEMRON ENVIRONMENTAL SERVICES
WORK GROUPS

Work Group	Run ID	Sample	Dil Type	Matrix	Product	Method	Date Collected	Department
WG90451	R111078	L0101354-01		Water	pH (Laboratory)	150.1	17-JAN-2001	Conventionals
WG90451	R111078	L0101354-02		Water	pH (Laboratory)	150.1	17-JAN-2001	Conventionals
WG90451	R111078	L0101354-03		Water	pH (Laboratory)	150.1	17-JAN-2001	Conventionals
WG90451	R111078	L0101354-04		Water	pH (Laboratory)	150.1	17-JAN-2001	Conventionals
WG90451	R111078	L0101354-05		Water	pH (Laboratory)	150.1	17-JAN-2001	Conventionals
WG90451	R111078	L0101354-06		Water	pH (Laboratory)	150.1	17-JAN-2001	Conventionals
WG90451	R111078	L0101354-07		Water	pH (Laboratory)	150.1	17-JAN-2001	Conventionals
WG90451	R111078	L0101354-08		Water	pH (Laboratory)	150.1	17-JAN-2001	Conventionals
WG90451	R111078	L0101354-09		Water	pH (Laboratory)	150.1	17-JAN-2001	Conventionals
WG90451	R111078	L0101354-10		Water	pH (Laboratory)	150.1	17-JAN-2001	Conventionals
WG90451	R111078	L0101354-11		Water	pH (Laboratory)	150.1	17-JAN-2001	Conventionals
WG90451	R111078	L0101354-12		Water	pH (Laboratory)	150.1	17-JAN-2001	Conventionals
WG90451	R111078	L0101354-13		Water	pH (Laboratory)	150.1	17-JAN-2001	Conventionals
WG90451	R111078	L0101354-14		Water	pH (Laboratory)	150.1	17-JAN-2001	Conventionals
WG90458	R111721	L0101354-01		Water	Volatile Organics	8260B	17-JAN-2001	Volatile - GC/MS
WG90458	R111721	L0101354-02		Water	Volatile Organics	8260B	17-JAN-2001	Volatile - GC/MS
WG90458	R111721	L0101354-03		Water	Volatile Organics	8260B	17-JAN-2001	Volatile - GC/MS
WG90458	R111721	L0101354-04		Water	Volatile Organics	8260B	17-JAN-2001	Volatile - GC/MS
WG90458	R111721	L0101354-05		Water	Volatile Organics	8260B	17-JAN-2001	Volatile - GC/MS
WG90466	R111215	L0101354-06		Water	Volatile Organics	8260B	17-JAN-2001	Volatile - GC/MS
WG90466	R111215	L0101354-15		Water	Volatile Organics	8260B	17-JAN-2001	Volatile - GC/MS
WG90636	R111451	L0101354-01		Water	Cyanide, Total	9010B\9014	17-JAN-2001	Conventionals
WG90636	R111451	L0101354-02		Water	Cyanide, Total	9010B\9014	17-JAN-2001	Conventionals
WG90636	R111451	L0101354-03		Water	Cyanide, Total	9010B\9014	17-JAN-2001	Conventionals
WG90636	R111451	L0101354-05		Water	Cyanide, Total	9010B\9014	17-JAN-2001	Conventionals
WG90636	R111451	L0101354-06		Water	Cyanide, Total	9010B\9014	17-JAN-2001	Conventionals
WG90636	R111451	L0101354-07		Water	Cyanide, Total	9010B\9014	17-JAN-2001	Conventionals
WG90636	R111451	L0101354-08		Water	Cyanide, Total	9010B\9014	17-JAN-2001	Conventionals
WG90636	R111451	L0101354-09		Water	Cyanide, Total	9010B\9014	17-JAN-2001	Conventionals
WG90636	R111451	L0101354-10		Water	Cyanide, Total	9010B\9014	17-JAN-2001	Conventionals
WG90636	R111451	L0101354-11		Water	Cyanide, Total	9010B\9014	17-JAN-2001	Conventionals
WG90636	R111451	L0101354-12		Water	Cyanide, Total	9010B\9014	17-JAN-2001	Conventionals
WG90636	R111451	L0101354-14		Water	Cyanide, Total	9010B\9014	17-JAN-2001	Conventionals
WG90676	R111723	L0101354-01		Water	Fluoride	SM4500-F-C	17-JAN-2001	Conventionals
WG90676	R111723	L0101354-02		Water	Fluoride	SM4500-F-C	17-JAN-2001	Conventionals
WG90676	R111723	L0101354-03		Water	Fluoride	SM4500-F-C	17-JAN-2001	Conventionals
WG90676	R111723	L0101354-04		Water	Fluoride	SM4500-F-C	17-JAN-2001	Conventionals
WG90676	R111723	L0101354-05		Water	Fluoride	SM4500-F-C	17-JAN-2001	Conventionals
WG90676	R111723	L0101354-06		Water	Fluoride	SM4500-F-C	17-JAN-2001	Conventionals
WG90676	R111723	L0101354-07		Water	Fluoride	SM4500-F-C	17-JAN-2001	Conventionals
WG90676	R111723	L0101354-08		Water	Fluoride	SM4500-F-C	17-JAN-2001	Conventionals

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KEMRON ENVIRONMENTAL SERVICES
WORK GROUPS

Work Group	Run ID	Sample	Dil Type	Matrix	Product	Method	Date Collected	Department
WG90676	R111723	L0101354-09		Water	Fluoride	SM4500-F-C	17-JAN-2001	Conventionals
WG90676	R111723	L0101354-10		Water	Fluoride	SM4500-F-C	17-JAN-2001	Conventionals
WG90676	R111723	L0101354-11		Water	Fluoride	SM4500-F-C	17-JAN-2001	Conventionals
WG90676	R111723	L0101354-12		Water	Fluoride	SM4500-F-C	17-JAN-2001	Conventionals
WG90676	R111723	L0101354-13		Water	Fluoride	SM4500-F-C	17-JAN-2001	Conventionals
WG90676	R111723	L0101354-14		Water	Fluoride	SM4500-F-C	17-JAN-2001	Conventionals
WG90713	R111700	L0101354-04		Water	Cyanide, Total	9010B\9014	17-JAN-2001	Conventionals
WG90713	R111700	L0101354-13		Water	Cyanide, Total	9010B\9014	17-JAN-2001	Conventionals
WG90738	R111832	L0101354-01		Water	Specific Conductance	120.1	17-JAN-2001	Conventionals
WG90738	R111832	L0101354-02		Water	Specific Conductance	120.1	17-JAN-2001	Conventionals
WG90738	R111832	L0101354-03		Water	Specific Conductance	120.1	17-JAN-2001	Conventionals
WG90738	R111832	L0101354-04		Water	Specific Conductance	120.1	17-JAN-2001	Conventionals
WG90738	R111832	L0101354-05		Water	Specific Conductance	120.1	17-JAN-2001	Conventionals
WG90738	R111832	L0101354-06		Water	Specific Conductance	120.1	17-JAN-2001	Conventionals
WG90738	R111832	L0101354-07		Water	Specific Conductance	120.1	17-JAN-2001	Conventionals
WG90738	R111832	L0101354-08		Water	Specific Conductance	120.1	17-JAN-2001	Conventionals
WG90738	R111832	L0101354-09		Water	Specific Conductance	120.1	17-JAN-2001	Conventionals
WG90738	R111832	L0101354-10		Water	Specific Conductance	120.1	17-JAN-2001	Conventionals
WG90738	R111832	L0101354-11		Water	Specific Conductance	120.1	17-JAN-2001	Conventionals
WG90738	R111832	L0101354-12		Water	Specific Conductance	120.1	17-JAN-2001	Conventionals
WG90738	R111832	L0101354-13		Water	Specific Conductance	120.1	17-JAN-2001	Conventionals
WG90738	R111832	L0101354-14		Water	Specific Conductance	120.1	17-JAN-2001	Conventionals
WG90770	R111783	L0101354-01		Water	Cyanide, Amenable to Cl	335.1	17-JAN-2001	Conventionals
WG90770	R111783	L0101354-02		Water	Cyanide, Amenable to Cl	335.1	17-JAN-2001	Conventionals
WG90770	R111783	L0101354-03		Water	Cyanide, Amenable to Cl	335.1	17-JAN-2001	Conventionals
WG90770	R111783	L0101354-04		Water	Cyanide, Amenable to Cl	335.1	17-JAN-2001	Conventionals
WG90770	R111783	L0101354-05		Water	Cyanide, Amenable to Cl	335.1	17-JAN-2001	Conventionals
WG90770	R111783	L0101354-08		Water	Cyanide, Amenable to Cl	335.1	17-JAN-2001	Conventionals
WG90770	R111783	L0101354-09		Water	Cyanide, Amenable to Cl	335.1	17-JAN-2001	Conventionals
WG90770	R111783	L0101354-10		Water	Cyanide, Amenable to Cl	335.1	17-JAN-2001	Conventionals
WG90770	R111783	L0101354-11		Water	Cyanide, Amenable to Cl	335.1	17-JAN-2001	Conventionals
WG90770	R111783	L0101354-12		Water	Cyanide, Amenable to Cl	335.1	17-JAN-2001	Conventionals
WG90770	R111783	L0101354-13		Water	Cyanide, Amenable to Cl	335.1	17-JAN-2001	Conventionals
WG90770	R111783	L0101354-14		Water	Cyanide, Amenable to Cl	335.1	17-JAN-2001	Conventionals
WG90808	R112696	L0101354-01		Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112733	L0101354-01	RE	Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112696	L0101354-02		Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112733	L0101354-02	RE	Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112696	L0101354-03		Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112733	L0101354-03	RE	Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112696	L0101354-04		Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion

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KEMRON ENVIRONMENTAL SERVICES
WORK GROUPS

Work Group	Run ID	Sample	Dil Type	Matrix	Product	Method	Date Collected	Department
WG90808	R112733	L0101354-04	RE	Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112696	L0101354-05		Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112733	L0101354-05	RE	Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112696	L0101354-06		Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112733	L0101354-06	RE	Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112696	L0101354-07		Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112733	L0101354-07	RE	Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112696	L0101354-08		Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112733	L0101354-08	RE	Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112696	L0101354-09		Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112733	L0101354-09	RE	Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112696	L0101354-10		Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112733	L0101354-10	RE	Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112696	L0101354-11		Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112733	L0101354-11	RE	Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112696	L0101354-12		Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112733	L0101354-12	RE	Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112696	L0101354-13		Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112733	L0101354-13	RE	Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112696	L0101354-14		Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90808	R112733	L0101354-14	RE	Water	DIG-METALS	6010B\3005A	17-JAN-2001	Digestion
WG90943	R112696	L0101354-01		Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112733	L0101354-01	RE	Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112696	L0101354-02		Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112733	L0101354-02	RE	Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112696	L0101354-03		Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112733	L0101354-03	RE	Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112696	L0101354-04		Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112733	L0101354-04	RE	Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112696	L0101354-05		Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112733	L0101354-05	RE	Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112696	L0101354-06		Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112733	L0101354-06	RE	Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112696	L0101354-07		Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112733	L0101354-07	RE	Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112696	L0101354-08		Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112733	L0101354-08	RE	Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112696	L0101354-09		Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112733	L0101354-09	RE	Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112696	L0101354-10		Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112733	L0101354-10	RE	Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112696	L0101354-11		Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112733	L0101354-11	RE	Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112696	L0101354-12		Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP

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KEMRON ENVIRONMENTAL SERVICES
WORK GROUPS

Work Group	Run ID	Sample	Dil Type	Matrix	Product	Method	Date Collected	Department
WG90943	R112733	L0101354-12	RE	Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112696	L0101354-13		Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112733	L0101354-13	RE	Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112696	L0101354-14		Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP
WG90943	R112733	L0101354-14	RE	Water	ICP-METALS	6010B\3005A	17-JAN-2001	Metals - ICP

APPENDIX B-2

LABORATORY ANALYTICAL REPORT FOR MAY 2001 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: Mr. Joel Keller

Login #: L0105165
Report Date: 05/23/01
Work ID: HM00311/ORMET/REDUCTION MILL
Date Received: 05/08/01

PO Number:
Account Number: HYDRO-360

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
L0105165-01	MW-15	L0105165-02	MW-19
L0105165-03	MW-32	L0105165-04	MW-36
L0105165-05	MW-41	L0105165-06	MW-16
L0105165-07	MW-16D	L0105165-08	MW-2
L0105165-09	MW-2D	L0105165-10	MW-5
L0105165-11	MW-18	L0105165-12	MW-18D
L0105165-13	MW-30	L0105165-14	MW-31
L0105165-15	FIELD BLANK	L0105165-16	TRIP BLANK

cc:Elizebeth Tandy

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 L. Bumgarner

Certified By
David L. Bumgarner

KEMRON
ENVIRONMENTAL SERVICES

REPORT NARRATIVE
GENERAL CHEMISTRY

KEMRON Login No: L0105165

METHOD

Analysis: See report for method reference.

HOLDING TIMES

Sample Preparation: All holding times were met.
Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.
Laboratory Control Sample: All acceptance criteria were met
Duplicates: All acceptance criteria were met
Matrix Spikes: All acceptance criteria were met.

SAMPLES

Cyanide

Sample L0105165-11 was analyzed twice for total and amenable cyanide. In both cases the treated portion was higher than the total portion. The cyanide amenable to chlorination is being reported as ND.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and KEMRON Environmental Services, both technically and for completeness, except for the conditions noted above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Analyst: dih__ REVIEWED: dun DATE: 5/15/01

Rev. 6/00

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105165-01
Client Sample ID: MW-15
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.49		0.02	2	N/A	JWR	05/15/01	09:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.32		0.01	1	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	600		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	2.0		0.10	1	N/A	DLP	05/14/01	18:00	SM4500-F-C
pH	UNITS	7.03			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/21/01	11:58	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/21/01	11:58	6010B\3005A
Manganese, Dissolved.....	mg/L	0.017		0.01	1	N/A	KHR	05/21/01	11:58	6010B\3005A
Sodium, Dissolved.....	mg/L	51		0.50	1	N/A	KHR	05/21/01	11:58	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/21/01	11:58	6010B\3005A

Lab Sample ID: L0105165-02
Client Sample ID: MW-19
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L		ND	0.01	1	N/A	JMM	05/11/01	09:00	9010B\9014
Specific Conductance.....	umhos/cm	580		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	1.1		0.10	1	N/A	DLP	05/14/01	18:00	SM4500-F-C
pH	UNITS	7.18			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/17/01	14:32	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/17/01	14:32	6010B\3005A
Manganese, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/17/01	14:32	6010B\3005A
Sodium, Dissolved.....	mg/L	20		0.50	1	N/A	KHR	05/17/01	14:32	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/17/01	14:32	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105165-03
Client Sample ID: MW-32
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	4.9		0.20	20	N/A	JWR	05/14/01	10:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	4.9		0.10	10	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	790		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	17		0.20	2	N/A	DLP	05/14/01	18:00	SM4500-F-C
pH	UNITS	8.51			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved.....	mg/L	0.0054		0.004	1	N/A	KHR	05/21/01	12:02	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/21/01	12:02	6010B\3005A
Manganese, Dissolved.....	mg/L	2.1		0.01	1	N/A	KHR	05/21/01	12:02	6010B\3005A
Sodium, Dissolved.....	mg/L	94		0.50	1	N/A	KHR	05/21/01	12:02	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.012		0.01	1	N/A	KHR	05/21/01	12:02	6010B\3005A

Lab Sample ID: L0105165-04
Client Sample ID: MW-36
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	3.0		0.20	20	N/A	JWR	05/14/01	10:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	3.0		0.20	20	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	1100		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	49		0.50	5	N/A	DLP	05/14/01	18:00	SM4500-F-C
pH	UNITS	9.87			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved.....	mg/L	0.029		0.004	1	N/A	KHR	05/21/01	12:06	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.00054		0.0005	1	N/A	KHR	05/21/01	12:06	6010B\3005A
Manganese, Dissolved.....	mg/L	0.68		0.01	1	N/A	KHR	05/21/01	12:06	6010B\3005A
Sodium, Dissolved.....	mg/L	220		5.0	10	RE	KHR	05/21/01	13:11	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.045		0.01	1	N/A	KHR	05/21/01	12:06	6010B\3005A

RL = Reporting Limit

Login #L0105165
May 23, 2001 09:31 am

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105165-05
Client Sample ID: MW-41
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L		ND	0.01	1	N/A	JWR	05/14/01	10:00	9010B\9014
Specific Conductance.....	umhos/cm	450		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	0.34		0.10	1	N/A	DLP	05/14/01	18:00	SM4500-F-C
pH	UNITS	6.70			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved.....	mg/L	0.015		0.004	1	N/A	KHR	05/17/01	14:49	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/17/01	14:49	6010B\3005A
Manganese, Dissolved.....	mg/L	1.0		0.01	1	N/A	KHR	05/17/01	14:49	6010B\3005A
Sodium, Dissolved.....	mg/L	19		0.50	1	N/A	KHR	05/17/01	14:49	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/17/01	14:49	6010B\3005A

Lab Sample ID: L0105165-06
Client Sample ID: MW-16
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	12		0.50	50	N/A	JWR	05/14/01	10:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	12		0.50	50	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	1100		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	39		0.50	5	N/A	DLP	05/14/01	18:00	SM4500-F-C
pH	UNITS	7.89			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/21/01	12:11	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/21/01	12:11	6010B\3005A
Manganese, Dissolved.....	mg/L	1.2		0.01	1	N/A	KHR	05/21/01	12:11	6010B\3005A
Sodium, Dissolved.....	mg/L	200		5.0	10	RE	KHR	05/21/01	13:16	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/21/01	12:11	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105165-07
Client Sample ID: MW-16D
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	11		0.50	50	N/A	JWR	05/14/01	10:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	11		0.50	50	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	1100		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	40		0.50	5	N/A	DLP	05/14/01	18:00	SM4500-F-C
pH	UNITS	7.90			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/21/01	12:15	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/21/01	12:15	6010B\3005A
Manganese, Dissolved.....	mg/L	1.2		0.01	1	N/A	KHR	05/21/01	12:15	6010B\3005A
Sodium, Dissolved.....	mg/L	210		5.0	10	RE	KHR	05/21/01	13:21	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/21/01	12:15	6010B\3005A

Lab Sample ID: L0105165-08
Client Sample ID: MW-2
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	15		0.50	50	N/A	JWR	05/14/01	10:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	13		0.50	50	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	1900		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	67		1.0	10	N/A	DLP	05/14/01	18:00	SM4500-F-C
pH	UNITS	9.88			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved.....	mg/L	0.087		0.004	1	N/A	KHR	05/21/01	12:19	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.00078		0.0005	1	N/A	KHR	05/21/01	12:19	6010B\3005A
Manganese, Dissolved.....	mg/L	0.96		0.01	1	N/A	KHR	05/21/01	12:19	6010B\3005A
Sodium, Dissolved.....	mg/L	360		5.0	10	RE	KHR	05/21/01	13:26	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.048		0.01	1	N/A	KHR	05/21/01	12:19	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0105165-08
Client Sample ID: MW-2
Site/Work ID: HM00311/ORMET/REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 05/08/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 05/10/01 Time: 05:47

Instrument: HPMS2
Analyst: CMS
Lab File ID: 2M44045

Method: 8260B
Run ID: R126545
Batch : WG97085

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L		ND	5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	117		(86 - 118%)
1,2-Dichloroethane-d4.....	125	*	(80 - 120%)
Toluene-d8.....	98.9		(88 - 110%)
4-Bromofluorobenzene.....	105		(86 - 115%)

Lab Sample ID: L0105165-09
Client Sample ID: MW-2D
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	15		0.50	50	N/A	JWR	05/14/01	10:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	15		0.50	50	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	1800		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	68		1.0	10	N/A	DLP	05/14/01	18:00	SM4500-F-C
pH	UNITS	9.87			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved.....	mg/L	0.076		0.004	1	N/A	KHR	05/21/01	12:23	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.00071		0.0005	1	N/A	KHR	05/21/01	12:23	6010B\3005A
Manganese, Dissolved.....	mg/L	0.89		0.01	1	N/A	KHR	05/21/01	12:23	6010B\3005A
Sodium, Dissolved.....	mg/L	360		5.0	10	RE	KHR	05/21/01	13:31	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.045		0.01	1	N/A	KHR	05/21/01	12:23	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0105165-09
Client Sample ID: MW-2D
Site/Work ID: HM00311/ORMET/REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 05/08/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 05/10/01 Time: 12:25

Instrument: HPMS6
Analyst: CMS
Lab File ID: 6M25596

Method: 8260B
Run ID: R126676
Batch : WG97093

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene	ug/L		ND	5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane	95.8	(86 - 118%)
1,2-Dichloroethane-d4	88.6	(80 - 120%)
Toluene-d8	99.4	(88 - 110%)
4-Bromofluorobenzene	102	(86 - 115%)

Lab Sample ID: L0105165-10
Client Sample ID: MW-5
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total	mg/L	2.9		0.10	10	N/A	JWR	05/14/01	10:00	9010B\9014
Cyanide, Amenable to Cl	mg/L	2.9		0.10	10	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance	umhos/cm	960		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride	mg/L	13		0.20	2	N/A	DLP	05/14/01	18:00	SM4500-F-C
pH	UNITS	8.51			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved	mg/L		ND	0.004	1	N/A	KHR	05/21/01	12:28	6010B\3005A
Beryllium, Dissolved	mg/L		ND	0.0005	1	N/A	KHR	05/21/01	12:28	6010B\3005A
Manganese, Dissolved	mg/L	0.66		0.01	1	N/A	KHR	05/21/01	12:28	6010B\3005A
Sodium, Dissolved	mg/L	170		0.50	1	N/A	KHR	05/21/01	12:28	6010B\3005A
Vanadium, Dissolved	mg/L		ND	0.01	1	N/A	KHR	05/21/01	12:28	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0105165-10
Client Sample ID: MW-5
Site/Work ID: HM00311/ORMET/REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 05/08/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 05/10/01 Time: 12:58

Instrument: HPMS6
Analyst: CMS
Lab File ID: 6M25597

Method: 8260B
Run ID: R126677
Batch : WG97093

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene	ug/L		ND	5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane	94.2	(86 - 118%)
1,2-Dichloroethane-d4	87.0	(80 - 120%)
Toluene-d8	99.4	(88 - 110%)
4-Bromofluorobenzene	102	(86 - 115%)

Lab Sample ID: L0105165-11
Client Sample ID: MW-18
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total	mg/L	15		0.50	50	N/A	JMM	05/17/01	14:00	9010B\9014
Cyanide, Amenable to Cl	mg/L		ND,A	0.50	50	N/A	JMM	05/17/01	14:00	335.1
Specific Conductance	umhos/cm	2100		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride	mg/L	100		2.5	25	N/A	DLP	05/14/01	18:00	SM4500-F-C
pH	UNITS	9.52			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved	mg/L	0.065		0.004	1	N/A	KHR	05/21/01	12:32	6010B\3005A
Beryllium, Dissolved	mg/L	0.0014		0.0005	1	N/A	KHR	05/21/01	12:32	6010B\3005A
Manganese, Dissolved	mg/L	0.97		0.01	1	N/A	KHR	05/21/01	12:32	6010B\3005A
Sodium, Dissolved	mg/L	380		5.0	10	RE	KHR	05/21/01	13:35	6010B\3005A
Vanadium, Dissolved	mg/L	0.042		0.01	1	N/A	KHR	05/21/01	12:32	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0105165-11
Client Sample ID: MW-18
Site/Work ID: HM00311/ORMET/REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 05/08/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 05/10/01 Time: 14:35

Instrument: HPMS6
Analyst: CMS
Lab File ID: 6M25600

Method: 8260B
Run ID: R126676
Batch : WG97093

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L	40		5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	92.5	(86 - 118%)
1,2-Dichloroethane-d4.....	84.9	(80 - 120%)
Toluene-d8.....	98.2	(88 - 110%)
4-Bromofluorobenzene.....	103	(86 - 115%)

Lab Sample ID: L0105165-12
Client Sample ID: MW-18D
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	49		2.0	200	N/A	JWR	05/14/01	10:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	49		2.0	200	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	2000		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	110		2.5	25	N/A	DLP	05/14/01	18:00	SM4500-F-C
pH	UNITS	9.52			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved.....	mg/L	0.079		0.004	1	N/A	KHR	05/21/01	12:36	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.0037		0.0005	1	N/A	KHR	05/21/01	12:36	6010B\3005A
Manganese, Dissolved.....	mg/L	3.1		0.01	1	N/A	KHR	05/21/01	12:36	6010B\3005A
Sodium, Dissolved.....	mg/L	380		5.0	10	RE	KHR	05/21/01	13:40	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.14		0.01	1	N/A	KHR	05/21/01	12:36	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0105165-12
Client Sample ID: MW-18D
Site/Work ID: HM00311/ORMET/REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 05/08/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 05/10/01 Time: 15:08

Instrument: HPMS6
Analyst: CMS
Lab File ID: 6M25601

Method: 8260B
Run ID: R126676
Batch : WG97093

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L	46		5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	95.6	(86 - 118%)
1,2-Dichloroethane-d4.....	88.2	(80 - 120%)
Toluene-d8.....	98.7	(88 - 110%)
4-Bromofluorobenzene.....	102	(86 - 115%)

Lab Sample ID: L0105165-13
Client Sample ID: MW-30
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.79		0.04	4	N/A	JWR	05/14/01	10:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.79		0.01	1	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	420		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	0.17		0.10	1	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	6.14			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/21/01	12:50	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/21/01	12:50	6010B\3005A
Manganese, Dissolved.....	mg/L	0.54		0.01	1	N/A	KHR	05/21/01	12:50	6010B\3005A
Sodium, Dissolved.....	mg/L	19		0.50	1	N/A	KHR	05/21/01	12:50	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/21/01	12:50	6010B\3005A

RL = Reporting Limit

Login #L0105165
May 23, 2001 09:31 am

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0105165-13
Client Sample ID: MW-30
Site/Work ID: HM00311/ORMET/REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 05/08/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 05/10/01 Time: 15:40

Instrument: HPMS6
Analyst: CMS
Lab File ID: 6M25602

Method: 8260B
Run ID: R126676
Batch : WG97093

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L	15		5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	95.0	(86 - 118%)
1,2-Dichloroethane-d4.....	87.6	(80 - 120%)
Toluene-d8.....	99.1	(88 - 110%)
4-Bromofluorobenzene.....	103	(86 - 115%)

Lab Sample ID: L0105165-14
Client Sample ID: MW-31
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	12		0.50	50	N/A	JWR	05/14/01	10:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	12		0.50	50	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	2100		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	77		2.5	25	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	9.93			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved.....	mg/L	0.046		0.004	1	N/A	KHR	05/21/01	12:54	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.0012		0.0005	1	N/A	KHR	05/21/01	12:54	6010B\3005A
Manganese, Dissolved.....	mg/L	1.4		0.01	1	N/A	KHR	05/21/01	12:54	6010B\3005A
Sodium, Dissolved.....	mg/L	430		5.0	10	RE	KHR	05/21/01	13:45	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.081		0.01	1	N/A	KHR	05/21/01	12:54	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0105165-14
Client Sample ID: MW-31
Site/Work ID: HM00311/ORMET/REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 05/08/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 05/10/01 Time: 16:13

Instrument: HPMS6
Analyst: CMS
Lab File ID: 6M25603

Method: 8260B
Run ID: R126676
Batch : WG97093

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L	27		5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	95.5	(86 - 118%)
1,2-Dichloroethane-d4.....	88.5	(80 - 120%)
Toluene-d8.....	98.6	(88 - 110%)
4-Bromofluorobenzene.....	104	(86 - 115%)

Lab Sample ID: L0105165-15
Client Sample ID: FIELD BLANK
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/08/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L		ND	0.01	1	N/A	JMM	05/11/01	09:00	9010B\9014
Specific Conductance.....	umhos/cm	1.2		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L		ND	0.10	1	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	5.48			1	N/A	TMM	05/09/01	16:10	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/21/01	12:58	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/21/01	12:58	6010B\3005A
Manganese, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/21/01	12:58	6010B\3005A
Sodium, Dissolved.....	mg/L	0.50		0.50	1	N/A	KHR	05/21/01	12:58	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/21/01	12:58	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0105165-15
Client Sample ID: FIELD BLANK
Site/Work ID: HM00311/ORMET/REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 05/08/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 05/10/01 Time: 10:12

Instrument: HPMS6
Analyst: CMS
Lab File ID: 6M25592

Method: 8260B
Run ID: R126676
Batch : WG97093

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene	ug/L		ND	5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane	97.0	(86 - 118%)
1,2-Dichloroethane-d4	89.2	(80 - 120%)
Toluene-d8	100	(88 - 110%)
4-Bromofluorobenzene	102	(86 - 115%)

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0105165-16
Client Sample ID: TRIP BLANK
Site/Work ID: HM00311/ORMET/REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 05/08/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 05/10/01 Time: 10:45

Instrument: HPMS6
Analyst: CMS
Lab File ID: 6M25593

Method: 8260B
Run ID: R126676
Batch : WG97093

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene	ug/L		ND	5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane	97.9	(86 - 118%)
1,2-Dichloroethane-d4	92.4	(80 - 120%)
Toluene-d8	98.6	(88 - 110%)
4-Bromofluorobenzene	101	(86 - 115%)

RL = Reporting Limit

Order #: 01-05-165
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KEMRON ENVIRONMENTAL SERVICES
WORK GROUPS

Work Group	Run ID	Sample	Dil Type	Matrix	Product	Method	Date Collected	Department
WG97082	R126503	L0105165-01		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97082	R126503	L0105165-02		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97082	R126503	L0105165-03		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97082	R126503	L0105165-04		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97082	R126503	L0105165-05		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97082	R126503	L0105165-06		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97082	R126503	L0105165-07		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97082	R126503	L0105165-08		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97082	R126503	L0105165-09		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97082	R126503	L0105165-10		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97082	R126503	L0105165-11		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97082	R126503	L0105165-12		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97082	R126503	L0105165-13		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97082	R126503	L0105165-14		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97082	R126503	L0105165-15		Water	pH (Laboratory)	150.1	08-MAY-2001	Conventionals
WG97085	R126545	L0105165-08		Water	Volatile Organics	8260B	08-MAY-2001	Volatile - GC/MS
WG97093	R126676	L0105165-09		Water	Volatile Organics	8260B	08-MAY-2001	Volatile - GC/MS
WG97093	R126677	L0105165-10		Water	Volatile Organics	8260B	08-MAY-2001	Volatile - GC/MS
WG97093	R126676	L0105165-11		Water	Volatile Organics	8260B	08-MAY-2001	Volatile - GC/MS
WG97093	R126676	L0105165-12		Water	Volatile Organics	8260B	08-MAY-2001	Volatile - GC/MS
WG97093	R126676	L0105165-13		Water	Volatile Organics	8260B	08-MAY-2001	Volatile - GC/MS
WG97093	R126676	L0105165-14		Water	Volatile Organics	8260B	08-MAY-2001	Volatile - GC/MS
WG97093	R126676	L0105165-15		Water	Volatile Organics	8260B	08-MAY-2001	Volatile - GC/MS
WG97093	R126676	L0105165-16		Water	Volatile Organics	8260B	08-MAY-2001	Volatile - GC/MS
WG97241	R126923	L0105165-02		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals
WG97241	R126923	L0105165-15		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals
WG97288	R129664	L0105165-01		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R128431	L0105165-02		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-03		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-04		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-04	RE	Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R128431	L0105165-05		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-06		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-06	RE	Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-07		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-07	RE	Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-08		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-08	RE	Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-09		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-09	RE	Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-10		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion

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KEMRON ENVIRONMENTAL SERVICES
WORK GROUPS

Work Group	Run ID	Sample	Dil Type	Matrix	Product	Method	Date Collected	Department
WG97288	R129664	L0105165-11		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-11	RE	Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-12		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-12	RE	Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-13		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-14		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-14	RE	Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97288	R129664	L0105165-15		Water	DIG-METALS	6010B\3005A	08-MAY-2001	Digestion
WG97351	R127363	L0105165-01		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97351	R127363	L0105165-02		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97351	R127363	L0105165-03		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97351	R127363	L0105165-04		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97351	R127363	L0105165-05		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97351	R127363	L0105165-06		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97351	R127363	L0105165-07		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97351	R127363	L0105165-08		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97351	R127363	L0105165-09		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97351	R127363	L0105165-10		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97351	R127363	L0105165-11		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97351	R127363	L0105165-12		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97353	R127361	L0105165-13		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97353	R127361	L0105165-14		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97353	R127361	L0105165-15		Water	Fluoride	SM4500-F-C	08-MAY-2001	Conventionals
WG97419	R127691	L0105165-03		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals
WG97419	R127691	L0105165-04		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals
WG97419	R127691	L0105165-05		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals
WG97419	R127691	L0105165-06		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals
WG97419	R127691	L0105165-07		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals
WG97419	R127691	L0105165-08		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals
WG97419	R127691	L0105165-09		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals
WG97419	R127691	L0105165-10		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals
WG97419	R127691	L0105165-12		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals
WG97419	R127691	L0105165-13		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals
WG97419	R127691	L0105165-14		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals
WG97481	R127942	L0105165-01		Water	Cyanide, Amenable to Cl	335.1	08-MAY-2001	Conventionals
WG97481	R127942	L0105165-01		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals
WG97481	R127942	L0105165-03		Water	Cyanide, Amenable to Cl	335.1	08-MAY-2001	Conventionals
WG97481	R127942	L0105165-04		Water	Cyanide, Amenable to Cl	335.1	08-MAY-2001	Conventionals
WG97481	R127942	L0105165-06		Water	Cyanide, Amenable to Cl	335.1	08-MAY-2001	Conventionals
WG97481	R127942	L0105165-07		Water	Cyanide, Amenable to Cl	335.1	08-MAY-2001	Conventionals
WG97481	R127942	L0105165-08		Water	Cyanide, Amenable to Cl	335.1	08-MAY-2001	Conventionals

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WORK GROUPS

Work Group	Run ID	Sample	Dil Type	Matrix	Product	Method	Date Collected	Department
WG97481	R127942	L0105165-09		Water	Cyanide, Amenable to Cl	335.1	08-MAY-2001	Conventionals
WG97481	R127942	L0105165-10		Water	Cyanide, Amenable to Cl	335.1	08-MAY-2001	Conventionals
WG97481	R127942	L0105165-12		Water	Cyanide, Amenable to Cl	335.1	08-MAY-2001	Conventionals
WG97481	R127942	L0105165-13		Water	Cyanide, Amenable to Cl	335.1	08-MAY-2001	Conventionals
WG97481	R127942	L0105165-14		Water	Cyanide, Amenable to Cl	335.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-01		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-02		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-03		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-04		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-05		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-06		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-07		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-08		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-09		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-10		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-11		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-12		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-13		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-14		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97533	R128506	L0105165-15		Water	Specific Conductance	120.1	08-MAY-2001	Conventionals
WG97596	R129664	L0105165-01		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R128431	L0105165-02		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-03		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-04		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-04	RE	Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R128431	L0105165-05		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-06		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-06	RE	Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-07		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-07	RE	Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-08		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-08	RE	Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-09		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-09	RE	Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-10		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-11		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-11	RE	Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-12		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-12	RE	Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-13		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-14		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-14	RE	Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP
WG97596	R129664	L0105165-15		Water	ICP-METALS	6010B\3005A	08-MAY-2001	Metals - ICP

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KEMRON ENVIRONMENTAL SERVICES
WORK GROUPS

Work Group	Run ID	Sample	Dil Type	Matrix	Product	Method	Date Collected	Department
WG97597	R128487	L0105165-11		Water	Cyanide, Amenable to Cl	335.1	08-MAY-2001	Conventionals
WG97597	R128487	L0105165-11		Water	Cyanide, Total	9010B\9014	08-MAY-2001	Conventionals

KEMRON ANALYST LIST

Ohio Valley Laboratory

04/04/2001

ABW - ANGELA B. WIGAL
ADB - AMANDA D. BREEDLOVE
ADH - ANGELA D. HURST
AJF - AMANDA J. FICKIESEN
ALT - ANN L. THAYER
AMT - ANDREA M. TUCKER
ARS - ANGELINA R. SCOTT
BJM - BARRY J. MYERS
BRG - BRENDA R. GREGORY
CAF - CHERYL A. FLOWERS
CAK - CHERYL A. KOELSCH
CBN - CHARLES B. NOLL
CEB - CHAD E. BARNES
CLC - CHRYS L. CRAWFORD
CLK - CARL L. KING
CLW - CHARISSA L. WINTERS
CMS - CRYSTAL M. STEVENS
CRC - CARLA R. COCHRAN
CSH - CHRIS S. HILL
DAM - DAN A. MUSGRAVE
DAS - DALLAS A. SULLIVAN
DAT - DEBBIE A. TORNES
DCU - DAVID C. UNDERWOOD
DEL - DON E. LIGHTFRITZ
DEV - DAVID E. VANDENBERG
DGB - DOUGLAS G. BUTCHER
DIH - DEANNA I. HESSON
DLA - DENISE L. ADAMS
DLB - DAVID L. BUMGARNER
DLN - DEANNA L. NORTON
DLP - DOROTHY L. PAYNE
DLR - DIANNA L. RAUCH
DP - DEANNA L. PIERSON
DST - DENNIS S. TEPE
DTK - DEENA T. KELLEY
EAN - ELIZABETH A. NICHOLSON
EAW - ELIZABETH A. WEBER
ECL - ERIC C. LAWSON
EIE - ELIZABETH I. EAGLE
GSG - GALEN S. GEORGE
GWH - GEORGE W. HUTCHISON
HD - HEATH DENNIS
HV - HEMA VILASAGAR
JAQ - JEROMY A. QUESENBERRY
JAW - JOYCE A. WITHERS
JKM - JUNE K. MORRIS
JKW - JANE K. WARDEN
JLH - JANICE L. HOLLAND
JMM - JARROD M. MARTIN
JMT - JOY M. THOMAS
JMW - JOHN M. WASS
JRM - JAY R. MCDOUGAL
JWR - JOHN W. RICHARDS
JWS - JACK W. SHEAVES
JYH - JI Y. HU
KDS - KRISTI D. STONE
KHR - KIM H. RHODES
KRA - KATHY R. ALBERTSON
KSL - KELLY S. LAUER
LBM - LAWRENCE B. MCSWEGAN
LKN - LINDA K. NEDEFF
LRR - LUCYNDA R. ROBERTS
LSA - LUCINDA S. ARNOLD
LSB - LESLIE S. BUCINA
MDA - MICHAEL D. ALBERTSON
MDC - MICHAEL D. COCHRAN
MDG - MELISSA D. GRIMES
MEF - MIKE E. FLANAGAN
MES - MARY E. SCHILLING
MLS - MICHAEL L. SCHIMMEL
MMB - MAREN M. BEERY
MRR - MICHELLE R. RAUCH
MSW - MATT S. WILSON
NJB - NATALIE J. BOOTH
PML - PAULA M. LEIDY
RDC - REBECCA D. CUTLIP
REF - RON E. FERTILE
REK - ROBERT E. KYER
RJW - RHONDA J. WITTEKIND
RLW - RON L. WATSON
RSH - RENEE S. HENNES
RSS - REGINA S. SIMMONS
RVC - RUTH V. CALLIHAN
RWC - ROD W. CAMPBELL
SAM - SAMUAL A. MILLS
SJK - SINDY J. KINNEY
SKH - SHARON K. HANDSCHUMACHER
SLC - SHAWN L. COLE
SLP - SHERI L. PFALZGRAF
SLT - STEPHANIE L. TEPE
SMW - SHAUNA M. WELCH
SPL - STEVE P. LEARN
SPS - STEVE P. SWATZEL
TJH - TIM J. HOEFLICH
TLD - TERESA L. DAVIS
TM - TODD MCGINNIS
TMM - TAMMY M. MORRIS
VC - VICKI COLLIER

KEMRON Environmental Services, Inc
List of Valid Qualifiers
December 15, 2000

Standard Qualifiers

These are KEMRON's Standard Report Qualifiers

A	See the report narrative
B	Present in the method blank
C	Confirmed by GC/MS
CG	Confluent growth
D	The analyte was quantified at a secondary dilution factor
DL	Surrogate or spike was diluted out
E	Estimated concentration due to sample matrix interference
FL	Free liquid
I	Semiquantitative result, out of instrument calibration range
J	Present below nominal reporting limit
L	Sample reporting limits elevated due to matrix interference
M	Duplicate injection precision not met
N	Tentatively Identified Compound (TIC)
NA	Not applicable
ND	Not detected at or above the reporting limit (RL)
NF	Not found
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentration >40% difference between The two GC columns
QNS	Quantity not sufficient to perform analysis
R	Analyte exceeds regulatory limit
RA	Re analysis confirms reported results
RE	Re analysis confirms sample matrix Interference
S	Analyzed by method of standard addition
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TNTC	Too numerous to count
U	Analyzed for but not detected
W	Post-digestion spike for furnace AA out Of control limits
Z	Can not be resolved from isomer.***
+	Correlation coefficient for the MSA is less Than 0.995
<	Less than
>	Greater than
*	Surrogate or spike compound out of range

***** Special Notes for Organic Analytes**

1. Acrolein and acrylonitrile by method 624 are semiquantative screens only
2. 1,2-Diphenylhydrazine is unstable and is reported as azobenzene
3. N-nitrosodiphenylamine cannot be separated from diphenylamine
4. 3-Methyphenol and 4-Methyphenol are unresolvable compounds
5. m-Xylene and p-Xylene are unresolvable compounds
6. The reporting limits for Appendix II/IX compounds by method 8270 are based on EPA estimated PQLs referenced in 40 CFR Part 264, Appendix IX. They are not always achievable for every compound and are matrix dependent

AFCEE Qualifiers

These are KEMRON's AFCEE Report Qualifiers

J	The analyte was positively identified, the quantitation is an estimation
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL
F	The analyte was positively identified but the associated numerical value is below the RL
R	The data is unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
B	The analyte was found in an associated blank, as well as in the sample
M	The matrix effect was present
S	To be applied to all field screening data
T	Tentatively identified compound (using GC/MS)

INORGANIC QA/QC

KEMRON ENVIRONMENTAL SERVICES
OHIO VALLEY LABORATORY
QUALITY CONTROL SUMMARY

WORKGROUP:	WG97241	RUN DATE:	5/11/01
METHOD:	335.4/9010	ANALYST:	JMM
MATRIX:	water	DUPLICATE:	05-216-01
UNITS:	mg/L	SPIKE:	05-216-01

			CONCENTRATION PPM							PERCENT RECOVERY						PERCENT RPD	
ANALYTE	MDL	Blank	T-LCS	LCS	REP1	REP2	SAMPLE RESULT	T-MS	MS	LCS	LCS LCL	LCS UCL	MS	MS LCL	MS UCL	REP RPD	RPD UCL
Cyanide	0.0050	ND	0.40	0.375	0.18	0.18	0.18	0.20	0.364	93.75	90.00	110.00	90.50	84.00	112.00	0.54	14.00

NOTES & DEFINITIONS :

RDL = REPORTING DETECTION LIMIT
DL = DILUTED OUT
NA = NOT APPLICABLE
ND =NOT DETECTED
NR = NOT REQUIRED
J = RDL > BLANK >/= BLANK
LA = LAB ACCIDENT

LCS = LABORATORY CONTROL SAMPLE
T- LCS = TRUE VALUE OF LCS
REP1 = UNSPIKED SAMPLE REPLICATE 1
REP2 = UNSPIKED SAMPLE REPLICATE 2
SAMPLE RESULT = CONCENTRATION OF UNSPIKED MATRIX
T-MS = TRUE VALUE OF MATRIX SPIKE
MS = MATRIX SPIKE
LCL = LOWER CONTROL LIMIT
UCL = UPPER CONTROL LIMIT

REP RPD = RELATIVE PERCENT DIFFERENCE OF SAMPLE REPLICATES

KEMRON ENVIRONMENTAL SERVICES
OHIO VALLEY LABORATORY
QUALITY CONTROL SUMMARY

WORKGROUP:	WG97351	RUN DATE:	5/14/01
METHOD:	340.2	ANALYST:	DLP
MATRIX:	Water	DUPLICATE:	05-127-01
UNITS:	mg/L	SPIKE:	05-127-01

			CONCENTRATION PPM							PERCENT RECOVERY						PERCENT RPD	
ANALYTE	MDL	Blank	T-LCS	LCS	REP1	REP2	SAMPLE RESULT	T-MS	MS	LCS	LCS LCL	LCS UCL	MS	MS LCL	MS UCL	REP RPD	RPD UCL
Fluoride	0.0500	ND	2.00	2.020	ND	ND	0.05	0.40	0.419	101.00	88.00	109.00	92.13	88.00	109.00	NA	11.00

NOTES & DEFINITIONS :

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ND =NOT DETECTED
NR = NOT REQUIRED
J = RDL > BLANK >/= MDL

LCS = LABORATORY CONTROL SAMPLE
T- LCS = TRUE VALUE OF LCS
REP1 = UNSPIKED SAMPLE REPLICATE 1
REP2 = UNSPIKED SAMPLE REPLICATE 2
SAMPLE RESULT = CONCENTRATION OF UNSPIKED MATRIX
T-MS = TRUE VALUE OF MATRIX SPIKE
MS = MATRIX SPIKE
LCL = LOWER CONTROL LIMIT
UCL = UPPER CONTROL LIMIT

REP RPD = RELATIVE PERCENT DIFFERENCE OF SAMPLE REPLICATES

KEMRON ENVIRONMENTAL SERVICES
OHIO VALLEY LABORATORY
QUALITY CONTROL SUMMARY

WORKGROUP:	WG97353	RUN DATE:	5/14/01
METHOD:	340.2	ANALYST:	DLP
MATRIX:	Water	DUPLICATE:	05-201-02
UNITS:	mg/L	SPIKE:	05-201-02

			CONCENTRATION PPM							PERCENT RECOVERY						PERCENT RPD	
ANALYTE	MDL	Blank	T-LCS	LCS	REP1	REP2	SAMPLE RESULT	T-MS	MS	LCS	LCS LCL	LCS UCL	MS	MS LCL	MS UCL	REP RPD	RPD UCL
Fluoride	0.0500	ND	2.00	2.000	0.22	0.22	0.22	0.40	0.596	100.00	88.00	109.00	94.75	88.00	109.00	0.00	11.00

NOTES & DEFINITIONS :

RDL = REPORTING DETECTION LIMIT
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ND =NOT DETECTED
NR = NOT REQUIRED
J = RDL > BLANK >/= MDL

LCS = LABORATORY CONTROL SAMPLE
T- LCS = TRUE VALUE OF LCS
REP1 = UNSPIKED SAMPLE REPLICATE 1
REP2 = UNSPIKED SAMPLE REPLICATE 2
SAMPLE RESULT = CONCENTRATION OF UNSPIKED MATRIX
T-MS = TRUE VALUE OF MATRIX SPIKE
MS = MATRIX SPIKE
LCL = LOWER CONTROL LIMIT
UCL = UPPER CONTROL LIMIT

REP RPD = RELATIVE PERCENT DIFFERENCE OF SAMPLE REPLICATES

KEMRON ENVIRONMENTAL SERVICES
OHIO VALLEY LABORATORY
QUALITY CONTROL SUMMARY

WORKGROUP: WG97481
METHOD: 335.4/9010
MATRIX: water
UNITS: mg/L

RUN DATE: 5/15/01
ANALYST: JWR
DUPLICATE: 05-287-01
SPIKE: 05-287-01

ANALYTE	MDL	Blank	CONCENTRATION PPM T-LCS	LCS	REP1	REP2	SAMPLE RESULT	T-MS	MS	PERCENT RECOVERY LCS	LCS LCL	LCS UCL	MS	MS LCL	MS UCL	PERCENT RPD REP RPD	RPD UCL
Cyanide	0.0050	ND	0.40	0.381	0.18	0.18	0.18	0.20	0.374	95.25	90.00	110.00	97.61	84.00	112.00	1.12	14.00

NOTES & DEFINITIONS :
RDL = REPORTING DETECTION LIMIT
DL = DILUTED OUT
NA = NOT APPLICABLE
ND =NOT DETECTED
NR = NOT REQUIRED
J = RDL > BLANK >/= BLANK
LA = LAB ACCIDENT

LCS = LABORATORY CONTROL SAMPLE
T- LCS = TRUE VALUE OF LCS
REP1 = UNSPIKED SAMPLE REPLICATE 1
REP2 = UNSPIKED SAMPLE REPLICATE 2
SAMPLE RESULT = CONCENTRATION OF UNSPIKED MATRIX
T-MS = TRUE VALUE OF MATRIX SPIKE
MS = MATRIX SPIKE
LCL = LOWER CONTROL LIMIT
UCL = UPPER CONTROL LIMIT

REP RPD = RELATIVE PERCENT DIFFERENCE OF SAMPLE REPLICATES

KEMRON ENVIRONMENTAL SERVICES
OHIO VALLEY LABORATORY
QUALITY CONTROL SUMMARY

WORKGROUP:	WG97419	RUN DATE:	5/14/01
METHOD:	335.4/9010	ANALYST:	JWR
MATRIX:	water	DUPLICATE:	05-245-03
UNITS:	mg/L	SPIKE:	05-245-03

			CONCENTRATION PPM							PERCENT RECOVERY						PERCENT RPD	
ANALYTE	MDL	Blank	T-LCS	LCS	REP1	REP2	SAMPLE RESULT	T-MS	MS	LCS	LCS LCL	LCS UCL	MS	MS LCL	MS UCL	REP RPD	RPD UCL
Cyanide	0.0050	ND	0.40	0.373	0.01	0.01	0.01	0.20	0.207	93.25	90.00	110.00	97.76	84.00	112.00	2.55	14.00

NOTES & DEFINITIONS :

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DL = DILUTED OUT
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NR = NOT REQUIRED
J = RDL > BLANK >/= BLANK
LA = LAB ACCIDENT

LCS = LABORATORY CONTROL SAMPLE
T- LCS = TRUE VALUE OF LCS
REP1 = UNSPIKED SAMPLE REPLICATE 1
REP2 = UNSPIKED SAMPLE REPLICATE 2
SAMPLE RESULT = CONCENTRATION OF UNSPIKED MATRIX
T-MS = TRUE VALUE OF MATRIX SPIKE
MS = MATRIX SPIKE
LCL = LOWER CONTROL LIMIT
UCL = UPPER CONTROL LIMIT

REP RPD = RELATIVE PERCENT DIFFERENCE OF SAMPLE REPLICATES

KEMRON ENVIRONMENTAL SERVICES
OHIO VALLEY LABORATORY
QUALITY CONTROL SUMMARY

WORKGROUP:	WG97533	RUN DATE:	5/16/01
METHOD:	120 1	ANALYST:	DLP
MATRIX:	Water	DUPLICATE:	05-165 02
UNITS:	mg/L		

			CONCENTRATION PPM							PERCENT RECOVERY						PERCENT RPD	
ANALYTE	MDL	Blank	T-LCS	LCS	REP1	REP2	SAMPLE RESULT	T-MS	MS	LCS	LCS LCL	LCS UCL	MS	MS LCL	MS UCL	REP RPD	RPD UCL
Conductivity	0 50	ND	1413 00	1461.80	576.00	579.00	NR	NR	NR	103.5	92 0	111 0	NR	NR	NR	0.52	9.00

NOTES & DEFINITIONS :

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NR = NOT REQUIRED

LCS = LABORATORY CONTROL SAMPLE
T- LCS = TRUE VALUE OF LCS
REP1 = UNSPIKED SAMPLE REPLICATE 1
REP2 = UNSPIKED SAMPLE REPLICATE 2
SAMPLE RESULT = CONCENTRATION OF UNSPIKED MATRIX
T-MS = TRUE VALUE OF MATRIX SPIKE
MS = MATRIX SPIKE
LCL = LOWER CONTROL LIMIT
UCL = UPPER CONTROL LIMIT

REP RPD = RELATIVE PERCENT DIFFERENCE OF SAMPLE REPLICATES

KEMRON ENVIRONMENTAL SERVICES
OHIO VALLEY LABORATORY
QUALITY CONTROL SUMMARY

WORKGROUP:	WG97597	RUN DATE:	5/17/01
METHOD:	335.4/9010	ANALYST:	JMM
MATRIX:	water	DUPLICATE:	05-348-01
UNITS:	mg/L	SPIKE:	05-348-01

			CONCENTRATION PPM							PERCENT RECOVERY						PERCENT RPD	
ANALYTE	MDL	Blank	T-LCS	LCS	REP1	REP2	SAMPLE RESULT	T-MS	MS	LCS	LCS LCL	LCS UCL	MS	MS LCL	MS UCL	REP RPD	RPD UCL
Cyanide	0.0050	ND	0.40	0.384	0.15	0.15	0.15	0.20	0.334	96.00	90.00	110.00	91.50	84.00	112.00	0.66	14.00

NOTES & DEFINITIONS :

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LA = LAB ACCIDENT

LCS = LABORATORY CONTROL SAMPLE
T- LCS = TRUE VALUE OF LCS
REP1 = UNSPIKED SAMPLE REPLICATE 1
REP2 = UNSPIKED SAMPLE REPLICATE 2
SAMPLE RESULT = CONCENTRATION OF UNSPIKED MATRIX
T-MS = TRUE VALUE OF MATRIX SPIKE
MS = MATRIX SPIKE
LCL = LOWER CONTROL LIMIT
UCL = UPPER CONTROL LIMIT

REP RPD = RELATIVE PERCENT DIFFERENCE OF SAMPLE REPLICATES

KEMRON ENVIRONMENTAL SERVICES
OHIO VALLEY LABORATORY
QUALITY CONTROL SUMMARY

WORKGROUP: WG97596 **RUN DATE:** 5/17/2001
METHOD: 6010B **PREP DATE:** 5/11/2001
MATRIX: Water **ANALYST:** KHR
UNITS: mg/L **DUPLICATE:** L0105165-05
INSTRUMENT: Perkin Elmer Optima 3000 DV **MS/MSD:** L0105165-02

			CONCENTRATION PPM								PERCENT RECOVERY							PERCENT		
ANALYTE	RDL	Blank	T-LCS	LCS	REP1	REP2	SAMPLE RESULT	T-MS	MS	MSD	LCS	LCS LCL	LCS UCL	MS	MSD	MS LCL	MS UCL	REP RPD	MS RPD	RPD UCL
Silver	0.010	ND	0.200	0.197	ND	ND	ND	0.200	0.195	0.196	98.5	80.0	120.0	97.5	98.0	75.0	125.0	NA	0.5	20
Arsenic	0.004	ND	1.000	0.983	0.015	0.016	ND	1.000	0.966	0.966	98.3	80.0	120.0	96.6	96.6	75.0	125.0	2.6	0.0	20
Barium	0.010	ND	10.000	9.310	0.431	0.438	0.053	10.000	8.680	8.650	93.1	80.0	120.0	86.3	86.0	75.0	125.0	1.6	0.3	20
Beryllium	0.001	ND	1.000	0.984	ND	ND	ND	1.000	0.986	0.984	98.4	80.0	120.0	98.6	98.4	75.0	125.0	NA	0.2	20
Cadmium	0.01000	ND	1.000	0.958	ND	ND	ND	1.000	0.924	0.924	95.8	80.0	120.0	92.4	92.4	75.0	125.0	NA	0.0	20
Chromium	0.0200	ND	1.000	1.010	ND	ND	ND	1.000	0.940	0.942	101.0	80.0	120.0	94.0	94.2	75.0	125.0	NA	0.2	20
Manganese	0.01000	ND	1.000	0.989	1.030	1.050	ND	1.000	0.932	0.929	98.9	80.0	120.0	93.2	92.9	75.0	125.0	1.9	0.3	20
Molybdenum	0.100	ND	1.000	0.951	ND	ND	ND	1.000	0.910	0.913	95.1	80.0	120.0	91.0	91.3	75.0	125.0	NA	0.3	20
Sodium	0.500	ND	50.000	48.200	19.400	19.700	20.400	50.000	67.700	67.100	96.4	80.0	120.0	94.6	93.4	75.0	125.0	1.5	0.9	20
Lead	0.100	ND	1.000	1.010	ND	ND	ND	1.000	0.935	0.934	101.0	80.0	120.0	93.5	93.4	75.0	125.0	NA	0.1	20
Vanadium	0.010	ND	1.000	0.979	ND	ND	ND	1.000	0.940	0.942	97.9	80.0	120.0	94.0	94.2	75.0	125.0	NA	0.2	20
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NOTES & DEFINITIONS :

RDL = REPORTING DETECTION LIMIT
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ND = NOT DETECTED
DL = DILUTED OUT (Concentration of sample > 4X spike concentration)

LCS = LABORATORY CONTROL SAMPLE
T- LCS = TRUE VALUE OF LCS
REP1 = UNSPIKED SAMPLE REPLICATE 1
REP2 = UNSPIKED SAMPLE REPLICATE 2
SAMPLE RESULT = CONCENTRATION OF UNSPIKED MATRIX
T-MS = TRUE VALUE OF MATRIX SPIKE
MS = MATRIX SPIKE
MSD = MATRIX SPIKE DUPLICATE
LCL = LOWER CONTROL LIMIT
UCL = UPPER CONTROL LIMIT

REP RPD = RELATIVE PERCENT DIFFERENCE OF SAMPLE REPLICATES
MS RPD = RELATIVE PERCENT DIFFERENCE OF MATRIX SPIKES

Kemron
ENVIRONMENTAL SERVICES

ORGANIC
INSTRUMENT DATA

Kemron Environmental Services -OVL

Volatile Quality Control Summary - 8260

Workgroup:	WG97085	**Run Date:**	5/9/01	**Sample Number:**	05-161-04	**LCS DF:**	1
Method:	8260B	**Instrument:**	HPMS2	**Sample Filename:**	2M44038.D	**Sample DF:**	50
Matrix:	WATER	**Blank Filename:**	2M44033.D	**MS Filename:**	2M44039.D	**MS DF:**	50
Units:	ug/L	**LCS Filename:**	2M44034.D	**MSD Filename:**	2M44040.D	**MSD DF:**	50

		CONCENTRATION, ug/L						PERCENT RECOVERY									OUTLIERS				
	MDL	Blank	LCS	Sample	MS	MSD	Spike Level	Blank	LCS	Sample	MS	MSD	LCL	UCL	MS RPD	RPD UCL	Blank	LCS	MS	MSD	RPD
Target Analytes	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	%	%	%	%	%	%	%	%	%					
dichlorodifluoromethane	0.25	ND	22.09	ND	1054.22	1057.24	1000.0	ND	110.5	ND	105.4	105.7	34.0	202.0	0.3	30.0					
chloromethane	0.25	ND	20.60	ND	1019.84	1081.40	1000.0	ND	103.0	ND	102.0	108.1	44.0	182.0	5.9	85.0					
vinyl chloride	0.25	ND	24.25	ND	1243.48	1143.66	1000.0	ND	121.3	ND	124.3	114.4	61.0	164.0	8.4	63.0					
bromomethane	0.50	ND	25.98	ND	1304.27	1310.43	1000.0	ND	129.9	ND	130.4	131.0	64.2	140.0	0.5	58.0					
chloroethane	0.50	ND	24.77	ND	1277.17	1249.55	1000.0	ND	123.9	ND	127.7	125.0	74.0	148.0	2.2	47.0					
trichlorofluoromethane	0.25	ND	23.70	ND	1183.60	1098.95	1000.0	ND	118.5	ND	118.4	109.9	50.0	157.0	7.4	65.0					
acetone	2.50	ND	19.13	ND	1002.20	967.72	1000.0	ND	95.7	ND	100.2	96.8	39.0	149.0	3.5	67.0					
1,1-dichloroethene	0.50	ND	22.27	50.80	1109.17	1150.42	1000.0	ND	111.4	50.80	105.8	110.0	80.0	138.0	3.7	34.0					
iodomethane	0.50	ND	28.17	ND	1356.67	1522.84	20.0	ND	140.9	ND	6783.4	7614.2	10.0	274.0	11.5	171.0					
methylene chloride	0.25	ND	20.93	ND	1025.71	1073.05	1000.0	ND	104.7	ND	102.6	107.3	80.0	123.0	4.5	24.0					
carbon disulfide	0.50	ND	16.68	ND	791.13	839.65	1000.0	ND	83.4	ND	79.1	84.0	71.0	143.0	6.0	44.0					
methyl-tert-butyl ether	0.50	ND	23.02	ND	1168.98	1162.04	1000.0	ND	115.1	ND	116.9	116.2	78.0	140.0	0.6	38.0					
trans-1,2-dichloroethene	0.25	ND	22.07	ND	1052.78	1097.94	1000.0	ND	110.4	ND	105.3	109.8	80.0	128.0	4.2	25.0					
n-hexane	0.56	ND	22.93	ND	1015.66	1107.13	1000.0	ND	114.7	ND	101.6	110.7	68.0	137.0	8.6	42.0					
vinyl acetate	2.50	ND	24.30	ND	1237.15	1248.35	1000.0	ND	121.5	ND	123.7	124.8	20.0	196.0	0.9	108.0					
1,1-dichloroethane	0.13	ND	23.25	396.03	1545.06	1532.02	1000.0	ND	116.3	396.03	114.9	113.6	80.0	124.0	0.8	25.0					
2-butanone	2.50	ND	20.57	ND	1042.61	1074.03	1000.0	ND	102.9	ND	104.3	107.4	53.0	146.0	3.0	57.0					
2,2-dichloropropane	0.25	ND	22.87	ND	1062.42	994.95	1000.0	ND	114.4	ND	106.2	99.5	78.0	137.0	6.6	36.0					
cis-1,2-dichloroethene	0.25	ND	20.45	ND	1026.30	1032.43	1000.0	ND	102.3	ND	102.6	103.2	80.0	122.0	0.6	22.0					
chloroform	0.13	ND	22.35	ND	1151.88	1106.21	1000.0	ND	111.8	ND	115.2	110.6	80.0	125.0	4.0	22.0					
bromochloromethane	0.20	ND	23.25	ND	1176.02	1152.62	1000.0	ND	116.3	ND	117.6	115.3	80.0	130.0	2.0	29.0					
1,1,1-trichloroethane	0.25	ND	24.11	2564.90	3715.38	3427.97	1000.0	ND	120.6	2564.90	115.0	86.3	80.0	135.0	8.0	29.0					
1,1-dichloropropene	0.25	ND	21.19	ND	1030.57	1015.94	1000.0	ND	106.0	ND	103.1	101.6	80.0	154.0	1.4	33.0					
carbon tetrachloride	0.25	ND	24.75	ND	1254.76	1160.27	1000.0	ND	123.8	ND	125.5	116.0	80.0	140.0	7.8	34.0					
1,2-dichloroethane	0.25	ND	24.07	ND	1261.21	1158.33	1000.0	ND	120.4	ND	126.1	115.8	81.0	136.0	8.5	34.0					
benzene	0.13	ND	20.12	ND	985.52	1017.68	1000.0	ND	100.6	ND	98.6	101.8	80.0	123.0	3.2	24.0					
trichloroethene	0.25	ND	22.32	ND	1093.93	1076.35	1000.0	ND	111.6	ND	109.4	107.6	80.0	125.0	1.6	22.0					
1,2-dichloropropane	0.25	ND	22.36	ND	1121.77	1145.69	1000.0	ND	111.8	ND	112.2	114.6	80.0	128.0	2.1	28.0					
bromodichloromethane	0.25	ND	23.48	ND	1218.60	1136.32	1000.0	ND	117.4	ND	121.9	113.6	80.0	132.0	7.0	25.0					
dibromomethane	0.25	ND	22.15	ND	1160.26	1118.20	1000.0	ND	110.8	ND	116.0	111.8	80.0	127.0	3.7	27.0					
2-chloroethylvinyl ether	10.00	ND	21.24	ND	1160.32	1216.11	1000.0	ND	106.2	ND	116.0	121.6	10.0	294.0	4.7	246.0					
4-methyl-2-pentanone	2.50	ND	19.74	ND	1026.82	1021.12	1000.0	ND	98.7	ND	102.7	102.1	63.1	132.0	0.6	52.0					
cis-1,3-dichloropropene	0.25	ND	22.91	ND	1113.07	1106.31	1000.0	ND	114.6	ND	111.3	110.6	80.0	139.0	0.6	26.0					
toluene	0.25	ND	19.48	ND	946.37	995.26	1000.0	ND	97.4	ND	94.6	99.5	80.0	128.0	5.0	29.0					
trans-1,3-dichloropropene	0.50	ND	23.11	ND	1128.95	1116.75	1000.0	ND	115.6	ND	112.9	111.7	80.0	126.0	1.1	26.0					
1,1,2-trichloroethane	0.13	ND	21.39	ND	1093.15	1090.20	1000.0	ND	107.0	ND	109.3	109.0	73.0	128.0	0.3	34.0					
2-hexanone	2.50	ND	18.85	ND	970.72	1004.81	1000.0	ND	94.3	ND	97.1	100.5	56.0	135.0	3.5	48.0					
1,3-dichloropropane	0.20	ND	20.78	ND	1028.36	1039.04	1000.0	ND	103.9	ND	102.8	103.9	80.0	126.0	1.0	27.0					
tetrachloroethene	0.25	ND	19.56	ND	937.54	947.58	1000.0	ND	97.8	ND	93.8	94.8	80.0	126.0	1.1	27.0					
dibromochloromethane	0.25	ND	21.88	ND	1117.28	1083.36	1000.0	ND	109.4	ND	111.7	108.3	80.0	133.0	3.1	29.0					
1,2-dibromoethane	0.25	ND	21.96	ND	1131.79	1125.50	1000.0	ND	109.8	ND	113.2	112.6	26.0	187.0	0.6	99.0					
1-chlorohexane	0.13	ND	20.06	ND	963.51	979.02	1000.0	ND	100.3	ND	96.4	97.9	80.0	133.0	1.6	31.0					
chlorobenzene	0.13	ND	20.63	ND	1030.93	1031.87	1000.0	ND	103.2	ND	103.1	103.2	80.0	120.0	0.1	21.0					
1,1,1,2-tetrachloroethane	0.25	ND	21.50	ND	1094.34	1057.48	1000.0	ND	107.5	ND	109.4	105.7	80.0	130.0	3.4	27.0					
ethylbenzene	0.25	ND	21.06	ND	1012.78	1028.26	1000.0	ND	105.3	ND	101.3	102.8	80.0	121.0	1.5	22.0					
m+p-xylene	0.50	ND	41.97	ND	2042.91	2045.63	2000.0	ND	104.9	ND	102.1	102.3	80.0	124.0	0.1	52.0					
o-xylene	0.25	ND	21.61	ND	1070.36	1050.92	1000.0	ND	108.1	ND	107.0	105.1	80.0	120.0	1.8	18.0					
styrene	0.13	ND	21.57	ND	1078.42	1058.74	1000.0	ND	107.9	ND	107.8	105.9	80.0	121.0	1.8	20.0					
bromoform	0.54	ND	22.13	ND	1141.58	1078.07	1000.0	ND	110.7	ND	114.2	107.8	75.0	132.0	5.7	34.0					
isopropylbenzene	0.25	ND	21.20	ND	1048.11	1010.70	1000.0	ND	106.0	ND	104.8	101.1	80.0	121.0	3.6	24.0					
1,1,2,2-tetrachloroethane	0.13	ND	22.36	ND	1124.21	1171.11	1000.0	ND	111.8	ND	112.4	117.1	73.0	128.0	4.1	34.0					
1,2,3-trichloropropane	0.75	ND	22.03	ND	1126.62	1153.61	1000.0	ND	110.2	ND	112.7	115.4	78.0	130.0	2.4	32.0					
propyl-benzene	0.13	ND	21.06	ND	1000.67	1054.63	1000.0	ND	105.3	ND	100.1	105.5	79.0	127.0	5.3	29.0					
bromobenzene	0.13	ND	19.80	ND	980.34	1004.15	1000.0	ND	99.0	ND	98.0	100.4	80.0	120.0	2.4	22.0					
1,3,5-trimethylbenzene	0.25	ND	21.09	ND	1015.78	1030.48	1000.0	ND	105.5	ND	101.6	103.0	80.0	122.0	1.4	25.0					
2-chlorotoluene	0.13	ND	20.53	ND	988.58	1042.73	1000.0	ND	102.7	ND	98.9	104.3	53.0	164.0	5.3	62.0					
4-chlorotoluene	0.25	ND	19.93	ND	1012.88	1007.30	1000.0	ND	99.7	ND	101.3	100.7	42.0	163.0	0.6	74.0					
tert-butyl-benzene	0.25	ND	20.82	ND	1004.88	1042.11	1000.0	ND	104.1	ND	100.5	104.2	76.0	132.0	3.6	34.0					
1,2,4-trimethylbenzene	0.25	ND	20.56	ND	1006.80	1028.04	1000.0	ND	102.8	ND	100.7	102.8	80.0	128.0	2.1	27.0					
sec-butyl-benzene	0.25	ND	21.20	ND	1038.89	1079.37	1000.0	ND	106.0	ND	103.9	107.9	73.0	126.0	3.8	33.0					
p-isopropyl-toluene	0.25	ND	20.92	ND	1005.59	1032.96	1000.0	ND	104.6	ND	100.6	103.3	77.0	124.0	2.7	29.0					
1,3-dichlorobenzene	0.25	ND	20.77	ND	1016.18	1042.56	1000.0	ND	103.9	ND	101.6	104.3	80.0	120.0	2.6	22.0					
1,4-dichlorobenzene	0.13	ND	20.51	ND	1015.04	1021.59	1000.0	ND	102.6	ND	101.5	102.2	80.0	120.0	0.6	18.0					
n-butyl-benzene	0.25	ND	22.45	ND	1073.52	1071.15	1000.0	ND	112.3	ND	107.4	107.1	73.0	136.0	0.2	39.0					
1,2-dichlorobenzene	0.13	ND	20.96	ND	1056.47	1064.56	1000.0	ND	104.8	ND	105.6	106.5	80.0	120.0	0.8	20.0					
1,2-dibromo-3-chloropropane	1.00	ND	21.63	ND	1120.36	1126.39	1000.0	ND	108.2	ND	112.0	112.6	22.0	178.0	0.5	96.0					
1,2,4-trichlorobenzene	0.20	ND	22.94	ND	1137.64	1148.79	1000.0	ND	114.7	ND	113.8	114.9	75.0	126.0	1.0	31.0					
hexachlorobutadiene	0.25	ND	22.39	ND	1060.72	1074.72	1000.0	ND	112.0	ND	106.1	107.5	68.0	126.0	1.3	36.0					
naphthalene	0.20	ND	27.65	ND	1427.11	1425.14	1000.0	ND	138.3	ND	142.7	142.5	57.0	138.0	0.1	50.0		H	H	H	
1,2,3-trichlorobenzene	0.13	ND	23.48	ND	1187.53	1213.14	1000.0	ND	117.4	ND	118.8	121.3	66.0	130.0	2.1	39.0					
Surrogates																					
dibromofluoromethane		27.95	27.24	29.10	28.08	26.81	25.0	111.8	109.0	116.4	112.3	107.2	86	118							
1,2-dichloroethane-d4		28.93	28.40	30.79	30.43	27.89	25.0	115.7	113.6	123.2	121.7	111.6	80	120					H		
toluene-d8		24.13	23.83	24.43	23.32	23.98	25.0	96.5	95.3	97.7	93.3	95.9	88	110							
p-bromofluorobenzene		25.98	24.55	25.91	24.77	25.37	25.0	103.9	98.2	103.6	99.1	101.5	86	115							

Notes and Definitions:

RDL= Reporting Detection Limit
LCS= Laboratory Control Sample
MS/MSD= Matrix Spike / Matrix Spike Duplicate
LCL= Lower Control Limit
UCL= Upper Control Limit
ND= Not Detected
NS=Not spiked
NA=Not applicable
RPD= Relative Percent Difference
H=Above control limit
L=Below control limit
DF=Dilution Factor

Kemron Environmental Services -OVL

Volatile Quality Control Summary - 8260

Workgroup:	WG97093	Run Date:	5/10/2001	Sample Number:	05-165-10	LCS DF:	1
Method:	8260B	Instrument:	HPMS6	Sample Filename:	6M25597.D	Sample DF:	1
Matrix:	WATER	Blank Filename:	6M25590.D	MS Filename:	6M25598.D	MS DF:	1
Units:	ug/L	LCS Filename:	6M25591 D	MSD Filename:	6M25599.D	MSD DF:	1

		CONCENTRATION, ug/L						PERCENT RECOVERY									OUTLIERS				
	MDL	Blank	LCS	Sample	MS	MSD	Spike Level	Blank	LCS	Sample	MS	MSD	LCL	UCL	MS RPD	RPD UCL	Blank	LCS	MS	MSD	RPD
Target Analytes	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	%	%	%	%	%	%	%	%	%					
dichlorodifluoromethane	0.25	ND	19.31	ND	13.93	15.77	20.0	ND	96.6	ND	69.7	78.9	34.0	202.0	12.4	30.0					
chloromethane	0.25	ND	21.18	ND	16.02	17.74	20.0	ND	105.9	ND	80.1	88.7	44.0	182.0	10.2	85.0					
vinyl chloride	0.25	ND	23.00	ND	17.54	17.69	20.0	ND	115.0	ND	87.7	88.5	61.0	164.0	0.9	63.0					
bromomethane	0.50	ND	22.74	ND	16.82	19.26	20.0	ND	113.7	ND	84.1	96.3	64.2	140.0	13.5	58.0					
chloroethane	0.50	ND	20.70	ND	15.58	17.30	20.0	ND	103.5	ND	77.9	86.5	74.0	148.0	10.5	47.0					
trichlorofluoromethane	0.25	ND	19.19	ND	14.21	15.96	20.0	ND	96.0	ND	71.1	79.8	50.0	157.0	11.6	65.0					
acetone	2.50	ND	12.52	ND	10.76	10.88	20.0	ND	62.6	ND	53.8	54.4	39.0	149.0	1.1	67.0					
1,1-dichloroethene	0.50	ND	20.42	ND	14.80	16.42	20.0	ND	102.1	ND	74.0	82.1	80.0	138.0	10.4	34.0			L		
iodomethane	0.50	ND	22.42	ND	16.72	20.50	20.0	ND	112.1	ND	83.6	102.5	10.0	274.0	20.3	171.0					
methylene chloride	0.25	ND	20.32	ND	16.31	17.02	20.0	ND	101.6	ND	81.6	85.1	80.0	123.0	4.3	24.0					
carbon disulfide	0.50	ND	14.53	ND	10.17	11.62	20.0	ND	72.7	ND	50.9	58.1	71.0	143.0	13.3	44.0			L	L	
methyl-tert-butyl ether	0.50	ND	19.59	ND	16.97	16.87	20.0	ND	98.0	ND	84.9	84.4	78.0	140.0	0.6	38.0					
trans-1,2-dichloroethene	0.25	ND	22.00	ND	16.15	17.90	20.0	ND	110.0	ND	80.8	89.5	80.0	128.0	10.3	25.0					
n-hexane	0.56	ND	20.51	ND	11.15	12.49	20.0	ND	102.6	ND	55.8	62.5	68.0	137.0	11.3	42.0			L	L	
vinyl acetate	2.50	ND	20.20	ND	17.48	17.65	20.0	ND	101.0	ND	87.4	88.3	20.0	196.0	1.0	108.0					
1,1-dichloroethane	0.13	ND	19.68	ND	14.92	16.25	20.0	ND	98.4	ND	74.6	81.3	80.0	124.0	8.5	25.0			L		
2-butanone	2.50	ND	15.79	ND	13.93	13.28	20.0	ND	79.0	ND	69.7	66.4	53.0	146.0	4.8	57.0					
2,2-dichloropropane	0.25	ND	18.41	ND	13.30	14.94	20.0	ND	92.1	ND	66.5	74.7	78.0	137.0	11.6	36.0			L	L	
cis-1,2-dichloroethene	0.25	ND	20.27	0.62	15.97	17.04	20.0	ND	101.4	0.62	76.8	82.1	80.0	122.0	6.5	22.0			L		
chloroform	0.13	ND	20.55	ND	16.16	17.14	20.0	ND	102.8	ND	80.8	85.7	80.0	125.0	5.9	22.0					
bromochloromethane	0.20	ND	19.88	ND	16.70	16.91	20.0	ND	99.4	ND	83.5	84.6	80.0	130.0	1.2	29.0					
1,1,1-trichloroethane	0.25	ND	20.22	0.60	15.23	17.17	20.0	ND	101.1	0.60	73.2	82.9	80.0	135.0	12.0	29.0			L		
1,1-dichloropropene	0.25	ND	24.16	ND	17.37	19.45	20.0	ND	120.8	ND	86.9	97.3	80.0	154.0	11.3	33.0					
carbon tetrachloride	0.25	ND	17.96	ND	13.05	15.09	20.0	ND	89.8	ND	65.3	75.5	80.0	140.0	14.5	34.0			L	L	
1,2-dichloroethane	0.25	ND	19.01	ND	16.46	16.77	20.0	ND	95.1	ND	82.3	83.9	81.0	136.0	1.9	34.0					
benzene	0.13	ND	20.89	ND	15.87	17.16	20.0	ND	104.5	ND	79.4	85.8	80.0	123.0	7.8	24.0			L		
trichloroethene	0.25	ND	21.70	0.42	16.47	17.96	20.0	ND	108.5	0.42	80.3	87.7	80.0	125.0	8.7	22.0					
1,2-dichloropropane	0.25	ND	19.65	ND	15.72	16.37	20.0	ND	98.3	ND	78.6	81.9	80.0	128.0	4.1	28.0			L		
bromodichloromethane	0.25	ND	21.27	ND	17.44	18.24	20.0	ND	106.4	ND	87.2	91.2	80.0	132.0	4.5	25.0					
dibromomethane	0.25	ND	20.24	ND	17.49	17.60	20.0	ND	101.2	ND	87.5	88.0	80.0	127.0	0.6	27.0					
2-chloroethylvinyl ether	10.00	ND	17.73	ND	15.73	15.62	20.0	ND	88.7	ND	78.7	78.1	10.0	294.0	0.7	246.0					
4-methyl-2-pentanone	2.50	ND	16.13	ND	14.40	13.70	20.0	ND	80.7	ND	72.0	68.5	63.1	132.0	5.0	52.0					
cis-1,3-dichloropropene	0.25	ND	21.39	ND	17.45	17.96	20.0	ND	107.0	ND	87.3	89.8	80.0	139.0	2.9	26.0					
toluene	0.25	ND	20.83	ND	14.84	16.09	20.0	ND	104.2	ND	74.2	80.5	80.0	128.0	8.1	29.0			L		
trans-1,3-dichloropropene	0.50	ND	19.35	ND	15.52	15.67	20.0	ND	96.8	ND	77.6	78.4	80.0	126.0	1.0	26.0			L	L	
1,1,2-trichloroethane	0.13	ND	20.12	ND	16.41	16.59	20.0	ND	100.6	ND	82.1	83.0	73.0	128.0	1.1	34.0					
2-hexanone	2.50	ND	15.91	ND	12.89	12.44	20.0	ND	79.6	ND	64.5	62.2	56.0	135.0	3.6	48.0					
1,3-dichloropropane	0.20	ND	19.59	ND	16.07	16.05	20.0	ND	98.0	ND	80.4	80.3	80.0	126.0	0.1	27.0					
tetrachloroethene	0.25	ND	22.09	2.39	16.64	18.46	20.0	ND	110.5	2.4	71.3	80.4	80.0	126.0	10.4	27.0			L		
dibromochloromethane	0.25	ND	18.77	ND	15.38	15.70	20.0	ND	93.9	ND	76.9	78.5	80.0	133.0	2.1	29.0			L	L	
1,2-dibromoethane	0.25	ND	20.33	ND	16.64	16.76	20.0	ND	101.7	ND	83.2	83.8	26.0	187.0	0.7	99.0					
1-chlorohexane	0.13	ND	22.12	ND	13.85	15.68	20.0	ND	110.6	ND	69.3	78.4	80.0	133.0	12.4	31.0			L	L	
chlorobenzene	0.13	ND	20.72	ND	15.29	16.22	20.0	ND	103.6	ND	76.5	81.1	80.0	120.0	5.9	21.0			L		
1,1,1,2-tetrachloroethane	0.25	ND	20.37	ND	15.47	16.42	20.0	ND	101.9	ND	77.4	82.1	80.0	130.0	6.0	27.0			L		
ethylbenzene	0.25	ND	21.57	ND	15.33	16.56	20.0	ND	107.9	ND	76.7	82.8	80.0	121.0	7.7	22.0			L		
m+p-xylene	0.50	ND	41.93	ND	29.82	32.46	40.0	ND	104.8	ND	74.6	81.2	80.0	124.0	8.5	52.0			L		
o-xylene	0.25	ND	20.94	ND	15.13	16.23	20.0	ND	104.7	ND	75.7	81.2	80.0	120.0	7.0	18.0			L		
styrene	0.13	ND	20.94	ND	15.53	16.33	20.0	ND	104.7	ND	77.7	81.7	80.0	121.0	5.0	20.0			L		
bromoform	0.54	ND	19.28	ND	16.71	16.92	20.0	ND	96.4	ND	83.6	84.6	75.0	132.0	1.2	34.0					
isopropylbenzene	0.25	ND	20.64	ND	14.39	15.81	20.0	ND	103.2	ND	72.0	79.1	80.0	121.0	9.4	24.0			L	L	
1,1,2,2-tetrachloroethane	0.13	ND	20.39	ND	16.49	16.99	20.0	ND	102.0	ND	82.5	85.0	73.0	128.0	3.0	34.0					
1,2,3-trichloropropane	0.75	ND	20.65	ND	16.69	17.25	20.0	ND	103.3	ND	83.5	86.3	78.0	130.0	3.3	32.0					
propyl-benzene	0.13	ND	23.03	ND	15.60	17.86	20.0	ND	115.2	ND	78.0	89.3	79.0	127.0	13.5	29.0			L		
bromobenzene	0.13	ND	21.83	ND	16.34	17.68	20.0	ND	109.2	ND	81.7	88.4	80.0	120.0	7.9	22.0					
1,3,5-trimethylbenzene	0.25	ND	21.60	ND	14.81	16.76	20.0	ND	108.0	ND	74.1	83.8	80.0	122.0	12.4	25.0			L		
2-chlorotoluene	0.13	ND	21.83	ND	15.07	17.19	20.0	ND	109.2	ND	75.4	86.0	53.0	164.0	13.1	62.0					
4-chlorotoluene	0.25	ND	20.60	ND	14.99	16.33	20.0	ND	103.0	ND	75.0	81.7	42.0	163.0	8.6	74.0					
tert-butyl-benzene	0.25	ND	22.37	ND	14.98	17.32	20.0	ND	111.9	ND	74.9	86.6	76.0	132.0	14.5	34.0			L		
1,2,4-trimethylbenzene	0.25	ND	22.11	ND	15.43	17.28	20.0	ND	110.6	ND	77.2	86.4	80.0	128.0	11.3	27.0			L		
sec-butyl-benzene	0.25	ND	22.44	ND	15.09	17.35	20.0	ND	112.2	ND	75.5	86.8	73.0	126.0	13.9	33.0					
p-isopropyl-toluene	0.25	ND	22.29	ND	14.90	17.03	20.0	ND	111.5	ND	74.5	85.2	77.0	124.0	13.3	29.0			L		
1,3-dichlorobenzene	0.25	ND	21.46	ND	15.54	16.93	20.0	ND	107.3	ND	77.7	84.7	80.0	120.0	8.6	22.0			L		
1,4-dichlorobenzene	0.13	ND	21.10	ND	15.55	16.88	20.0	ND	105.5	ND	77.8	84.4	80.0	120.0	8.2	18.0			L		
n-butyl-benzene	0.25	ND	23.98	ND	15.92	18.12	20.0	ND	119.9	ND	79.6	90.6	73.0	136.0	12.9	39.0					
1,2-dichlorobenzene	0.13	ND	21.17	ND	16.15	17.02	20.0	ND	105.9	ND	80.8	85.1	80.0	120.0	5.2	20.0					
1,2-dibromo-3-chloropropane	1.00	ND	18.55	ND	14.92	15.47	20.0	ND	92.8	ND	74.6	77.4	22.0	178.0	3.6	96.0					
1,2,4-trichlorobenzene	0.20	0.40	20.30	ND	14.61	15.40	20.0	0.40	101.5	ND	73.1	77.0	75.0	126.0	5.3	31.0			L		
hexachlorobutadiene	0.25	0.94	22.13	ND	14.04	16.25	20.0	0.94	110.7	ND	70.2	81.3	68.0	126.0	14.6	36.0					
naphthalene	0.20	0.46	19.12	ND	14.17	14.52	20.0	0.46	95.6	ND	70.9	72.6	57.0	138.0	2.4	50.0					
1,2,3-trichlorobenzene	0.13	0.63	18.66	ND	13.38	13.86	20.0	0.63	93.3	ND	66.9	69.3	66.0	130.0	3.5	39.0					
Surrogates																					
dibromofluoromethane		24.44	23.52	23.56	24.27	24.00	25.0	97.8	94.1	94.2	97.1	96.0	86	118							
1,2-dichloroethane-d4		23.15	21.86	21.76	24.35	23.12	25.0	92.6	87.4	87.0	97.4	92.5	80	120							
toluene-d8		25.09	25.13	24.86	23.25	23.36	25.0	100.4	100.5	99.4	93.0	93.4	88	110							
p-bromofluorobenzene		25.30	25.47	25.41	24.25	24.75	25.0	101.2	101.9	101.6	97.0	99.0	86	115							

Notes and Definitions:

RDL= Reporting Detection Limit
LCS= Laboratory Control Sample
MS/MSD= Matrix Spike / Matrix Spike Duplicate
LCL= Lower Control Limit
UCL= Upper Control Limit
ND= Not Detected
NS=Not spiked
NA=Not applicable
RPD= Relative Percent Difference
H=Above control limit
L=Below control limit
DF=Dilution Factor

HMI
Environmental Consulting Services

CHAIN-OF-CUSTODY RECORD

Project Number	Project Name/Location	Container Description/ Number of Containers
HM00311	ORMET/REDUCTION MILL	
	Laboratory: KEMRON	
Sampling Personnel: S. MENOSKY, J. KELLER		

Sample ID	Date/Time	Sample Code	DISSOLVED As, Be, Mn, Na, V 500 ml. PLASTIC (HNO3) FIELD FILTERED	CN (TOTAL/AMENABLE) 250 ml. Amber GLASS (NAOH)	pH, Spec. Cond., F 250 ml. PLASTIC (4°C)	TETRACHLOROETHENE 40 ml GLASS (8260-HCL)						TOTAL
MW-2	5-8-01	L	1	1	1	2						5
MW-2d	↓	↓	1	1	1	2						5
MW-5	↓	↓	1	1	1	2						5
MW-18	↓	↓	1	1	1	2						5
MW-18d	↓	↓	1	1	1	2						5
MW-30	↓	↓	1	1	1	2						5
MW-31	↓	↓	1	1	1	2						5
Field Blank	↓	↓	1	1	1	2						5
Trip Blank						2						2

Sample Code: L = Liquid; S = Solid; A = Air

Total Number of Containers: 42

Relinquished by: Stephen Menosky	Organization: HMI	Date: 5-8-01	Time: 1630	Seal Intact?
Received by: Josh Arnold	Organization: Kemron	Date: 5-8-01	Time: 1630	Yes No NA
Relinquished by: Josh Arnold	Organization: Kemron	Date: 5-8-01	Time: 1745	Seal Intact?
Received by: Brenda Gregory	Organization: Kemron	Date: 5/9/01	Time: 0830	Yes No NA

REMARKS: ONLY RUN AMENABLE CN IF TOTAL CN IS DETECTED

Sub intact
cooler temp 6 (dry)

DELIVERY METHOD: In Person [ ] Common Carrier [ ] Lab Courier KEMRON Other [ ]

HMI
Environmental Consulting Services

CHAIN-OF-CUSTODY RECORD

Project Number	Project Name/Location	Container Description/ Number of Containers
HM00311	ORMET/REDUCTION MILL	
	Laboratory: KEMRON	
Sampling Personnel: S. MENOSKY, J. KELLER		

Sample ID	Date/Time	Sample Code	DISSOLVED AS, BE, MN, NA, V 500ml. PLASTIC (HNO3) FIELD FILTERED	CN (TOTAL/AMENABLE) 250ml. Amber GLASS (NAOH)	pH, Spec. Cond, F 250ml. PLASTIC (4°C)							TOTAL
MW-15	5-8-01	L	1	1	1							3
MW-19	↓	↓	1	1	1							3
MW-32	↓	↓	1	1	1							3
MW-36	↓	↓	1	1	1							3
MW-41	↓	↓	1	1	1							3
MW-16	↓	↓	1	1	1							3
MW-16d	↓	↓	1	1	1							3

Sample Code: L = Liquid; S = Solid; A = Air

Total Number of Containers: 21

Relinquished by: Stephen C. Menosky	Organization: HMI	Date: 5-8-01	Time: 1630	Seal Intact?	
Received by: [signature]	Organization: Kemron	Date: 5-8-01	Time: 1630	Yes No NA	
Relinquished by: [signature]	Organization: Kemron	Date: 5-8-01	Time: 1745 (*)	Seal Intact?	
Received by: [signature]	Organization: Kemron	Date: 5-9-01	Time: 0830	Yes No NA	

REMARKS:

Sp intact cooler temp 6 (bg)

(*) Sp stored in locked cooler overnight (bg)

DELIVERY METHOD: In Person ☐ Common Carrier ☐ Lab Courier KEMRON Other ☐

CR

KEMRON Environmental Services | **SAMPLES RECEIPT FORM #1** | Marietta Laboratory

CLIENT: HMI BRG ARS Other JA	DATE: 5-8-01	SHIPPED BY: ( ) FED-EX ( ) AIRBORNE ( ) UPS ( ) EMERY ( ) RPS ( ) US MAIL (X) KEMRON ( ) CLIENT

COOLER ID: KL-803	COOLER ID: KL-850	COOLER ID:
INDEX # :	INDEX # :	INDEX # :
SEALED ( ) YES (X) NO	SEALED ( ) YES (X) NO	SEALED ( ) YES ( ) NO
CUSTODY ( ) YES (X) NO	CUSTODY ( ) YES (X) NO	CUSTODY ( ) YES ( ) NO
TEMP : (C) (D) 6 °C	TEMP : (C) (D) 6 °C	TEMP : (C) (D) °C
TEMP IN RANGE (4°C ± 2°) (X) YES ( ) NO	TEMP IN RANGE (4°C ± 2°) (X) YES ( ) NO	TEMP IN RANGE (4°C ± 2°) ( ) YES ( ) NO
WET ICE (X) BLUE ICE ( )	WET ICE (X) BLUE ICE ( )	WET ICE ( ) BLUE ICE ( )
ICE FROZEN ( ) MELTED (X)	ICE FROZEN ( ) MELTED (X)	ICE FROZEN ( ) MELTED ( )
RADIATION CHECKED ( ) YES ( ) NO	RADIATION CHECKED ( ) YES ( ) NO	RADIATION CHECKED ( ) YES ( ) NO
SAMPLE INTACT (X) YES ( ) NO SALVAGEBLE (X) YES ( ) NO	SAMPLE INTACT (X) YES ( ) NO SALVAGEBLE (X) YES ( ) NO	SAMPLE INTACT ( ) YES ( ) NO SALVAGEBLE ( ) YES ( ) NO
SAMPLE TYPE: WATER (X) SOIL ( ) OTHER ( )	SAMPLE TYPE: WATER (X) SOIL ( ) OTHER ( )	SAMPLE TYPE: WATER ( ) SOIL ( ) OTHER ( )
LABELS: INTACT (X) YES ( ) NO LEGIBLE (X) YES ( ) NO MATCH COC (X) YES ( ) NO	LABELS: INTACT (X) YES ( ) NO LEGIBLE (X) YES ( ) NO MATCH COC (X) YES ( ) NO	LABELS: INTACT ( ) YES ( ) NO LEGIBLE ( ) YES ( ) NO MATCH COC ( ) YES ( ) NO
pH IN RANGE (2 - >9 - >12) (X) YES ( ) NO AS APPROPRIATE	pH IN RANGE (2 - >9 - >12) (X) YES ( ) NO AS APPROPRIATE	pH IN RANGE (2 - >9 - >12) ( ) YES ( ) NO AS APPROPRIATE
LOG-IN COMMENTS	LOG-IN COMMENTS	LOG-IN COMMENTS
MW2 etc.		

TSR COMMENTS

CONTACT:	DATE:	TIME:

COMMENTS: ( ) VOICE ( ) FAX ( ) E-MAIL

Revised 02/21/01

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: Mr. Joel Keller

PO Number:
Account Number: HYDRO-360

Login #: L0105201
Report Date: 05/25/01
Work ID: HM00311/ORMET/REDUCTION MILL
Date Received: 05/09/01

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
L0105201-01	MW-1	L0105201-02	MW-28
L0105201-03	MW-29D	L0105201-04	MW-29S
L0105201-05	MW-7	L0105201-06	MW-11
L0105201-07	MW-12	L0105201-08	MW-37
L0105201-09	MW-35	L0105201-10	MW-39S
L0105201-11	MW-39D	L0105201-12	MW-42S
L0105201-13	MW-42D		

cc:Elizebeth Tandy

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

Certified By
David L. Bumgarner

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105201-01
Client Sample ID: MW-1
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/09/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L		ND	0.01	1	N/A	JMM	05/16/01	14:00	9010B\9014
Specific Conductance.....	umhos/cm	450		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	0.13		0.10	1	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	5.95			1	N/A	DLN	05/10/01	15:05	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/22/01	14:27	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/22/01	14:27	6010B\3005A
Manganese, Dissolved.....	mg/L	0.098		0.01	1	N/A	KHR	05/22/01	14:27	6010B\3005A
Sodium, Dissolved.....	mg/L	19		0.50	1	N/A	KHR	05/22/01	14:27	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/22/01	14:27	6010B\3005A

Lab Sample ID: L0105201-02
Client Sample ID: MW-28
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/09/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	1.1		0.05	5	N/A	JMM	05/16/01	14:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.36		0.05	5	N/A	JMM	05/17/01	14:00	335.1
Specific Conductance.....	umhos/cm	420		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	0.22		0.10	1	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	5.65			1	N/A	DLN	05/10/01	15:05	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	SLP	05/21/01	22:50	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	SLP	05/21/01	22:50	6010B\3005A
Manganese, Dissolved.....	mg/L	0.014		0.01	1	N/A	SLP	05/21/01	22:50	6010B\3005A
Sodium, Dissolved.....	mg/L	54		0.50	1	N/A	SLP	05/21/01	22:50	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	SLP	05/21/01	22:50	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105201-03
Client Sample ID: MW-29D
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/09/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.15		0.01	1	N/A	JMM	05/16/01	14:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.15		0.01	1	N/A	JMM	05/17/01	14:00	335.1
Specific Conductance.....	umhos/cm	570		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	3.1		0.10	1	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	7.55			1	N/A	DLN	05/10/01	15:05	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/22/01	14:31	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/22/01	14:31	6010B\3005A
Manganese, Dissolved.....	mg/L	1.8		0.01	1	N/A	KHR	05/22/01	14:31	6010B\3005A
Sodium, Dissolved.....	mg/L	27		0.50	1	N/A	KHR	05/22/01	14:31	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/22/01	14:31	6010B\3005A

Lab Sample ID: L0105201-04
Client Sample ID: MW-29S
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/09/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.16		0.02	2	N/A	JMM	05/16/01	14:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.16		0.02	2	N/A	JMM	05/17/01	14:00	335.1
Specific Conductance.....	umhos/cm	1000		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	16		0.20	2	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	7.89			1	N/A	DLN	05/10/01	15:05	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/22/01	14:36	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/22/01	14:36	6010B\3005A
Manganese, Dissolved.....	mg/L	0.42		0.01	1	N/A	KHR	05/22/01	14:36	6010B\3005A
Sodium, Dissolved.....	mg/L	160		0.50	1	N/A	KHR	05/22/01	14:36	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/22/01	14:36	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105201-05
Client Sample ID: MW-7
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/09/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L		ND	0.01	1	N/A	JMM	05/16/01	14:00	9010B\9014
Specific Conductance.....	umhos/cm	770		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	0.13		0.10	1	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	5.69			1	N/A	DLN	05/10/01	15:05	150.1
Arsenic, Dissolved.....	mg/L	0.033		0.004	1	N/A	KHR	05/22/01	14:40	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/22/01	14:40	6010B\3005A
Manganese, Dissolved.....	mg/L	2.0		0.01	1	N/A	KHR	05/22/01	14:40	6010B\3005A
Sodium, Dissolved.....	mg/L	75		0.50	1	N/A	KHR	05/22/01	14:40	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/22/01	14:40	6010B\3005A

Lab Sample ID: L0105201-06
Client Sample ID: MW-11
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/09/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L		ND	0.01	1	N/A	JMM	05/16/01	14:00	9010B\9014
Specific Conductance.....	umhos/cm	550		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	1.6		0.10	1	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	7.84			1	N/A	DLN	05/10/01	15:05	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/22/01	14:44	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/22/01	14:44	6010B\3005A
Manganese, Dissolved.....	mg/L	0.52		0.01	1	N/A	KHR	05/22/01	14:44	6010B\3005A
Sodium, Dissolved.....	mg/L	35		0.50	1	N/A	KHR	05/22/01	14:44	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/22/01	14:44	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105201-07
Client Sample ID: MW-12
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/09/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L		ND	0.01	1	N/A	JMM	05/16/01	14:00	9010B\9014
Specific Conductance.....	umhos/cm	530		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	0.82		0.10	1	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	7.48			1	N/A	DLN	05/10/01	15:05	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/22/01	14:49	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/22/01	14:49	6010B\3005A
Manganese, Dissolved.....	mg/L	1.6		0.01	1	N/A	KHR	05/22/01	14:49	6010B\3005A
Sodium, Dissolved.....	mg/L	23		0.50	1	N/A	KHR	05/22/01	14:49	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/22/01	14:49	6010B\3005A

Lab Sample ID: L0105201-08
Client Sample ID: MW-37
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/09/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	7.9		0.25	25	N/A	JMM	05/16/01	14:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L		ND	0.25	25	N/A	JMM	05/17/01	14:00	335.1
Specific Conductance.....	umhos/cm	650		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	10		0.20	2	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	7.89			1	N/A	DLN	05/10/01	15:05	150.1
Arsenic, Dissolved.....	mg/L	0.018		0.004	1	N/A	KHR	05/22/01	14:53	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.00075		0.0005	1	N/A	KHR	05/22/01	14:53	6010B\3005A
Manganese, Dissolved.....	mg/L	2.0		0.01	1	N/A	KHR	05/22/01	14:53	6010B\3005A
Sodium, Dissolved.....	mg/L	110		0.50	1	N/A	KHR	05/22/01	14:53	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.026		0.01	1	N/A	KHR	05/22/01	14:53	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105201-09
Client Sample ID: MW-35
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/09/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	17		1.0	100	N/A	JMM	05/17/01	14:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	2.6		0.50	50	N/A	JMM	05/17/01	14:00	335.1
Specific Conductance.....	umhos/cm	800		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	35		0.50	5	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	9.17			1	N/A	DLN	05/10/01	15:05	150.1
Arsenic, Dissolved.....	mg/L	0.013		0.004	1	N/A	KHR	05/22/01	14:57	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/22/01	14:57	6010B\3005A
Manganese, Dissolved.....	mg/L	0.48		0.01	1	N/A	KHR	05/22/01	14:57	6010B\3005A
Sodium, Dissolved.....	mg/L	130		0.50	1	N/A	KHR	05/22/01	14:57	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.04		0.01	1	N/A	KHR	05/22/01	14:57	6010B\3005A

Lab Sample ID: L0105201-10
Client Sample ID: MW-39S
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/09/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	2.0		0.01	1	N/A	JMM	05/18/01	16:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.86		0.10	10	N/A	JMM	05/17/01	14:00	335.1
Specific Conductance.....	umhos/cm	3700		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	97		2.5	25	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	8.91			1	N/A	DLN	05/10/01	15:05	150.1
Arsenic, Dissolved.....	mg/L	0.011		0.004	1	N/A	KHR	05/22/01	15:01	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/22/01	15:01	6010B\3005A
Manganese, Dissolved.....	mg/L	0.22		0.01	1	N/A	KHR	05/22/01	15:01	6010B\3005A
Sodium, Dissolved.....	mg/L	880		10	20	RE	KHR	05/23/01	10:26	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.015		0.01	1	N/A	KHR	05/22/01	15:01	6010B\3005A

RL = Reporting Limit

Login #L0105201
May 25, 2001 03:40 pm

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105201-11
Client Sample ID: MW-39D
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/09/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.024		0.01	1	N/A	JMM	05/18/01	16:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.024		0.01	1	N/A	JMM	05/17/01	14:00	335.1
Specific Conductance.....	umhos/cm	550		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	3.1		0.10	1	N/A	DLP	05/14/01	14:15	SM4500-F-C
pH	UNITS	7.50			1	N/A	DLN	05/10/01	15:05	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/23/01	12:26	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/23/01	12:26	6010B\3005A
Manganese, Dissolved.....	mg/L	0.78		0.01	1	N/A	KHR	05/23/01	12:26	6010B\3005A
Sodium, Dissolved.....	mg/L	32		0.50	1	N/A	KHR	05/23/01	12:26	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/23/01	12:26	6010B\3005A

Lab Sample ID: L0105201-12
Client Sample ID: MW-42S
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/09/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.51		0.02	2	N/A	JMM	05/18/01	16:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.062		0.02	2	N/A	JMM	05/17/01	14:00	335.1
Specific Conductance.....	umhos/cm	1700		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	23		0.50	5	N/A	DLP	05/14/01	14:15	SM4500-F-C
pH	UNITS	8.03			1	N/A	DLN	05/10/01	15:05	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/23/01	13:10	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/23/01	13:10	6010B\3005A
Manganese, Dissolved.....	mg/L	0.84		0.01	1	N/A	KHR	05/23/01	13:10	6010B\3005A
Sodium, Dissolved.....	mg/L	300		10	20	RE	KHR	05/23/01	14:29	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/23/01	13:10	6010B\3005A

RL = Reporting Limit

Login #L0105201
May 25, 2001 03:40 pm

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105201-13
Client Sample ID: MW-42D
Site/Work ID: HM00311/ORMET/REDUCTION MILL

Matrix: Water
Collected: 05/09/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.023		0.01	1	N/A	JMM	05/18/01	16:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.023		0.01	1	N/A	JMM	05/17/01	14:00	335.1
Specific Conductance.....	umhos/cm	550		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	3.1		0.10	1	N/A	DLP	05/14/01	14:15	SM4500-F-C
pH	UNITS	7.53			1	N/A	DLN	05/10/01	15:05	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/23/01	13:14	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/23/01	13:14	6010B\3005A
Manganese, Dissolved.....	mg/L	1.3		0.01	1	N/A	KHR	05/23/01	13:14	6010B\3005A
Sodium, Dissolved.....	mg/L	32		0.50	1	N/A	KHR	05/23/01	13:14	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/23/01	13:14	6010B\3005A

RL = Reporting Limit

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: Mr. Joel Keller

PO Number:
Account Number: HYDRO-360

Login #: L0105246
Report Date: 05/22/01
Work ID: HM00311/ORMET REDUCTION MILL
Date Received: 05/10/01

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
L0105246-01	MW-10	L0105246-02	MW-8
L0105246-03	MW-40D	L0105246-04	MW-40S
L0105246-05	MW-17	L0105246-06	MW-34S
L0105246-07	MW-34D		

cc:Elizebeth Tandy

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 L. Bumgarner

Certified By
David L. Bumgarner

KEMRON
ENVIRONMENTAL SERVICES

Login #L0105246
May 22, 2001 01:38 pm

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105246-01
Client Sample ID: MW-10
Site/Work ID: HM00311/ORMET REDUCTION MILL

Matrix: Water
Collected: 05/10/01 08:00
COC Info: 23726/

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.013		0.01	1	N/A	JMM	05/16/01	14:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.013		0.01	1	N/A	JMM	05/17/01	14:00	335.1
Specific Conductance.....	umhos/cm	610		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	0.47		0.10	1	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	8.19			1	N/A	JWR	05/11/01	13:30	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/17/01	18:59	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/17/01	18:59	6010B\3005A
Manganese, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/17/01	18:59	6010B\3005A
Sodium, Dissolved.....	mg/L	27		0.50	1	N/A	KHR	05/17/01	18:59	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/17/01	18:59	6010B\3005A

Lab Sample ID: L0105246-02
Client Sample ID: MW-8
Site/Work ID: HM00311/ORMET REDUCTION MILL

Matrix: Water
Collected: 05/10/01 08:50
COC Info: 23726/

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.024		0.01	1	N/A	JMM	05/16/01	14:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.024		0.01	1	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	560		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	1.9		0.10	1	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	8.24			1	N/A	JWR	05/11/01	13:30	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/17/01	19:27	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/17/01	19:27	6010B\3005A
Manganese, Dissolved.....	mg/L	0.26		0.01	1	N/A	KHR	05/17/01	19:27	6010B\3005A
Sodium, Dissolved.....	mg/L	34		0.50	1	N/A	KHR	05/17/01	19:27	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/17/01	19:27	6010B\3005A

RL = Reporting Limit

Login #L0105246
May 22, 2001 01:38 pm

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105246-03
Client Sample ID: MW-40D
Site/Work ID: HM00311/ORMET REDUCTION MILL

Matrix: Water
Collected: 05/10/01 09:50
COC Info: 23726/

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.15		0.02	2	N/A	JMM	05/16/01	14:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.15		0.02	2	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	790		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	8.6		0.10	1	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	8.01			1	N/A	JWR	05/11/01	13:30	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/17/01	19:32	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/17/01	19:32	6010B\3005A
Manganese, Dissolved.....	mg/L	0.90		0.01	1	N/A	KHR	05/17/01	19:32	6010B\3005A
Sodium, Dissolved.....	mg/L	78		0.50	1	N/A	KHR	05/17/01	19:32	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/17/01	19:32	6010B\3005A

Lab Sample ID: L0105246-04
Client Sample ID: MW-40S
Site/Work ID: HM00311/ORMET REDUCTION MILL

Matrix: Water
Collected: 05/10/01 10:10
COC Info: 23726/

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.25		0.02	2	N/A	JMM	05/16/01	14:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.25		0.02	2	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	950		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	13		0.20	2	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	8.10			1	N/A	JWR	05/11/01	13:30	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/17/01	19:47	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/17/01	19:47	6010B\3005A
Manganese, Dissolved.....	mg/L	0.57		0.01	1	N/A	KHR	05/17/01	19:47	6010B\3005A
Sodium, Dissolved.....	mg/L	140		0.50	1	RE	KHR	05/18/01	18:08	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/17/01	19:47	6010B\3005A

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105246-05
Client Sample ID: MW-17
Site/Work ID: HM00311/ORMET REDUCTION MILL

Matrix: Water
Collected: 05/10/01 10:55
COC Info: 23726/

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.50		0.02	2	N/A	JMM	05/16/01	14:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.50		0.02	2	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	570		1.0	1	N/A	DLP	05/16/01	14:00	120.1
Fluoride.....	mg/L	3.0		0.10	1	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	7.87			1	N/A	JWR	05/11/01	13:30	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/17/01	19:52	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/17/01	19:52	6010B\3005A
Manganese, Dissolved.....	mg/L	1.7		0.01	1	N/A	KHR	05/17/01	19:52	6010B\3005A
Sodium, Dissolved.....	mg/L	28		0.50	1	RE	KHR	05/18/01	18:12	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/17/01	19:52	6010B\3005A

Lab Sample ID: L0105246-06
Client Sample ID: MW-34S
Site/Work ID: HM00311/ORMET REDUCTION MILL

Matrix: Water
Collected: 05/10/01 11:55
COC Info: 23726/

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.12		0.01	1	N/A	JMM	05/16/01	14:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.12		0.01	1	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	670		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	8.6		0.10	1	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	7.71			1	N/A	JWR	05/11/01	13:30	150.1
Arsenic, Dissolved.....	mg/L	0.025		0.004	1	N/A	KHR	05/17/01	19:57	6010B\3005A
Beryllium, Dissolved.....	mg/L	0.0019		0.0005	1	N/A	KHR	05/17/01	19:57	6010B\3005A
Manganese, Dissolved.....	mg/L	2.9		0.01	1	N/A	KHR	05/17/01	19:57	6010B\3005A
Sodium, Dissolved.....	mg/L	50		2.5	5	RE	KHR	05/18/01	18:16	6010B\3005A
Vanadium, Dissolved.....	mg/L	0.054		0.01	1	N/A	KHR	05/17/01	19:57	6010B\3005A

RL = Reporting Limit

Login #L0105246
May 22, 2001 01:38 pm

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0105246-07
Client Sample ID: MW-34D
Site/Work ID: HM00311/ORMET REDUCTION MILL

Matrix: Water
Collected: 05/10/01 11:30

COC Info: 23726/

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	0.13		0.01	1	N/A	JMM	05/16/01	14:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.13		0.01	1	N/A	JWR	05/15/01	09:00	335.1
Specific Conductance.....	umhos/cm	600		1.0	1	N/A	DLP	05/16/01	15:40	120.1
Fluoride.....	mg/L	3.9		0.10	1	N/A	DLP	05/14/01	11:15	SM4500-F-C
pH	UNITS	8.00			1	N/A	JWR	05/11/01	13:30	150.1
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	KHR	05/17/01	20:02	6010B\3005A
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	KHR	05/17/01	20:02	6010B\3005A
Manganese, Dissolved.....	mg/L	0.70		0.01	1	N/A	KHR	05/17/01	20:02	6010B\3005A
Sodium, Dissolved.....	mg/L	30		0.50	1	RE	KHR	05/18/01	18:21	6010B\3005A
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	KHR	05/17/01	20:02	6010B\3005A

RL = Reporting Limit

Order #: 01-05-246
May 22, 2001 01:38 pm

KEMRON ENVIRONMENTAL SERVICES
WORK GROUPS

Work Group	Run ID	Sample	Dil Type	Matrix	Product	Method	Date Collected	Department
WG97248	R127360	L0105246-01		Water	pH (Laboratory)	150.1	10-MAY-2001	Conventionals
WG97248	R127360	L0105246-02		Water	pH (Laboratory)	150.1	10-MAY-2001	Conventionals
WG97248	R127360	L0105246-03		Water	pH (Laboratory)	150.1	10-MAY-2001	Conventionals
WG97248	R127360	L0105246-04		Water	pH (Laboratory)	150.1	10-MAY-2001	Conventionals
WG97248	R127360	L0105246-05		Water	pH (Laboratory)	150.1	10-MAY-2001	Conventionals
WG97248	R127360	L0105246-06		Water	pH (Laboratory)	150.1	10-MAY-2001	Conventionals
WG97248	R127360	L0105246-07		Water	pH (Laboratory)	150.1	10-MAY-2001	Conventionals
WG97338	R128519	L0105246-01		Water	DIG-METALS	6010B\3005A	10-MAY-2001	Digestion
WG97338	R128519	L0105246-02		Water	DIG-METALS	6010B\3005A	10-MAY-2001	Digestion
WG97338	R128519	L0105246-03		Water	DIG-METALS	6010B\3005A	10-MAY-2001	Digestion
WG97338	R129422	L0105246-04		Water	DIG-METALS	6010B\3005A	10-MAY-2001	Digestion
WG97338	R129424	L0105246-04	RE	Water	DIG-METALS	6010B\3005A	10-MAY-2001	Digestion
WG97338	R129422	L0105246-05		Water	DIG-METALS	6010B\3005A	10-MAY-2001	Digestion
WG97338	R129424	L0105246-05	RE	Water	DIG-METALS	6010B\3005A	10-MAY-2001	Digestion
WG97338	R129422	L0105246-06		Water	DIG-METALS	6010B\3005A	10-MAY-2001	Digestion
WG97338	R129424	L0105246-06	RE	Water	DIG-METALS	6010B\3005A	10-MAY-2001	Digestion
WG97338	R129422	L0105246-07		Water	DIG-METALS	6010B\3005A	10-MAY-2001	Digestion
WG97338	R129424	L0105246-07	RE	Water	DIG-METALS	6010B\3005A	10-MAY-2001	Digestion
WG97353	R127361	L0105246-01		Water	Fluoride	SM4500-F-C	10-MAY-2001	Conventionals
WG97353	R127361	L0105246-02		Water	Fluoride	SM4500-F-C	10-MAY-2001	Conventionals
WG97353	R127361	L0105246-03		Water	Fluoride	SM4500-F-C	10-MAY-2001	Conventionals
WG97353	R127361	L0105246-04		Water	Fluoride	SM4500-F-C	10-MAY-2001	Conventionals
WG97353	R127361	L0105246-05		Water	Fluoride	SM4500-F-C	10-MAY-2001	Conventionals
WG97353	R127361	L0105246-06		Water	Fluoride	SM4500-F-C	10-MAY-2001	Conventionals
WG97353	R127361	L0105246-07		Water	Fluoride	SM4500-F-C	10-MAY-2001	Conventionals
WG97481	R128508	L0105246-02		Water	Cyanide, Amenable to Cl	335.1	10-MAY-2001	Conventionals
WG97481	R128508	L0105246-03		Water	Cyanide, Amenable to Cl	335.1	10-MAY-2001	Conventionals
WG97481	R128508	L0105246-04		Water	Cyanide, Amenable to Cl	335.1	10-MAY-2001	Conventionals
WG97481	R128508	L0105246-05		Water	Cyanide, Amenable to Cl	335.1	10-MAY-2001	Conventionals
WG97481	R128508	L0105246-06		Water	Cyanide, Amenable to Cl	335.1	10-MAY-2001	Conventionals
WG97481	R128508	L0105246-07		Water	Cyanide, Amenable to Cl	335.1	10-MAY-2001	Conventionals
WG97530	R128126	L0105246-01		Water	Cyanide, Total	9010B\9014	10-MAY-2001	Conventionals
WG97530	R128126	L0105246-02		Water	Cyanide, Total	9010B\9014	10-MAY-2001	Conventionals
WG97530	R128126	L0105246-03		Water	Cyanide, Total	9010B\9014	10-MAY-2001	Conventionals
WG97530	R128126	L0105246-04		Water	Cyanide, Total	9010B\9014	10-MAY-2001	Conventionals
WG97530	R128126	L0105246-05		Water	Cyanide, Total	9010B\9014	10-MAY-2001	Conventionals
WG97530	R128126	L0105246-06		Water	Cyanide, Total	9010B\9014	10-MAY-2001	Conventionals
WG97530	R128126	L0105246-07		Water	Cyanide, Total	9010B\9014	10-MAY-2001	Conventionals
WG97533	R128506	L0105246-01		Water	Specific Conductance	120.1	10-MAY-2001	Conventionals
WG97533	R128506	L0105246-02		Water	Specific Conductance	120.1	10-MAY-2001	Conventionals

Order #: 01-05-246
May 22, 2001 01:38 pm

KEMRON ENVIRONMENTAL SERVICES
WORK GROUPS

Work Group	Run ID	Sample	Dil Type	Matrix	Product	Method	Date Collected	Department
WG97533	R128506	L0105246-03		Water	Specific Conductance	120.1	10-MAY-2001	Conventionals
WG97533	R128506	L0105246-04		Water	Specific Conductance	120.1	10-MAY-2001	Conventionals
WG97533	R128506	L0105246-05		Water	Specific Conductance	120.1	10-MAY-2001	Conventionals
WG97534	R128507	L0105246-06		Water	Specific Conductance	120.1	10-MAY-2001	Conventionals
WG97534	R128507	L0105246-07		Water	Specific Conductance	120.1	10-MAY-2001	Conventionals
WG97597	R129022	L0105246-01		Water	Cyanide, Amenable to Cl	335.1	10-MAY-2001	Conventionals
WG97647	R128519	L0105246-01		Water	ICP-METALS	6010B\3005A	10-MAY-2001	Metals - ICP
WG97647	R128519	L0105246-02		Water	ICP-METALS	6010B\3005A	10-MAY-2001	Metals - ICP
WG97647	R128519	L0105246-03		Water	ICP-METALS	6010B\3005A	10-MAY-2001	Metals - ICP
WG97647	R129422	L0105246-04		Water	ICP-METALS	6010B\3005A	10-MAY-2001	Metals - ICP
WG97647	R129424	L0105246-04	RE	Water	ICP-METALS	6010B\3005A	10-MAY-2001	Metals - ICP
WG97647	R129422	L0105246-05		Water	ICP-METALS	6010B\3005A	10-MAY-2001	Metals - ICP
WG97647	R129424	L0105246-05	RE	Water	ICP-METALS	6010B\3005A	10-MAY-2001	Metals - ICP
WG97647	R129422	L0105246-06		Water	ICP-METALS	6010B\3005A	10-MAY-2001	Metals - ICP
WG97647	R129424	L0105246-06	RE	Water	ICP-METALS	6010B\3005A	10-MAY-2001	Metals - ICP
WG97647	R129422	L0105246-07		Water	ICP-METALS	6010B\3005A	10-MAY-2001	Metals - ICP
WG97647	R129424	L0105246-07	RE	Water	ICP-METALS	6010B\3005A	10-MAY-2001	Metals - ICP

KEMRON ANALYST LIST

Ohio Valley Laboratory

05/16/2001

ADH - ANGELA D. HURST
AJF - AMANDA J. FICKIESEN
ALT - ANN L. THAYER
AMT - ANDREA M. TUCKER
ARS - ANGELINA R. SCOTT
BJM - BARRY J. MYERS
BRG - BRENDA R. GREGORY
CAB - CASSIE A. BAKER
CAF - CHERYL A. FLOWERS
CAK - CHERYL A. KOELSCH
CBN - CHARLES B. NOLL
CEB - CHAD E. BARNES
CLC - CHRYS L. CRAWFORD
CLK - CARL L. KING
CLW - CHARISSA L. WINTERS
CMS - CRYSTAL M. STEVENS
CRC - CARLA R. COCHRAN
CSH - CHRIS S. HILL
DAM - DAN A. MUSGRAVE
DAS - DALLAS A. SULLIVAN
DAT - DEBBIE A. TORNES
DCU - DAVID C. UNDERWOOD
DEL - DON E. LIGHTFRITZ
DEV - DAVID E. VANDENBERG
DGB - DOUGLAS G. BUTCHER
DIH - DEANNA I. HESSON
DLA - DENISE L. ADAMS
DLB - DAVID L. BUMGARNER
DLN - DEANNA L. NORTON
DLP - DOROTHY L. PAYNE
DLR - DIANNA L. RAUCH
DP - DEANNA L. PIERSON
DST - DENNIS S. TEPE
DTK - DEENA T. KELLEY
EAN - ELIZABETH A. NICHOLSON
EAW - ELIZABETH A. WEBER
ECL - ERIC C. LAWSON
EIE - ELIZABETH I. EAGLE
GSG - GALEN S. GEORGE
GWH - GEORGE W. HUTCHISON
HD - HEATH DENNIS
HV - HEMA VILASAGAR
JAQ - JEROMY A. QUESENBERRY
JAW - JOYCE A. WITHERS
JKM - JUNE K. MORRIS
JKW - JANE K. WARDEN
JLH - JANICE L. HOLLAND
JMM - JARROD M. MARTIN
JMT - JOY M. THOMAS
JMW - JOHN M. WASS
JRM - JAY R. MCDOUGAL
JWR - JOHN W. RICHARDS
JWS - JACK W. SHEAVES
JYH - JI Y. HU
KDS - KRISTI D. STONE
KHR - KIM H. RHODES
KRA - KATHY R. ALBERTSON
KSL - KELLY S. LAUER
LBM - LAWRENCE B. MCSWEGAN
LKN - LINDA K. NEDEFF
LRR - LUCYNDA R. ROBERTS
LSA - LUCINDA S. ARNOLD
LSB - LESLIE S. BUCINA
MDA - MICHAEL D. ALBERTSON
MDC - MICHAEL D. COCHRAN
MEF - MIKE E. FLANAGAN
MES - MARY E. SCHILLING
MLS - MICHAEL L. SCHIMMEL
MMB - MAREN M. BEERY
MRR - MICHELLE R. RAUCH
MSW - MATT S. WILSON
NJB - NATALIE J. BOOTH
PML - PAULA M. LEIDY
RDC - REBECCA D. CUTLIP
REF - RON E. FERTILE
REK - ROBERT E. KYER
RJW - RHONDA J. WITTEKIND
RLW - RON L. WATSON
RSH - RENEE S. HENNES
RSS - REGINA S. SIMMONS
RVC - RUTH V. CALLIHAN
RWC - ROD W. CAMPBELL
SAM - SAMUAL A. MILLS
SJK - SINDY J. KINNEY
SKH - SHARON K. HANDSCHUMACHER
SLC - SHAWN L. COLE
SLP - SHERI L. PFALZGRAF
SLT - STEPHANIE L. TEPE
SMW - SHAUNA M. WELCH
SPL - STEVE P. LEARN
SPS - STEVE P. SWATZEL
TJH - TIM J. HOEFLICH
TLD - TERESA L. DAVIS
TM - TODD MCGINNIS
TMM - TAMMY M. MORRIS
VC - VICKI COLLIER

KEMRON Environmental Services, Inc
List of Valid Qualifiers
December 15, 2000

Standard Qualifiers

These are KEMRON's Standard Report Qualifiers

A	See the report narrative
B	Present in the method blank
C	Confirmed by GC/MS
CG	Confluent growth
D	The analyte was quantified at a secondary dilution factor
DL	Surrogate or spike was diluted out
E	Estimated concentration due to sample matrix interference
FL	Free liquid
I	Semiquantitative result, out of instrument calibration range
J	Present below nominal reporting limit
L	Sample reporting limits elevated due to matrix interference
M	Duplicate injection precision not met
N	Tentatively Identified Compound (TIC)
NA	Not applicable
ND	Not detected at or above the reporting limit (RL)
NF	Not found
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentration >40% difference between The two GC columns
QNS	Quantity not sufficient to perform analysis
R	Analyte exceeds regulatory limit
RA	Re analysis confirms reported results
RE	Re analysis confirms sample matrix Interference
S	Analyzed by method of standard addition
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TNTC	Too numerous to count
U	Analyzed for but not detected
W	Post-digestion spike for furnace AA out Of control limits
Z	Can not be resolved from isomer.***
+	Correlation coefficient for the MSA is less Than 0.995
<	Less than
>	Greater than
*	Surrogate or spike compound out of range

***** Special Notes for Organic Analytes**

1. Acrolein and acrylonitrile by method 624 are semiquantative screens only
2. 1,2-Diphenylhydrazine is unstable and is reported as azobenzene
3. N-nitrosodiphenylamine cannot be separated from diphenylamine
4. 3-Methyphenol and 4-Methyphenol are unresolvable compounds
5. m-Xylene and p-Xylene are unresolvable compounds
6. The reporting limits for Appendix II/IX compounds by method 8270 are based on EPA estimated PQLs referenced in 40 CFR Part 264, Appendix IX. They are not always achievable for every compound and are matrix dependent

AFCEE Qualifiers

These are KEMRON's AFCEE Report Qualifiers

J	The analyte was positively identified, the quantitation is an estimation
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL
F	The analyte was positively identified but the associated numerical value is below the RL
R	The data is unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
B	The analyte was found in an associated blank, as well as in the sample
M	The matrix effect was present
S	To be applied to all field screening data
T	Tentatively identified compound (using GC/MS)

INORGANIC QA/QC

KEMRON ENVIRONMENTAL SERVICES
OHIO VALLEY LABORATORY
QUALITY CONTROL SUMMARY

WORKGROUP: WG97533
METHOD: 120 1
MATRIX: Water
UNITS: mg/L

RUN DATE: 5/16/01
ANALYST: DLP
DUPLICATE: 05 165-02

ANALYTE	MDL	Blank	CONCENTRATION PPM T-LCS	LCS	REP1	REP2	SAMPLE RESULT	T-MS	MS	PERCENT RECOVERY LCS	LCS LCL	LCS UCL	MS	MS LCL	MS UCL	PERCENT RPD REP RPD	RPD UCL
Conductivity	0.50	ND	1413 00	1461.80	576.00	579.00	NR	NR	NR	103 5	92 0	111 0	NR	NR	NR	0.52	9.00

NOTES & DEFINITIONS :
RDL = REPORTING DETECTION LIMIT
DL = DILUTED OUT
NA = NOT APPLICABLE
ND = NOT DETECTED
NR = NOT REQUIRED

LCS = LABORATORY CONTROL SAMPLE
T- LCS = TRUE VALUE OF LCS
REP1 = UNSPIKED SAMPLE REPLICATE 1
REP2 = UNSPIKED SAMPLE REPLICATE 2
SAMPLE RESULT = CONCENTRATION OF UNSPIKED MATRIX
T-MS = TRUE VALUE OF MATRIX SPIKE
MS = MATRIX SPIKE
LCL = LOWER CONTROL LIMIT
UCL = UPPER CONTROL LIMIT

REP RPD = RELATIVE PERCENT DIFFERENCE OF SAMPLE REPLICATES

KEMRON ENVIRONMENTAL SERVICES
OHIO VALLEY LABORATORY
QUALITY CONTROL SUMMARY

WORKGROUP:	WG97353	RUN DATE:	5/14/01
METHOD:	340.2	ANALYST:	DLP
MATRIX:	Water	DUPLICATE:	05-201-02
UNITS:	mg/L	SPIKE:	05-201-02

			CONCENTRATION PPM							PERCENT RECOVERY						PERCENT RPD	
ANALYTE	MDL	Blank	T-LCS	LCS	REP1	REP2	SAMPLE RESULT	T-MS	MS	LCS	LCS LCL	LCS UCL	MS	MS LCL	MS UCL	REP RPD	RPD UCL
Fluoride	0.0500	ND	2.00	2.000	0.22	0.22	0.22	0.40	0.596	100.00	88.00	109.00	94.75	88.00	109.00	0.00	11.00

NOTES & DEFINITIONS :

RDL = REPORTING DETECTION LIMIT
DL = DILUTED OUT
NA = NOT APPLICABLE
ND =NOT DETECTED
NR = NOT REQUIRED
J = RDL > BLANK >/= MDL

LCS = LABORATORY CONTROL SAMPLE
T- LCS = TRUE VALUE OF LCS
REP1 = UNSPIKED SAMPLE REPLICATE 1
REP2 = UNSPIKED SAMPLE REPLICATE 2
SAMPLE RESULT = CONCENTRATION OF UNSPIKED MATRIX
T-MS = TRUE VALUE OF MATRIX SPIKE
MS = MATRIX SPIKE
LCL = LOWER CONTROL LIMIT
UCL = UPPER CONTROL LIMIT

REP RPD = RELATIVE PERCENT DIFFERENCE OF SAMPLE REPLICATES

KEMRON ENVIRONMENTAL SERVICES
OHIO VALLEY LABORATORY
QUALITY CONTROL SUMMARY

WORKGROUP:	WG97530	RUN DATE:	5/16/01
METHOD:	335.4/9010	ANALYST:	JMM
MATRIX:	water	DUPLICATE:	05-324-01
UNITS:	mg/L	SPIKE:	05-324-01

			CONCENTRATION PPM							PERCENT RECOVERY						PERCENT RPD	
ANALYTE	MDL	Blank	T-LCS	LCS	REP1	REP2	SAMPLE RESULT	T-MS	MS	LCS	LCS LCL	LCS UCL	MS	MS LCL	MS UCL	REP RPD	RPD UCL
Cyanide	0.0050	ND	0.40	0.369	0.16	0.16	0.16	0.20	0.345	92.25	90.00	110.00	90.50	84.00	112.00	0.61	14.00

NOTES & DEFINITIONS :

RDL = REPORTING DETECTION LIMIT
DL = DILUTED OUT
NA = NOT APPLICABLE
ND =NOT DETECTED
NR = NOT REQUIRED
J = RDL > BLANK >/= BLANK
LA = LAB ACCIDENT

LCS = LABORATORY CONTROL SAMPLE
T- LCS = TRUE VALUE OF LCS
REP1 = UNSPIKED SAMPLE REPLICATE 1
REP2 = UNSPIKED SAMPLE REPLICATE 2
SAMPLE RESULT = CONCENTRATION OF UNSPIKED MATRIX
T-MS = TRUE VALUE OF MATRIX SPIKE
MS = MATRIX SPIKE
LCL = LOWER CONTROL LIMIT
UCL = UPPER CONTROL LIMIT

REP RPD = RELATIVE PERCENT DIFFERENCE OF SAMPLE REPLICATES

KEMRON ENVIRONMENTAL SERVICES
OHIO VALLEY LABORATORY
QUALITY CONTROL SUMMARY

WORKGROUP: WG97534
METHOD: 120 1
MATRIX: Water
UNITS: mg/L

RUN DATE: 5/16/01
ANALYST: DLP
DUPLICATE: 05-184-01

ANALYTE	MDL	Blank	CONCENTRATION PPM T-LCS	LCS	REP1	REP2	SAMPLE RESULT	T-MS	MS	PERCENT RECOVERY LCS	LCS LCL	LCS UCL	MS	MS LCL	MS UCL	PERCENT RPD REP RPD	RPD UCL
Conductivity	0 50	ND	1413.00	1470 90	1042.00	1042.00	NR	NR	NR	104.1	92 0	111 0	NR	NR	NR	0.00	9.00

NOTES & DEFINITIONS :

RDL = REPORTING DETECTION LIMIT
DL = DILUTED OUT
NA = NOT APPLICABLE
ND = NOT DETECTED
NR = NOT REQUIRED

LCS = LABORATORY CONTROL SAMPLE
T- LCS = TRUE VALUE OF LCS
REP1 = UNSPIKED SAMPLE REPLICATE 1
REP2 = UNSPIKED SAMPLE REPLICATE 2
SAMPLE RESULT = CONCENTRATION OF UNSPIKED MATRIX
T-MS = TRUE VALUE OF MATRIX SPIKE
MS = MATRIX SPIKE
LCL = LOWER CONTROL LIMIT
UCL = UPPER CONTROL LIMIT

REP RPD = RELATIVE PERCENT DIFFERENCE OF SAMPLE REPLICATES

KEMRON ENVIRONMENTAL SERVICES
OHIO VALLEY LABORATORY
QUALITY CONTROL SUMMARY

WORKGROUP:	WG97647	RUN DATE:	5/17/01
METHOD:	6010B	PREP DATE:	5/14/01
MATRIX:	Water	ANALYST:	KHR
UNITS:	mg/L	DUPLICATE:	L0105243-04
INSTRUMENT:	Perkin Elmer Optima 3000 DV	MS/MSD:	L0105246-01

			CONCENTRATION PPM								PERCENT RECOVERY							PERCENT		
ANALYTE	RDL	Blank	T-LCS	LCS	REP1	REP2	SAMPLE RESULT	T-MS	MS	MSD	LCS	LCS LCL	LCS UCL	MS	MSD	MS LCL	MS UCL	REP RPD	MS RPD	RPD UCL
Silver	0.010	ND	0.200	0.194	ND	ND	ND	0.200	0.190	0.195	97.0	80.0	120.0	95.0	97.5	75.0	125.0	NA	2.6	20
Aluminum	0.100	ND	10.000	9.930	0.131	0.138	ND	10.000	9.870	10.100	99.3	80.0	120.0	98.7	101.0	75.0	125.0	5.2	2.3	20
Arsenic	0.004	ND	1.000	0.963	ND	ND	ND	1.000	0.945	0.951	96.3	80.0	120.0	94.5	95.1	75.0	125.0	NA	0.6	20
Beryllium	0.001	ND	1.000	0.975	ND	ND	ND	1.000	0.950	0.969	97.5	80.0	120.0	95.0	96.9	75.0	125.0	NA	2.0	20
Chromium	0.02000	ND	1.000	0.997	ND	ND	ND	1.000	0.920	0.937	99.7	80.0	120.0	92.0	93.7	75.0	125.0	NA	1.8	20
Copper	0.0200	ND	1.000	0.971	0.039	0.039	ND	1.000	0.936	0.959	97.1	80.0	120.0	93.6	95.9	75.0	125.0	1.5	2.4	20
Iron	0.04000	ND	1.000	0.968	1.760	1.790	0.108	1.000	1.060	1.060	96.8	80.0	120.0	95.2	95.2	75.0	125.0	1.7	0.0	20
Manganese	0.010	ND	1.000	0.991	0.061	0.062	ND	1.000	0.911	0.926	99.1	80.0	120.0	91.1	92.6	75.0	125.0	0.3	1.6	20
Sodium	0.500	ND	50.000	46.400	55.200	56.600	26.500	50.000	73.600	72.900	92.8	80.0	120.0	94.2	92.8	75.0	125.0	2.5	1.0	20
Vanadium	0.010	ND	1.000	0.968	ND	ND	ND	1.000	0.918	0.936	96.8	80.0	120.0	91.8	93.6	75.0	125.0	NA	1.9	20
																		0.0	0.0	
																		0.0	0.0	
																		0.0	0.0	
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																		0.0	0.0	

NOTES & DEFINITIONS :

RDL = REPORTING DETECTION LIMIT
NA = NOT APPLICABLE
ND = NOT DETECTED
DL = DILUTED OUT (Concentration of sample > 4X spike concentration)

LCS = LABORATORY CONTROL SAMPLE
T- LCS = TRUE VALUE OF LCS
REP1 = UNSPIKED SAMPLE REPLICATE 1
REP2 = UNSPIKED SAMPLE REPLICATE 2
SAMPLE RESULT = CONCENTRATION OF UNSPIKED MATRIX
T-MS = TRUE VALUE OF MATRIX SPIKE
MS = MATRIX SPIKE
MSD = MATRIX SPIKE DUPLICATE
LCL = LOWER CONTROL LIMIT
UCL = UPPER CONTROL LIMIT

REP RPD = RELATIVE PERCENT DIFFERENCE OF SAMPLE REPLICATES
MS RPD = RELATIVE PERCENT DIFFERENCE OF MATRIX SPIKES

COC No. A 23726

109 Starlite Park
Marietta, OH 45750

KEMRON
ENVIRONMENTAL SERVICES
CHAIN-OF-CUSTODY RECORD

Phone: 740-373-4071
Fax: 740-373-4835

Company Name: HMI

Project Contact: Steve Menosky
Contact Phone #: 724-228-4310
Turn Around Requirements:
Location: Hannibal OH
Project #: HM00311
Project Name: Ormet Reduction Mill
Sampler (print): J. Keller/S. Menosky
Signature:

Program: ☐ NPDES ☐ AFCEE ☐ RCRA ☐ USAGE ☐ Other _____

Sample I.D. No.	Comp*	Grab	Date	Time	Protocol CWA	Protocol SW846	NUMBER OF CONTAINERS	Hold	Diss As, Be, Mn, Na, V 500ml Plastic	CN Total/Amenable 250ml Amber	pH, Specfcnd F 250ml plastic	ADDITIONAL REQUIREMENTS
MW-10	X		5-10-01	08:00					1	1	1	3
MW-8	X		↓	08:50					1	1	1	3
MW-40d	X			09:50					1	1	1	3
MW-40s	X			10:10					1	1	1	3
MW-17	X			10:55					1	1	1	3
MW-39s	X			11:55					1	1	1	3
MW-39d	X			11:30					1	1	1	3
per jars Ars 5-10-01				per jars 5-10-01 Ars								

21

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
[signature]	5-10-01	1620	[signature]				

Relinquished by: (Signature)	Date	Time	Received for Laboratory by: (Signature)	Date	Time	Cooler Temp in °C	Remarks:
[signature]	5-10-01	1720 ~~1620~~	Angelica Scott	5/10/01	1720	4	Sx sur tact

*Homogenize all composite samples prior to analysis ~5/10/01

Page _____ of _____

KEMRON Environmental Services | **SAMPLES RECEIPT FORM #1** | Marietta Laboratory

CLIENT:	DATE:	SHIPPED BY:
Hydro BRG ARS Other _____	5-10-01	( ) FED-EX ( ) AIRBORNE ( ) UPS ( ) EMERY ( ) RPS ( ) US MAIL (✓) KEMRON ( ) CLIENT

COOLER ID: KL 811	COOLER ID: KL 944	COOLER ID:
INDEX # :	INDEX # :	INDEX # :
SEALED ( ) YES ( ) NO	SEALED ( ) YES ( ) NO	SEALED ( ) YES ( ) NO
CUSTODY ( ) YES ( ) NO	CUSTODY ( ) YES ( ) NO	CUSTODY ( ) YES ( ) NO
TEMP : °C (C) (D) 6	TEMP : °C (C) (D) 4	TEMP : °C (C) (D)
TEMP IN RANGE (✓) YES ( ) NO (4°C ± 2°)	TEMP IN RANGE (✓) YES ( ) NO (4°C ± 2°)	TEMP IN RANGE ( ) YES ( ) NO (4°C ± 2°)
WET ICE (✓) BLUE ICE ( )	WET ICE (✓) BLUE ICE ( )	WET ICE ( ) BLUE ICE ( )
ICE FROZEN (✓) MELTED ( )	ICE FROZEN (✓) MELTED ( )	ICE FROZEN ( ) MELTED ( )
RADIATION CHECKED ( ) YES (✓) NO	RADIATION CHECKED ( ) YES (✓) NO	RADIATION CHECKED ( ) YES ( ) NO
SAMPLE INTACT (✓) YES ( ) NO SALVAGEBLE ( ) YES ( ) NO	SAMPLE INTACT (✓) YES ( ) NO SALVAGEBLE ( ) YES ( ) NO	SAMPLE INTACT ( ) YES ( ) NO SALVAGEBLE ( ) YES ( ) NO
SAMPLE TYPE: WATER (✓) SOIL ( ) OTHER ( )	SAMPLE TYPE: WATER (✓) SOIL ( ) OTHER ( )	SAMPLE TYPE: WATER ( ) SOIL ( ) OTHER ( )
LABELS: INTACT (✓) YES ( ) NO LEGIBLE (✓) YES ( ) NO MATCH COC ( ) YES (✓) NO	LABELS: INTACT (✓) YES ( ) NO LEGIBLE (✓) YES ( ) NO MATCH COC (✓) YES ( ) NO	LABELS: INTACT ( ) YES ( ) NO LEGIBLE ( ) YES ( ) NO MATCH COC ( ) YES ( ) NO
pH IN RANGE (2 - >9 - >12) (✓) YES ( ) NO AS APPROPRIATE	pH IN RANGE (2 - >9 - >12) (✓) YES ( ) NO AS APPROPRIATE	pH IN RANGE (2 - >9 - >12) ( ) YES ( ) NO AS APPROPRIATE
LOG-IN COMMENTS	LOG-IN COMMENTS	LOG-IN COMMENTS
PCB say presw/Hclon		
bottles - they are not.		

TSR COMMENTS

CONTACT:	DATE:	TIME:

COMMENTS: ( ) VOICE ( ) FAX ( ) E-MAIL

Revised 02/21/01

APPENDIX B-3

LABORATORY ANALYTICAL REPORT FOR SEPTEMBER 2001 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

PO Number:
Account Number: HYDRO-360

Login #: L0109163
Report Date: 09/25/01
Work ID: REDUCTION MILL
Date Received: 09/11/01

SAMPLE IDENTIFICATION

Sample Number	Sample Description	Sample Number	Sample Description
L0109163-01	MW-2	L0109163-02	MW-2
L0109163-03	MW-5	L0109163-04	MW-5
L0109163-05	MW-5D	L0109163-06	MW-5D
L0109163-07	MW-12	L0109163-08	MW-12
L0109163-09	MW-16	L0109163-10	MW-16
L0109163-11	MW-16D	L0109163-12	MW-16D
L0109163-13	MW-18	L0109163-14	MW-18
L0109163-15	MW-28	L0109163-16	MW-28
L0109163-18	MW-31	L0109163-19	MW-31
L0109163-20	MW-32	L0109163-21	MW-32
L0109163-22	MW-35	L0109163-23	MW-35
L0109163-24	MW-36	L0109163-25	MW-36
L0109163-26	MW-37	L0109163-27	MW-37
L0109163-28	FIELD BLANK	L0109163-29	FIELD BLANK
L0109163-30	TRIP BLANK		

*** Revised Report ***

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 L. Bumgarner

Certified By
David L. Bumgarner

KEMRON
ENVIRONMENTAL SERVICES

Login #L0109163
September 25, 2001 11:57 am

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0109163-01
Client Sample ID: MW-2
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00

COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	17		0.50	50	N/A	JWR	09/13/01	09:30	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	2.5		0.50	50	N/A	DLN	09/17/01	09:00	335.1
Specific Conductance.....	umhos/cm	1800		1.0	1	N/A	JMM	09/14/01	13:00	120.1
Fluoride.....	mg/L	63		1.0	10	N/A	DIH	09/19/01	13:30	SM4500-F-C
pH	UNITS	9.80			1	N/A	DLP	09/12/01	15:15	150.1

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0109163-01
Client Sample ID: MW-2
Site/Work ID: REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 09/11/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 09/12/01 Time: 20:35

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M12326

Method: 8260B
Run ID: R188437
Batch : WG104526

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L		ND	5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	91.6	(86 - 118%)
1,2-Dichloroethane-d4.....	102	(80 - 120%)
Toluene-d8.....	89.9	(88 - 110%)
4-Bromofluorobenzene.....	92.8	(86 - 115%)

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0109163-02
Client Sample ID: MW-2
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00 COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.089		0.004	1	N/A	JYH	09/14/01	13:54	6010B\METHO
Beryllium, Dissolved.....	mg/L	0.00088		0.0005	1	RE	JYH	09/17/01	13:03	6010B\METHO
Manganese, Dissolved.....	mg/L	1.1		0.005	1	N/A	JYH	09/14/01	13:54	6010B\METHO
Sodium, Dissolved.....	mg/L	400		5.0	10	RE	JYH	09/14/01	14:58	6010B\METHO
Vanadium, Dissolved.....	mg/L	0.056		0.01	1	RE1	JYH	09/14/01	15:47	6010B\METHO

Lab Sample ID: L0109163-03
Client Sample ID: MW-5
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00 COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	3.6		0.10	10	N/A	JWR	09/13/01	09:30	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.34		0.10	10	N/A	DLN	09/17/01	09:00	335.1
Specific Conductance.....	umhos/cm	970		1.0	1	N/A	JMM	09/14/01	13:00	120.1
Fluoride.....	mg/L	11		0.20	2	N/A	DIH	09/19/01	13:30	SM4500-F-C
pH	UNITS	8.42			1	N/A	DLP	09/12/01	15:15	150.1

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0109163-03
Client Sample ID: MW-5
Site/Work ID: REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 09/11/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 09/12/01 Time: 21:09

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M12327

Method: 8260B
Run ID: R188438
Batch : WG104526

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L		ND	5.0	1

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0109163-03
Client Sample ID: MW-5
Site/Work ID: REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 09/11/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 09/12/01 Time: 21:09

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M12327

Method: 8260B
Run ID: R188438
Batch : WG104526

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
	SURROGATES- In Percent Recovery:					
	Dibromofluoromethane.....		91.4	(86 - 118%)		
	1,2-Dichloroethane-d4.....		101	(80 - 120%)		
	Toluene-d8.....		89.5	(88 - 110%)		
	4-Bromofluorobenzene.....		92.2	(86 - 115%)		

Lab Sample ID: L0109163-04
Client Sample ID: MW-5
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	JYH	09/14/01	13:59	6010B\METHO
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	RE	JYH	09/17/01	13:08	6010B\METHO
Manganese, Dissolved.....	mg/L	0.80		0.005	1	N/A	JYH	09/14/01	13:59	6010B\METHO
Sodium, Dissolved.....	mg/L	160		5.0	10	RE	JYH	09/14/01	15:03	6010B\METHO
Vanadium, Dissolved.....	mg/L		ND	0.01	1	RE1	JYH	09/14/01	15:52	6010B\METHO

RL = Reporting Limit

Login #L0109163
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KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0109163-05
Client Sample ID: MW-5D
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	3.6		0.10	10	N/A	JWR	09/13/01	09:30	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.22		0.10	10	N/A	DLN	09/17/01	09:00	335.1
Specific Conductance.....	umhos/cm	950		1.0	1	N/A	JMM	09/14/01	13:00	120.1
Fluoride.....	mg/L	13		0.20	2	N/A	DIH	09/19/01	13:30	SM4500-F-C
pH	UNITS	8.46			1	N/A	DLP	09/12/01	15:15	150.1

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0109163-05
Client Sample ID: MW-5D
Site/Work ID: REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 09/11/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 09/12/01 Time: 21:43

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M12328

Method: 8260B
Run ID: R188439
Batch : WG104526

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L		ND	5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	91.9	(86 - 118%)
1,2-Dichloroethane-d4.....	102	(80 - 120%)
Toluene-d8.....	88.5	(88 - 110%)
4-Bromofluorobenzene.....	92.5	(86 - 115%)

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0109163-06
Client Sample ID: MW-5D
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	JYH	09/14/01	14:02	6010B\METHO
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	RE	JYH	09/17/01	13:13	6010B\METHO
Manganese, Dissolved.....	mg/L	0.80		0.005	1	N/A	JYH	09/14/01	14:02	6010B\METHO
Sodium, Dissolved.....	mg/L	170		5.0	10	RE	JYH	09/14/01	15:08	6010B\METHO
Vanadium, Dissolved.....	mg/L		ND	0.01	1	RE1	JYH	09/14/01	16:03	6010B\METHO

Lab Sample ID: L0109163-07
Client Sample ID: MW-12
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L		ND	0.01	1	N/A	JWR	09/13/01	09:30	9010B\9014
Specific Conductance.....	umhos/cm	520		1.0	1	N/A	JMM	09/14/01	13:00	120.1
Fluoride.....	mg/L	0.83		0.10	1	N/A	DIH	09/19/01	13:30	SM4500-F-C
pH	UNITS	7.46			1	N/A	DLP	09/12/01	15:15	150.1

Lab Sample ID: L0109163-08
Client Sample ID: MW-12
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	JYH	09/14/01	14:09	6010B\METHO
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	RE	JYH	09/17/01	13:17	6010B\METHO
Manganese, Dissolved.....	mg/L	1.8		0.005	1	N/A	JYH	09/14/01	14:09	6010B\METHO
Sodium, Dissolved.....	mg/L	28		0.50	1	N/A	JYH	09/14/01	14:09	6010B\METHO
Vanadium, Dissolved.....	mg/L		ND	0.01	1	RE	JYH	09/14/01	16:08	6010B\METHO

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0109163-09
Client Sample ID: MW-16
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	9.7		0.50	50	N/A	JWR	09/13/01	09:30	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.85		0.50	50	N/A	DLN	09/17/01	09:00	335.1
Specific Conductance.....	umhos/cm	1300		1.0	1	N/A	JMM	09/14/01	13:00	120.1
Fluoride.....	mg/L	43		0.50	5	N/A	DIH	09/19/01	13:30	SM4500-F-C
pH	UNITS	7.91			1	N/A	DLP	09/12/01	15:15	150.1

Lab Sample ID: L0109163-10
Client Sample ID: MW-16
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	JYH	09/14/01	14:14	6010B\METHO
Beryllium, Dissolved.....	mg/L	0.00058		0.0005	1	RE	JYH	09/17/01	17:22	6010B\METHO
Manganese, Dissolved.....	mg/L	0.89		0.005	1	N/A	JYH	09/14/01	14:14	6010B\METHO
Sodium, Dissolved.....	mg/L	270		0.50	1	N/A	JYH	09/14/01	15:12	6010B\METHO
Vanadium, Dissolved.....	mg/L	0.013		0.01	1	RE	JYH	09/14/01	16:13	6010B\METHO

Lab Sample ID: L0109163-11
Client Sample ID: MW-16D
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	9.0		0.50	50	N/A	JWR	09/13/01	09:30	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.65		0.20	20	N/A	DLN	09/17/01	09:00	335.1
Specific Conductance.....	umhos/cm	1200		1.0	1	N/A	JMM	09/14/01	13:00	120.1
Fluoride.....	mg/L	43		0.50	5	N/A	DIH	09/19/01	13:30	SM4500-F-C
pH	UNITS	7.90			1	N/A	DLP	09/12/01	15:15	150.1

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0109163-12
Client Sample ID: MW-16D
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.019		0.004	1	N/A	JYH	09/14/01	14:19	6010B\METHO
Beryllium, Dissolved.....	mg/L	0.00096		0.0005	1	RE	JYH	09/17/01	13:27	6010B\METHO
Manganese, Dissolved.....	mg/L	1.1		0.005	1	N/A	JYH	09/14/01	14:19	6010B\METHO
Sodium, Dissolved.....	mg/L	260		5.0	10	RE	JYH	09/14/01	15:17	6010B\METHO
Vanadium, Dissolved.....	mg/L	0.021		0.01	1	RE1	JYH	09/14/01	16:18	6010B\METHO

Lab Sample ID: L0109163-13
Client Sample ID: MW-18
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	91		2.5	250	N/A	JMM	09/18/01	13:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	11		2.5	250	N/A	JMM	09/18/01	13:00	335.1
Specific Conductance.....	umhos/cm	2100		1.0	1	N/A	JMM	09/14/01	13:00	120.1
Fluoride.....	mg/L	180		5.0	50	N/A	DIH	09/19/01	13:30	SM4500-F-C
pH	UNITS	9.61			1	N/A	DLP	09/12/01	15:15	150.1

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0109163-13
Client Sample ID: MW-18
Site/Work ID: REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 09/11/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 09/12/01 Time: 22:17

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M12329

Method: 8260B
Run ID: R188440
Batch : WG104526

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L	27		5.0	1

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0109163-13
Client Sample ID: MW-18
Site/Work ID: REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 09/11/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 09/12/01 Time: 22:17

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M12329

Method: 8260B
Run ID: R188440
Batch : WG104526

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
	SURROGATES- In Percent Recovery:					
	Dibromofluoromethane		92.4	(86 - 118%)		
	1,2-Dichloroethane-d4		103	(80 - 120%)		
	Toluene-d8		89.4	(88 - 110%)		
	4-Bromofluorobenzene		93.4	(86 - 115%)		

Lab Sample ID: L0109163-14
Client Sample ID: MW-18
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved	mg/L	0.12		0.004	1	N/A	JYH	09/14/01	14:24	6010B\METHO
Beryllium, Dissolved	mg/L	0.00099		0.0005	1	RE	JYH	09/17/01	13:32	6010B\METHO
Manganese, Dissolved	mg/L	0.30		0.005	1	N/A	JYH	09/14/01	14:24	6010B\METHO
Sodium, Dissolved	mg/L	520		5.0	10	RE	JYH	09/14/01	15:22	6010B\METHO
Vanadium, Dissolved	mg/L	0.024		0.01	1	RE1	JYH	09/14/01	16:23	6010B\METHO

RL = Reporting Limit

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KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0109163-15
Client Sample ID: MW-28
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	1.3		0.04	4	N/A	JWR	09/13/01	09:30	9010B\9014
Cyanide, Amenable to Cl.....	mg/L		ND	0.10	10	N/A	DLN	09/17/01	09:00	335.1
Specific Conductance.....	umhos/cm	430		1.0	1	N/A	JMM	09/14/01	13:00	120.1
Fluoride.....	mg/L	0.56		0.10	1	N/A	DIH	09/19/01	13:30	SM4500-F-C
pH	UNITS	5.70			1	N/A	DLP	09/12/01	15:15	150.1

Lab Sample ID: L0109163-16
Client Sample ID: MW-28
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L		ND	0.004	1	N/A	JYH	09/14/01	14:28	6010B\METHO
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	RE	JYH	09/17/01	13:37	6010B\METHO
Manganese, Dissolved.....	mg/L	0.015		0.005	1	N/A	JYH	09/14/01	14:28	6010B\METHO
Sodium, Dissolved.....	mg/L	64		0.50	1	N/A	JYH	09/14/01	14:28	6010B\METHO
Vanadium, Dissolved.....	mg/L		ND	0.01	1	RE	JYH	09/14/01	16:46	6010B\METHO

Lab Sample ID: L0109163-18
Client Sample ID: MW-31
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	16		0.50	50	N/A	JWR	09/13/01	09:30	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	1.2		0.50	50	N/A	DLN	09/17/01		335.1
Specific Conductance.....	umhos/cm	2300		1.0	1	N/A	JMM	09/14/01	13:00	120.1
Fluoride.....	mg/L	110		2.5	25	N/A	DIH	09/19/01	13:30	SM4500-F-C
pH	UNITS	9.95			1	N/A	DLP	09/12/01	15:15	150.1

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0109163-18
Client Sample ID: MW-31
Site/Work ID: REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 09/11/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 09/12/01 Time: 22:51

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M12330

Method: 8260B
Run ID: R188441
Batch : WG104526

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L	32		5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	90.8		(86 - 118%)
1,2-Dichloroethane-d4.....	102		(80 - 120%)
Toluene-d8.....	86.9	*	(88 - 110%)
4-Bromofluorobenzene.....	92.0		(86 - 115%)

Lab Sample ID: L0109163-19
Client Sample ID: MW-31
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.054		0.004	1	N/A	JYH	09/14/01	14:23	6010B\METHO
Beryllium, Dissolved.....	mg/L	0.0014		0.0005	1	RE	JYH	09/17/01	13:42	6010B\METHO
Manganese, Dissolved.....	mg/L	1.4		0.005	1	N/A	JYH	09/14/01	14:33	6010B\METHO
Sodium, Dissolved.....	mg/L	590		5.0	10	RE	JYH	09/14/01	15:27	6010B\METHO
Vanadium, Dissolved.....	mg/L	0.09		0.01	1	RE1	JYH	09/14/01	16:33	6010B\METHO

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0109163-20
Client Sample ID: MW-32
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	4.9		0.20	20	N/A	JWR	09/13/01	09:30	9010B\9014
Cyanide, Amenable to Cl.....	mg/L	0.53		0.10	10	N/A	DLN	09/17/01		335.1
Specific Conductance.....	umhos/cm	720		1.0	1	N/A	JMM	09/14/01	13:00	120.1
Fluoride.....	mg/L	99		0.10	1	N/A	DIH	09/19/01	13:30	SM4500-F-C
pH	UNITS	8.69			1	N/A	DLP	09/12/01	15:15	150.1

Lab Sample ID: L0109163-21
Client Sample ID: MW-32
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.0088		0.004	1	N/A	JYH	09/14/01	14:38	6010B\METHO
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	RE	JYH	09/14/01	17:00	6010B\METHO
Manganese, Dissolved.....	mg/L	1.9		0.005	1	N/A	JYH	09/14/01	14:38	6010B\METHO
Sodium, Dissolved.....	mg/L	110		5.0	10	RE	JYH	09/14/01	15:32	6010B\METHO
Vanadium, Dissolved.....	mg/L	0.011		0.01	1	RE1	JYH	09/14/01	17:00	6010B\METHO

Lab Sample ID: L0109163-22
Client Sample ID: MW-35
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	15		0.50	50	N/A	DLN	09/17/01	09:00	9010B\9014
Cyanide, Amenable to Cl.....	mg/L		ND	0.50	50	N/A	DLN	09/17/01		335.1
Specific Conductance.....	umhos/cm	820		1.0	1	N/A	JMM	09/14/01	13:00	120.1
Fluoride.....	mg/L	41		0.50	5	N/A	DIH	09/19/01	13:30	SM4500-F-C
pH	UNITS	9.26			1	N/A	DLP	09/12/01	15:15	150.1

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0109163-23
Client Sample ID: MW-35
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00 COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.0097		0.004	1	RE	JYH	09/17/01	14:09	6010B\METHO
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	JYH	09/14/01	17:05	6010B\METHO
Manganese, Dissolved.....	mg/L	0.46		0.005	1	N/A	JYH	09/14/01	17:05	6010B\METHO
Sodium, Dissolved.....	mg/L	120		5.0	10	RE	JYH	09/14/01	17:25	6010B\METHO
Vanadium, Dissolved.....	mg/L	0.062		0.01	1	N/A	JYH	09/14/01	17:05	6010B\METHO

Lab Sample ID: L0109163-24
Client Sample ID: MW-36
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00 COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	2.7		0.10	10	N/A	JWR	09/13/01	09:30	9010B\9014
Cyanide, Amenable to Cl.....	mg/L		ND	0.25	25	N/A	DLN	09/17/01		335.1
Specific Conductance.....	umhos/cm	1100		1.0	1	N/A	JMM	09/14/01	13:00	120.1
Fluoride.....	mg/L	44		1.0	10	N/A	DIH	09/19/01	13:30	SM4500-F-C
pH	UNITS	9.80			1	N/A	DLP	09/12/01	15:15	150.1

Lab Sample ID: L0109163-25
Client Sample ID: MW-36
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00 COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.018		0.004	1	RE	JYH	09/17/01	14:14	6010B\METHO
Beryllium, Dissolved.....	mg/L	0.00053		0.0005	1	N/A	JYH	09/14/01	17:10	6010B\METHO
Manganese, Dissolved.....	mg/L	0.59		0.005	1	N/A	JYH	09/14/01	17:10	6010B\METHO
Sodium, Dissolved.....	mg/L	210		5.0	10	RE	JYH	09/14/01	17:30	6010B\METHO
Vanadium, Dissolved.....	mg/L	0.026		0.01	1	N/A	JYH	09/14/01	17:10	6010B\METHO

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Lab Sample ID: L0109163-26
Client Sample ID: MW-37
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00 COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L	5.6		0.40	40	N/A	JWR	09/13/01	09:30	9010B\9014
Cyanide, Amenable to Cl.....	mg/L		ND	0.50	50	N/A	DLN	09/17/01		335.1
Specific Conductance.....	umhos/cm	680		1.0	1	N/A	JMM	09/14/01	13:00	120.1
Fluoride.....	mg/L	21		0.50	5	N/A	DIH	09/19/01	13:30	SM4500-F-C
pH	UNITS	7.84			1	N/A	DLP	09/12/01	15:15	150.1

Lab Sample ID: L0109163-27
Client Sample ID: MW-37
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00 COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L	0.0042		0.004	1	RE	JYH	09/17/01	14:19	6010B\METHO
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	JYH	09/14/01	17:15	6010B\METHO
Manganese, Dissolved.....	mg/L	3.0		0.005	1	N/A	JYH	09/14/01	17:15	6010B\METHO
Sodium, Dissolved.....	mg/L	110		5.0	10	RE	JYH	09/14/01	17:35	6010B\METHO
Vanadium, Dissolved.....	mg/L	0.011		0.01	1	N/A	JYH	09/14/01	17:15	6010B\METHO

Lab Sample ID: L0109163-28
Client Sample ID: FIELD BLANK
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00 COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Cyanide, Total.....	mg/L		ND	0.01	1	N/A	JWR	09/13/01	09:30	9010B\9014
Specific Conductance.....	umhos/cm	1.6		1.0	1	N/A	JMM	09/14/01	13:00	120.1
Fluoride.....	mg/L		ND	0.20	2	N/A	DIH	09/19/01	13:30	SM4500-F-C
pH	UNITS	5.49			1	N/A	DLP	09/12/01	15:15	150.1

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0109163-28
Client Sample ID: FIELD BLANK
Site/Work ID: REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 09/11/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 09/12/01 Time: 20:01

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M12325

Method: 8260B
Run ID: R188436
Batch : WG104526

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L		ND	5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	92.0	(86 - 118%)
1,2-Dichloroethane-d4.....	98.2	(80 - 120%)
Toluene-d8.....	90.6	(88 - 110%)
4-Bromofluorobenzene.....	92.2	(86 - 115%)

Lab Sample ID: L0109163-29
Client Sample ID: FIELD BLANK
Site/Work ID: REDUCTION MILL

Matrix: Water
Collected: 09/11/01 00:00
COC Info: N/A

Analyte	Units	Result	Qualifiers	RL	Dil	Type	Analyst	Analysis Date	Time	Method
Arsenic, Dissolved.....	mg/L		ND	0.004	1	RE	JYH	09/17/01	14:24	6010B\METHO
Beryllium, Dissolved.....	mg/L		ND	0.0005	1	N/A	JYH	09/14/01	17:20	6010B\METHO
Manganese, Dissolved.....	mg/L		ND	0.005	1	N/A	JYH	09/14/01	17:20	6010B\METHO
Sodium, Dissolved.....	mg/L		ND	0.50	1	N/A	JYH	09/14/01	17:20	6010B\METHO
Vanadium, Dissolved.....	mg/L		ND	0.01	1	N/A	JYH	09/14/01	17:20	6010B\METHO

RL = Reporting Limit

KEMRON ENVIRONMENTAL SERVICES

Product: 826-TETRACHLOROETHEN - Volatile Organics

Lab Sample ID: L0109163-30
Client Sample ID: TRIP BLANK
Site/Work ID: REDUCTION MILL
Matrix: Water

Dil. Type: N/A
COC Info: N/A
Date Collected: 09/11/01

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

TCLP Extract Date: N/A
Extract Date: N/A
Analysis Date: 09/12/01 Time: 18:53

Instrument: HPMS10
Analyst: MES
Lab File ID: 10M12323

Method: 8260B
Run ID: R188434
Batch : WG104526

CAS #	Compound	Units	Result	Qualifiers	RL	Dilution
127-18-4	Tetrachloroethene.....	ug/L		ND	5.0	1

SURROGATES- In Percent Recovery:

Dibromofluoromethane.....	88.8	(86 - 118%)
1,2-Dichloroethane-d4.....	91.9	(80 - 120%)
Toluene-d8.....	92.2	(88 - 110%)
4-Bromofluorobenzene.....	93.0	(86 - 115%)

RL = Reporting Limit

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KEMRON ENVIRONMENTAL SERVICES
WORK GROUPS

Work Group	Run ID	Sample	Dil Type	Matrix	Product	Method	Date Collected	Department
WG104521	R188304	L0109163-01		Water	pH (Laboratory)	150.1	11-SEP-2001	Conventionals
WG104521	R188304	L0109163-03		Water	pH (Laboratory)	150.1	11-SEP-2001	Conventionals
WG104521	R188304	L0109163-05		Water	pH (Laboratory)	150.1	11-SEP-2001	Conventionals
WG104521	R188304	L0109163-07		Water	pH (Laboratory)	150.1	11-SEP-2001	Conventionals
WG104521	R188304	L0109163-09		Water	pH (Laboratory)	150.1	11-SEP-2001	Conventionals
WG104521	R188304	L0109163-11		Water	pH (Laboratory)	150.1	11-SEP-2001	Conventionals
WG104521	R188304	L0109163-13		Water	pH (Laboratory)	150.1	11-SEP-2001	Conventionals
WG104521	R188304	L0109163-15		Water	pH (Laboratory)	150.1	11-SEP-2001	Conventionals
WG104521	R188304	L0109163-18		Water	pH (Laboratory)	150.1	11-SEP-2001	Conventionals
WG104521	R188304	L0109163-20		Water	pH (Laboratory)	150.1	11-SEP-2001	Conventionals
WG104521	R188304	L0109163-22		Water	pH (Laboratory)	150.1	11-SEP-2001	Conventionals
WG104521	R188304	L0109163-24		Water	pH (Laboratory)	150.1	11-SEP-2001	Conventionals
WG104521	R188304	L0109163-26		Water	pH (Laboratory)	150.1	11-SEP-2001	Conventionals
WG104521	R188304	L0109163-28		Water	pH (Laboratory)	150.1	11-SEP-2001	Conventionals
WG104526	R188437	L0109163-01	CAT	Water	Volatile Organics	8260B	11-SEP-2001	Volatile - GC/MS
WG104526	R188437	L0109163-01		Water	Volatile Organics	8260B	11-SEP-2001	Volatile - GC/MS
WG104526	R188438	L0109163-03	CAT	Water	Volatile Organics	8260B	11-SEP-2001	Volatile - GC/MS
WG104526	R188438	L0109163-03		Water	Volatile Organics	8260B	11-SEP-2001	Volatile - GC/MS
WG104526	R188439	L0109163-05	CAT	Water	Volatile Organics	8260B	11-SEP-2001	Volatile - GC/MS
WG104526	R188439	L0109163-05		Water	Volatile Organics	8260B	11-SEP-2001	Volatile - GC/MS
WG104526	R188440	L0109163-13	CAT	Water	Volatile Organics	8260B	11-SEP-2001	Volatile - GC/MS
WG104526	R188440	L0109163-13		Water	Volatile Organics	8260B	11-SEP-2001	Volatile - GC/MS
WG104526	R188441	L0109163-18	CAT	Water	Volatile Organics	8260B	11-SEP-2001	Volatile - GC/MS
WG104526	R188441	L0109163-18		Water	Volatile Organics	8260B	11-SEP-2001	Volatile - GC/MS
WG104526	R188436	L0109163-28	CAT	Water	Volatile Organics	8260B	11-SEP-2001	Volatile - GC/MS
WG104526	R188436	L0109163-28		Water	Volatile Organics	8260B	11-SEP-2001	Volatile - GC/MS
WG104526	R188434	L0109163-30	CAT	Water	Volatile Organics	8260B	11-SEP-2001	Volatile - GC/MS
WG104526	R188434	L0109163-30		Water	Volatile Organics	8260B	11-SEP-2001	Volatile - GC/MS
WG104586	R189600	L0109163-02		Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R190548	L0109163-02	RE	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-02	RE1	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-04		Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R190548	L0109163-04	RE	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-04	RE1	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-06		Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R190548	L0109163-06	RE	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-06	RE1	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-08		Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R190548	L0109163-08	RE	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-10		Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R190548	L0109163-10	RE	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-12		Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R190548	L0109163-12	RE	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion

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KEMRON ENVIRONMENTAL SERVICES
WORK GROUPS

Work Group	Run ID	Sample	Dil Type	Matrix	Product	Method	Date Collected	Department
WG104586	R189600	L0109163-12	RE1	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-14		Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R190548	L0109163-14	RE	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-14	RE1	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-16		Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R190548	L0109163-16	RE	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-19		Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R190548	L0109163-19	RE	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-19	RE1	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-21		Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-21	RE	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-21	RE1	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R190548	L0109163-23	RE	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-23		Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R190548	L0109163-25	RE	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-25		Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R190548	L0109163-27	RE	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-27		Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R190548	L0109163-29	RE	Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104586	R189600	L0109163-29		Water	DIG-METALS	6010B\3005A	11-SEP-2001	Digestion
WG104612	R189600	L0109163-02		Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R190548	L0109163-02	RE	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-02	RE1	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-04		Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R190548	L0109163-04	RE	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-04	RE1	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-06		Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R190548	L0109163-06	RE	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-06	RE1	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-08		Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R190548	L0109163-08	RE	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-10		Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R190548	L0109163-10	RE	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-12		Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R190548	L0109163-12	RE	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-12	RE1	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-14		Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R190548	L0109163-14	RE	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-14	RE1	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-16		Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R190548	L0109163-16	RE	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-19		Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R190548	L0109163-19	RE	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-19	RE1	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP

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KEMRON ENVIRONMENTAL SERVICES
WORK GROUPS

Work Group	Run ID	Sample	Dil Type	Matrix	Product	Method	Date Collected	Department
WG104612	R189600	L0109163-21		Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-21	RE	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-21	RE1	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R190548	L0109163-23	RE	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-23		Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R190548	L0109163-25	RE	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-25		Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R190548	L0109163-27	RE	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-27		Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R190548	L0109163-29	RE	Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104612	R189600	L0109163-29		Water	ICP-METALS	6010B\3005A	11-SEP-2001	Metals - ICP
WG104628	R189052	L0109163-01		Water	Cyanide, Total	9010B\9014	11-SEP-2001	Conventionals
WG104628	R189052	L0109163-03		Water	Cyanide, Total	9010B\9014	11-SEP-2001	Conventionals
WG104628	R189052	L0109163-05		Water	Cyanide, Total	9010B\9014	11-SEP-2001	Conventionals
WG104628	R189052	L0109163-07		Water	Cyanide, Total	9010B\9014	11-SEP-2001	Conventionals
WG104628	R189052	L0109163-09		Water	Cyanide, Total	9010B\9014	11-SEP-2001	Conventionals
WG104628	R189052	L0109163-11		Water	Cyanide, Total	9010B\9014	11-SEP-2001	Conventionals
WG104628	R189052	L0109163-15		Water	Cyanide, Total	9010B\9014	11-SEP-2001	Conventionals
WG104628	R189052	L0109163-18		Water	Cyanide, Total	9010B\9014	11-SEP-2001	Conventionals
WG104628	R189052	L0109163-20		Water	Cyanide, Total	9010B\9014	11-SEP-2001	Conventionals
WG104628	R189052	L0109163-24		Water	Cyanide, Total	9010B\9014	11-SEP-2001	Conventionals
WG104628	R189052	L0109163-26		Water	Cyanide, Total	9010B\9014	11-SEP-2001	Conventionals
WG104628	R189052	L0109163-28		Water	Cyanide, Total	9010B\9014	11-SEP-2001	Conventionals
WG104667	R189202	L0109163-01		Water	Specific Conductance	120.1	11-SEP-2001	Conventionals
WG104667	R189202	L0109163-03		Water	Specific Conductance	120.1	11-SEP-2001	Conventionals
WG104667	R189202	L0109163-05		Water	Specific Conductance	120.1	11-SEP-2001	Conventionals
WG104667	R189202	L0109163-07		Water	Specific Conductance	120.1	11-SEP-2001	Conventionals
WG104667	R189202	L0109163-09		Water	Specific Conductance	120.1	11-SEP-2001	Conventionals
WG104667	R189202	L0109163-11		Water	Specific Conductance	120.1	11-SEP-2001	Conventionals
WG104667	R189202	L0109163-13		Water	Specific Conductance	120.1	11-SEP-2001	Conventionals
WG104667	R189202	L0109163-15		Water	Specific Conductance	120.1	11-SEP-2001	Conventionals
WG104667	R189202	L0109163-18		Water	Specific Conductance	120.1	11-SEP-2001	Conventionals
WG104667	R189202	L0109163-20		Water	Specific Conductance	120.1	11-SEP-2001	Conventionals
WG104667	R189202	L0109163-22		Water	Specific Conductance	120.1	11-SEP-2001	Conventionals
WG104667	R189202	L0109163-24		Water	Specific Conductance	120.1	11-SEP-2001	Conventionals
WG104667	R189202	L0109163-26		Water	Specific Conductance	120.1	11-SEP-2001	Conventionals
WG104667	R189202	L0109163-28		Water	Specific Conductance	120.1	11-SEP-2001	Conventionals
WG104748	R189608	L0109163-01		Water	Cyanide, Amenable to Cl	335.1	11-SEP-2001	Conventionals
WG104748	R189608	L0109163-03		Water	Cyanide, Amenable to Cl	335.1	11-SEP-2001	Conventionals
WG104748	R189608	L0109163-05		Water	Cyanide, Amenable to Cl	335.1	11-SEP-2001	Conventionals
WG104748	R189608	L0109163-09		Water	Cyanide, Amenable to Cl	335.1	11-SEP-2001	Conventionals
WG104748	R189608	L0109163-11		Water	Cyanide, Amenable to Cl	335.1	11-SEP-2001	Conventionals

Order #: 01-09-163
September 25, 2001 11:57 am

KEMRON ENVIRONMENTAL SERVICES
WORK GROUPS

Work Group	Run ID	Sample	Dil Type	Matrix	Product	Method	Date Collected	Department
WG104748	R189608	L0109163-15		Water	Cyanide, Amenable to Cl	335.1	11-SEP-2001	Conventionals
WG104748	R189608	L0109163-18		Water	Cyanide, Amenable to Cl	335.1	11-SEP-2001	Conventionals
WG104748	R189608	L0109163-20		Water	Cyanide, Amenable to Cl	335.1	11-SEP-2001	Conventionals
WG104748	R189608	L0109163-22		Water	Cyanide, Amenable to Cl	335.1	11-SEP-2001	Conventionals
WG104748	R189608	L0109163-22		Water	Cyanide, Total	9010B\9014	11-SEP-2001	Conventionals
WG104748	R189608	L0109163-24		Water	Cyanide, Amenable to Cl	335.1	11-SEP-2001	Conventionals
WG104748	R189608	L0109163-26		Water	Cyanide, Amenable to Cl	335.1	11-SEP-2001	Conventionals
WG104820	R190597	L0109163-13		Water	Cyanide, Amenable to Cl	335.1	11-SEP-2001	Conventionals
WG104820	R190597	L0109163-13		Water	Cyanide, Total	9010B\9014	11-SEP-2001	Conventionals
WG104941	R190967	L0109163-01		Water	Fluoride	SM4500-F-C	11-SEP-2001	Conventionals
WG104941	R190967	L0109163-03		Water	Fluoride	SM4500-F-C	11-SEP-2001	Conventionals
WG104941	R190967	L0109163-05		Water	Fluoride	SM4500-F-C	11-SEP-2001	Conventionals
WG104941	R190967	L0109163-07		Water	Fluoride	SM4500-F-C	11-SEP-2001	Conventionals
WG104941	R190967	L0109163-09		Water	Fluoride	SM4500-F-C	11-SEP-2001	Conventionals
WG104941	R190967	L0109163-11		Water	Fluoride	SM4500-F-C	11-SEP-2001	Conventionals
WG104941	R190967	L0109163-13		Water	Fluoride	SM4500-F-C	11-SEP-2001	Conventionals
WG104941	R190967	L0109163-15		Water	Fluoride	SM4500-F-C	11-SEP-2001	Conventionals
WG104941	R190967	L0109163-18		Water	Fluoride	SM4500-F-C	11-SEP-2001	Conventionals
WG104941	R190967	L0109163-20		Water	Fluoride	SM4500-F-C	11-SEP-2001	Conventionals
WG104941	R190967	L0109163-22		Water	Fluoride	SM4500-F-C	11-SEP-2001	Conventionals
WG104941	R190967	L0109163-24		Water	Fluoride	SM4500-F-C	11-SEP-2001	Conventionals
WG104941	R190967	L0109163-26		Water	Fluoride	SM4500-F-C	11-SEP-2001	Conventionals
WG104941	R190967	L0109163-28		Water	Fluoride	SM4500-F-C	11-SEP-2001	Conventionals

KEMRON ANALYST LIST

Ohio Valley Laboratory

08/28/2001

ADH - ANGELA D. HURST
AJF - AMANDA J. FICKIESEN
ALT - ANN L. THAYER
AMT - ANDREA M. TUCKER
ARS - ANGELINA R. SCOTT
BRG - BRENDA R. GREGORY
CAB - CASSIE A. BAKER
CAF - CHERYL A. FLOWERS
CAK - CHERYL A. KOELSCH
CBN - CHARLES B. NOLL
CEB - CHAD E. BARNES
CLC - CHRYS L. CRAWFORD
CLK - CARL L. KING
CLW - CHARISSA L. WINTERS
CMS - CRYSTAL M. STEVENS
CRC - CARLA R. COCHRAN
CSH - CHRIS S. HILL
DAM - DAN A. MUSGRAVE
DAS - DALLAS A. SULLIVAN
DAT - DEBBIE A. TORNES
DEL - DON E. LIGHTFRITZ
DEV - DAVID E. VANDENBERG
DGB - DOUGLAS G. BUTCHER
DIH - DEANNA I. HESSON
DLA - DENISE L. ADAMS
DLB - DAVID L. BUMGARNER
DLN - DEANNA L. NORTON
DLP - DOROTHY L. PAYNE
DLR - DIANNA L. RAUCH
DP - DEANNA L. PIERSON
DSM - DAVID S. MOSSOR
DST - DENNIS S. TEPE
EAW - ELIZABETH A. WEBER
ECL - ERIC C. LAWSON
GSG - GALEN S. GEORGE
HV - HEMA VILASAGAR
JAQ - JEROMY A. QUESENBERRY
JAW - JOYCE A. WITHERS
JKW - JANE K. WARDEN
JLS - JANICE L. SCHIMMEL
JMM - JARROD M. MARTIN
JMT - JOY M. THOMAS
JRM - JAY R. MCDOUGAL
JWR - JOHN W. RICHARDS
JWS - JACK W. SHEAVES
JYH - JI Y. HU
KHR - KIM H. RHODES
KRA - KATHY R. ALBERTSON
KSL - KELLY S. LAUER
LBM - LAWRENCE B. MCSWEGAN
LKN - LINDA K. NEDEFF
LMT - LUCINDA M. TILTON
LRR - LUCYNDA R. ROBERTS
LSA - LUCINDA S. ARNOLD
LSB - LESLIE S. BUCINA
MAJ - MARK A. JEMISON
MDA - MICHAEL D. ALBERTSON
MDC - MICHAEL D. COCHRAN
MEF - MIKE E. FLANAGAN
MES - MARY E. SCHILLING
MLS - MICHAEL L. SCHIMMEL
MMB - MAREN M. BEERY
MRR - MICHELLE R. RAUCH
MSW - MATT S. WILSON
NJB - NATALIE J. BOOTH
RDC - REBECCA D. CUTLIP
REF - RON E. FERTILE
REK - ROBERT E. KYER
RJW - RHONDA J. WITTEKIND
RLW - RON L. WATSON
RSH - RENEE S. HENNES
RSS - REGINA S. SIMMONS
RVC - RUTH V. CALLIHAN
RWC - ROD W. CAMPBELL
SAM - SAMUAL A. MILLS
SJK - SINDY J. KINNEY
SKH - SHARON K. HANDSCHUMACHER
SLC - SHAWN L. COLE
SLP - SHERI L. PFALZGRAF
SLT - STEPHANIE L. TEPE
SMH - SARAH M. HAYES
SMW - SHAUNA M. WELCH
SPL - STEVE P. LEARN
TJH - TIM J. HOEFLICH
TLL - TERESA L. DAVIS
TMM - TAMMY M. MORRIS
VC - VICKI COLLIER
VKL - VICKY K. LAUER

KEMRON Environmental Services, Inc
List of Valid Qualifiers
December 15, 2000

Standard Qualifiers

These are KEMRON's Standard Report Qualifiers

A	See the report narrative
B	Present in the method blank
C	Confirmed by GC/MS
CG	Confluent growth
D	The analyte was quantified at a secondary dilution factor
DL	Surrogate or spike was diluted out
E	Estimated concentration due to sample matrix interference
FL	Free liquid
I	Semiquantitative result, out of instrument calibration range
J	Present below nominal reporting limit
L	Sample reporting limits elevated due to matrix interference
M	Duplicate injection precision not met
N	Tentatively Identified Compound (TIC)
NA	Not applicable
ND	Not detected at or above the reporting limit (RL)
NF	Not found
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentration >40% difference between The two GC columns
QNS	Quantity not sufficient to perform analysis
R	Analyte exceeds regulatory limit
RA	Re analysis confirms reported results
RE	Re analysis confirms sample matrix Interference
S	Analyzed by method of standard addition
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TNTC	Too numerous to count
U	Analyzed for but not detected
W	Post-digestion spike for furnace AA out Of control limits
Z	Can not be resolved from isomer.***
+	Correlation coefficient for the MSA is less Than 0.995
<	Less than
>	Greater than
*	Surrogate or spike compound out of range

***** Special Notes for Organic Analytes**

1. Acrolein and acrylonitrile by method 624 are semiquantative screens only
2. 1,2-Diphenylhydrazine is unstable and is reported as azobenzene
3. N-nitrosodiphenylamine cannot be separated from diphenylamine
4. 3-Methyphenol and 4-Methyphenol are unresolvable compounds
5. m-Xylene and p-Xylene are unresolvable compounds
6. The reporting limits for Appendix II/IX compounds by method 8270 are based on EPA estimated PQLs referenced in 40 CFR Part 264, Appendix IX. They are not always achievable for every compound and are matrix dependent

AFCEE Qualifiers

These are KEMRON's AFCEE Report Qualifiers

J	The analyte was positively identified, the quantitation is an estimation
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL
F	The analyte was positively identified but the associated numerical value is below the RL
R	The data is unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
B	The analyte was found in an associated blank, as well as in the sample
M	The matrix effect was present
S	To be applied to all field screening data
T	Tentatively identified compound (using GC/MS)

APPENDIX C

DATA VALIDATION SUMMARY REPORT FOR 2001 MONITORING EVENTS

APPENDIX C
DATA VALIDATION SUMMARY REPORT
2001 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 were analyzed by Kemron Environmental Services of Marietta, Ohio 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 2001 is provided below.

January 2001 Monitoring Event

- Matrix spike result for Tetrachloroethene (75.7%) was below the lower control limit of 83%. Qualification of the results was not considered warranted.

- Matrix spike result for manganese (69%) was slightly below the lower control limit of 75%. Qualification of the results was not considered warranted.

May 2001 Monitoring Event

- Recoveries for the surrogate compound 1,2-Dichloroethane-d4 for the MW-2 (125%) sample was slightly above the control range of 80% - 120%. Qualification of the associated data for MW-2 was not considered warranted.

- The matrix spike result for tetrachloroethene (71.3%) was below the lower control limit of 80%. Qualification of the associated results was not considered warranted.

- Dissolved sodium reported in field blank at 0.50 mg/L. By application of the 5X rule, results below 2.5 mg/L would be considered non-detect. No data affected by application of 5X rule.

September 2001 Monitoring Event

- Recoveries for the surrogate compound toluene-d8 (86.9%) for sample MW-31 was slightly below the control range of 88%-110%. Qualification of the associated data was not considered warranted.

- The laboratory control sample for fluoride (110.0%) is slightly above the control range of 88.0% - 109.0%. Qualification of the associated results was not considered warranted.

ORMET-01.C

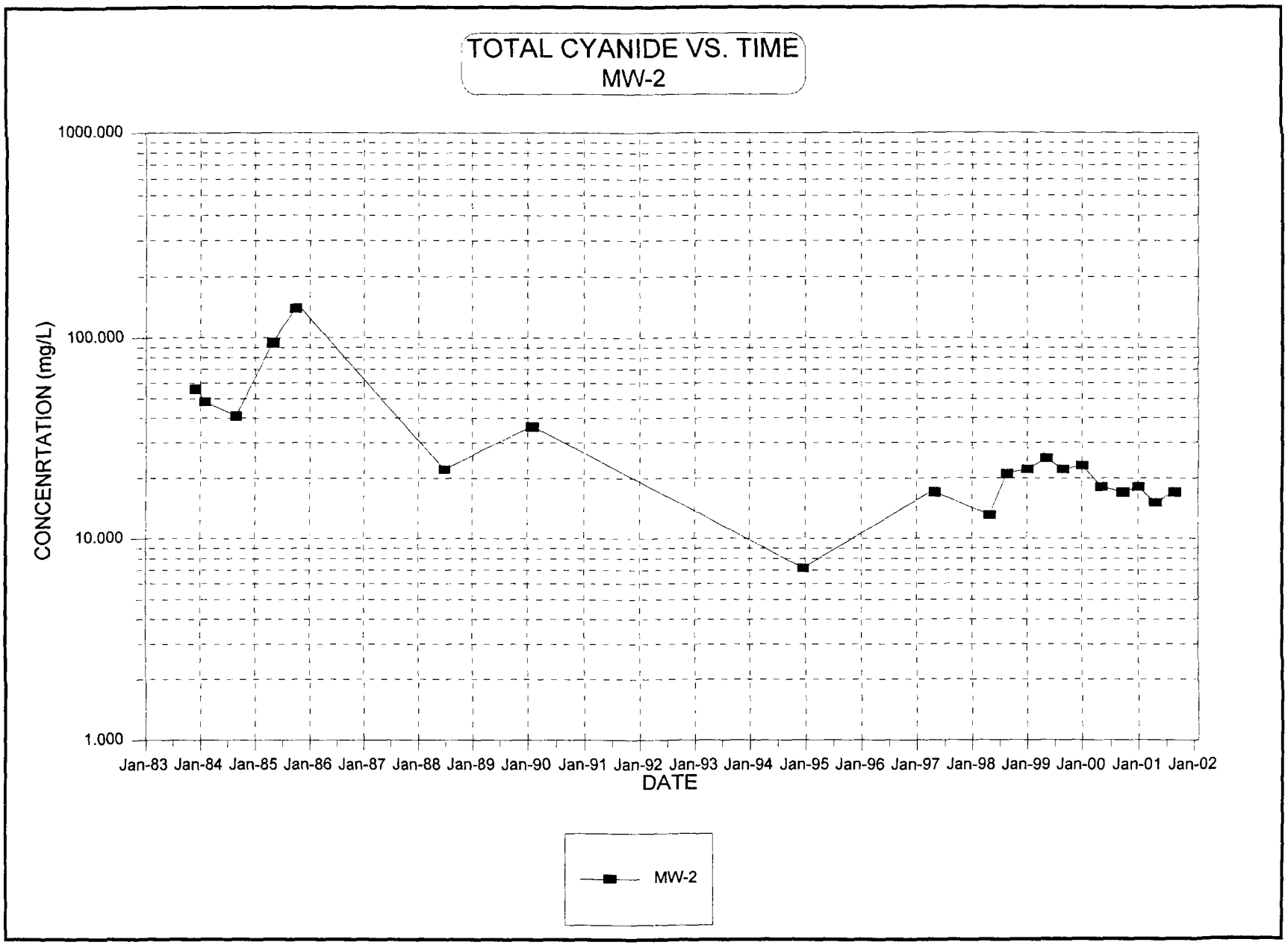
APPENDIX D

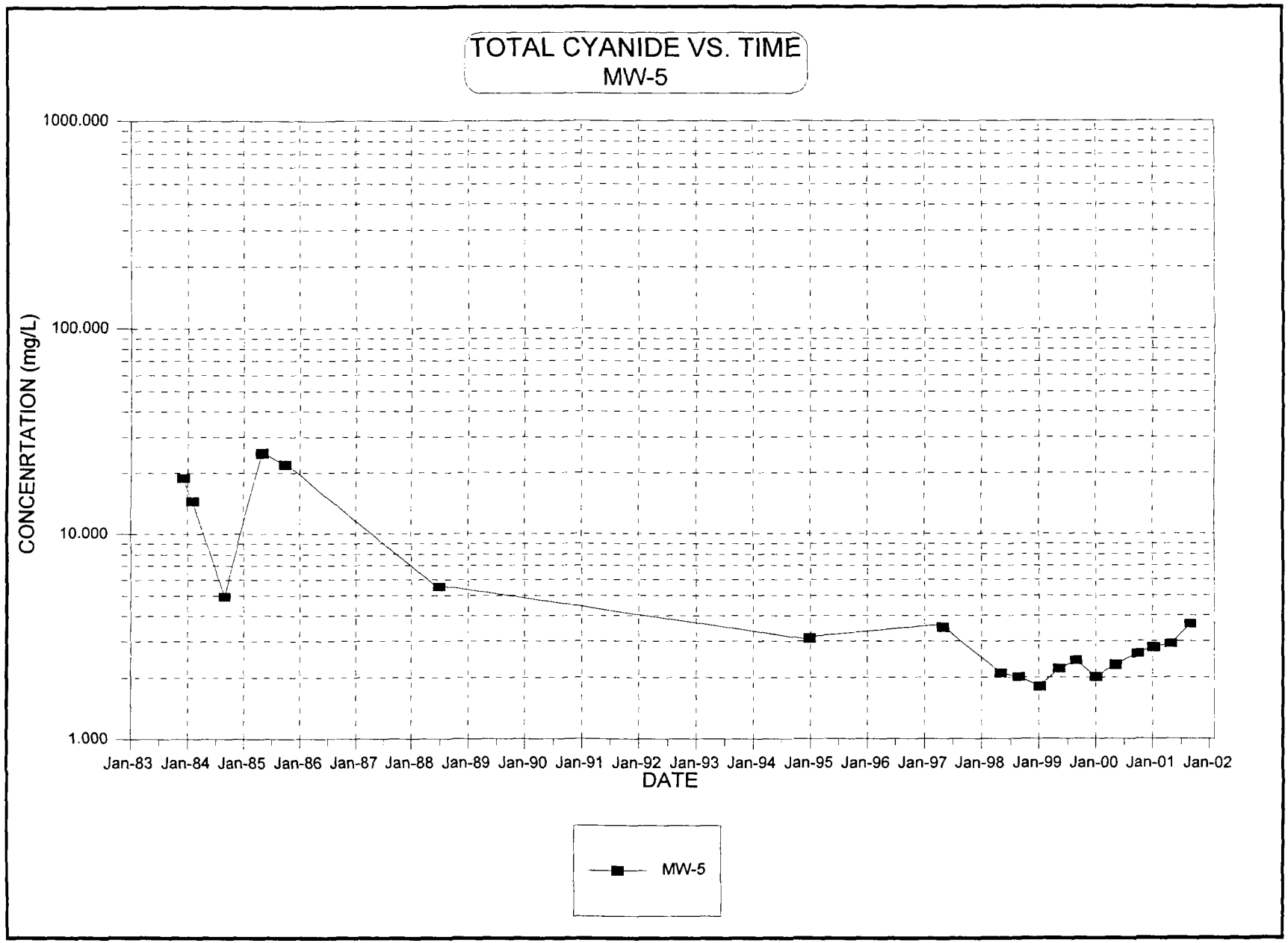
CONCENTRATION VS. TIME GRAPHS FOR REMEDIAL ACTION MONITORING PARAMETERS

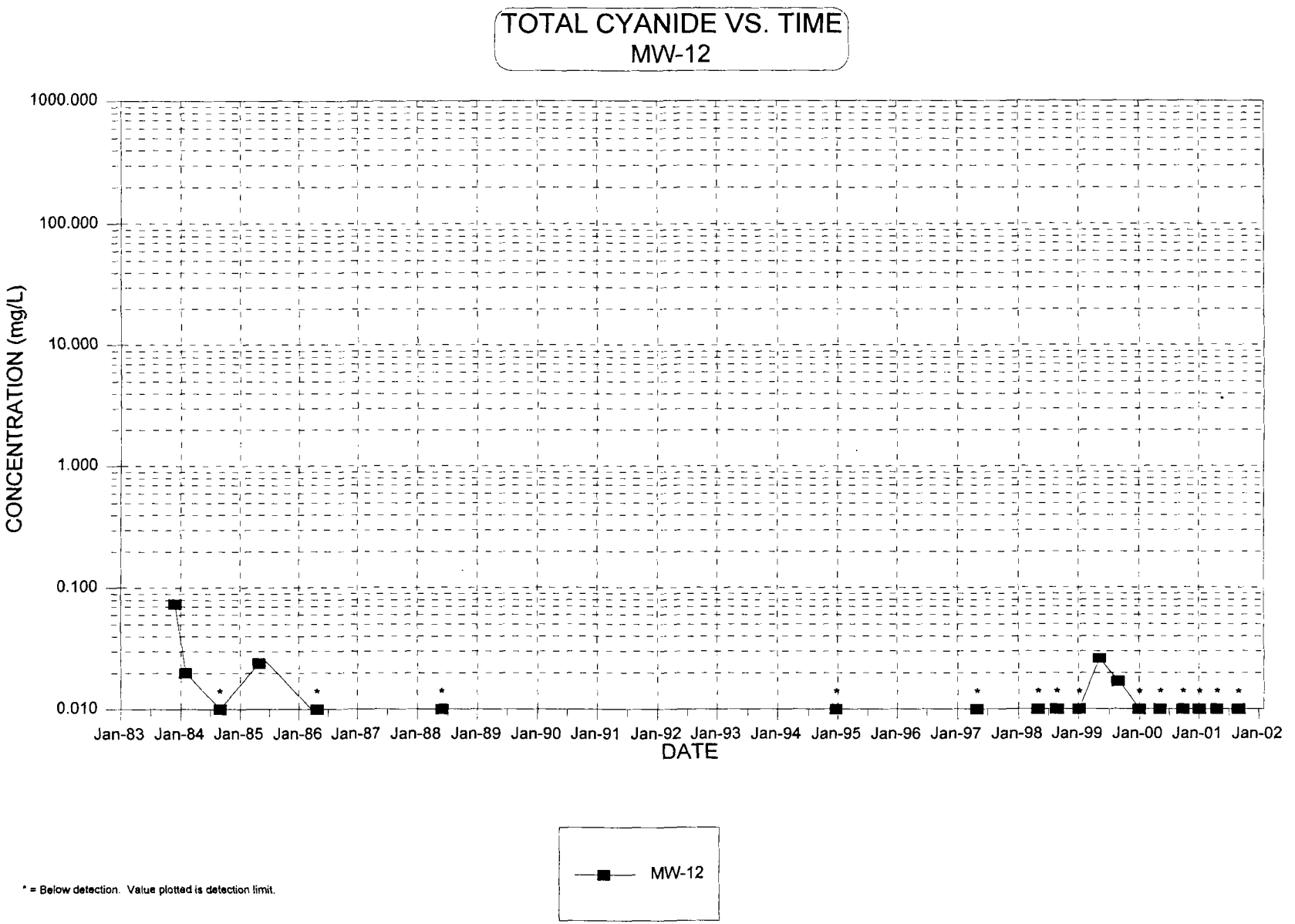
Appendix D-1	Total Cyanide
Appendix D-2	Cyanide Amenable to Chlorination
Appendix D-3	Fluoride
Appendix D-4	Arsenic
Appendix D-5	Beryllium
Appendix D-6	Manganese
Appendix D-7	Vanadium
Appendix D-8	Tetrachloroethene
Appendix D-9	Sodium

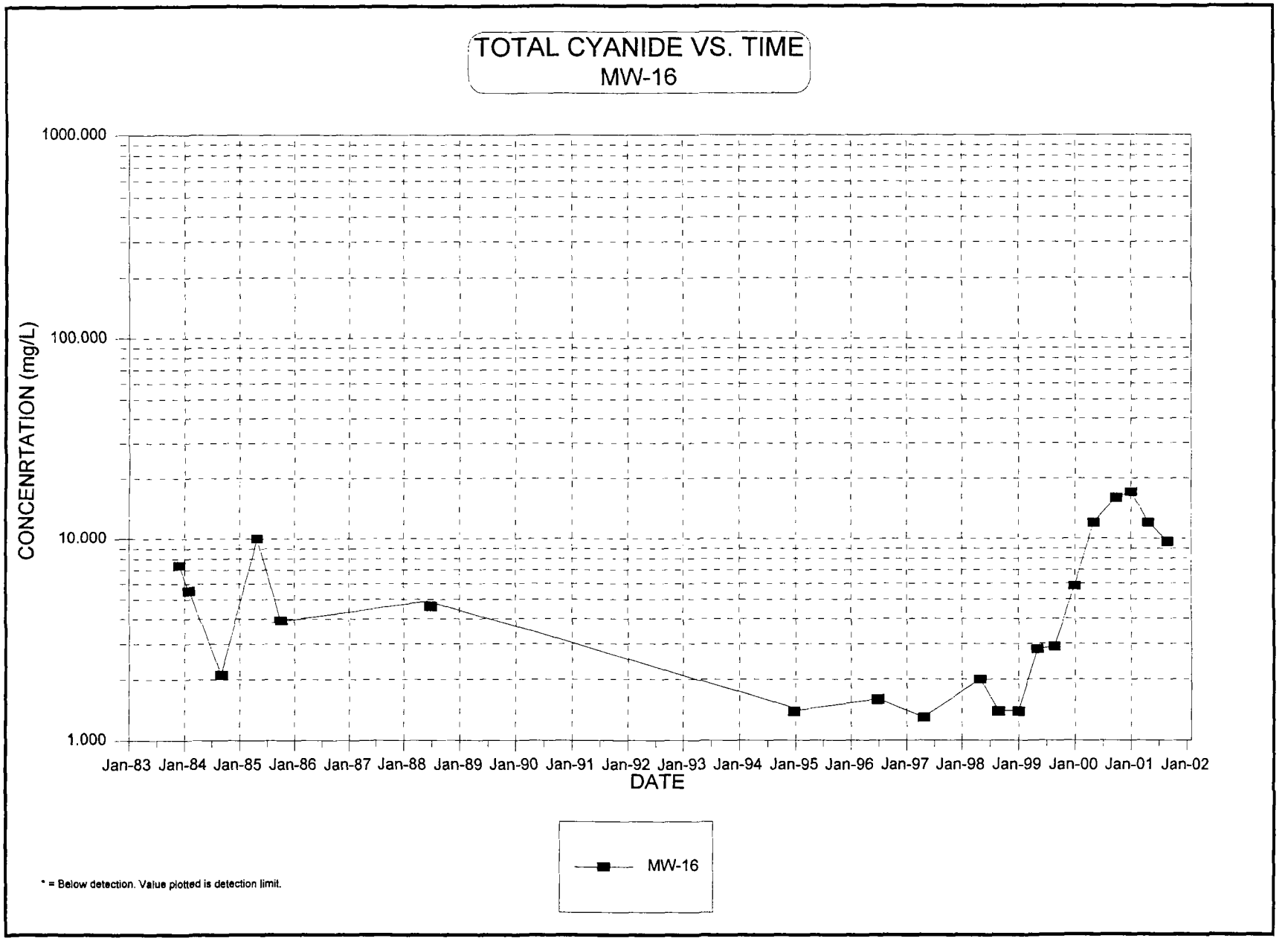
APPENDIX D-1

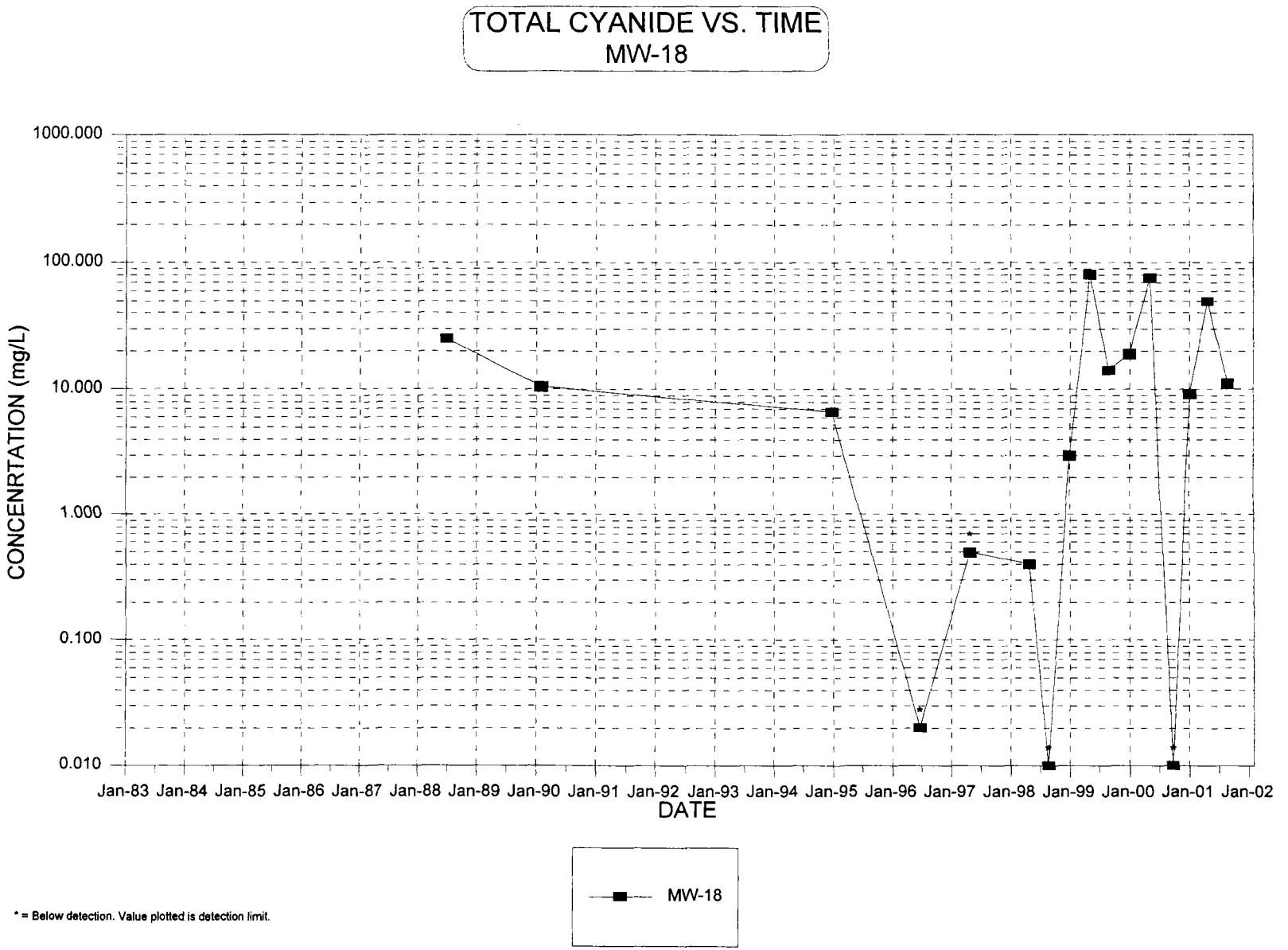
TOTAL CYANIDE

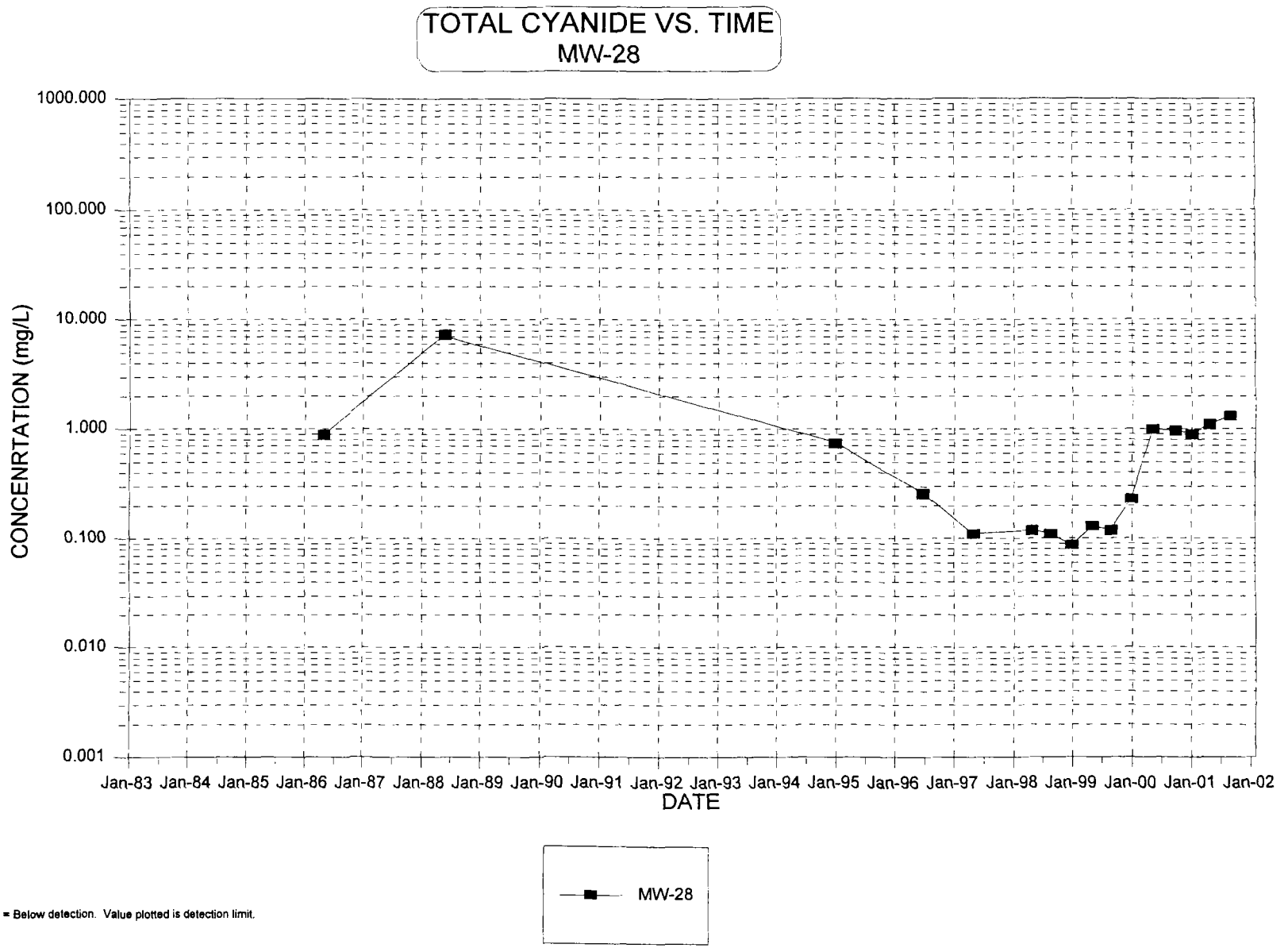

TOTAL CYANIDE VS. TIME
MW-2
1000.000
100.000
10.000
1.000
CONCENRTATION (mg/L)
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-2


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
DATE
MW-5

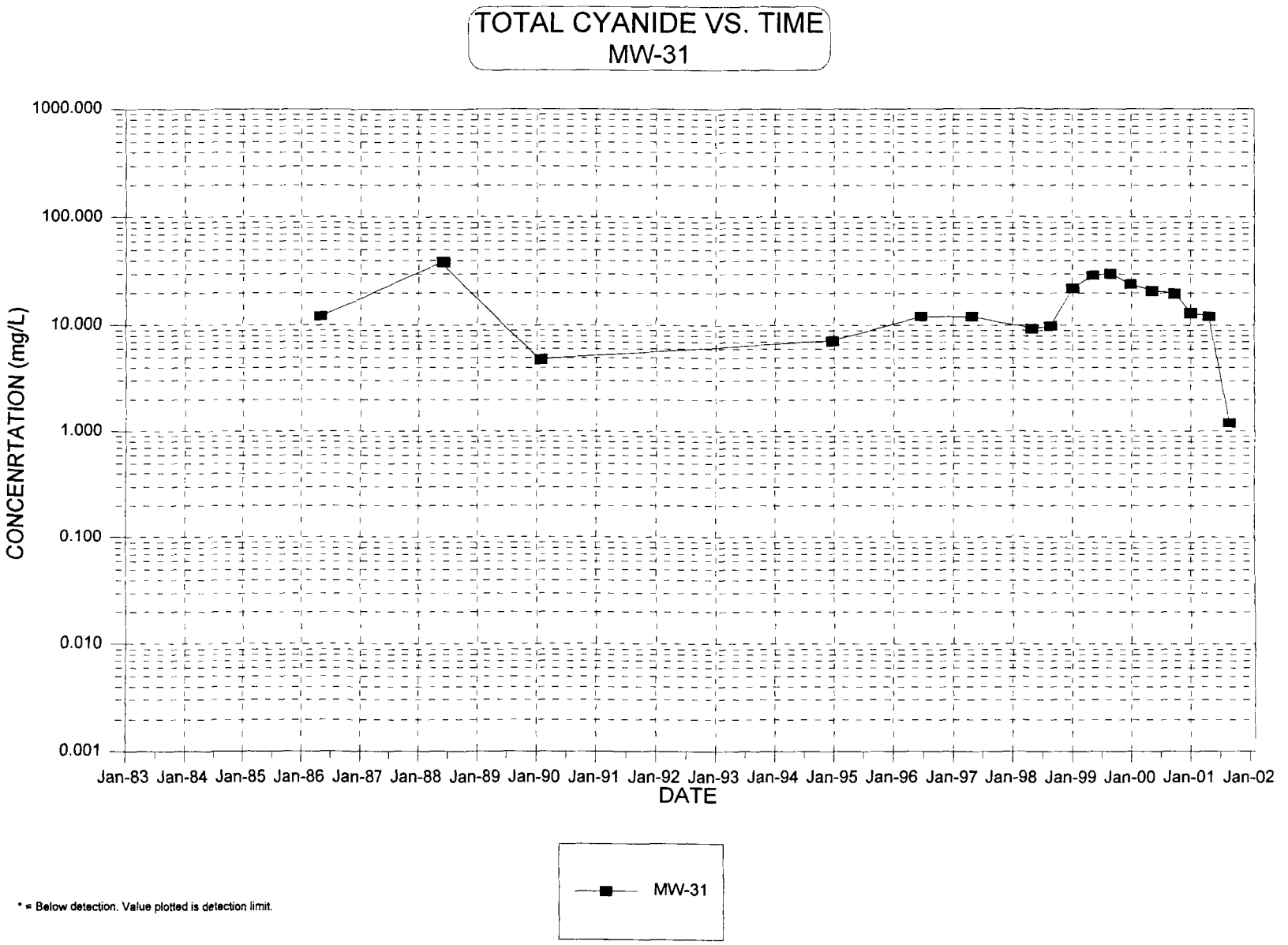

TOTAL CYANIDE VS. TIME
MW-12
CONCENTRATION (mg/L)
1000.000
100.000
10.000
1.000
0.100
0.010
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
DATE
MW-12
* = Below detection. Value plotted is detection limit.


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
DATE
MW-16
* = Below detection. Value plotted is detection limit.

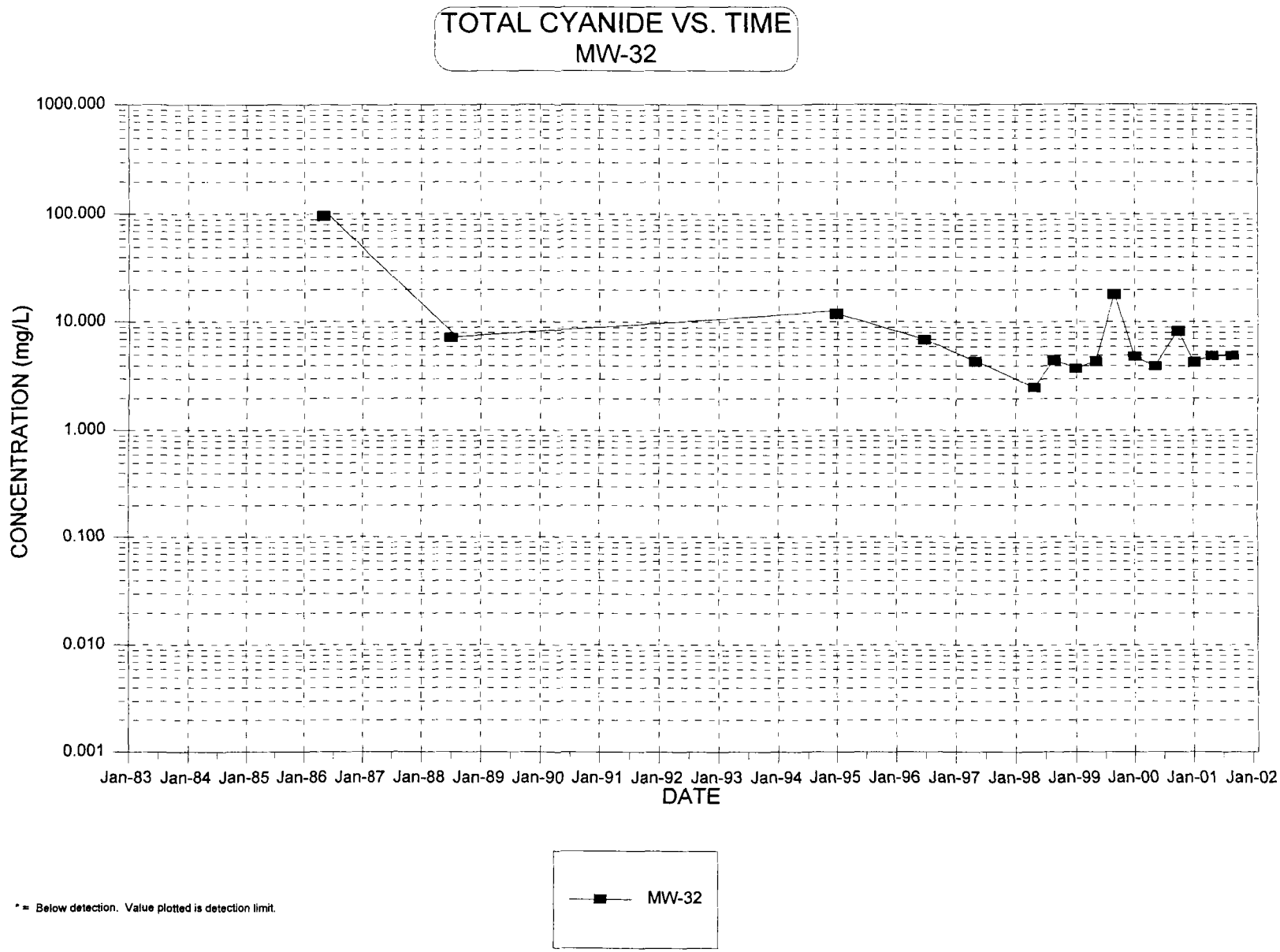

TOTAL CYANIDE VS. TIME
MW-18
1000.000
100.000
10.000
1.000
0.100
0.010
CONCENRTATION (mg/L)
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-18
* = Below detection. Value plotted is detection limit.



* = Below detection. Value plotted is detection limit.

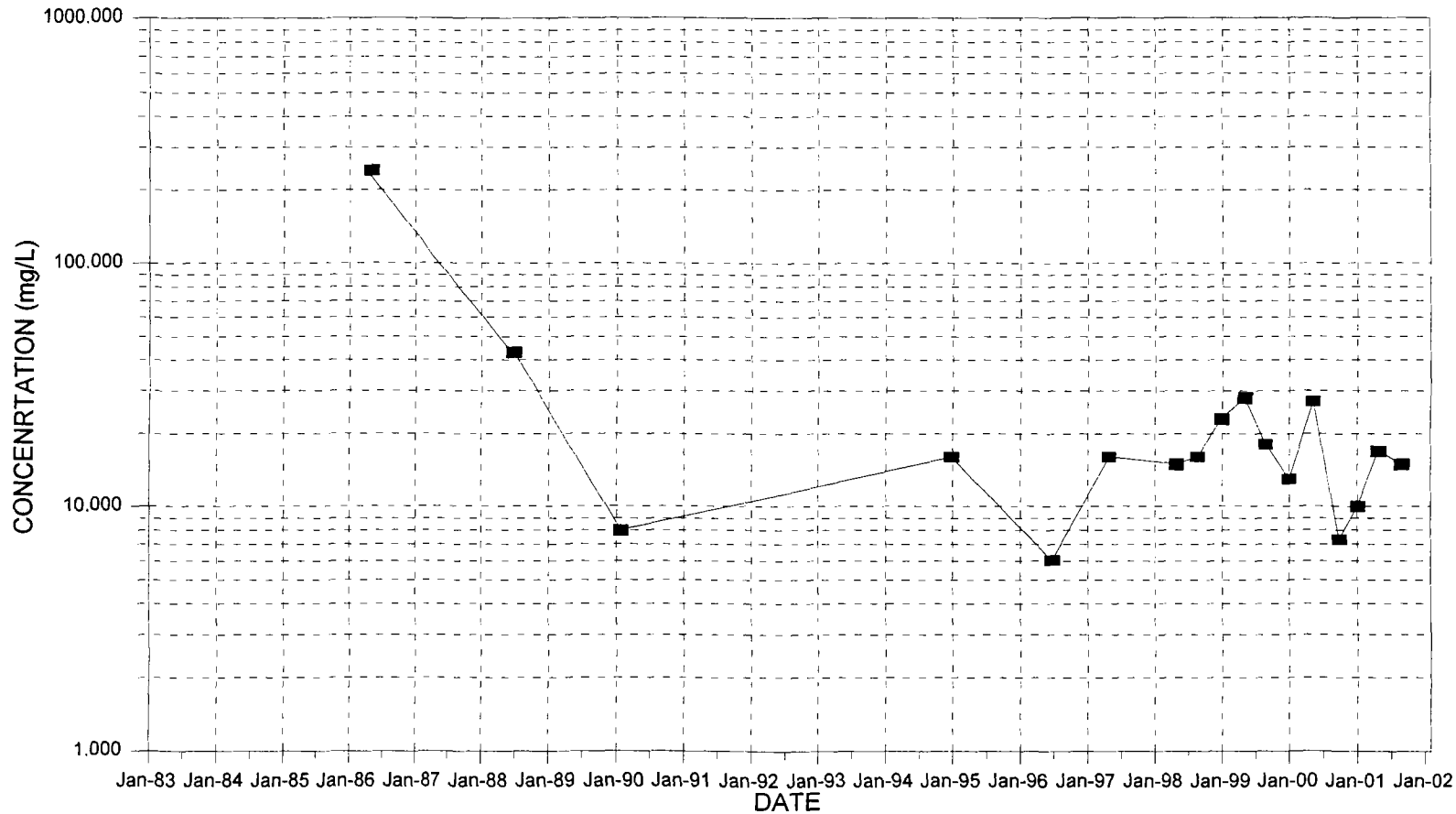


* = Below detection. Value plotted is detection limit.



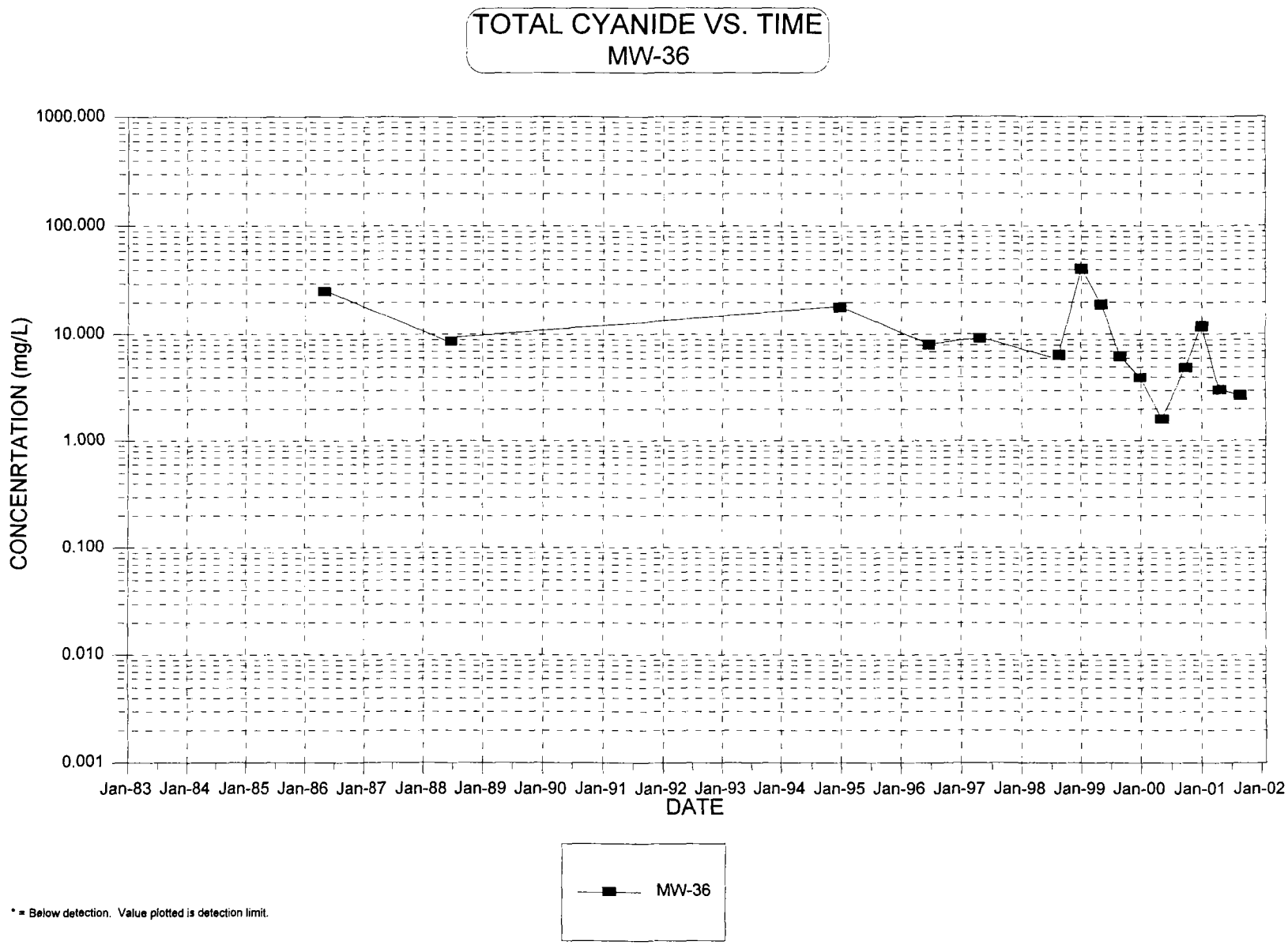
* = Below detection. Value plotted is detection limit.

TOTAL CYANIDE VS. TIME
MW-35

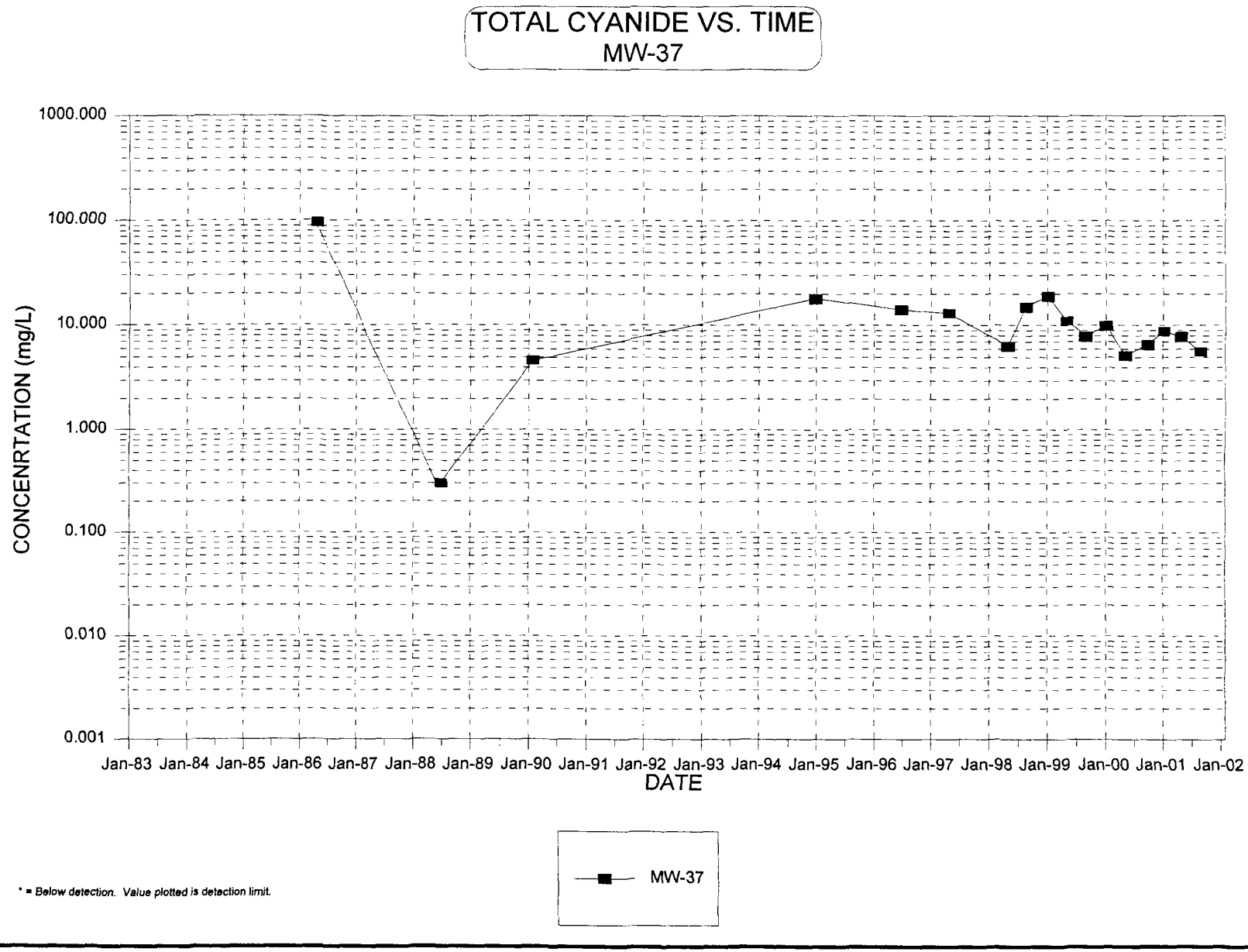


MW-35

* = Below detection. Value plotted is detection limit.



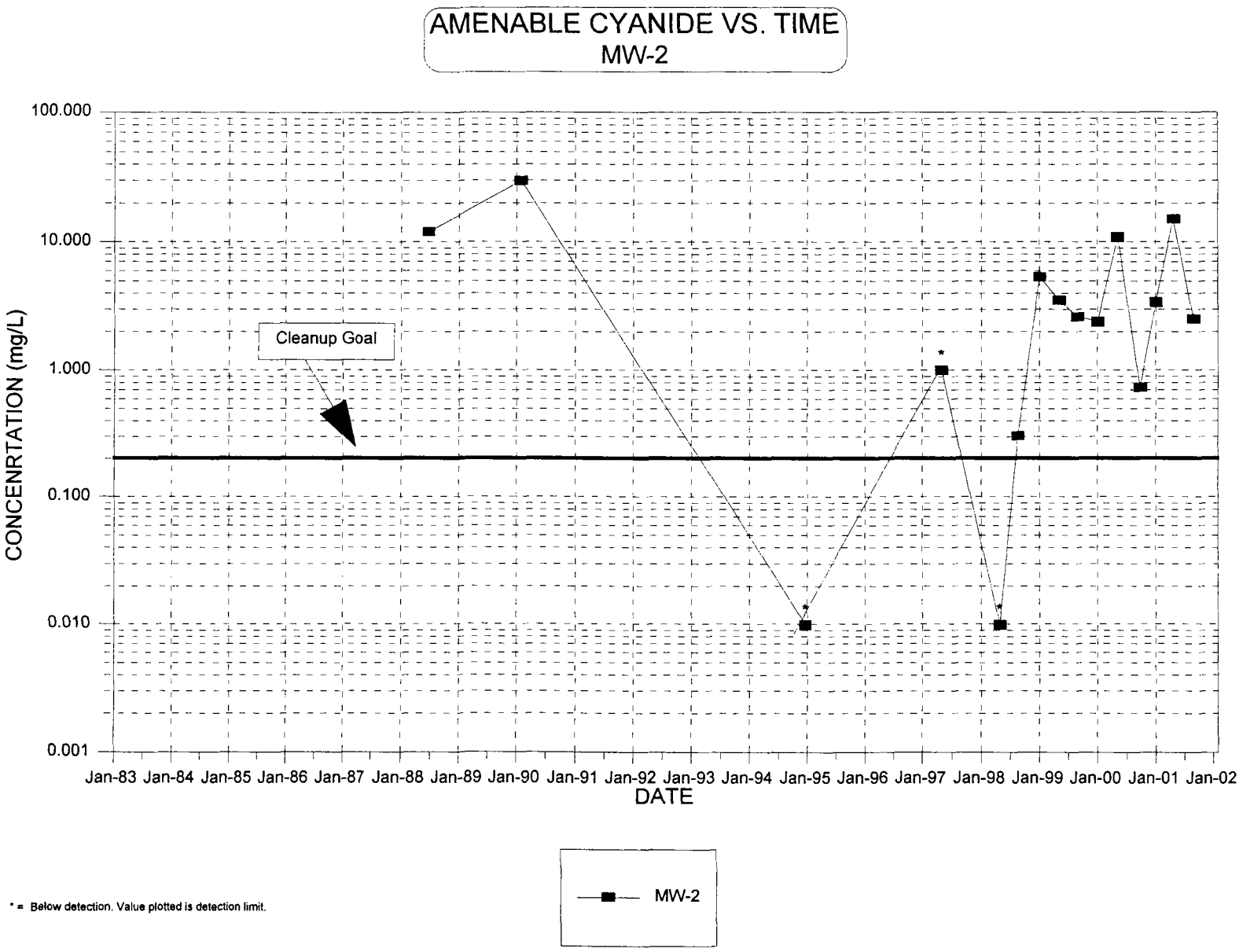
* = Below detection. Value plotted is detection limit.



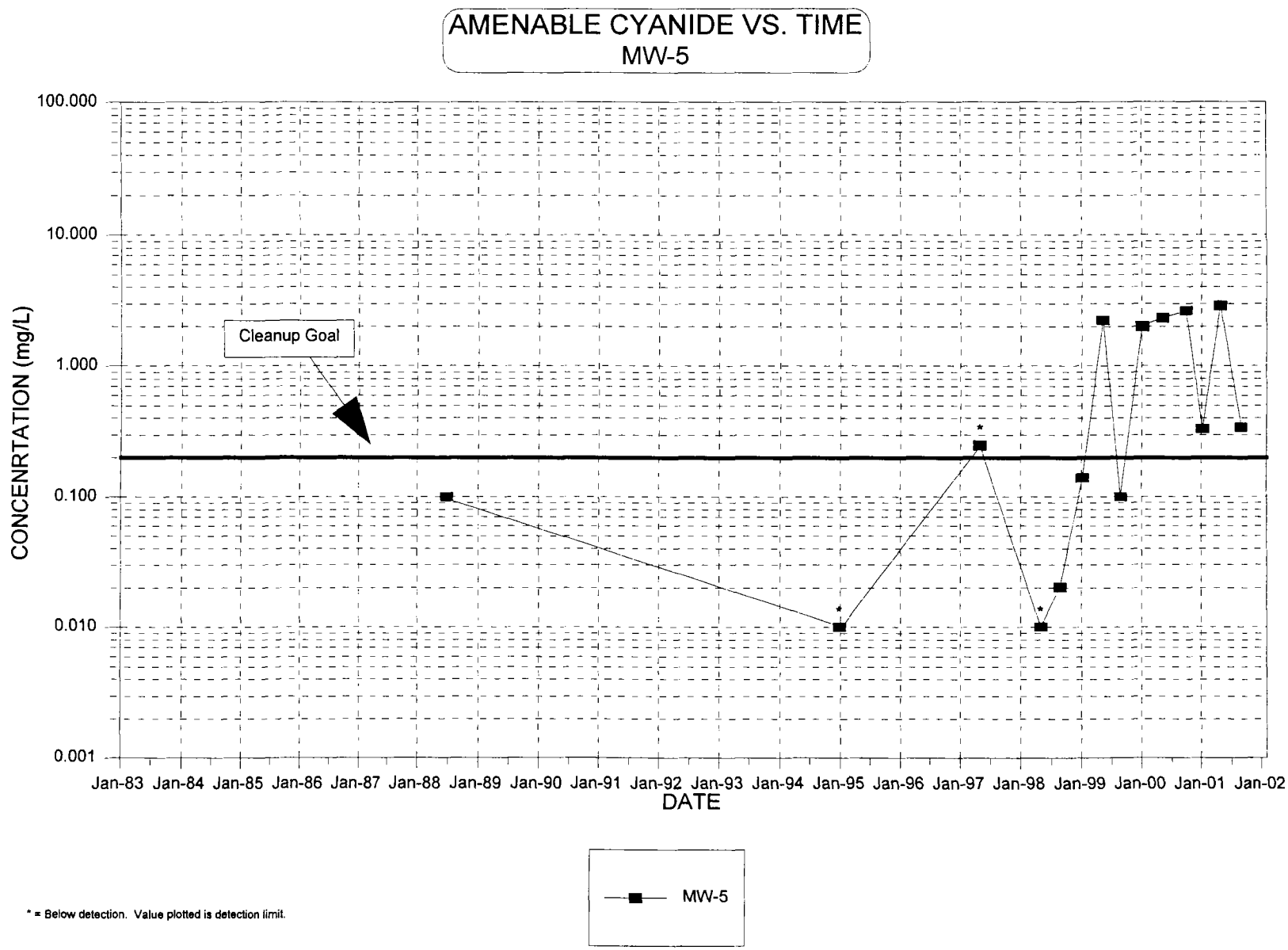
* = Below detection. Value plotted is detection limit.

APPENDIX D-2

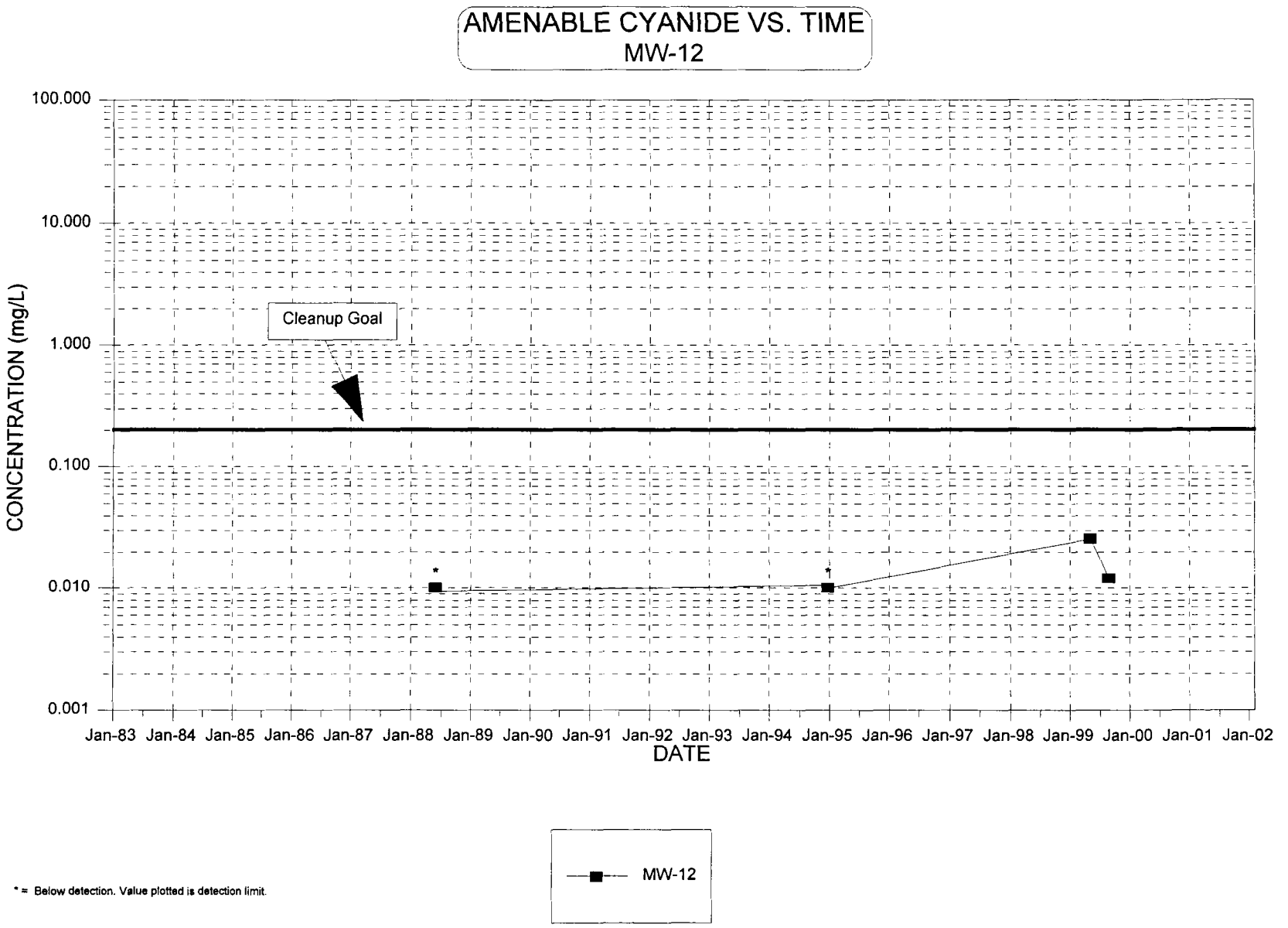
CYANIDE AMENABLE TO CHLORINATION

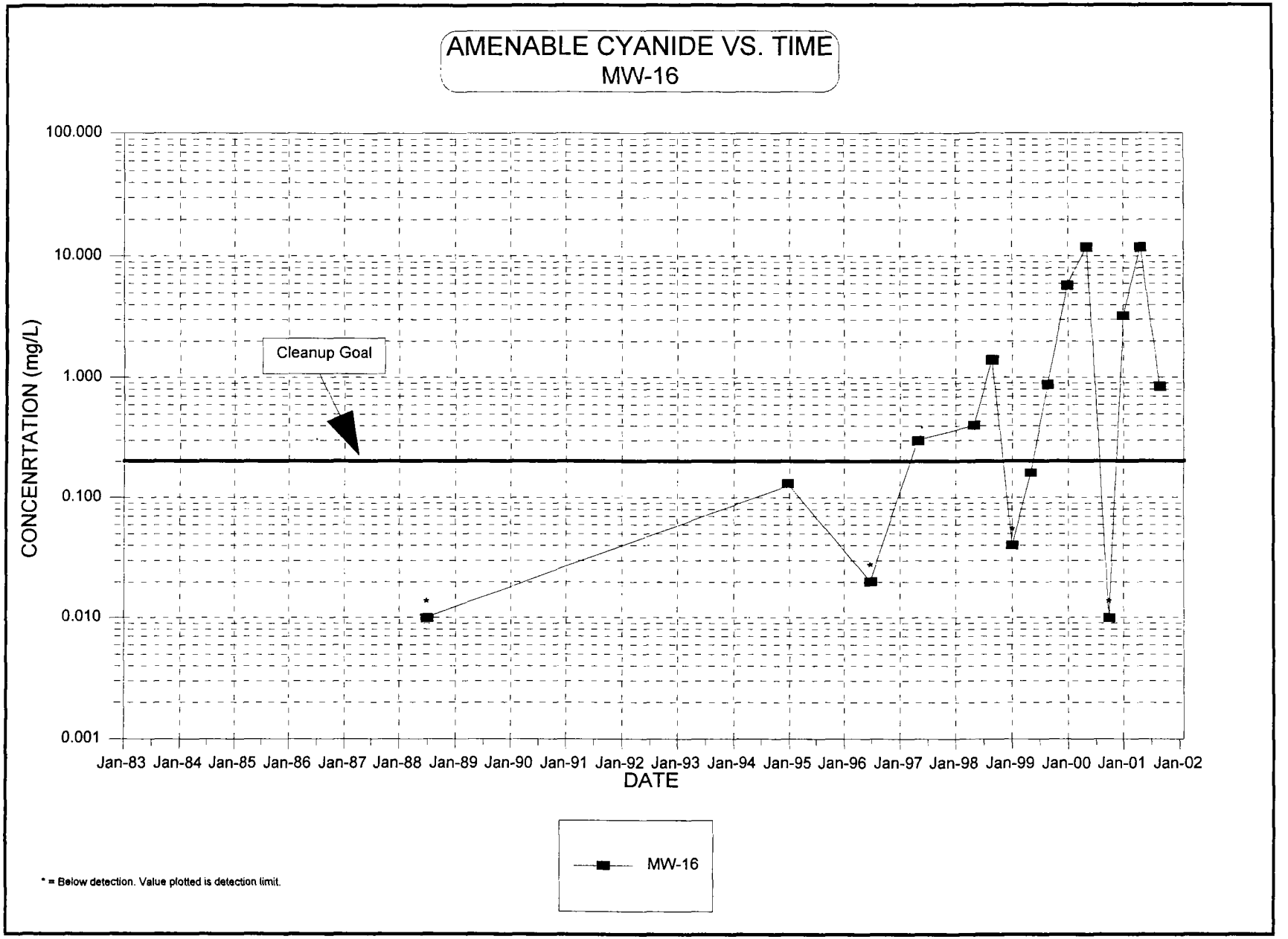


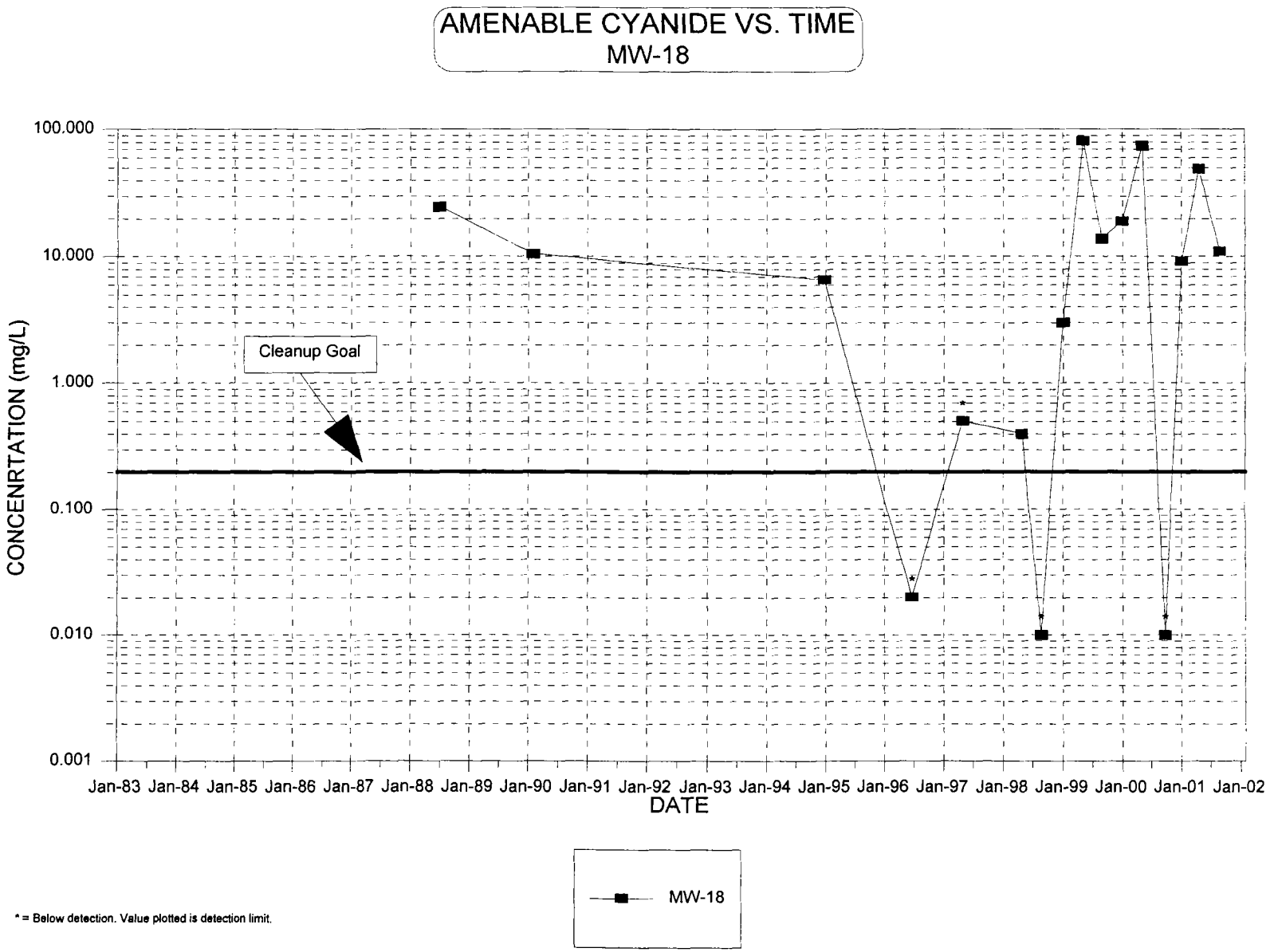
* = Below detection. Value plotted is detection limit.

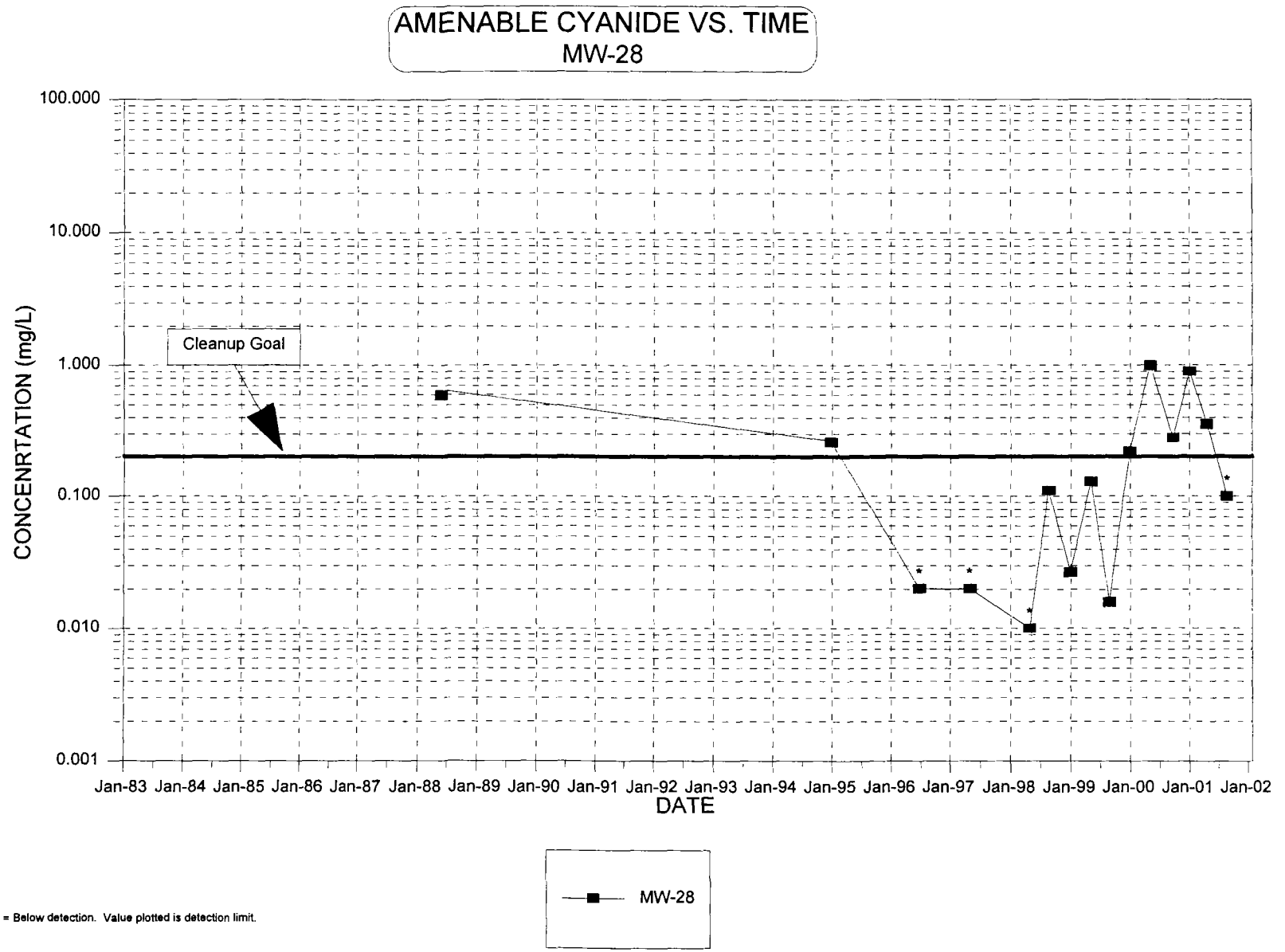


* = Below detection. Value plotted is detection limit.

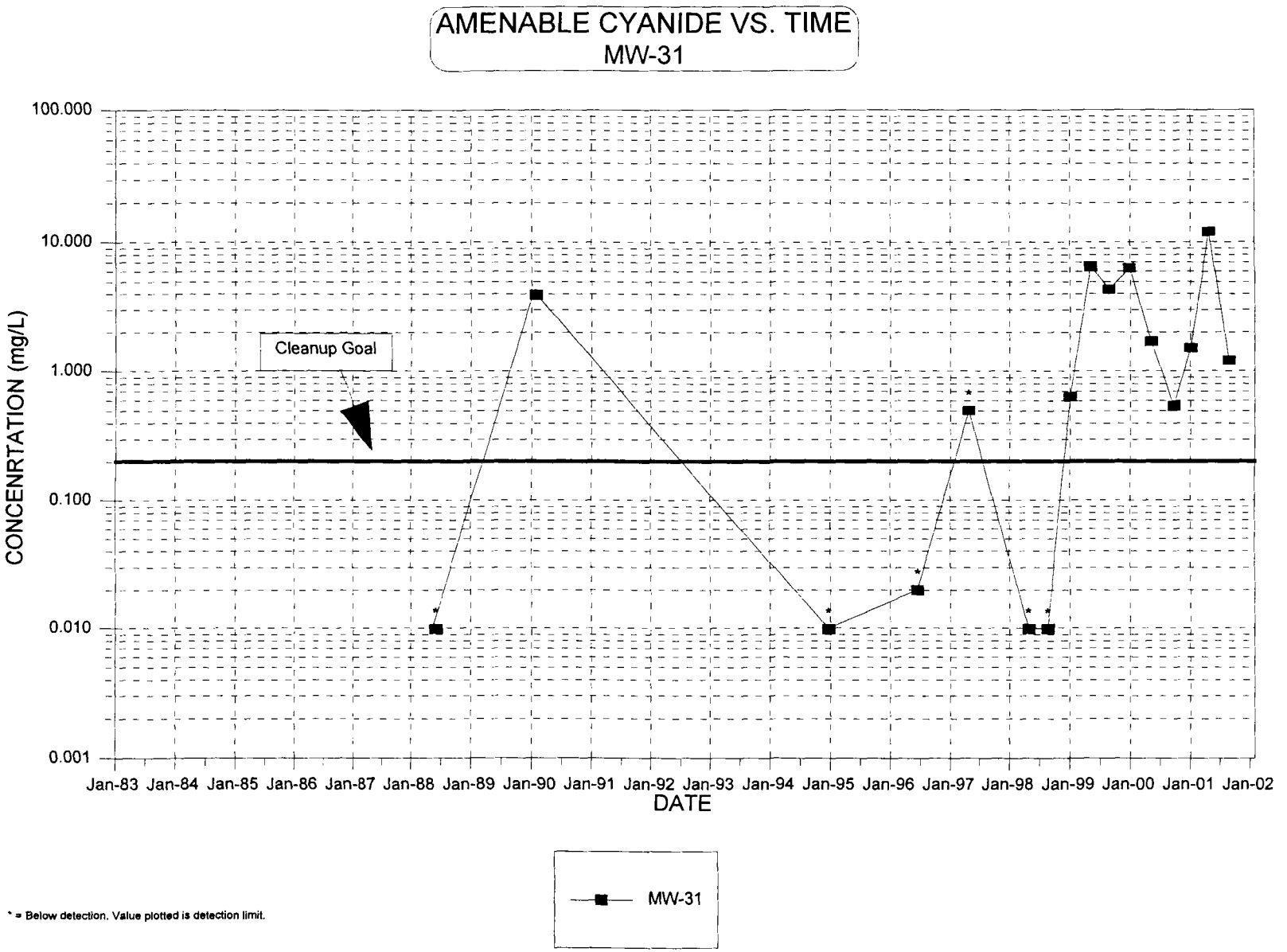

AMENABLE CYANIDE VS. TIME
MW-12
100.000
10.000
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-12
* = Below detection. Value plotted is detection 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
DATE
MW-16
* = Below detection. Value plotted is detection limit.

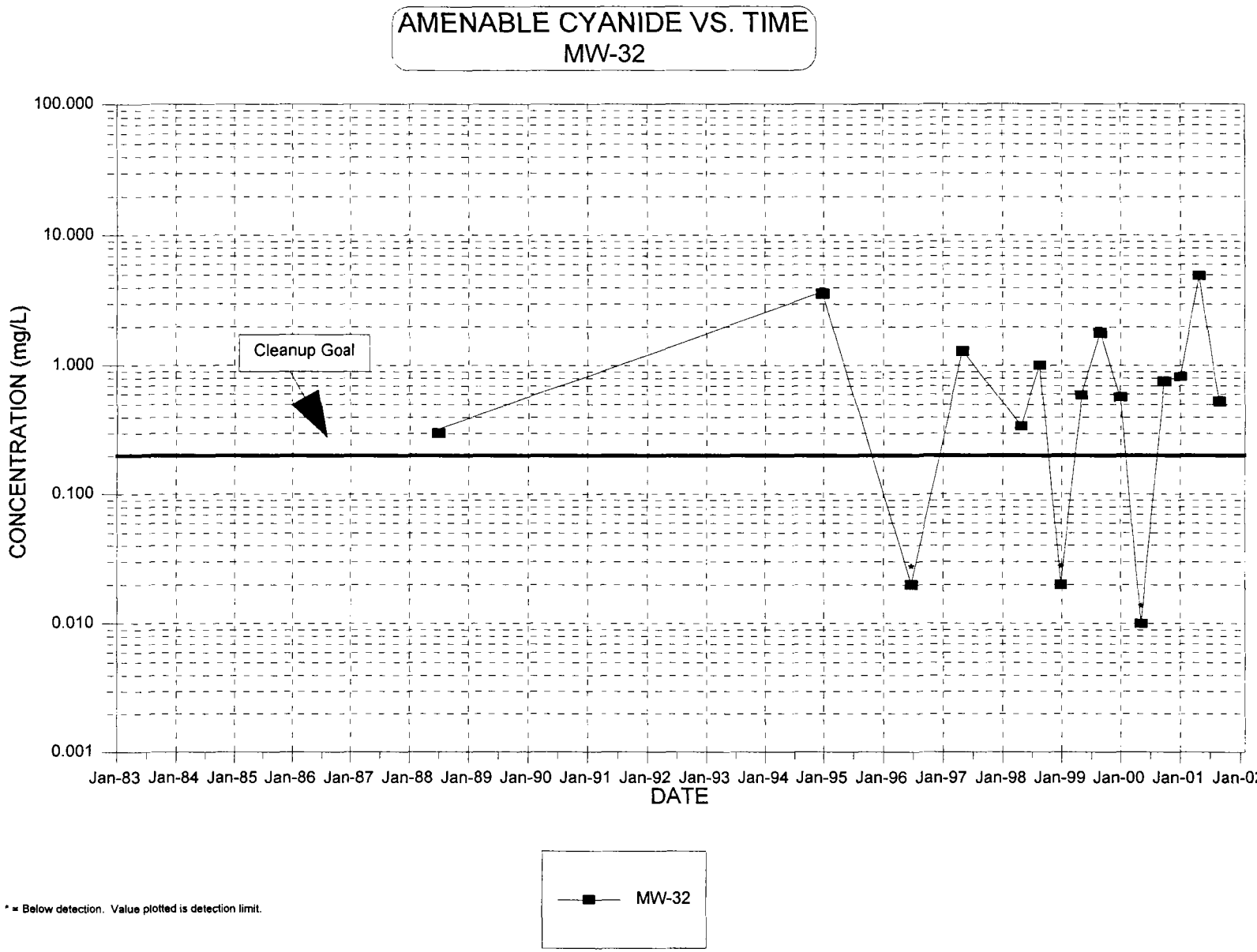

AMENABLE CYANIDE VS. TIME
MW-18
100.000
10.000
1.000
0.100
0.010
0.001
CONCENRTATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-18
* = Below detection. Value plotted is detection limit.



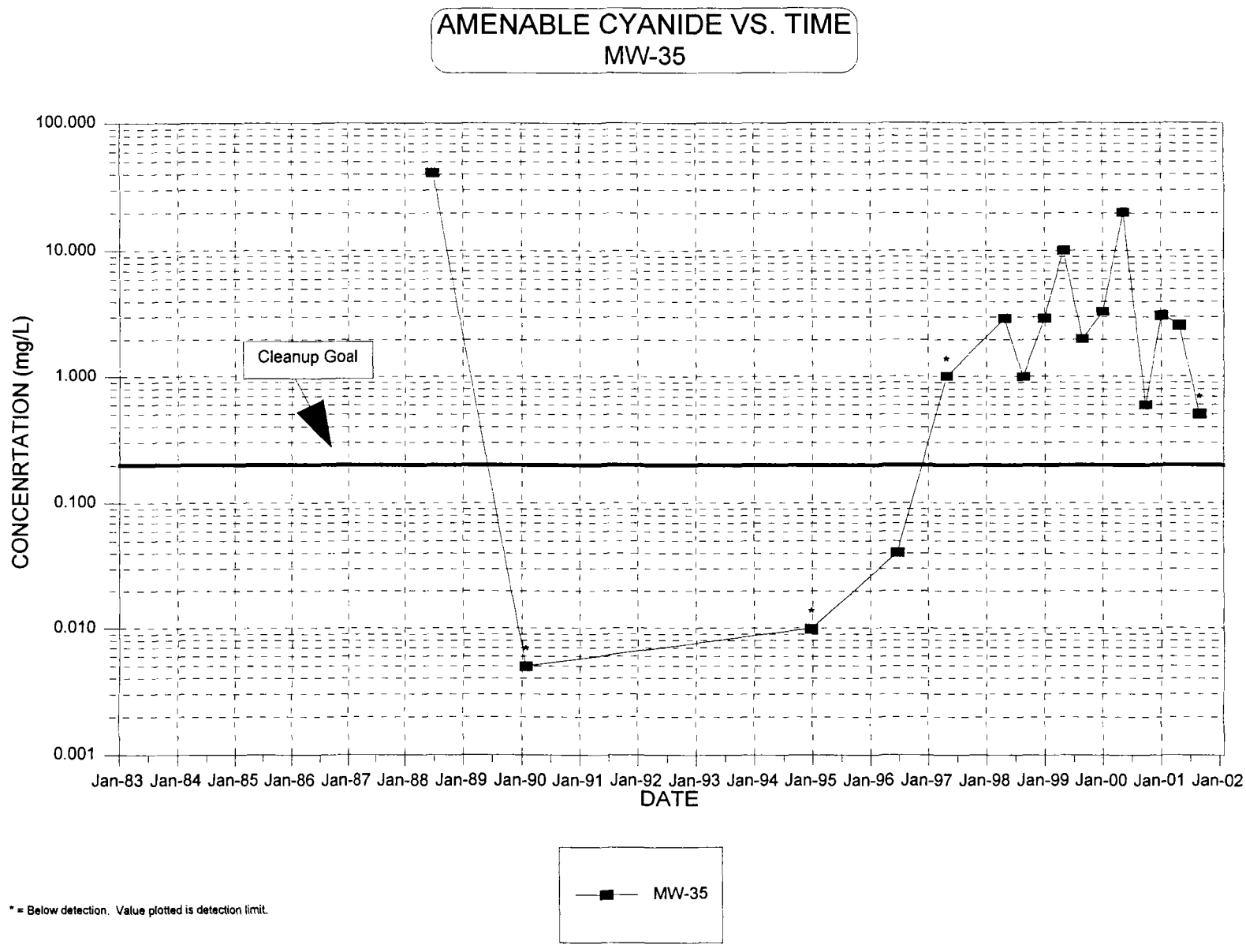
* = Below detection. Value plotted is detection limit.



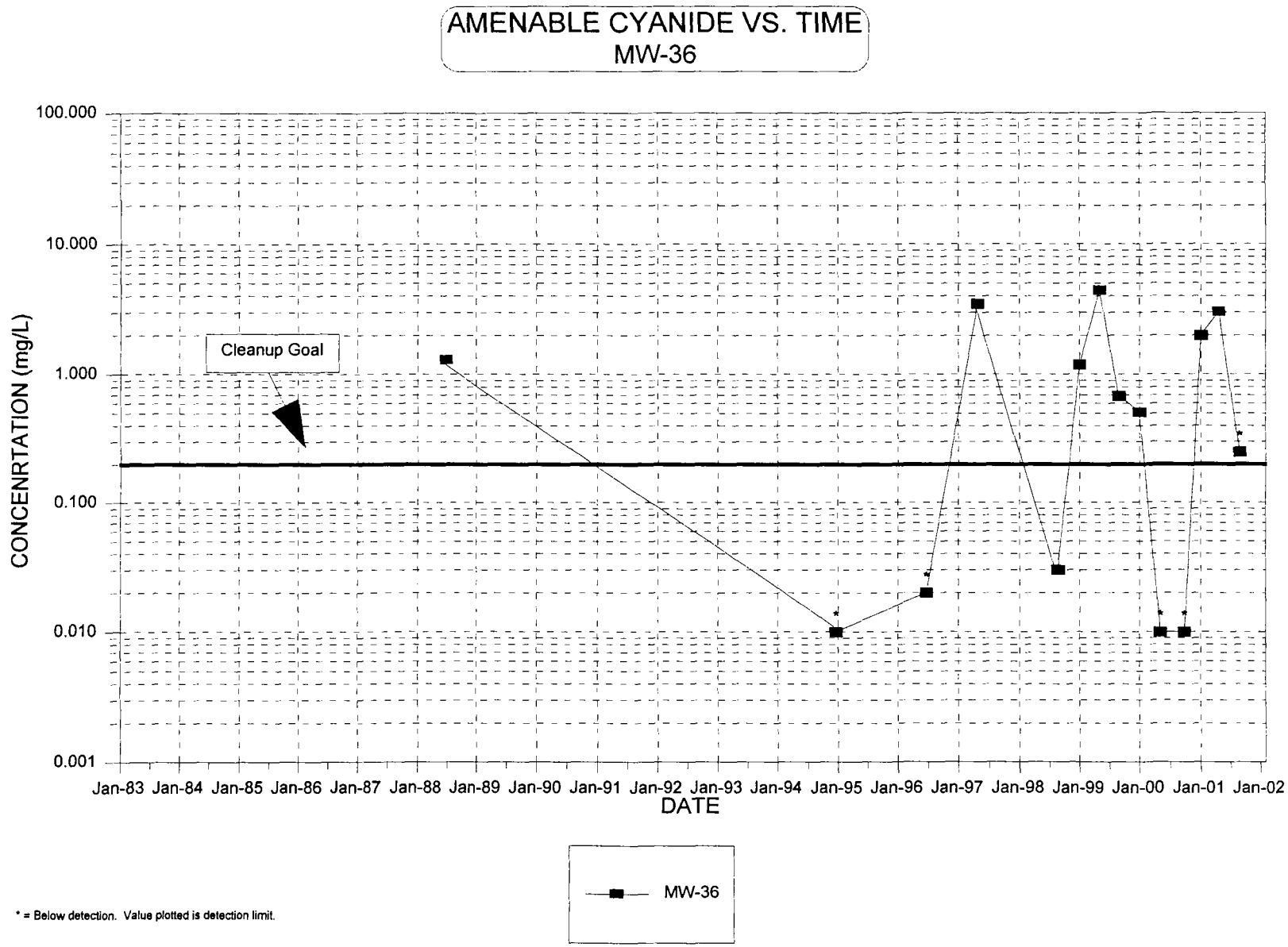
* = Below detection. Value plotted is detection limit.



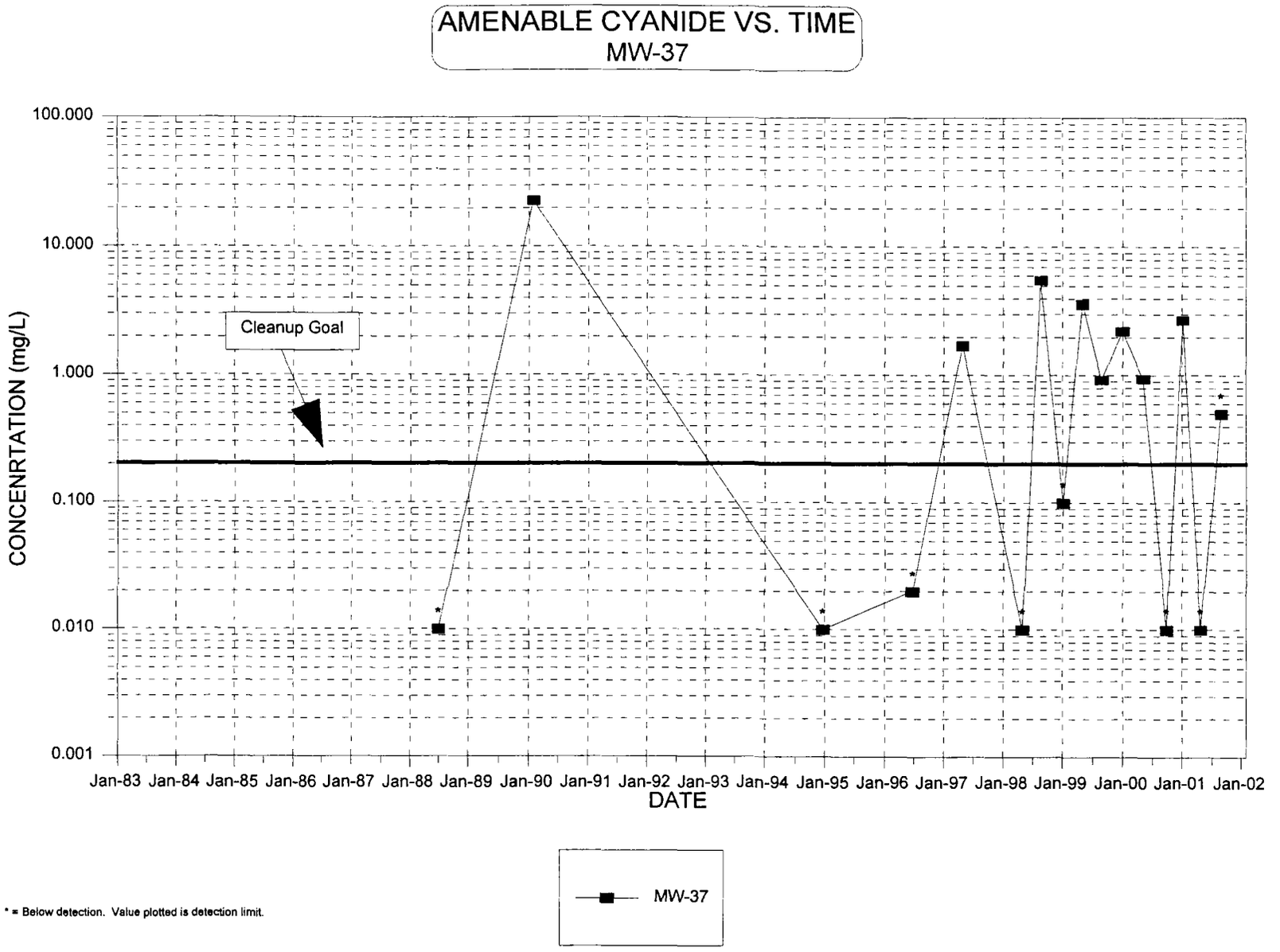
* = Below detection. Value plotted is detection limit.



* = Below detection. Value plotted is detection limit.

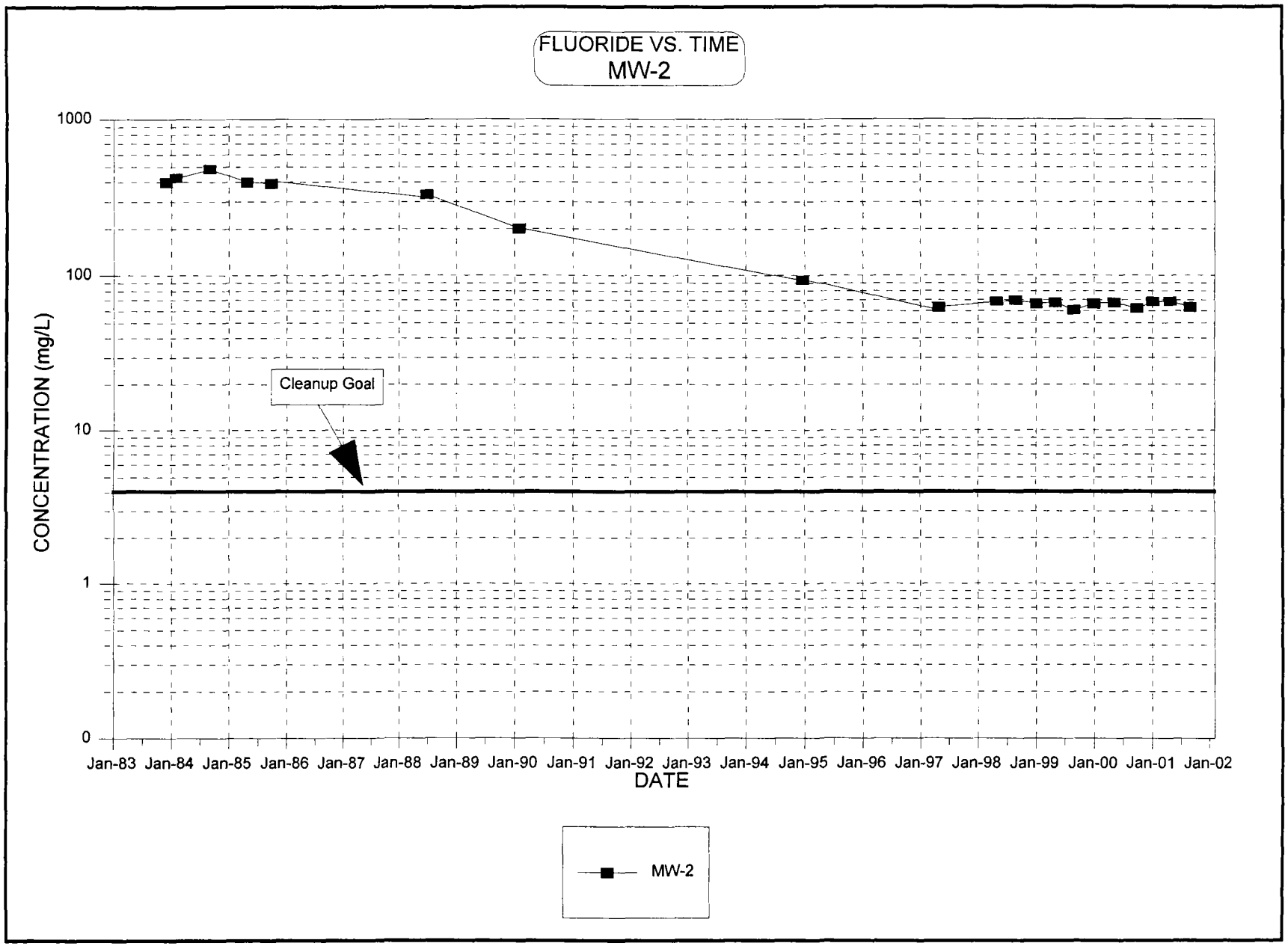


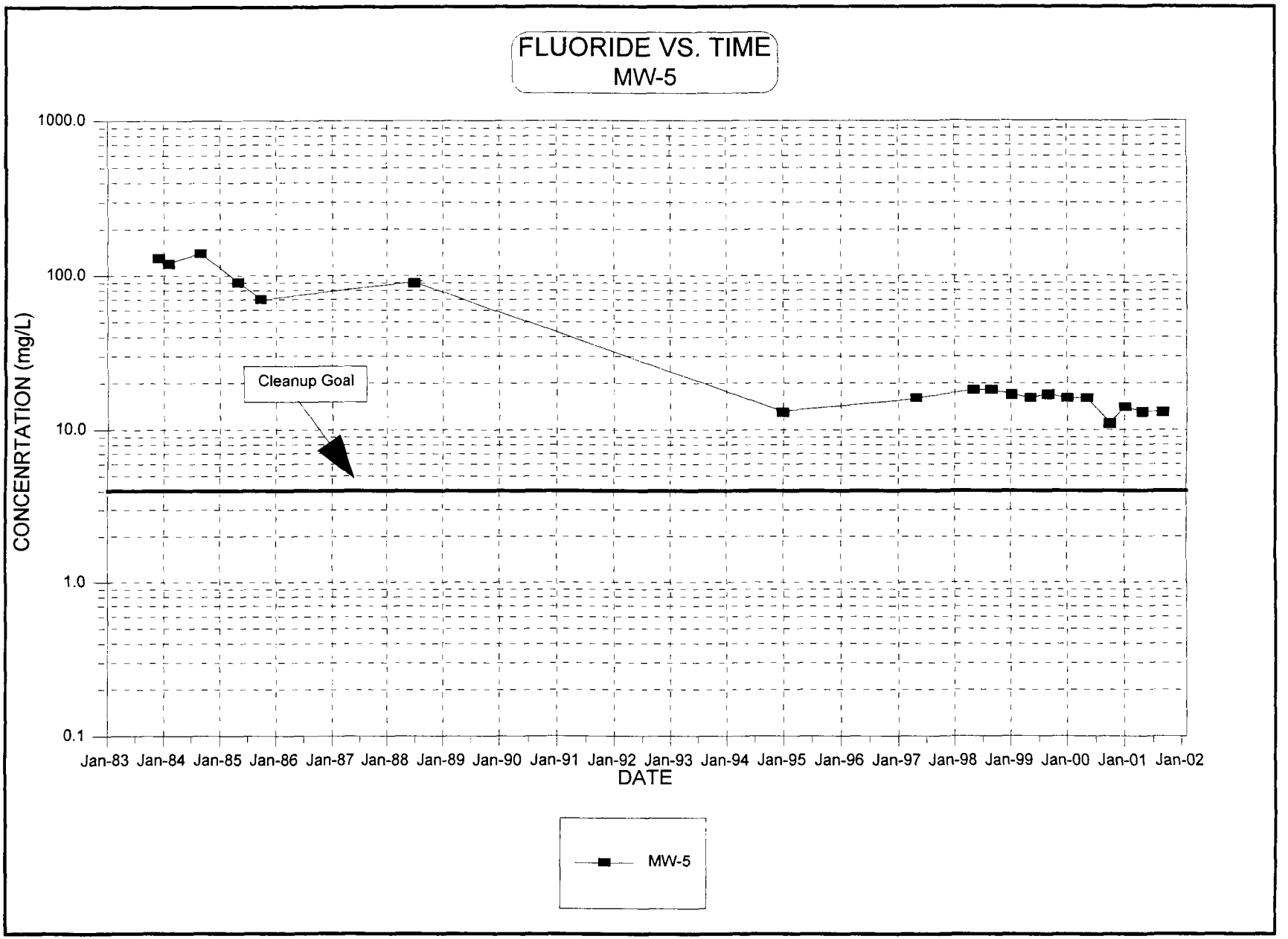
* = Below detection. Value plotted is detection limit.

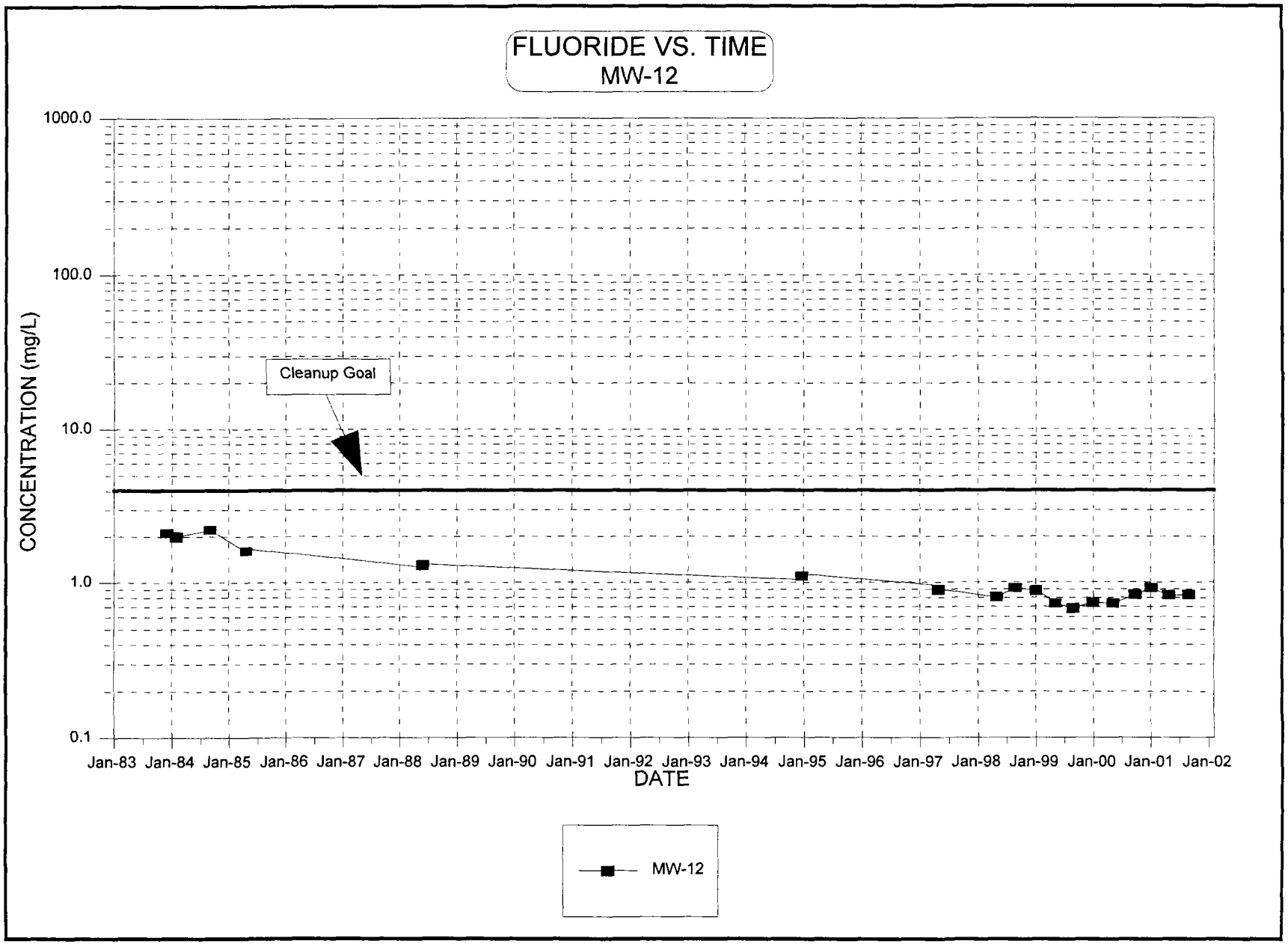

AMENABLE CYANIDE VS. TIME
MW-37
100.000
10.000
1.000
0.100
0.010
0.001
CONCENRTATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-37
* = Below detection. Value plotted is detection limit.

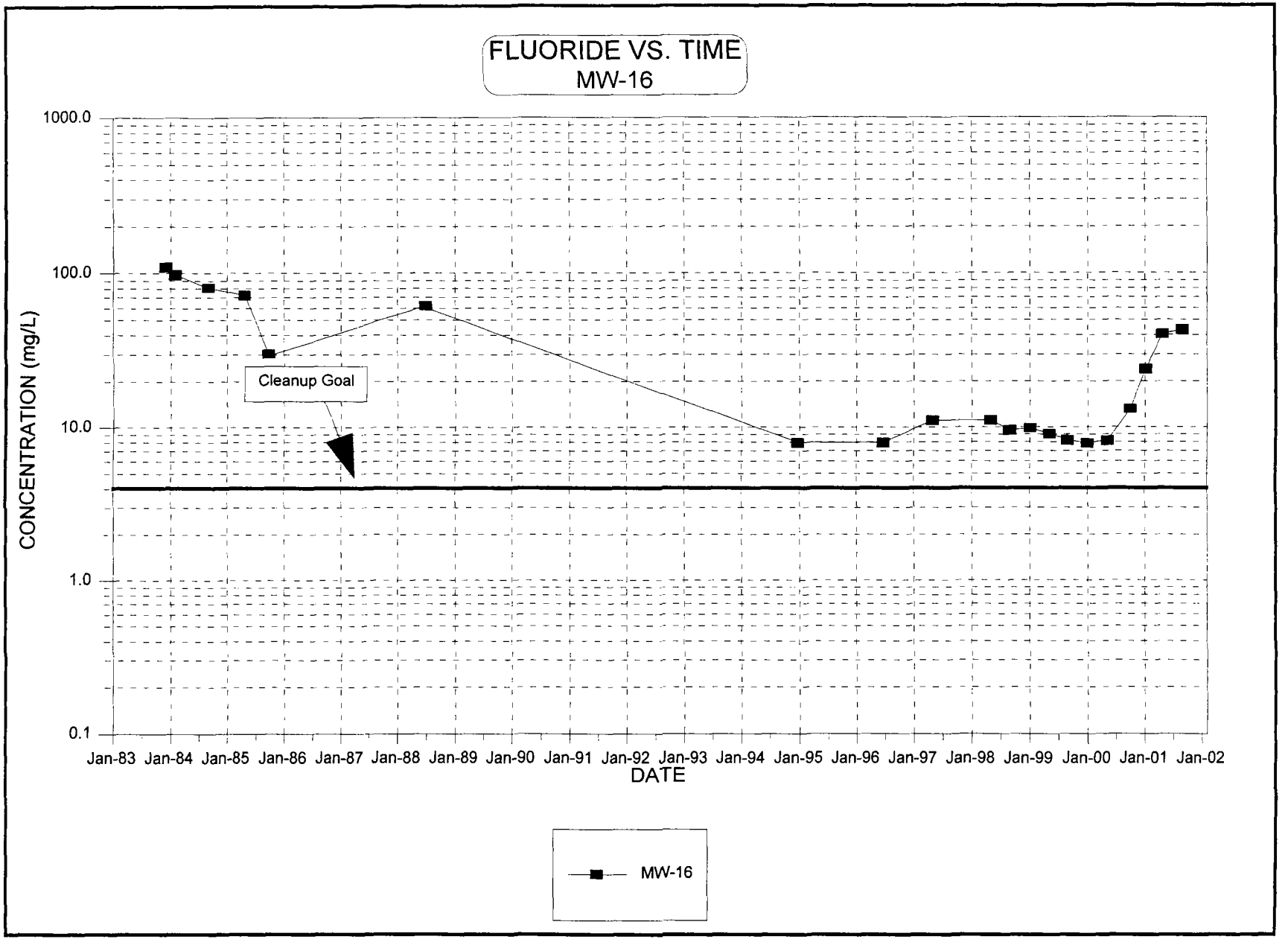
APPENDIX D-3

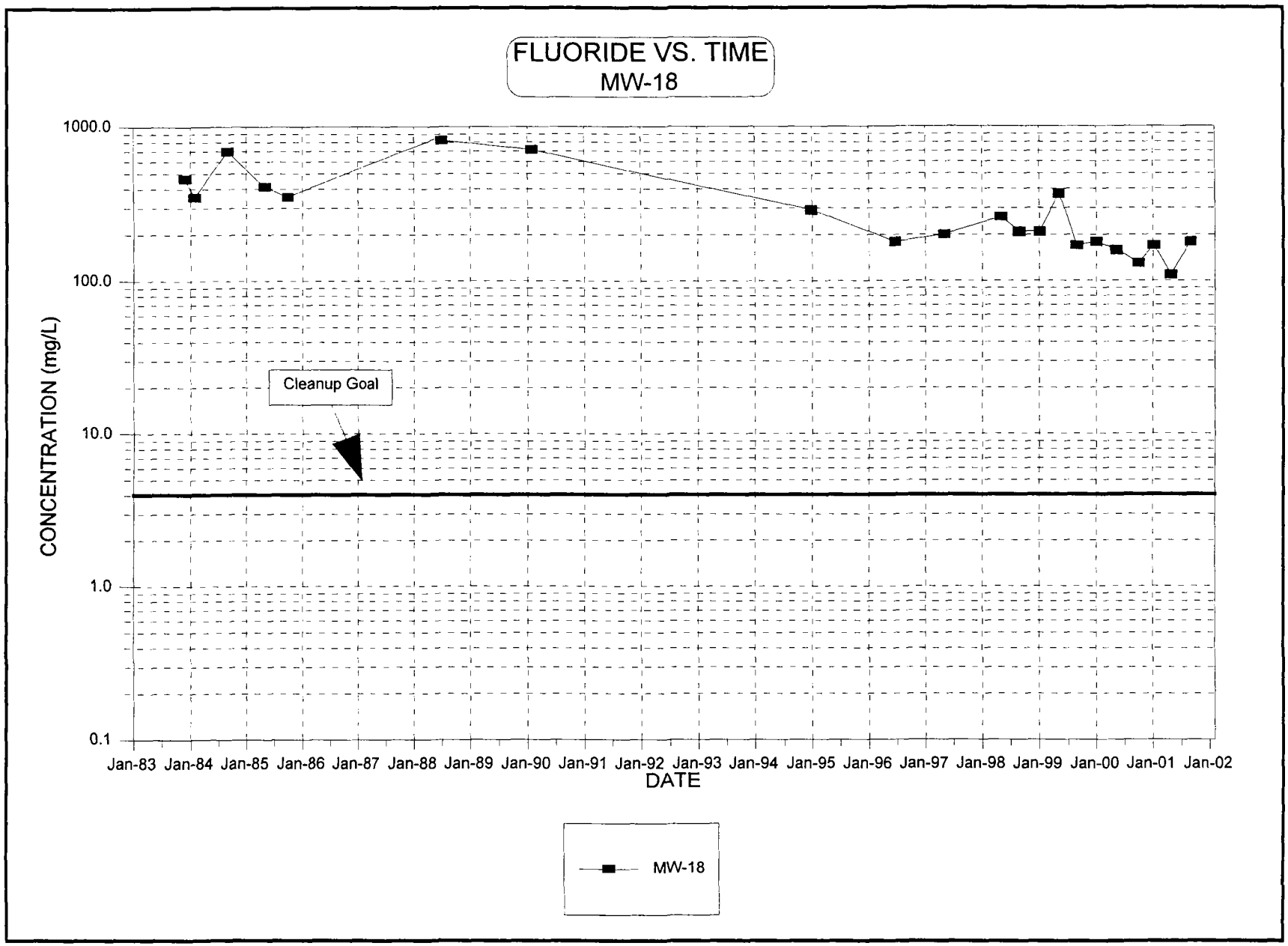
FLUORIDE

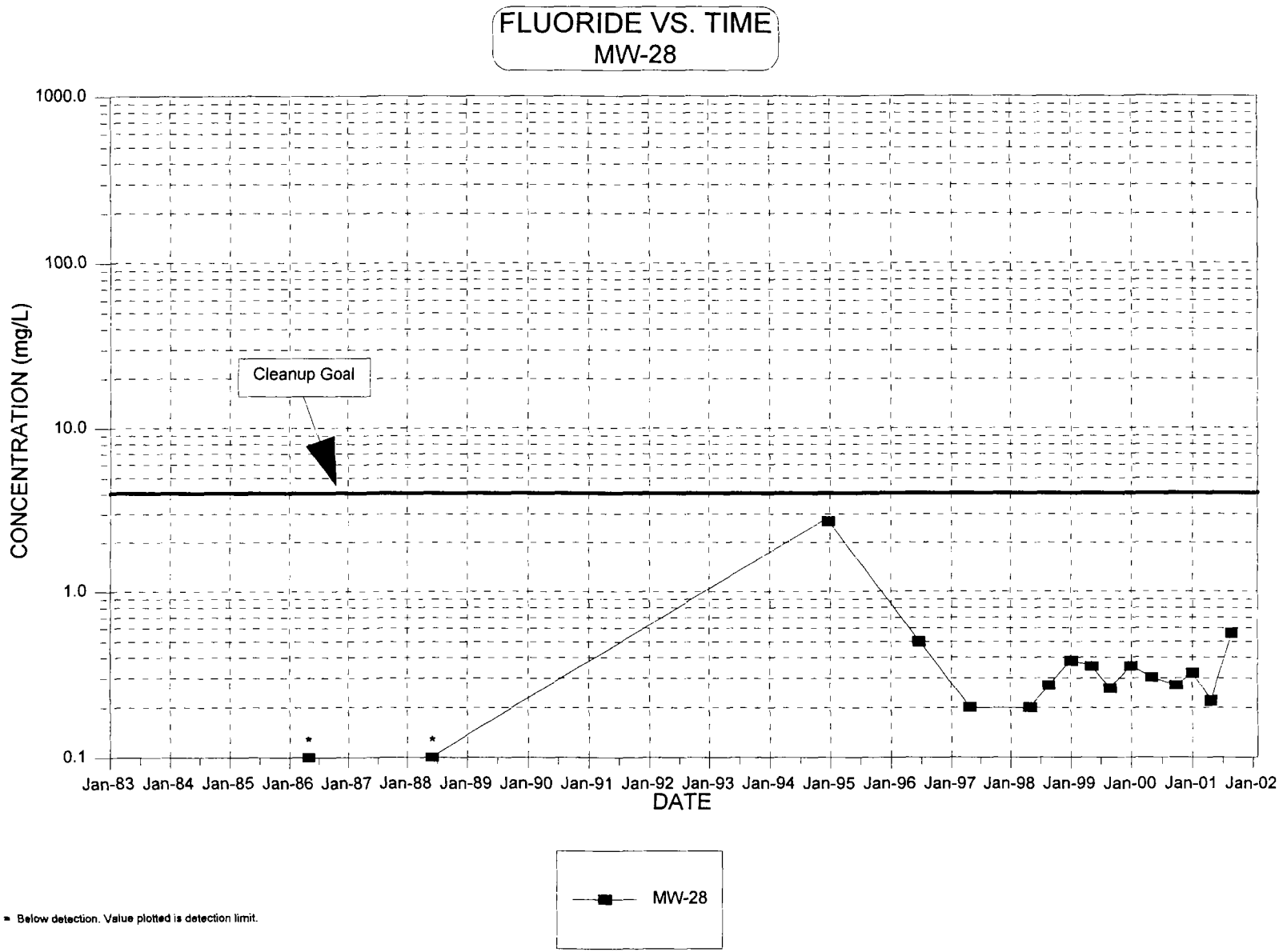

FLUORIDE VS. TIME
MW-2
1000
100
10
1
0
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-2


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
DATE
MW-5

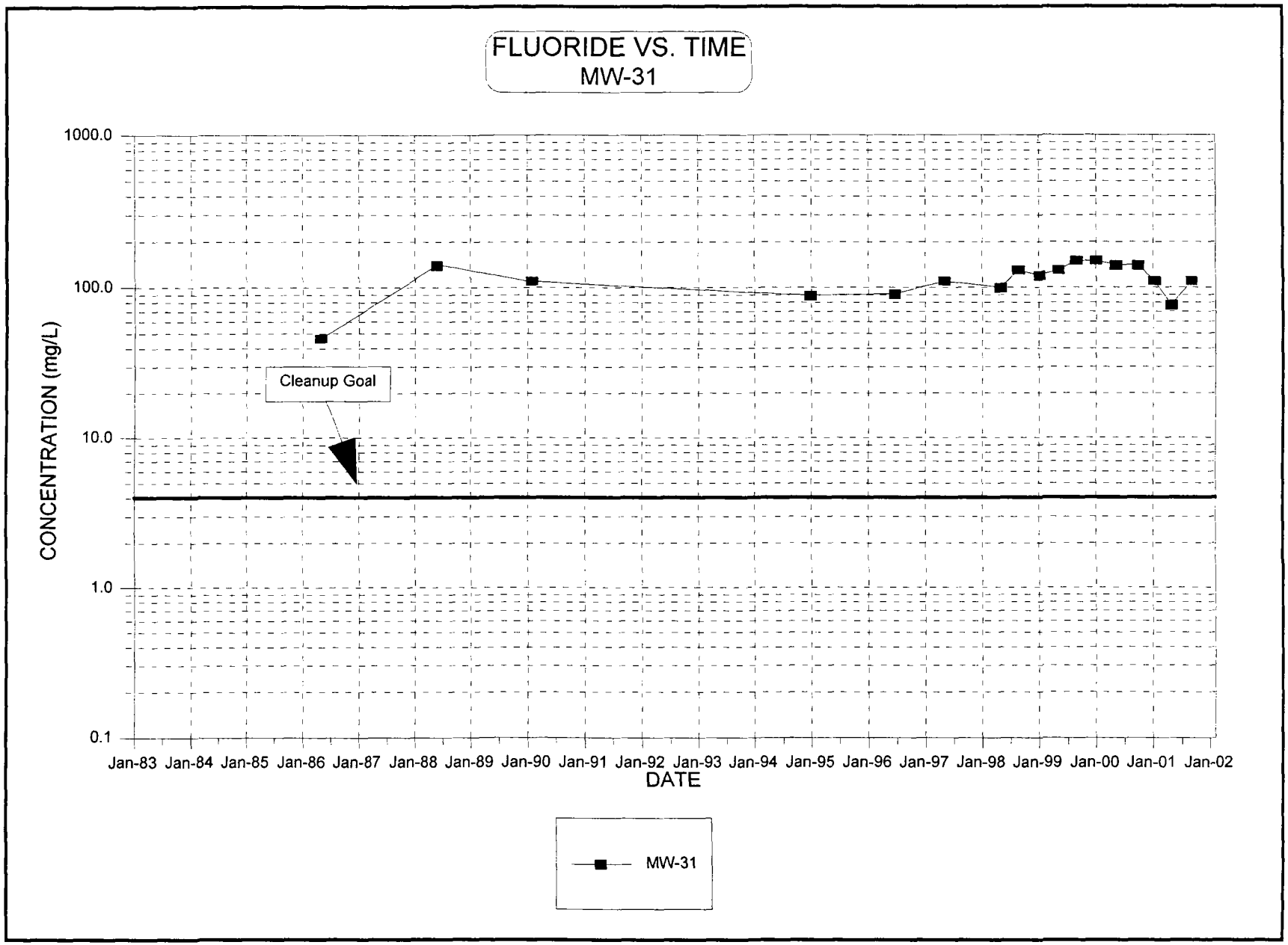

FLUORIDE VS. TIME
MW-12
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
DATE
MW-12

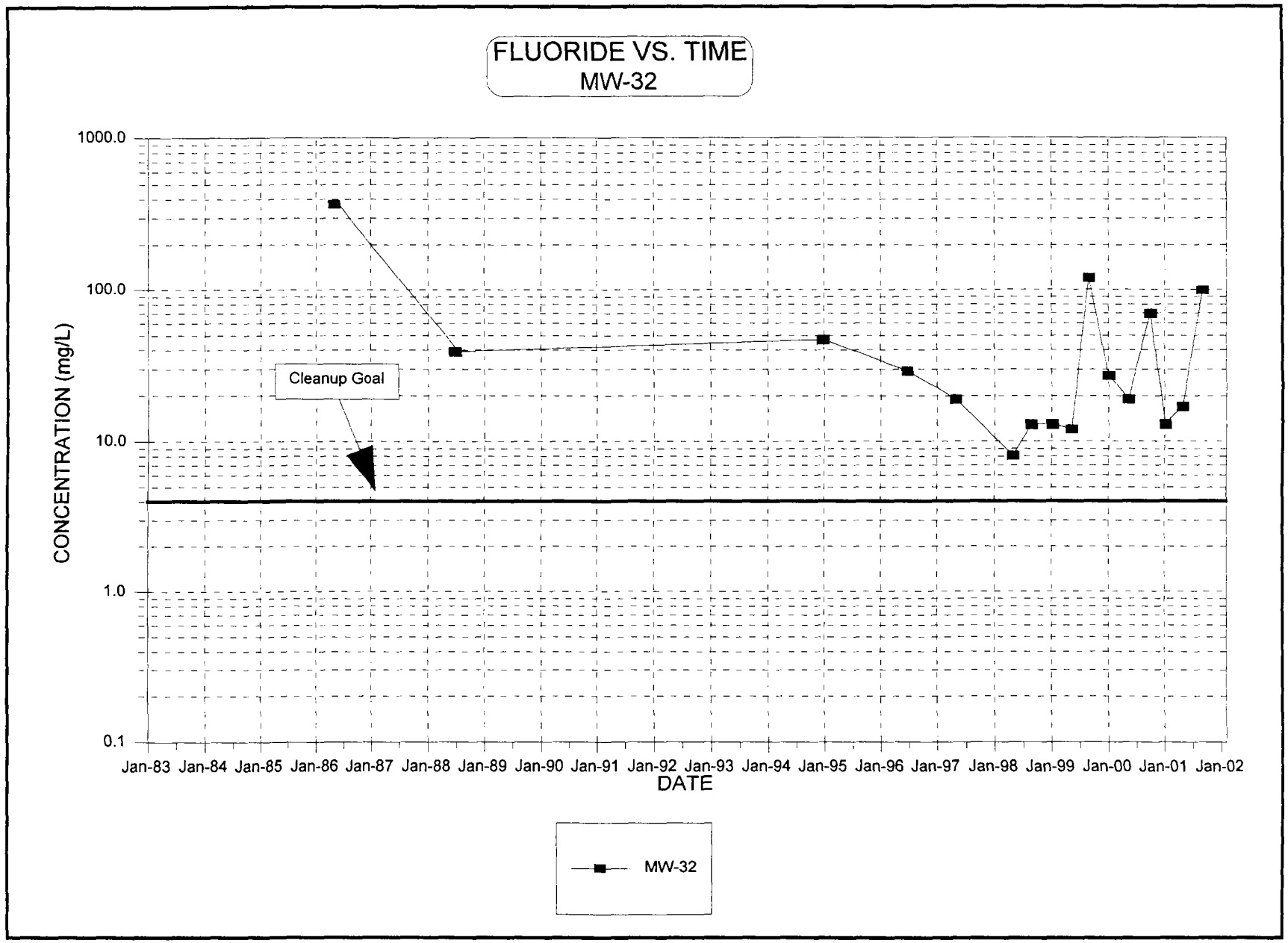

FLUORIDE VS. TIME
MW-16
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-16

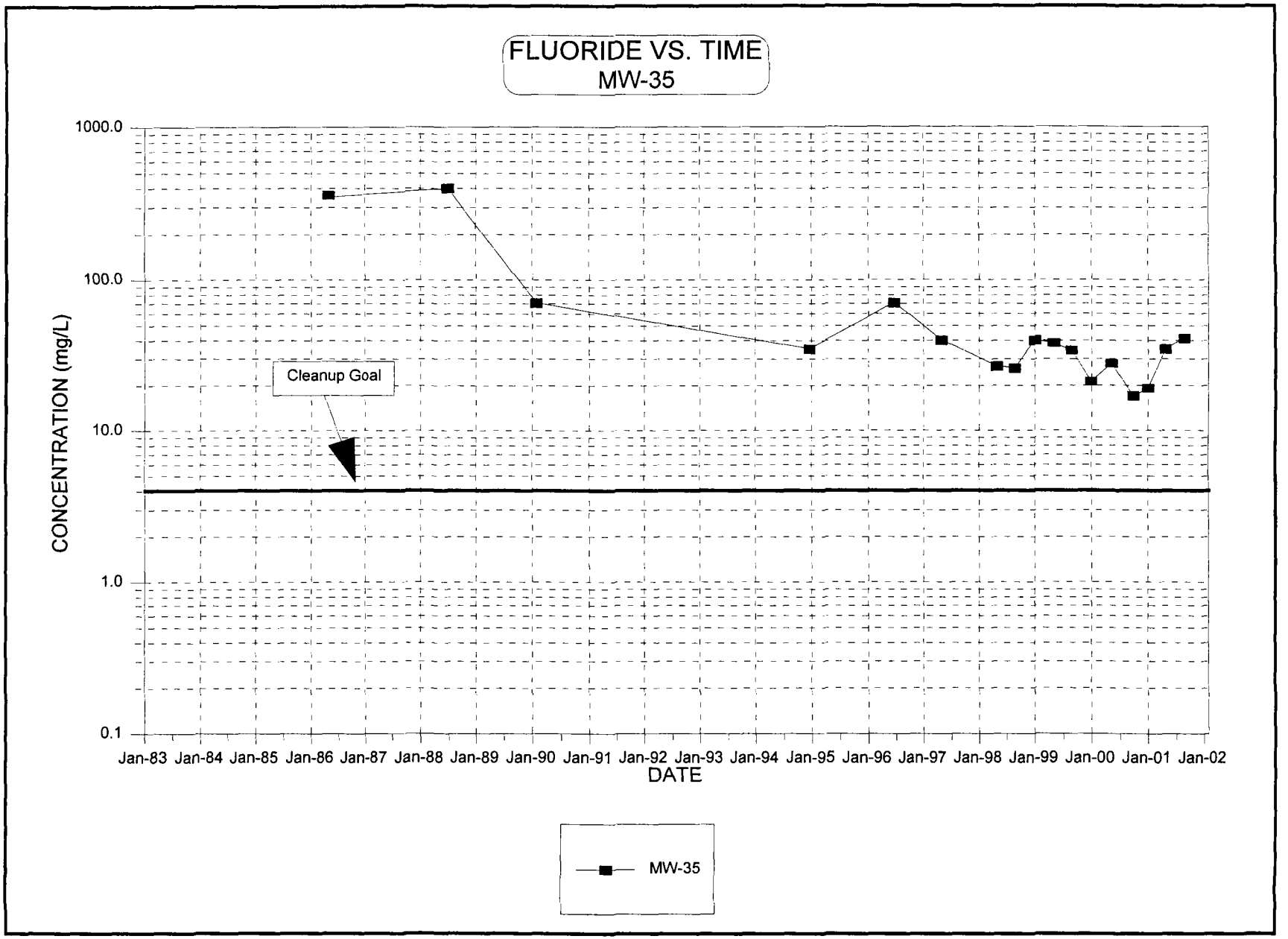

FLUORIDE VS. TIME
MW-18
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-18

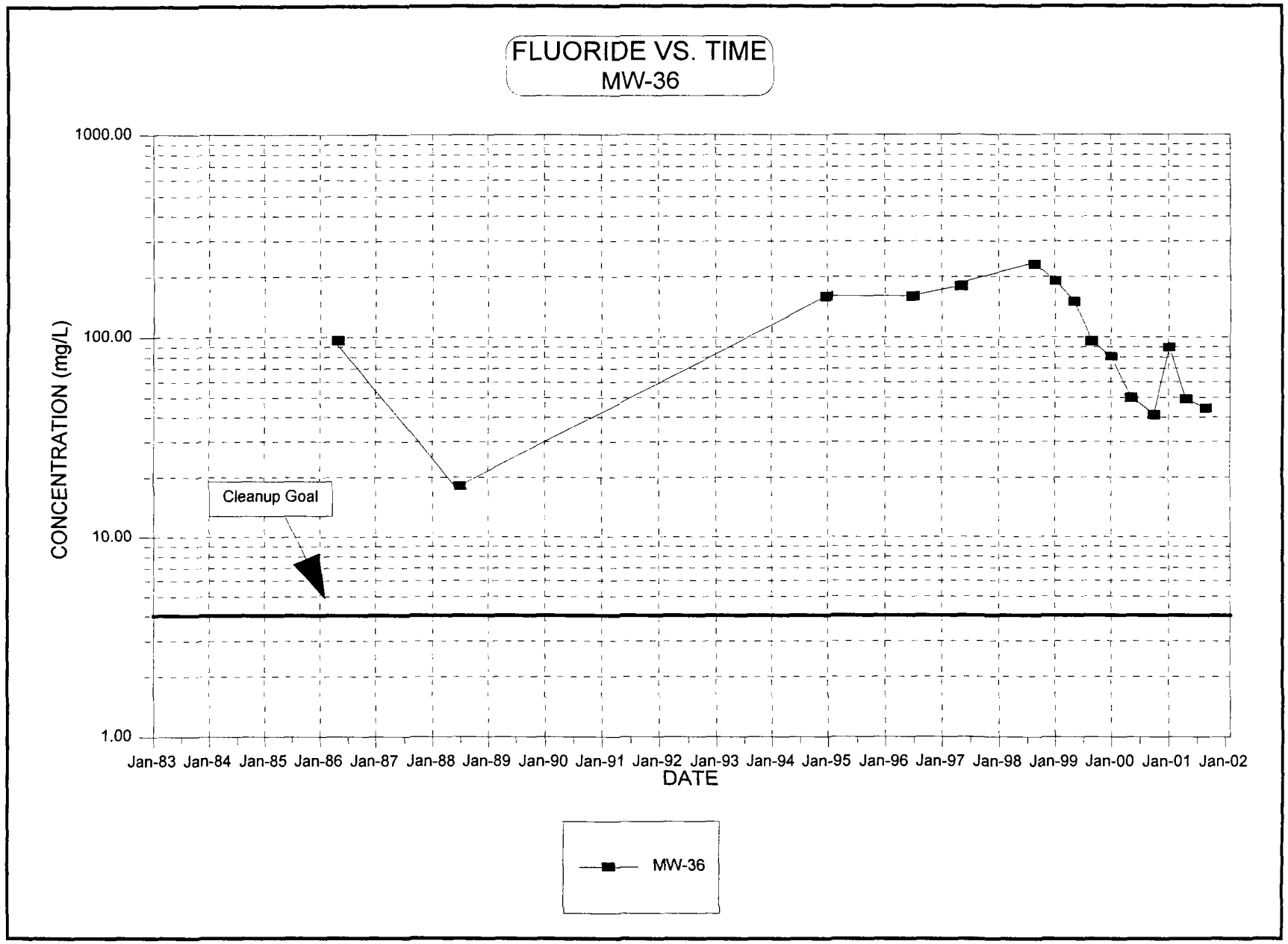


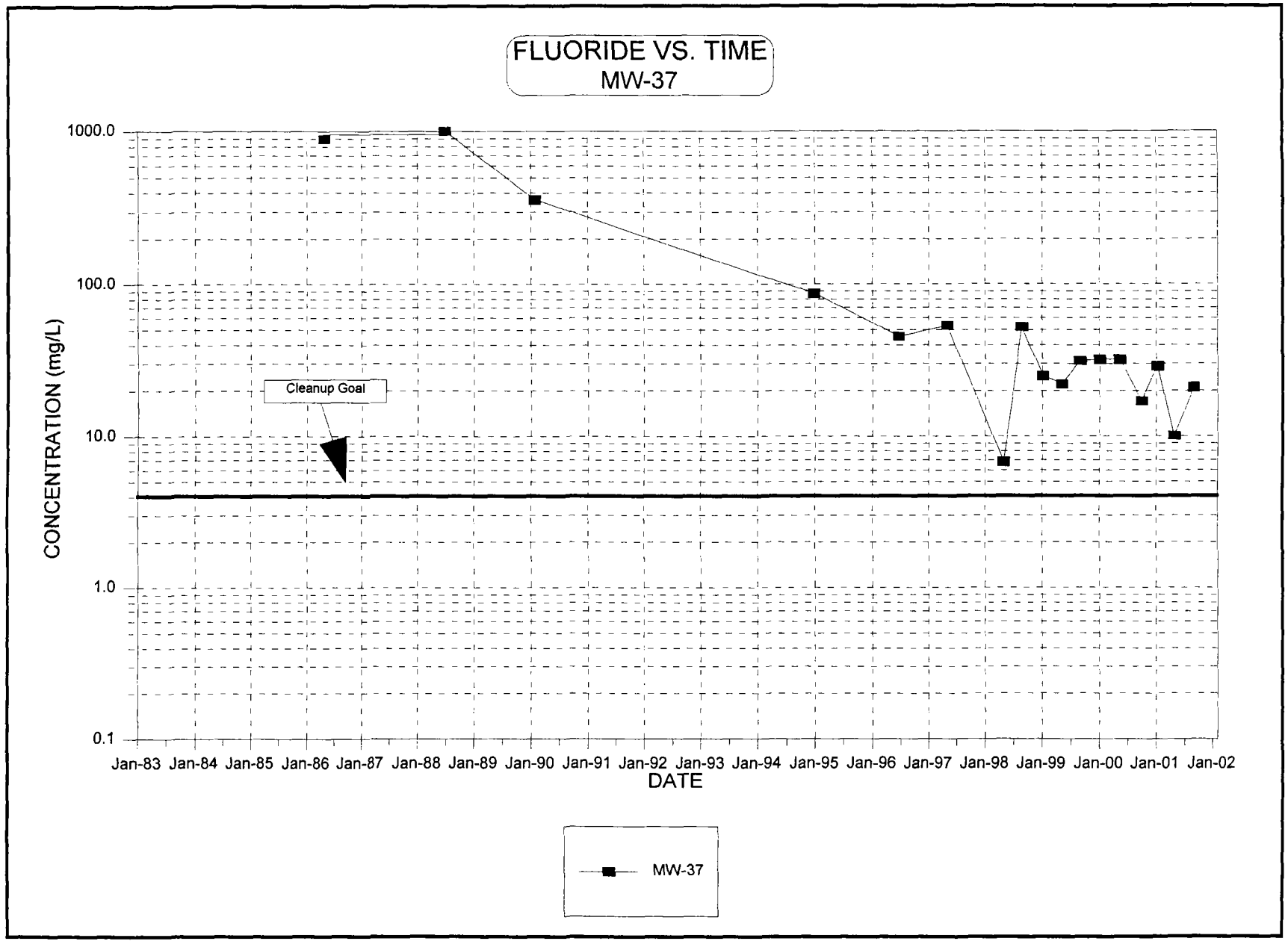
* = Below detection. Value plotted is detection limit.


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
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
DATE
MW-32

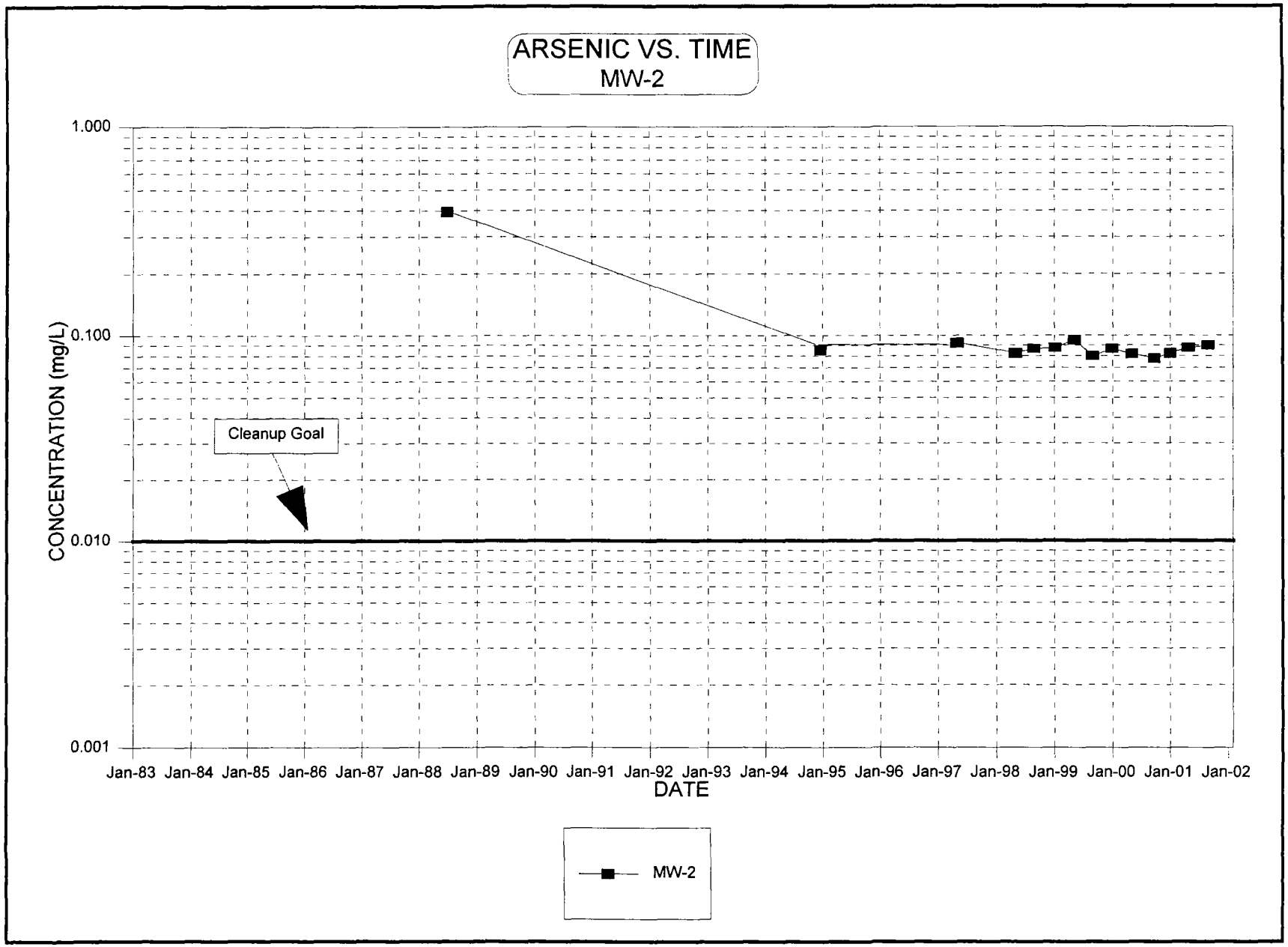

FLUORIDE VS. TIME
MW-35
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-35

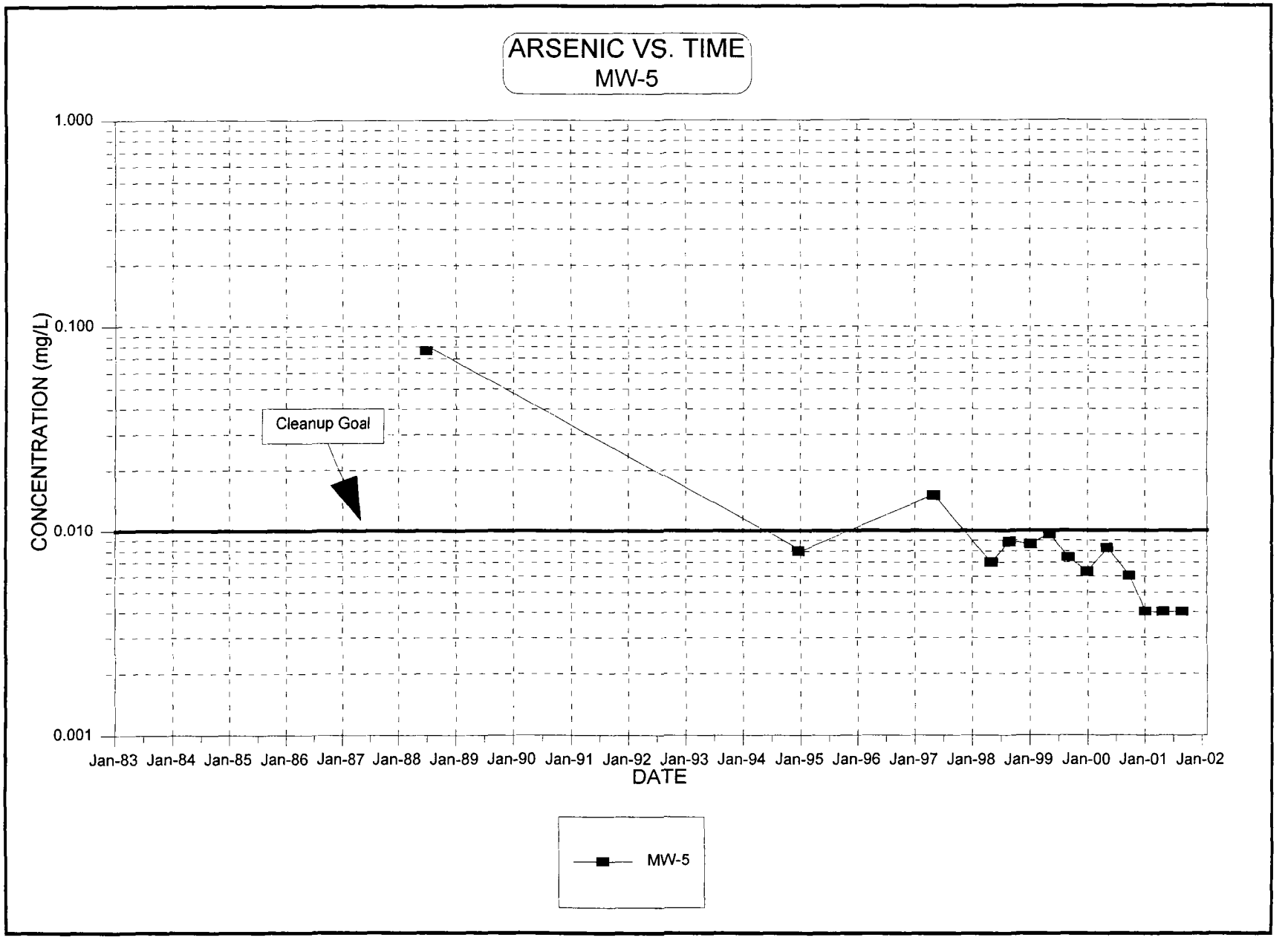

FLUORIDE VS. TIME
MW-36
1000.00
100.00
10.00
1.00
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-36

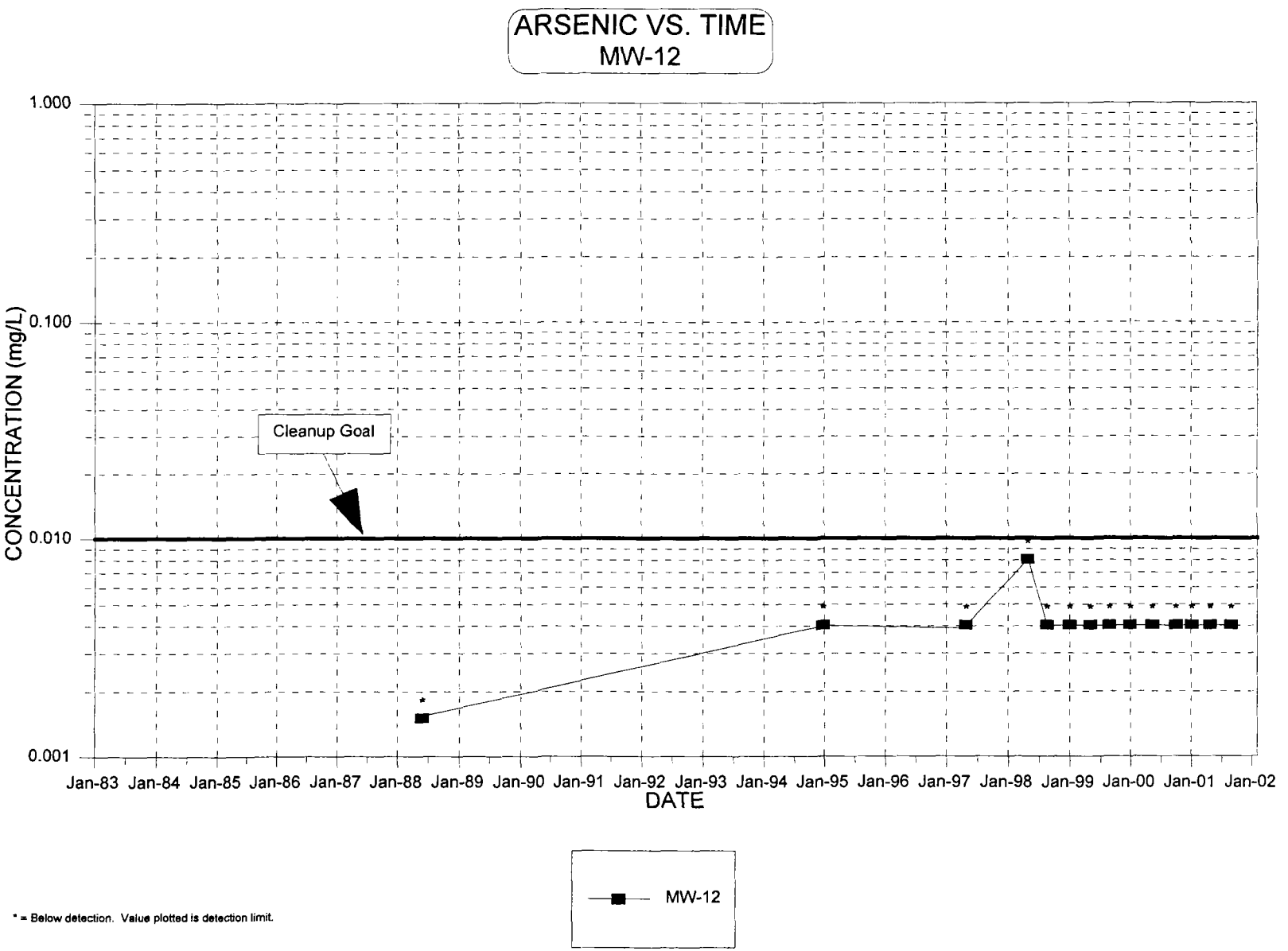

FLUORIDE VS. TIME
MW-37
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-37

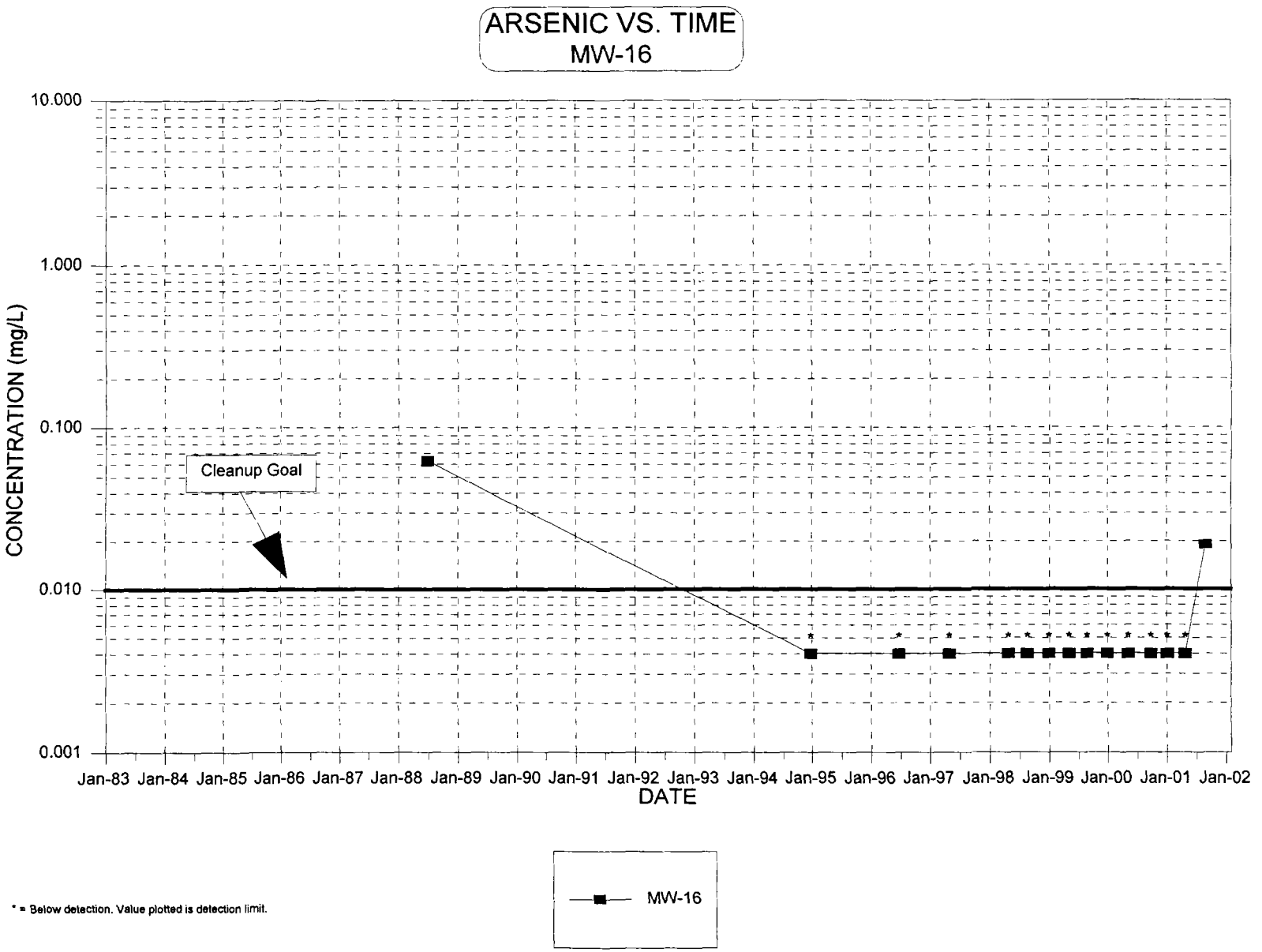
APPENDIX D-4

ARSENIC

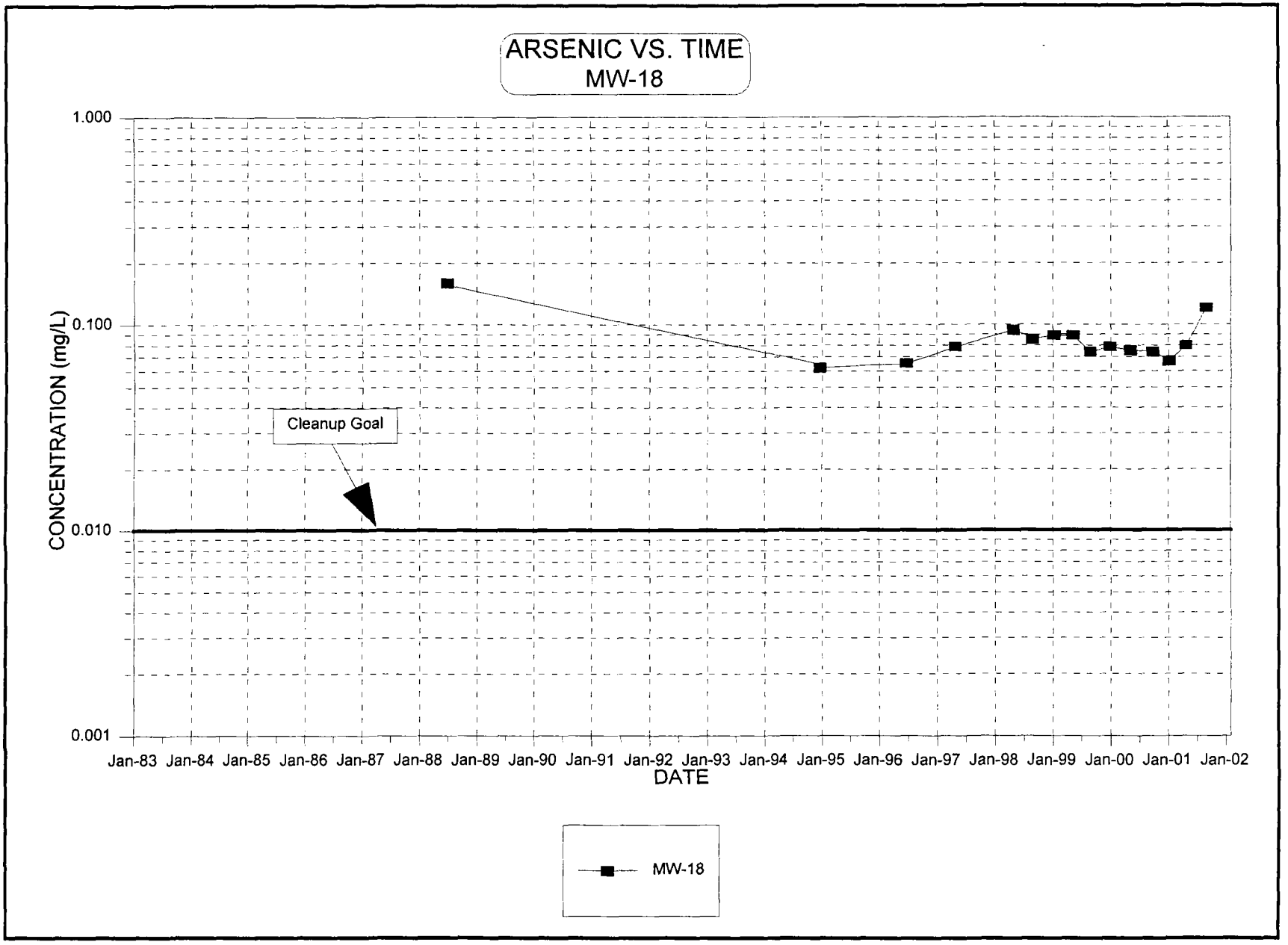

ARSENIC VS. TIME
MW-2
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
DATE
MW-2

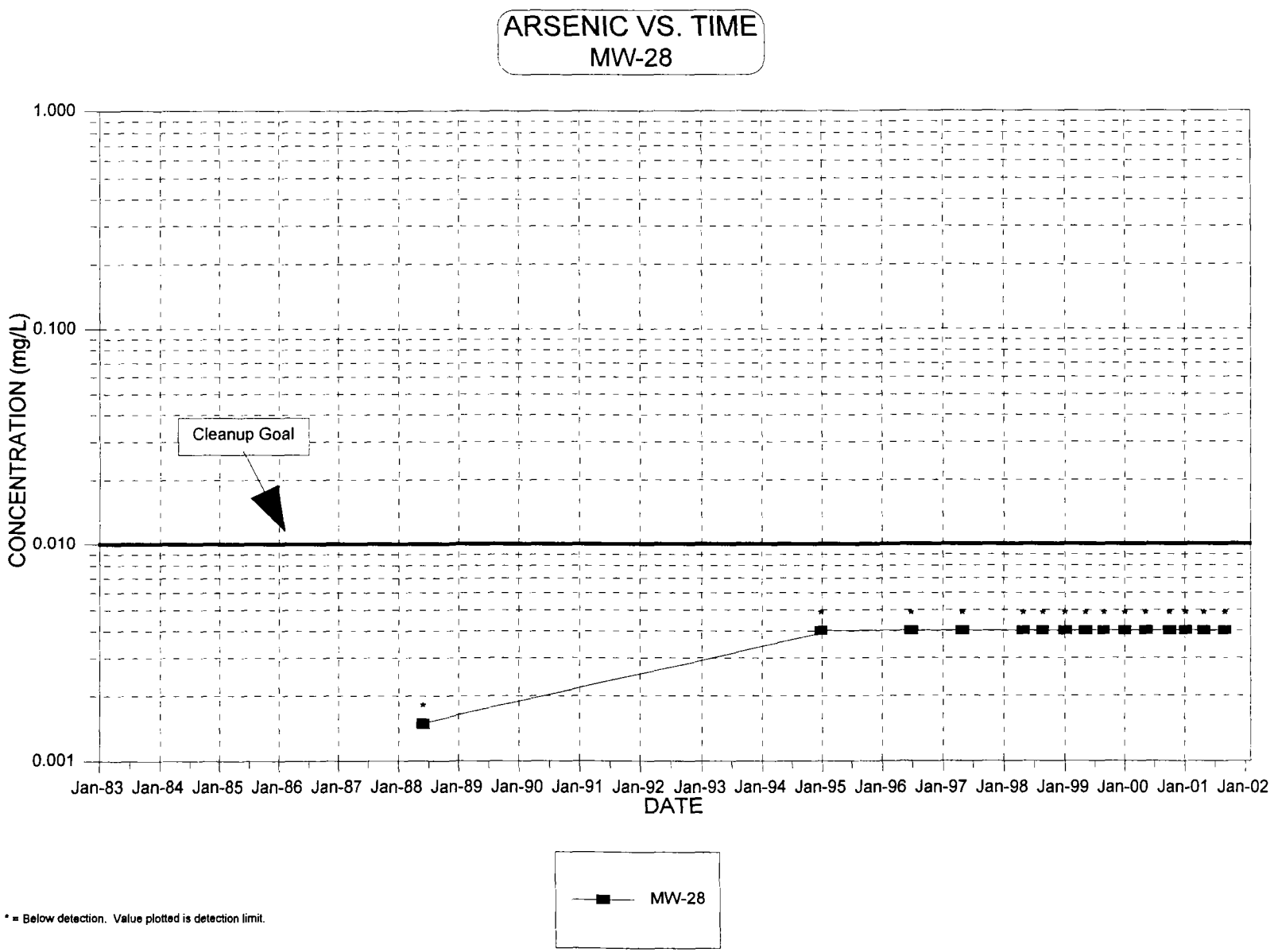

ARSENIC VS. TIME
MW-5
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
DATE
MW-5


ARSENIC VS. TIME
MW-12
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
DATE
MW-12
* = Below detection. Value plotted is detection limit.

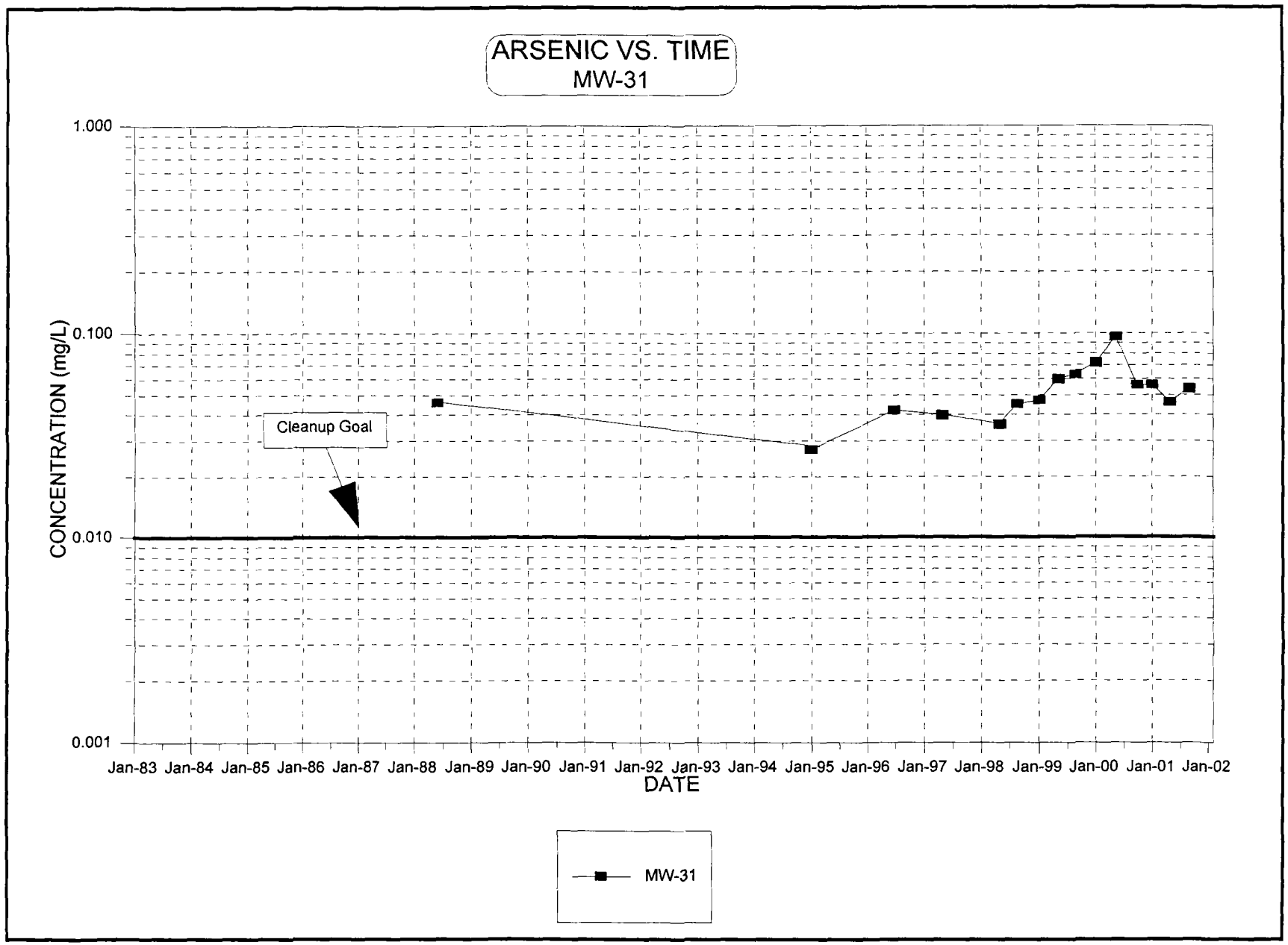


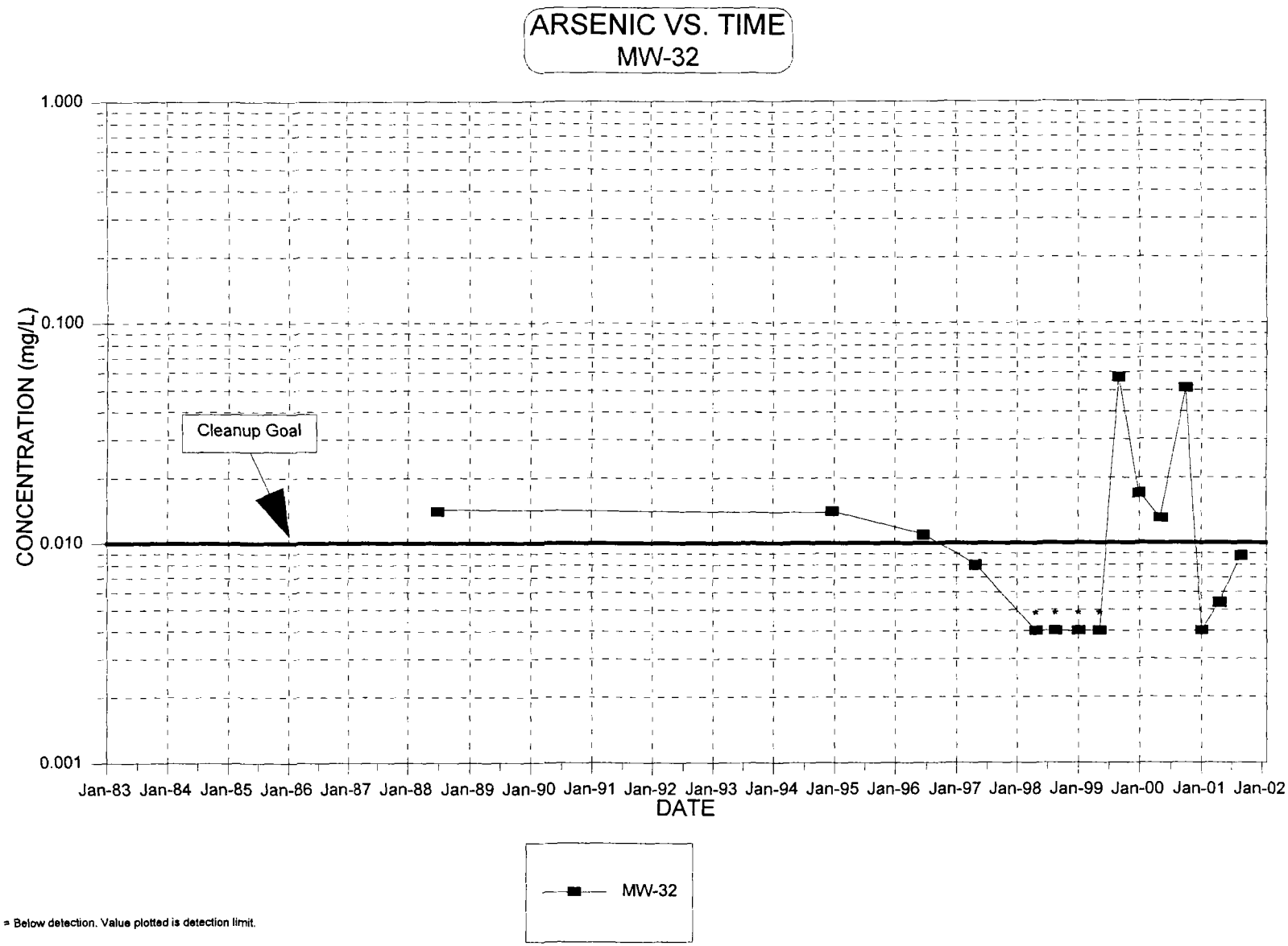
* = Below detection. Value plotted is detection limit.


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
DATE
MW-18

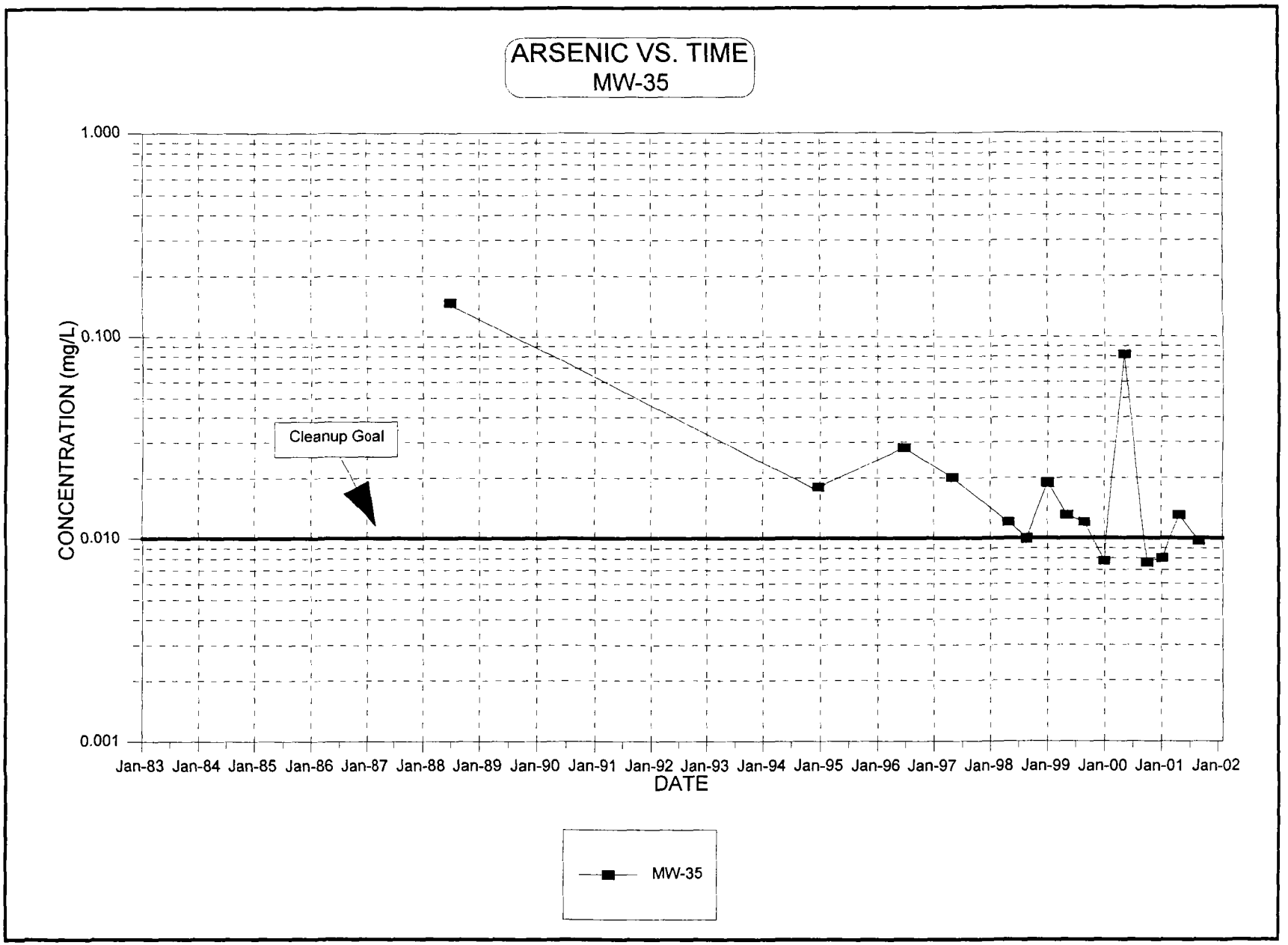


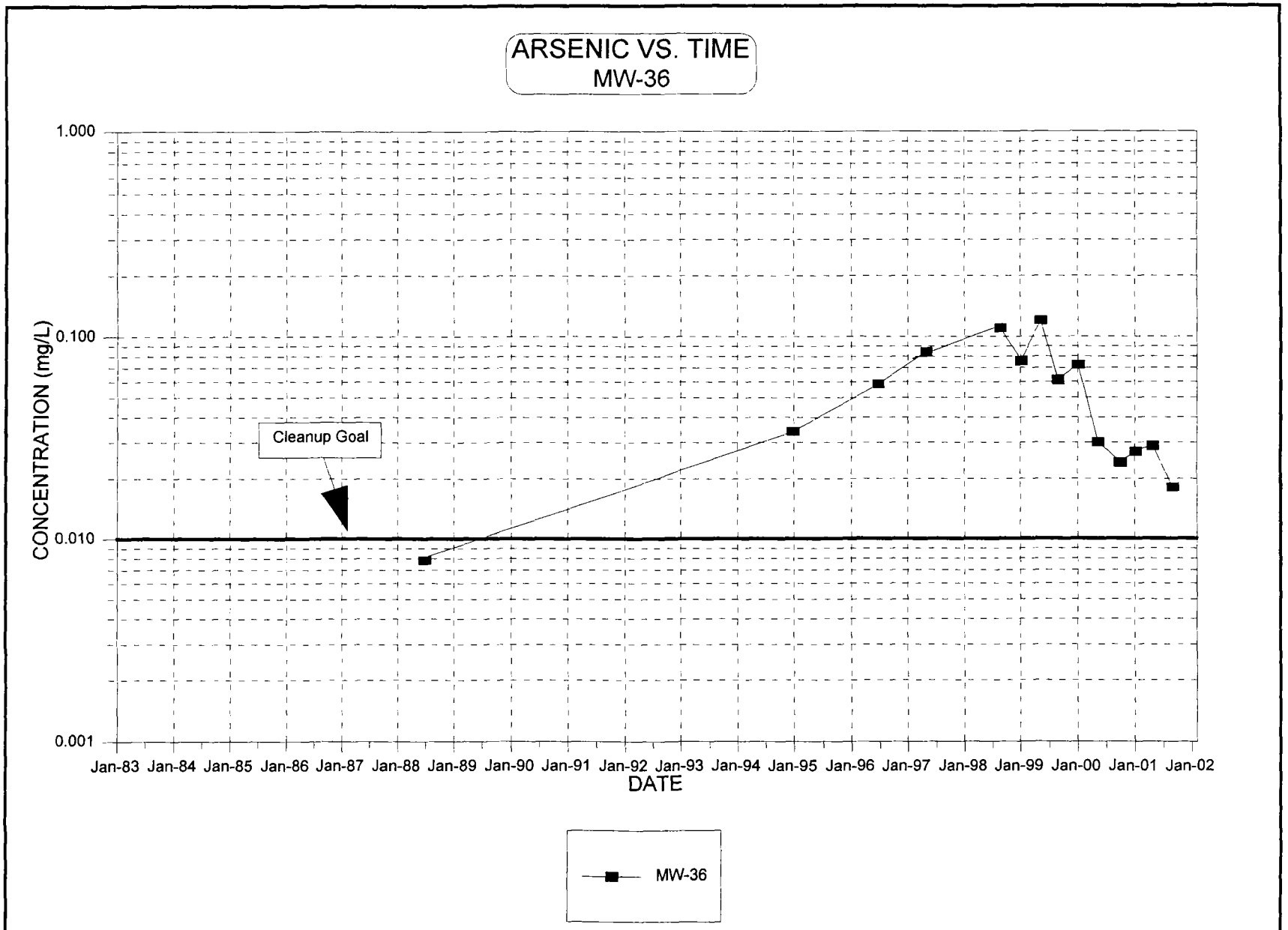
* = Below detection. Value plotted is detection limit.

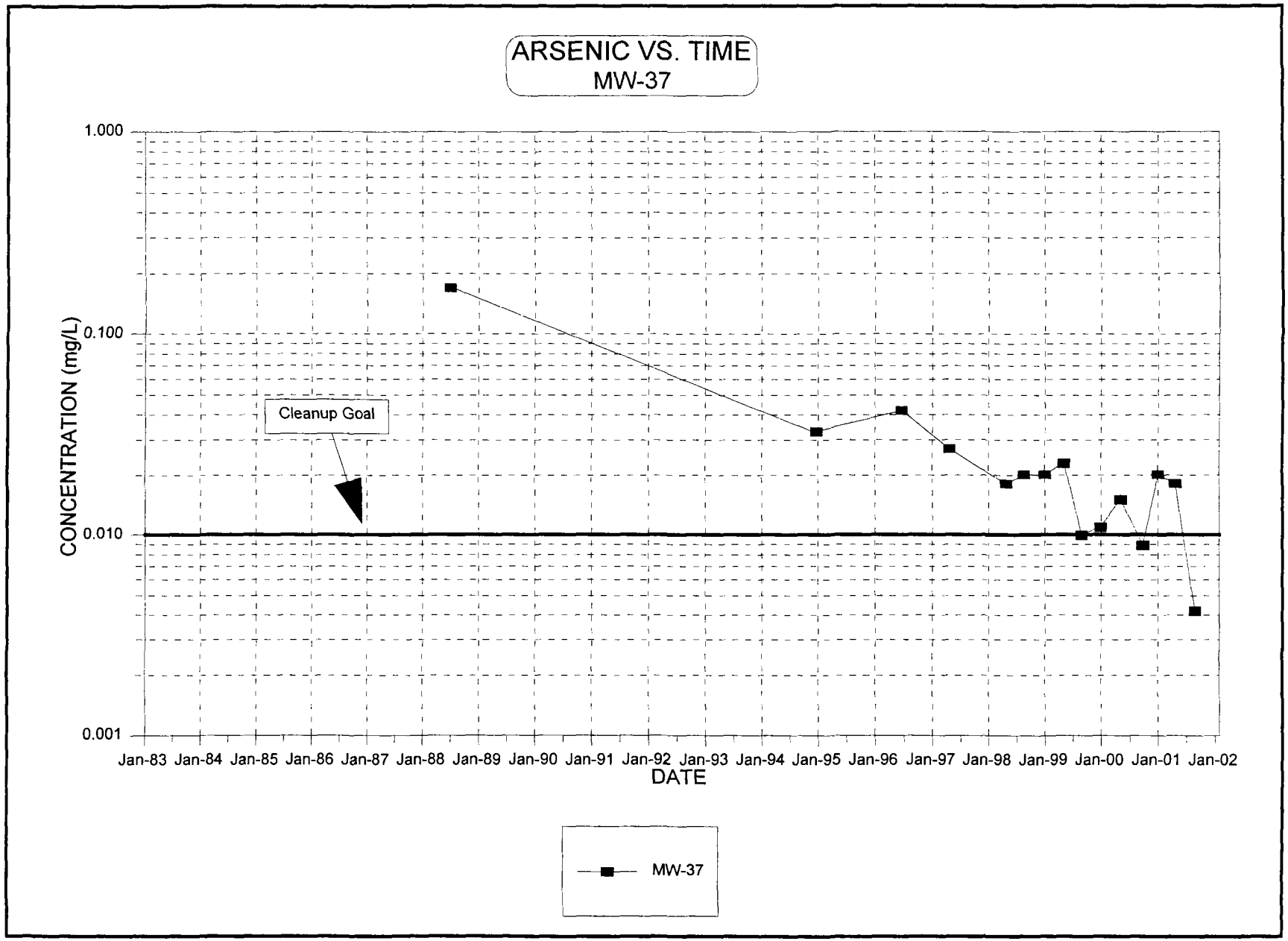

ARSENIC VS. TIME
MW-31
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-31



* = Below detection. Value plotted is detection limit.

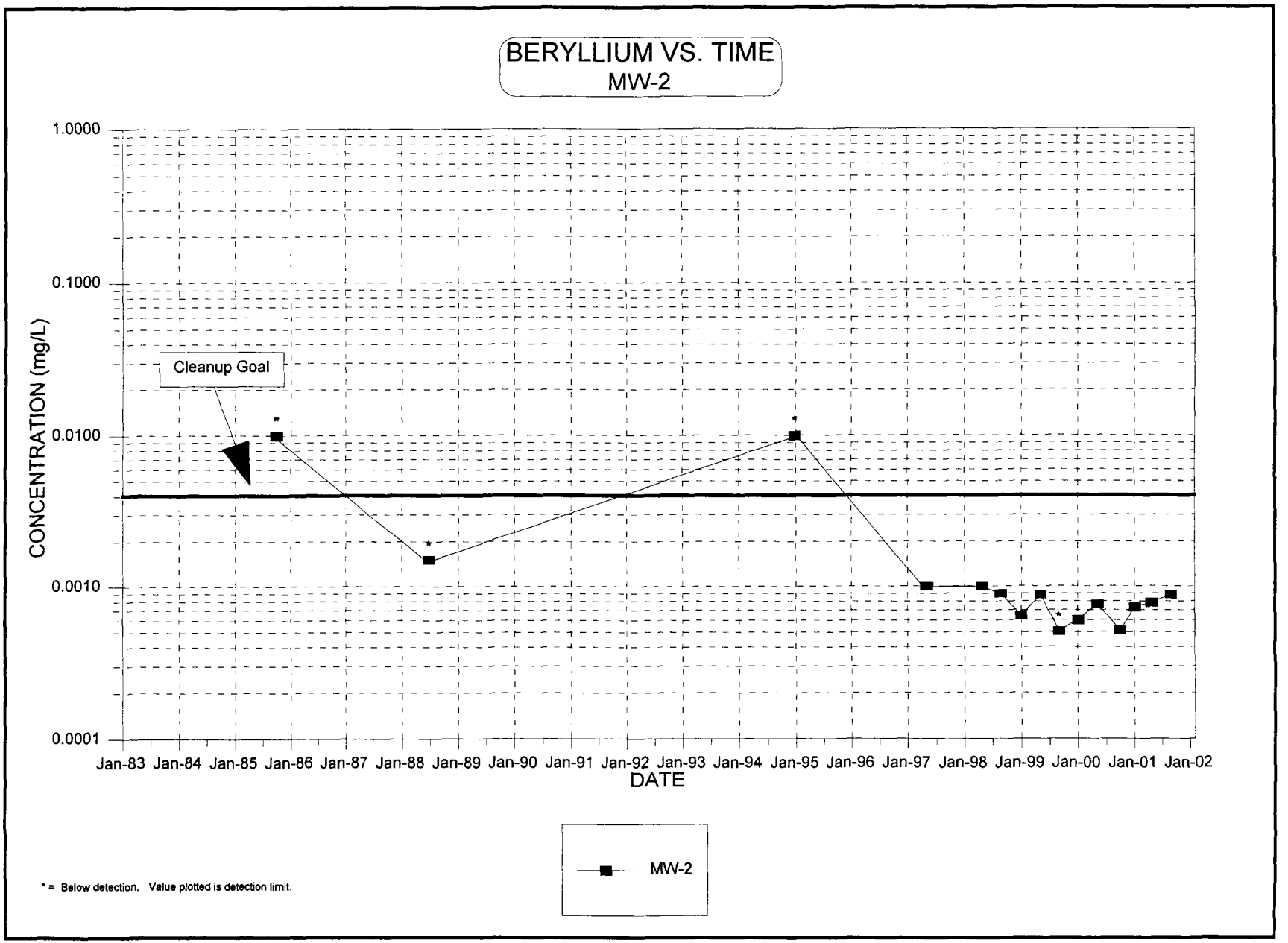

ARSENIC VS. TIME
MW-35
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
DATE
MW-35

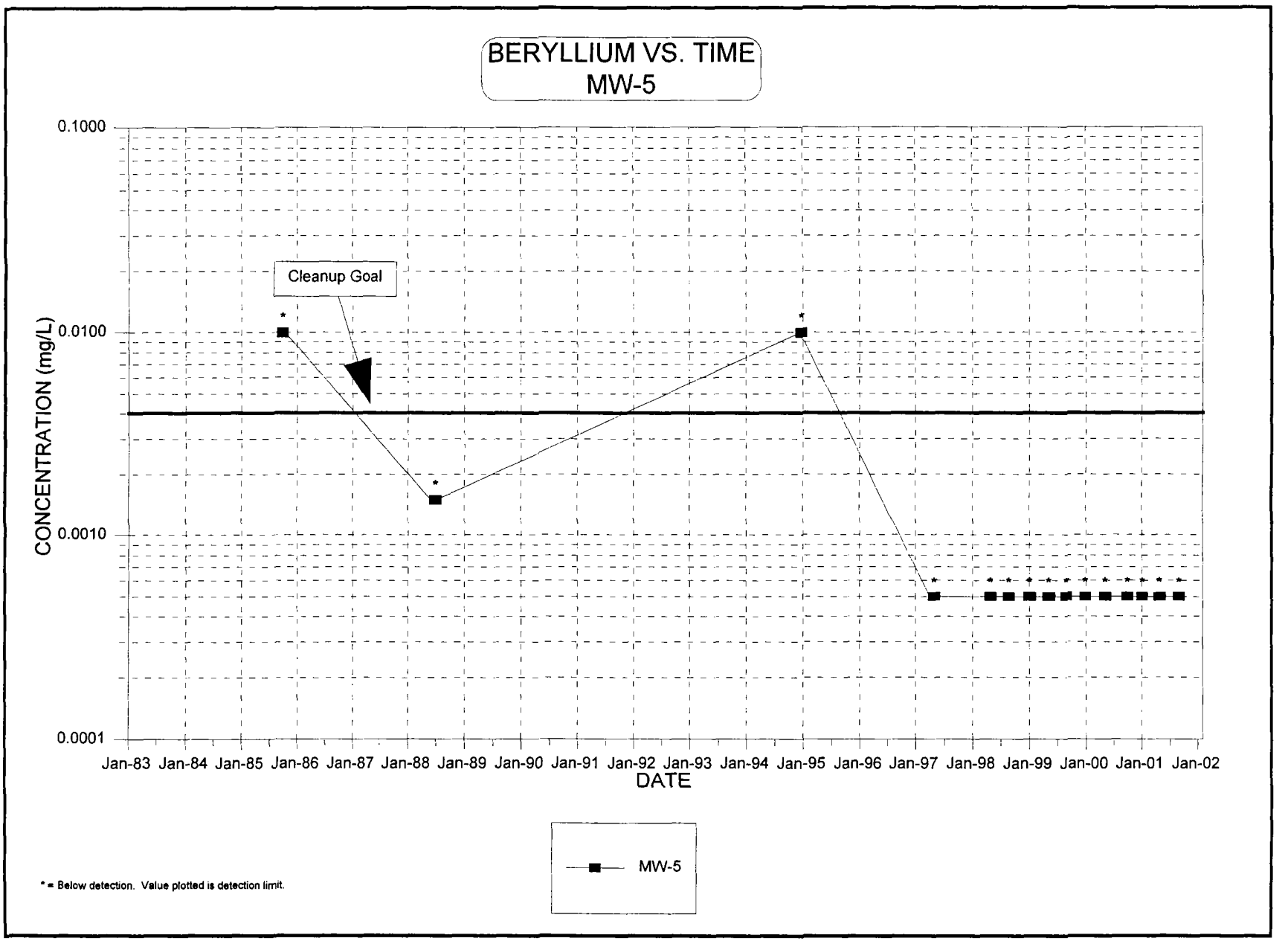

ARSENIC VS. TIME
MW-36
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-36

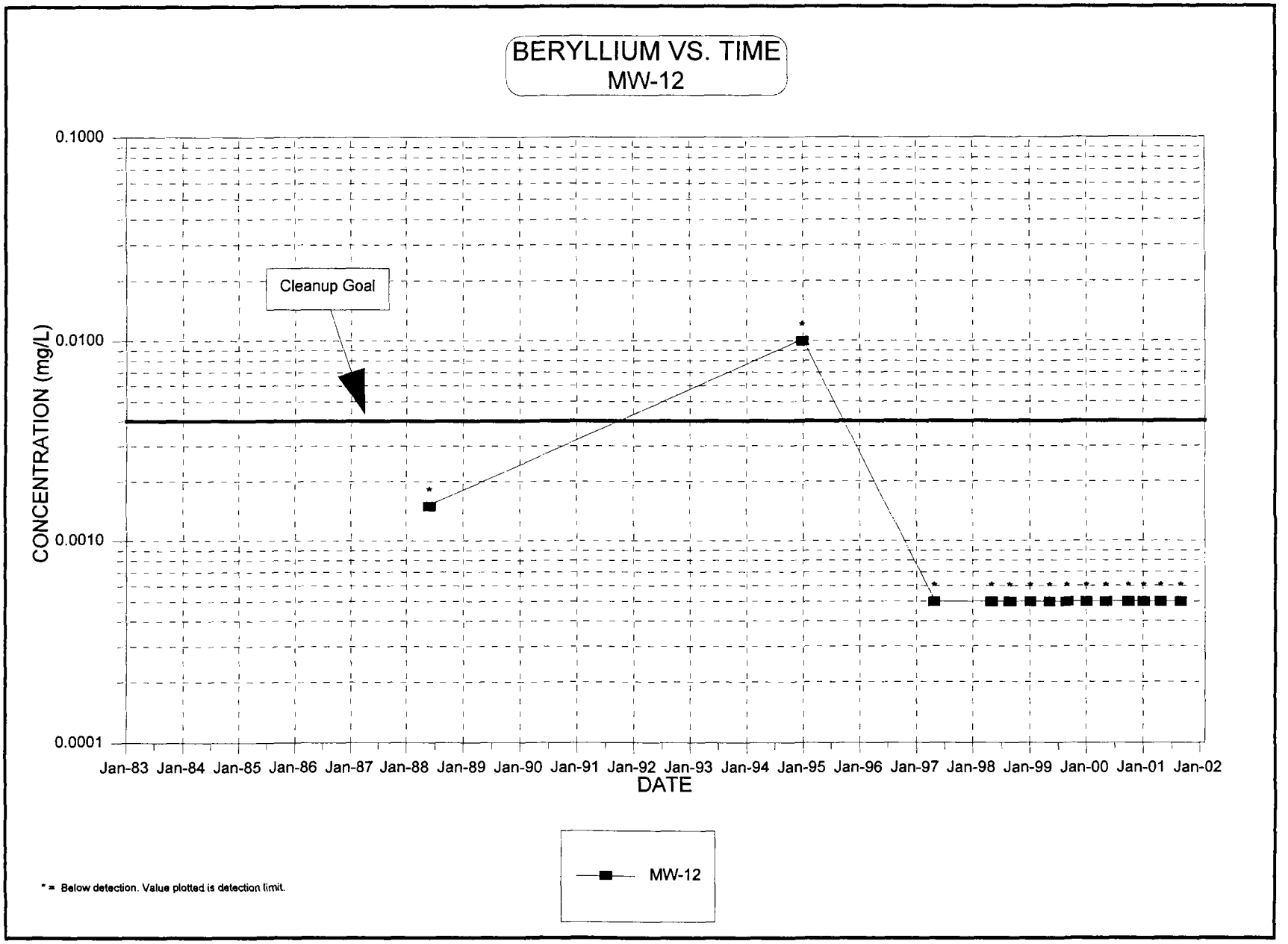

ARSENIC VS. TIME
MW-37
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-37

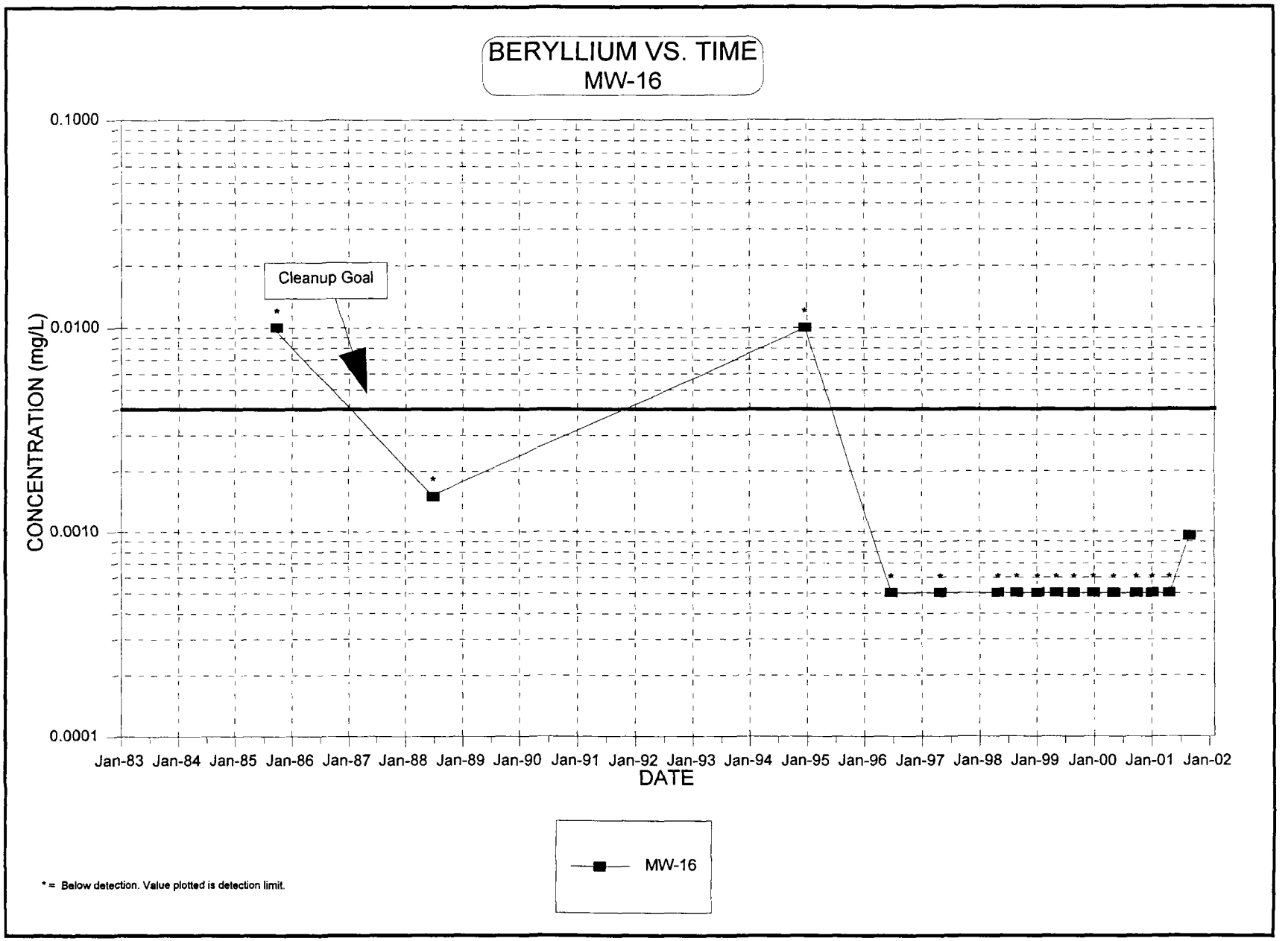
APPENDIX D-5

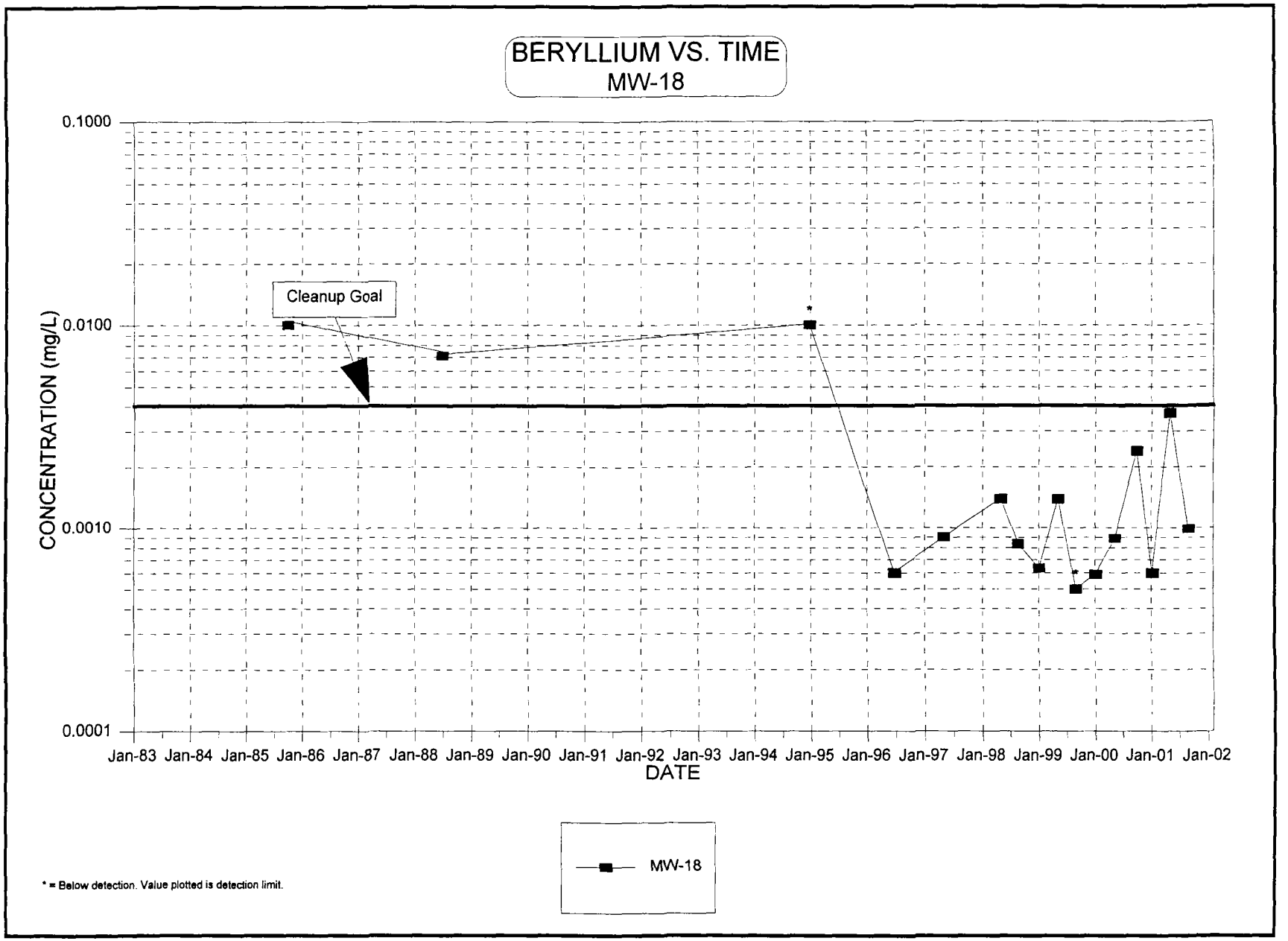
BERYLLIUM

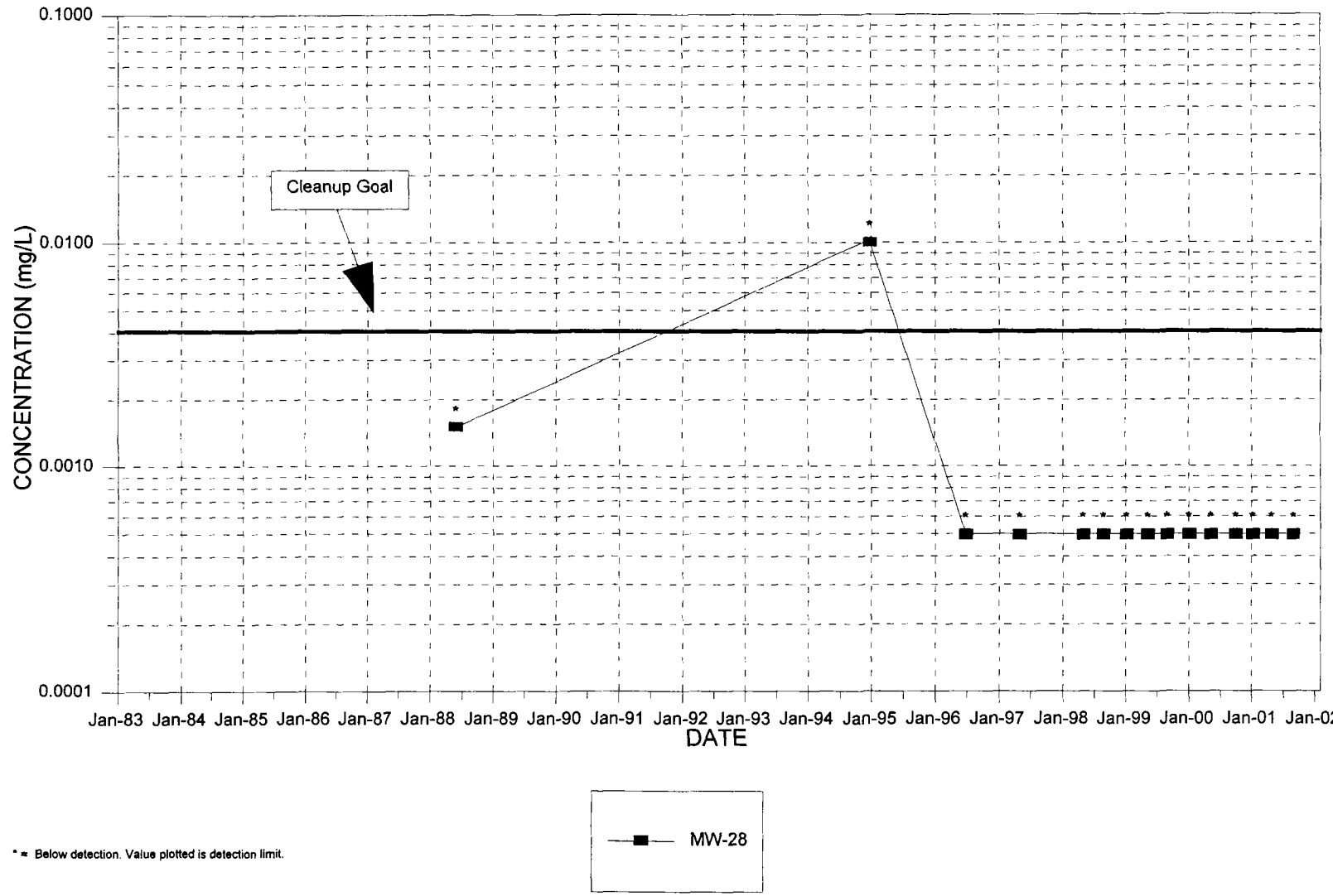

BERYLLIUM VS. TIME
MW-2
1.0000
0.1000
0.0100
0.0010
0.0001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-2
* = Below detection. Value plotted is detection limit.


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
DATE
MW-5
* = Below detection. Value plotted is detection limit.

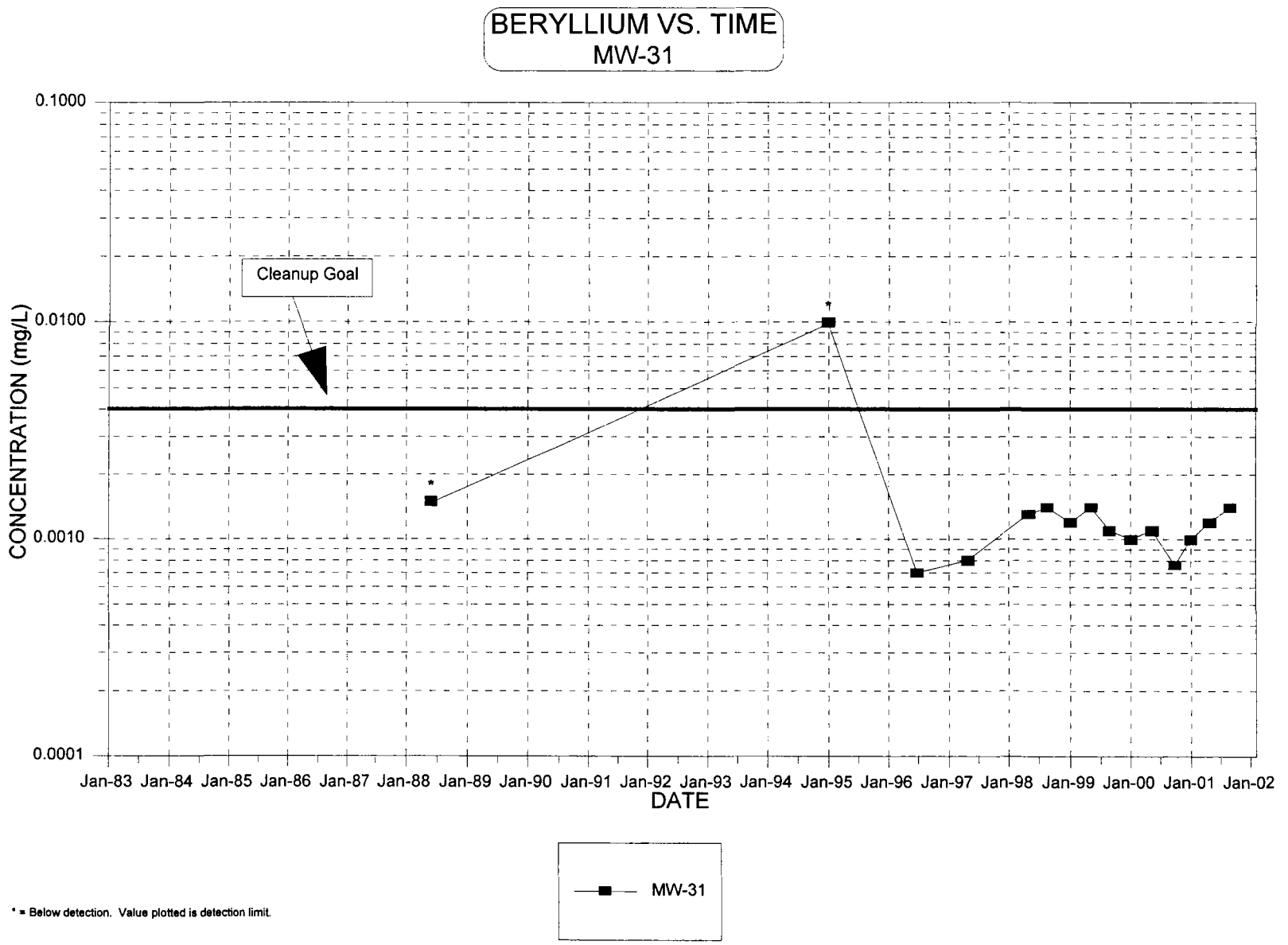

BERYLLIUM VS. TIME
MW-12
0.1000
0.0100
0.0010
0.0001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-12
* = Below detection. Value plotted is detection limit.


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
DATE
MW-16
* = Below detection. Value plotted is detection limit.

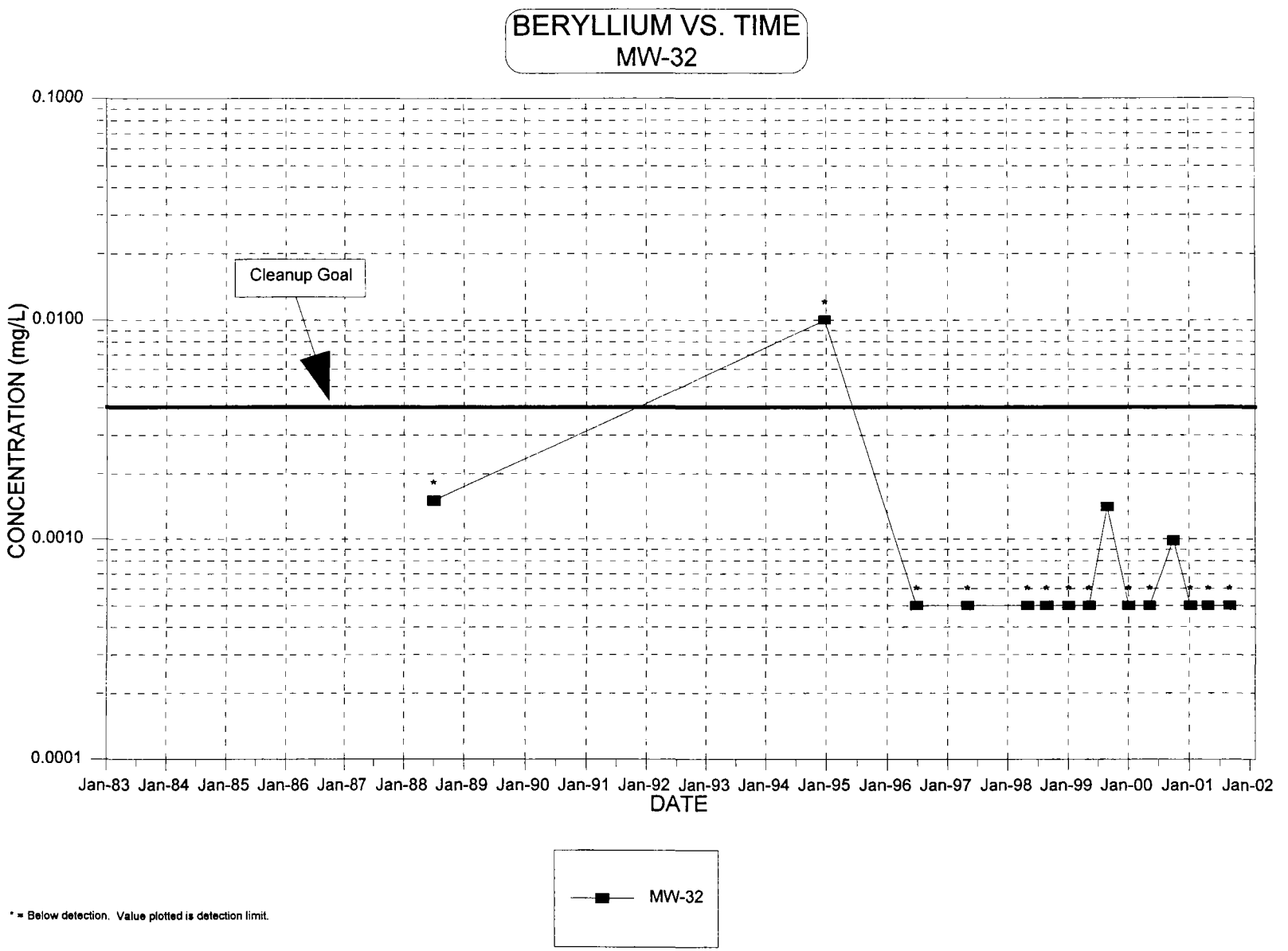

BERYLLIUM VS. TIME
MW-18
0.1000
0.0100
0.0010
0.0001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-18
* = Below detection. Value plotted is detection limit.

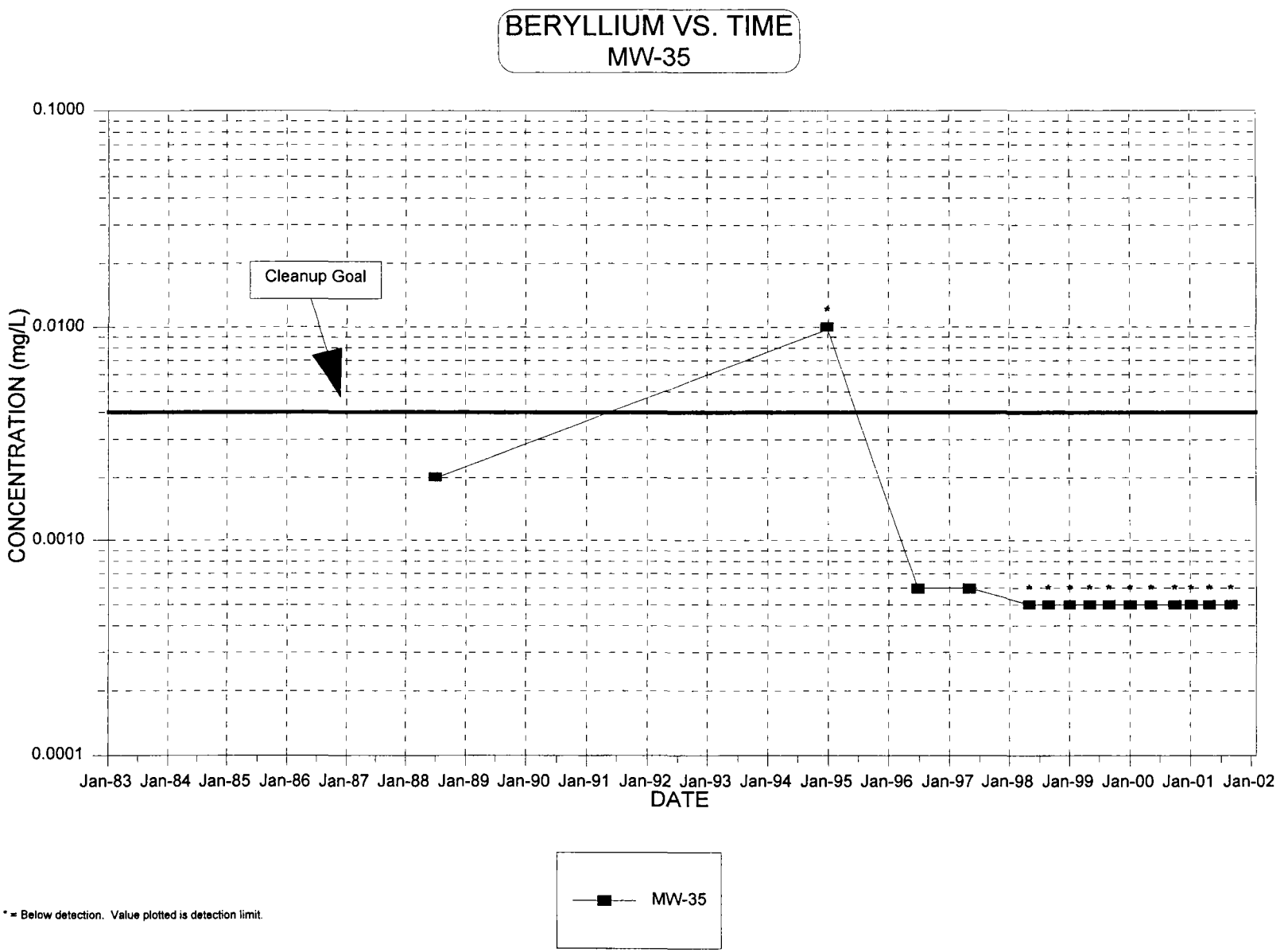


* = Below detection. Value plotted is detection limit.

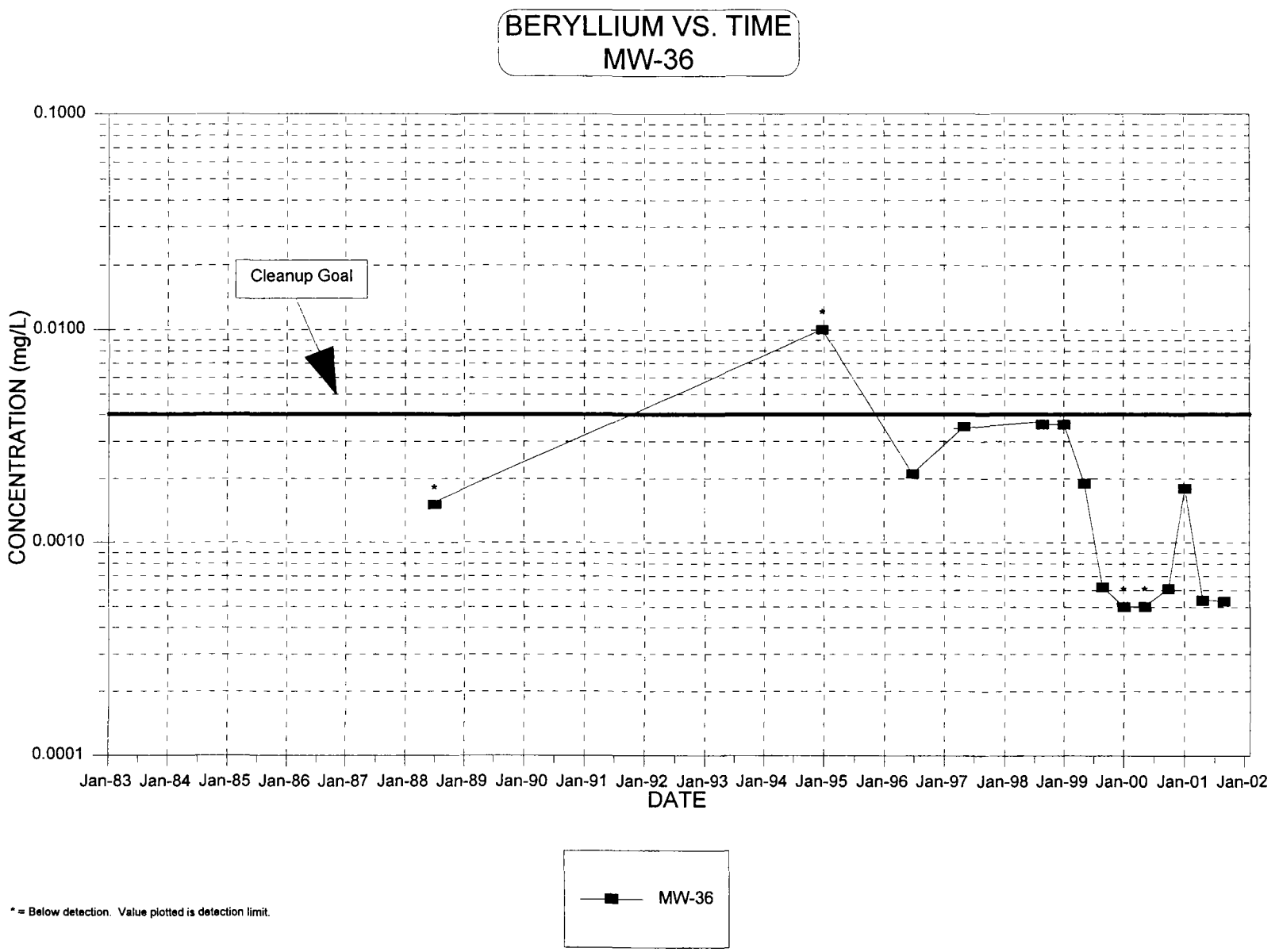


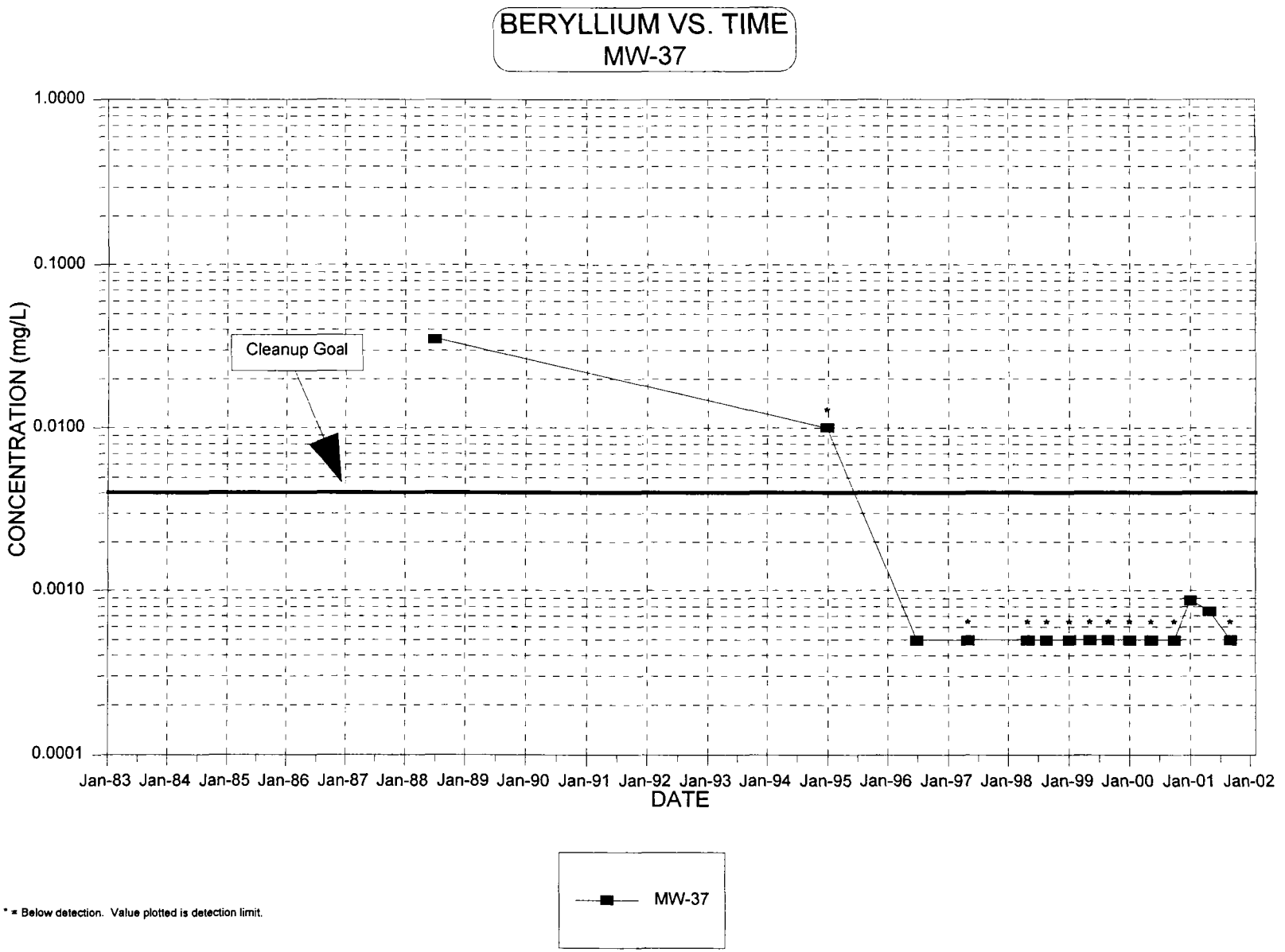
* = Below detection. Value plotted is detection limit.


BERYLLIUM VS. TIME
MW-32
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
DATE
MW-32
* = Below detection. Value plotted is detection limit.



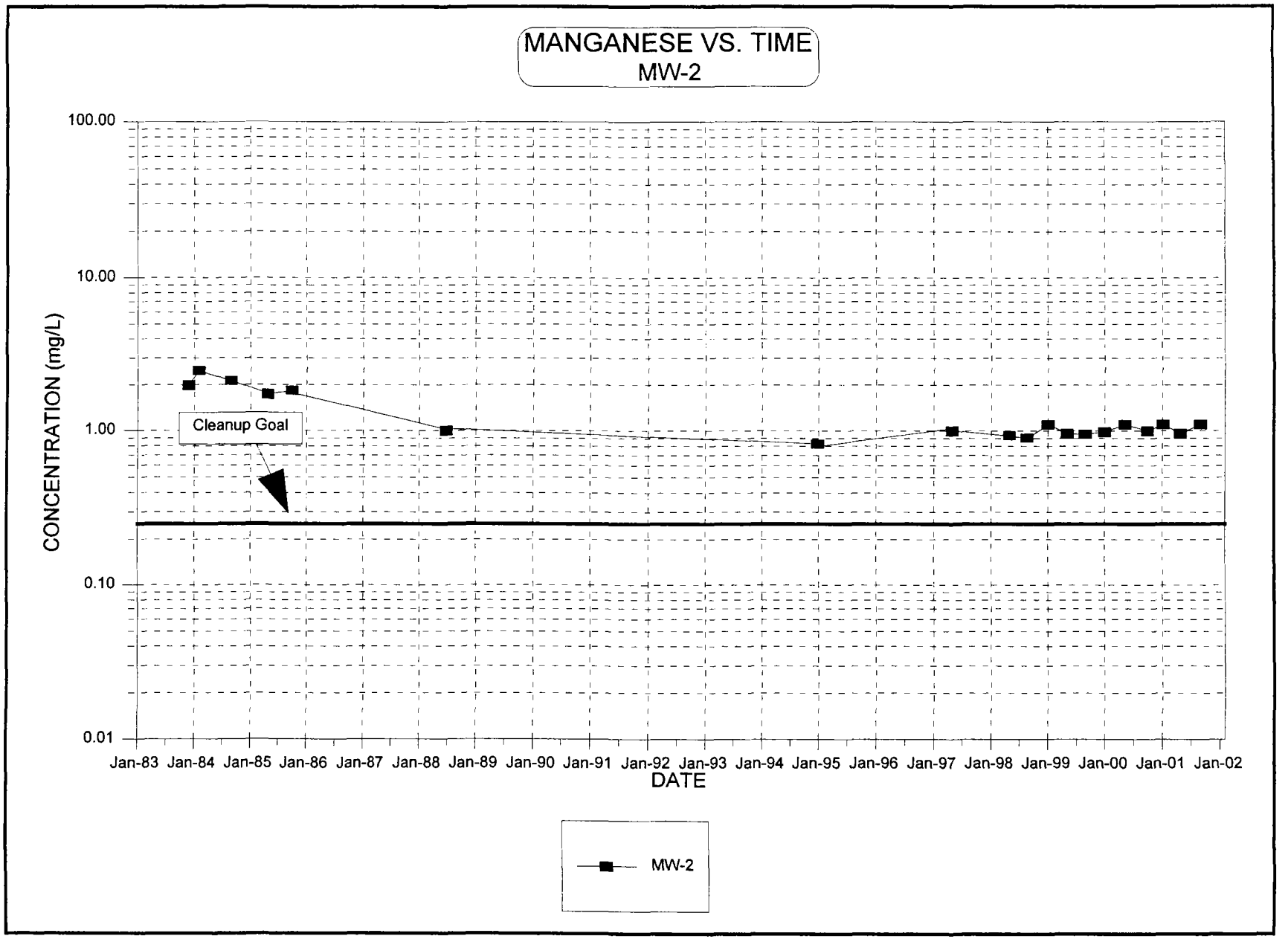
* = Below detection. Value plotted is detection limit.

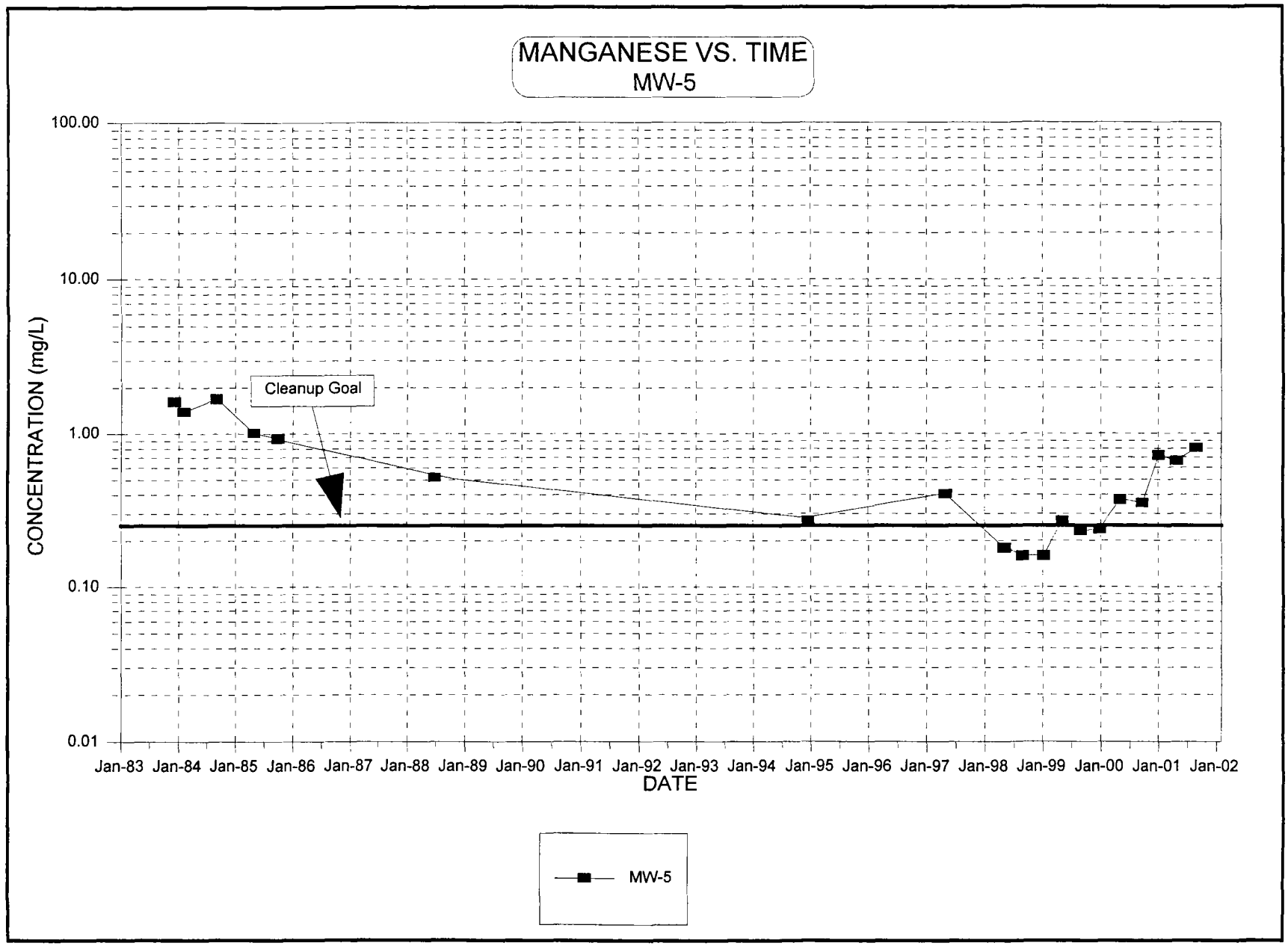

BERYLLIUM VS. TIME
MW-36
0.1000
0.0100
0.0010
0.0001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-36
* = Below detection. Value plotted is detection limit.

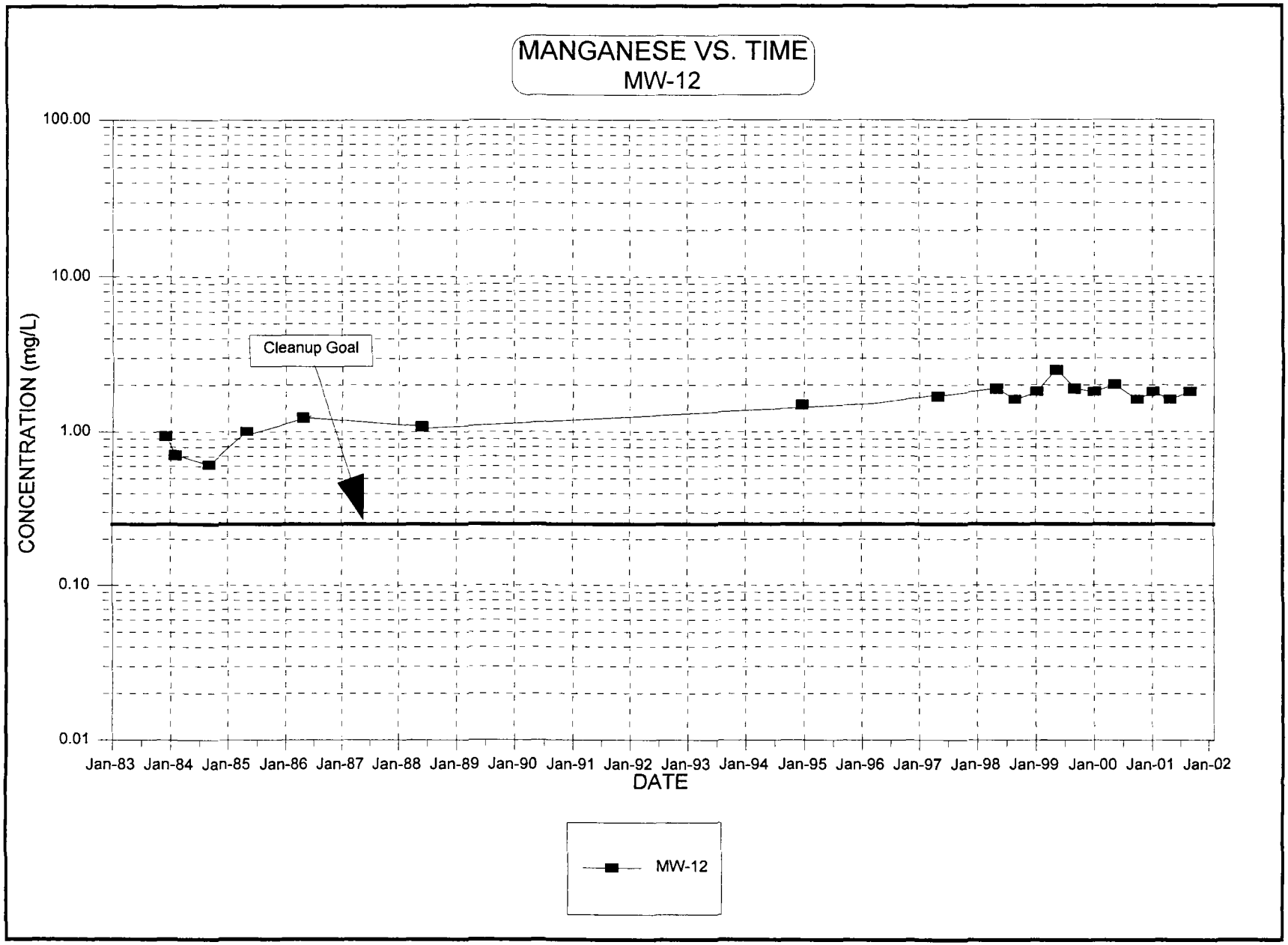

BERYLLIUM VS. TIME
MW-37
1.0000
0.1000
0.0100
0.0010
0.0001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-37
* = Below detection. Value plotted is detection limit.

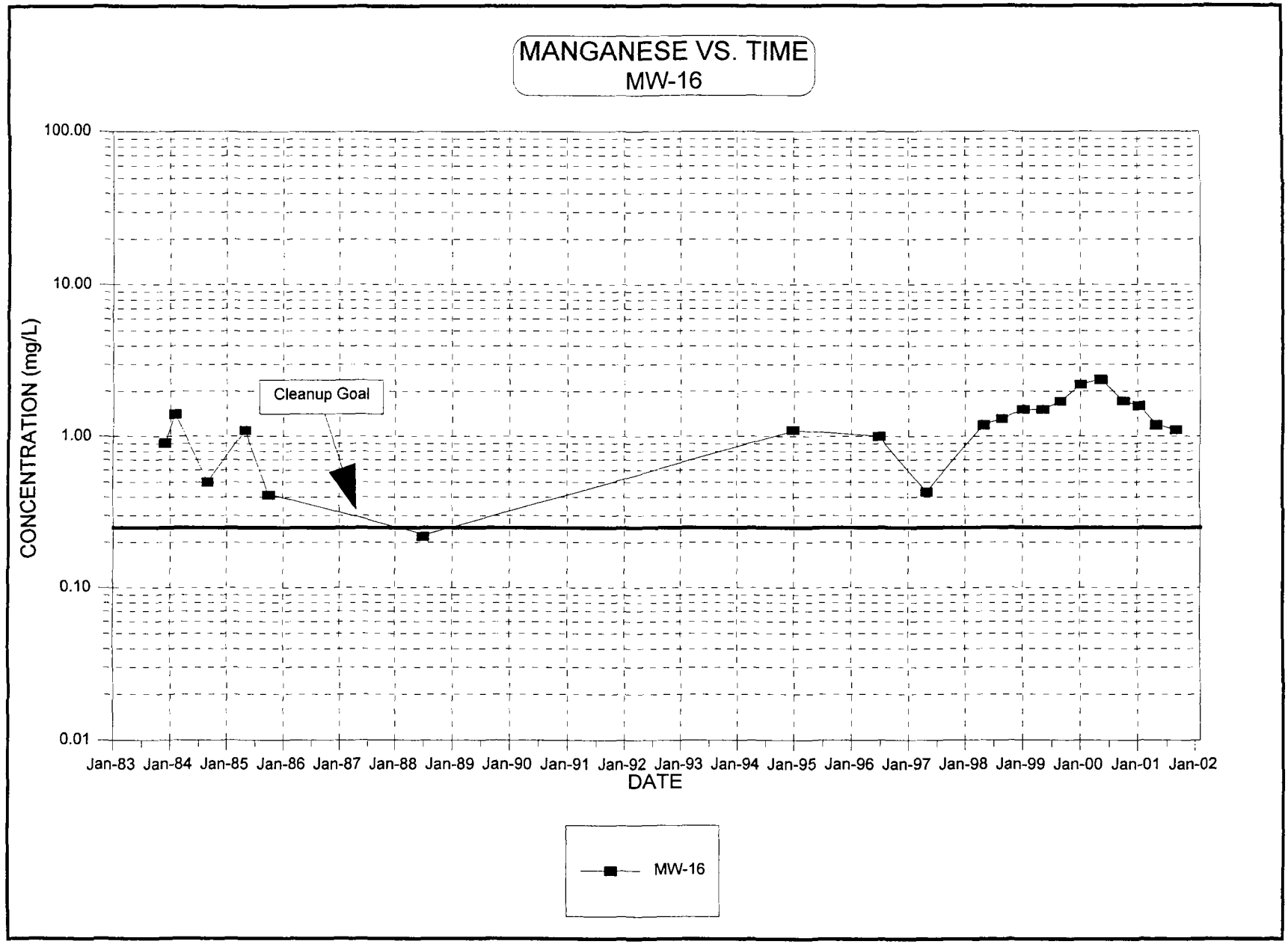
APPENDIX D-6

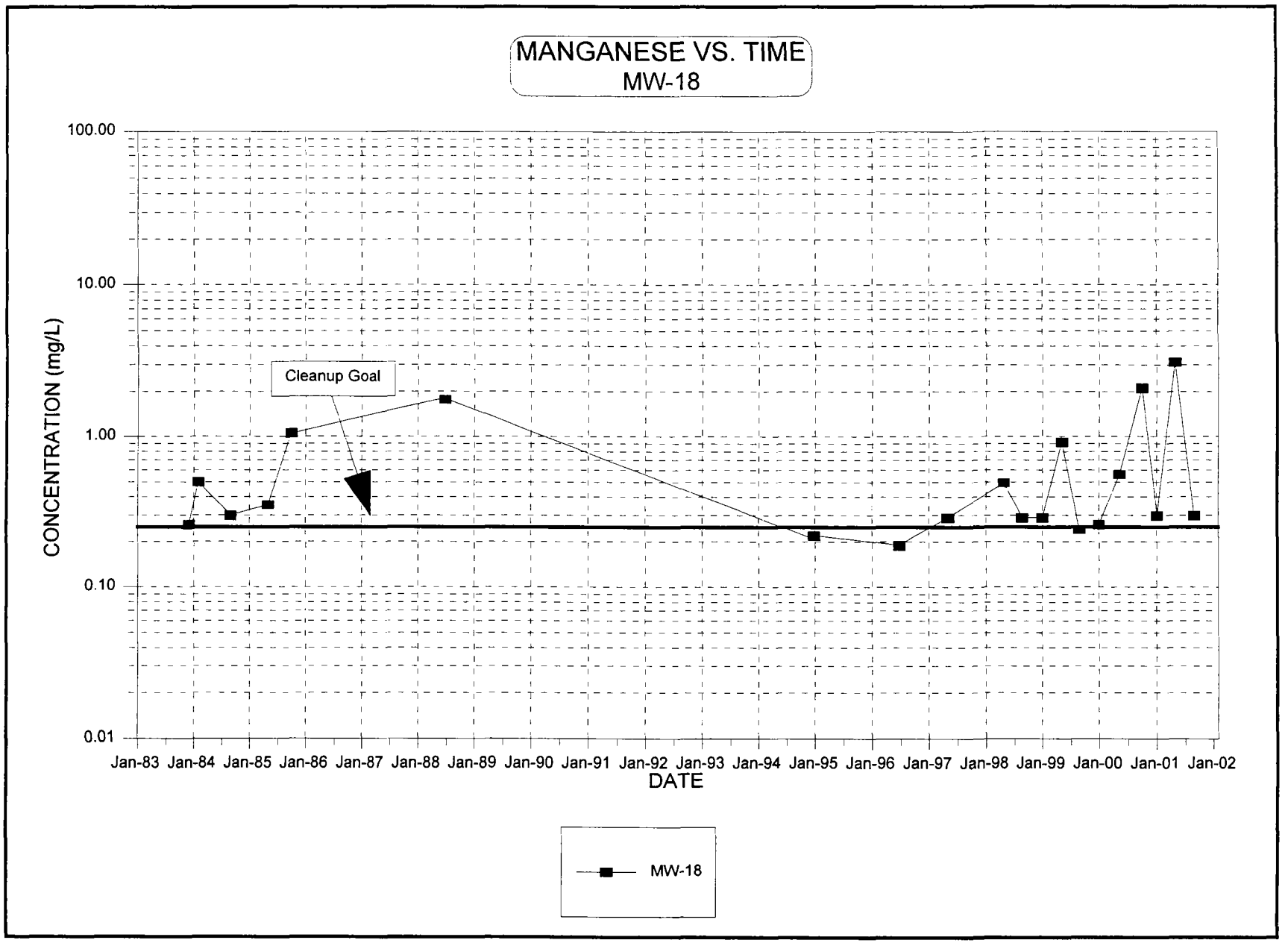
MANGANESE

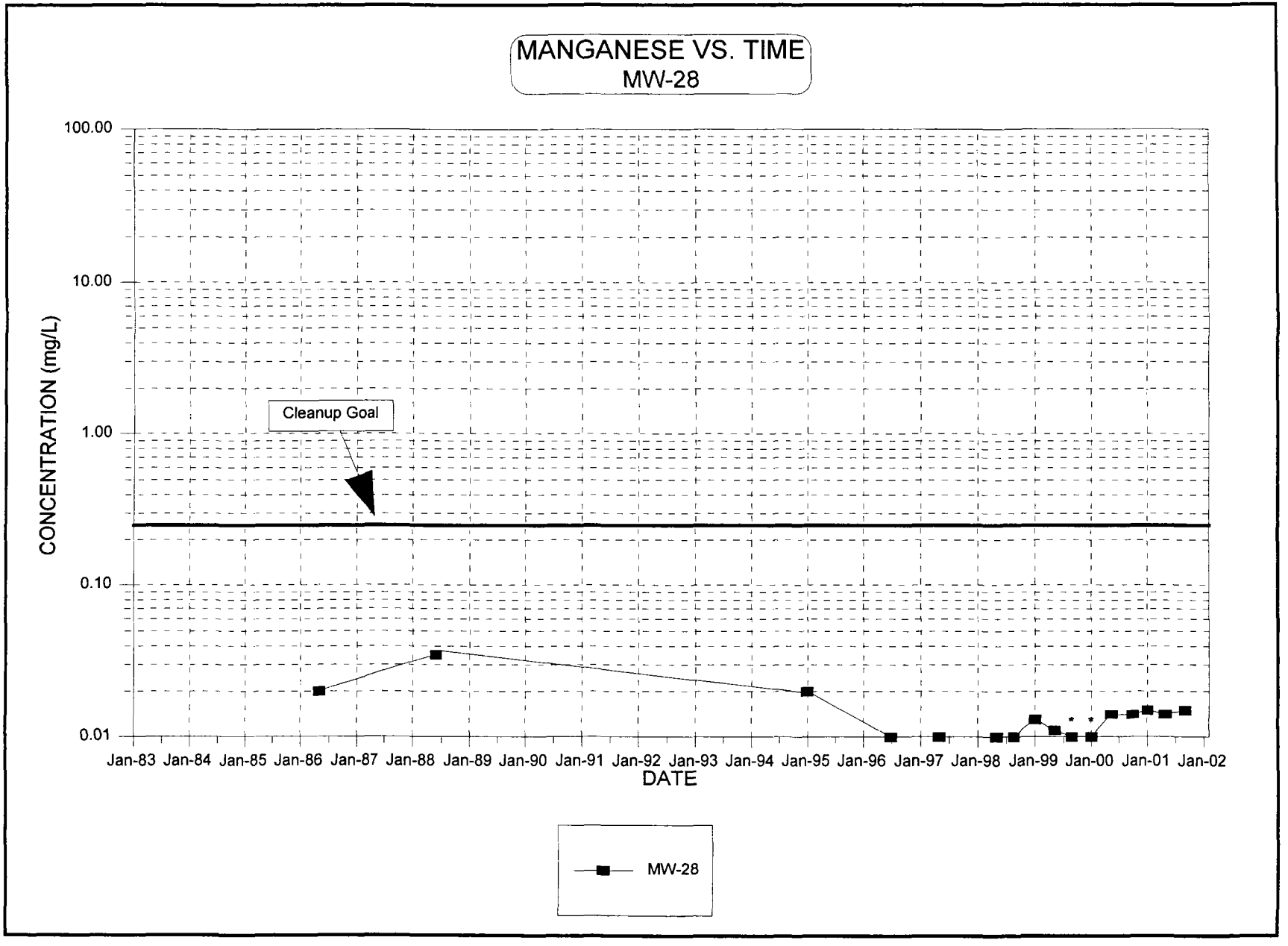

MANGANESE VS. TIME
MW-2
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
DATE
MW-2

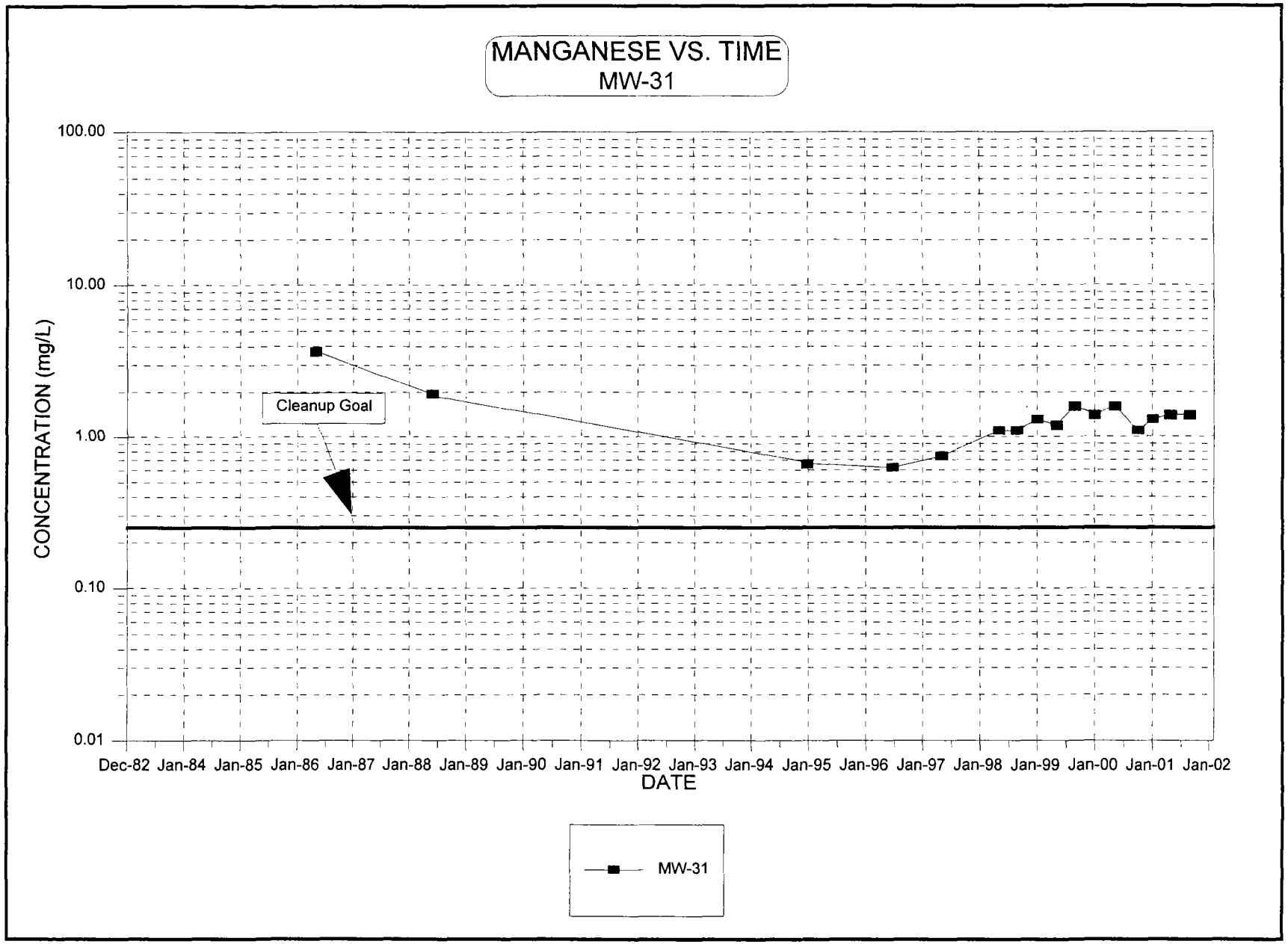

MANGANESE VS. TIME
MW-5
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
DATE
MW-5

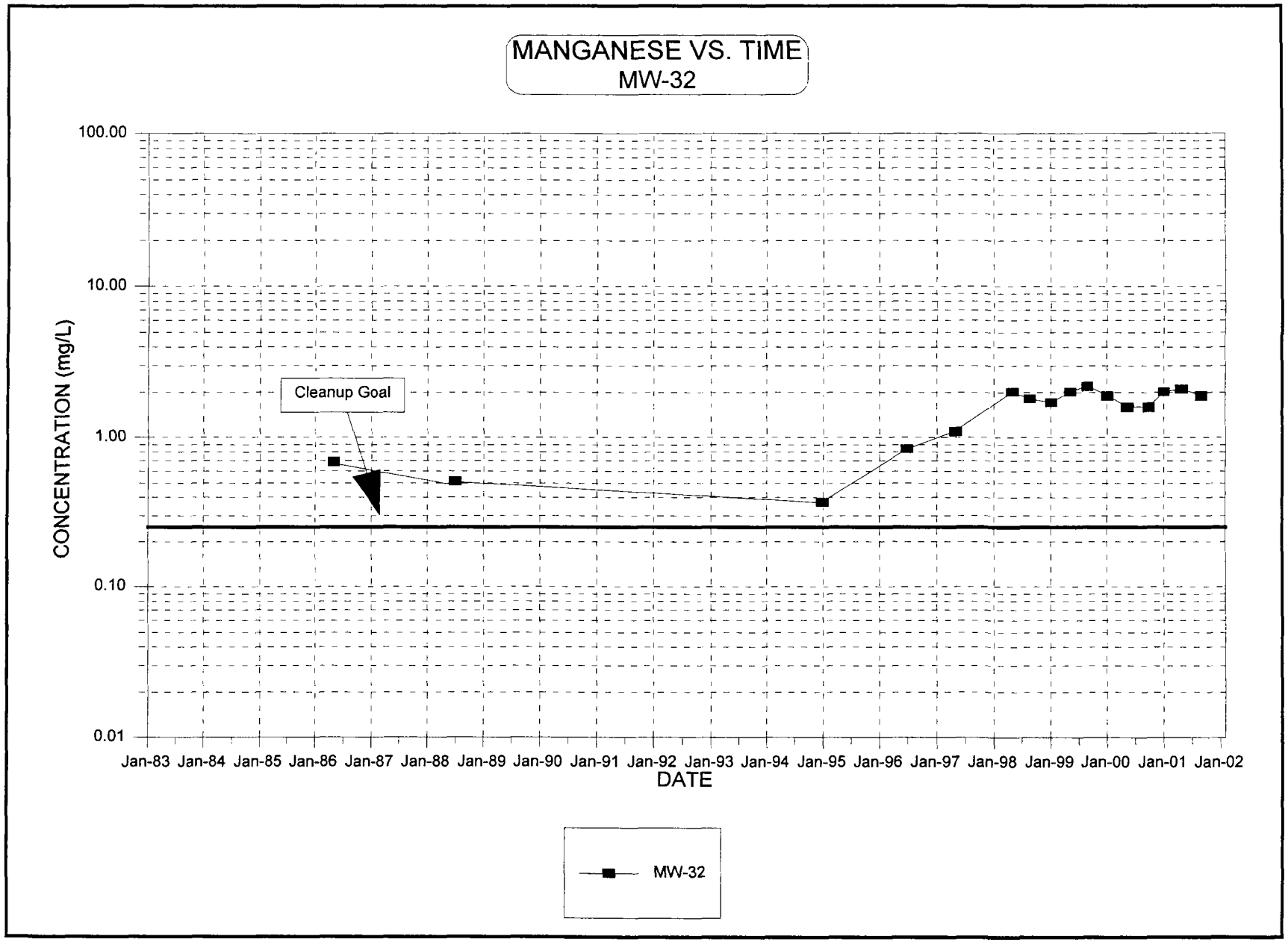

MANGANESE VS. TIME
MW-12
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
DATE
MW-12

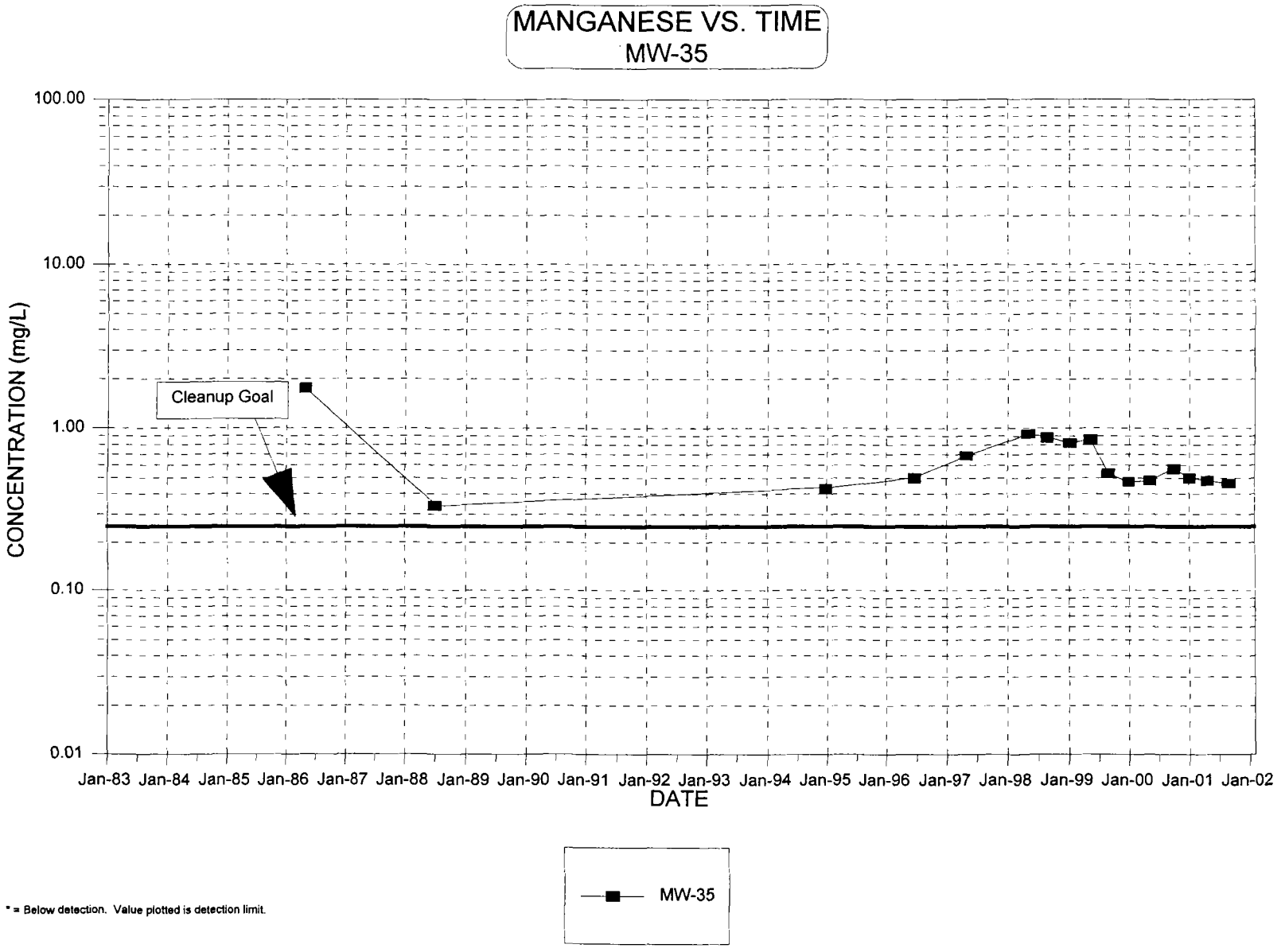

MANGANESE VS. TIME
MW-16
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-16


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
DATE
MW-18

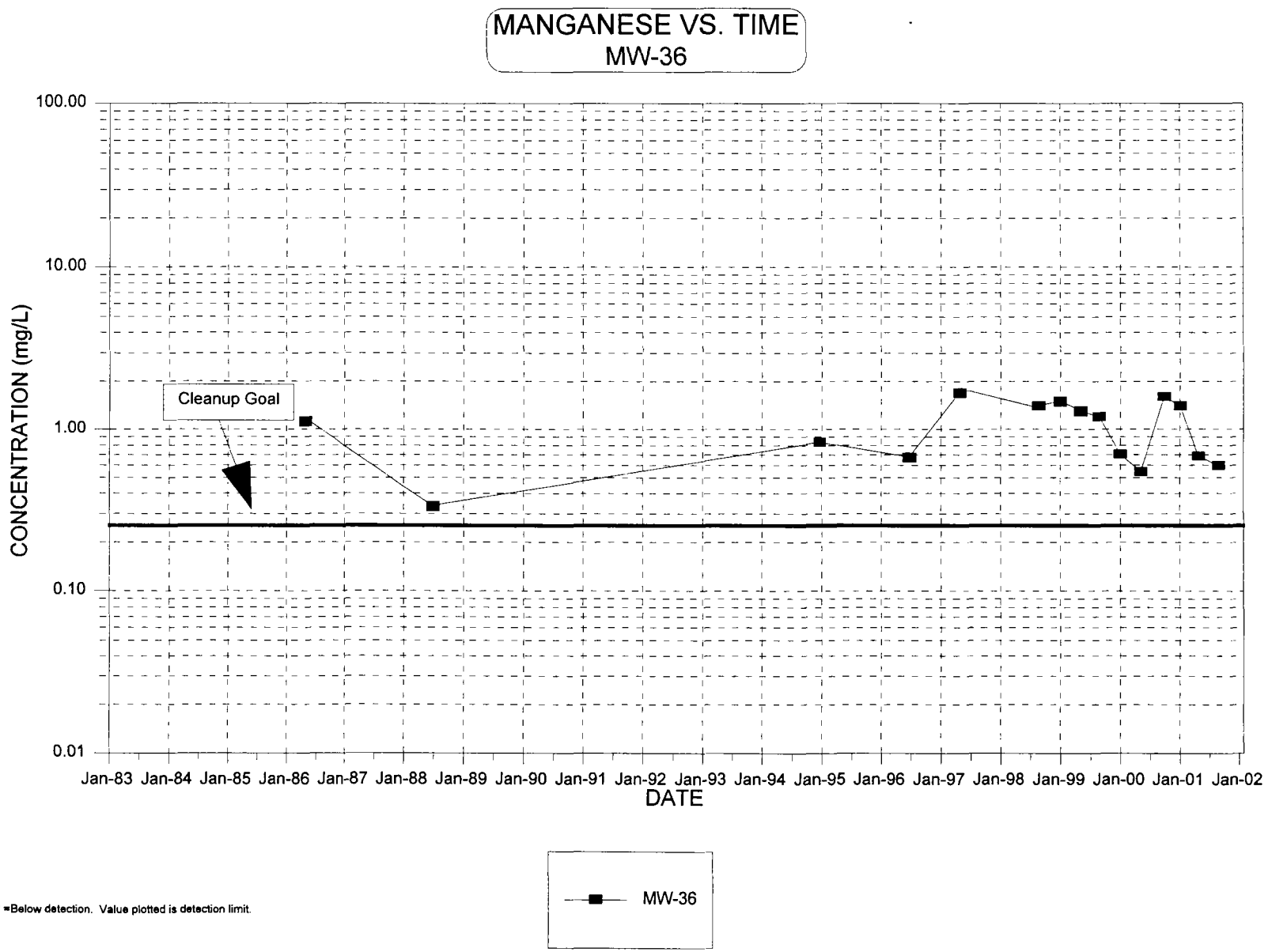

MANGANESE VS. TIME
MW-28
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-28


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
DATE
MW-31

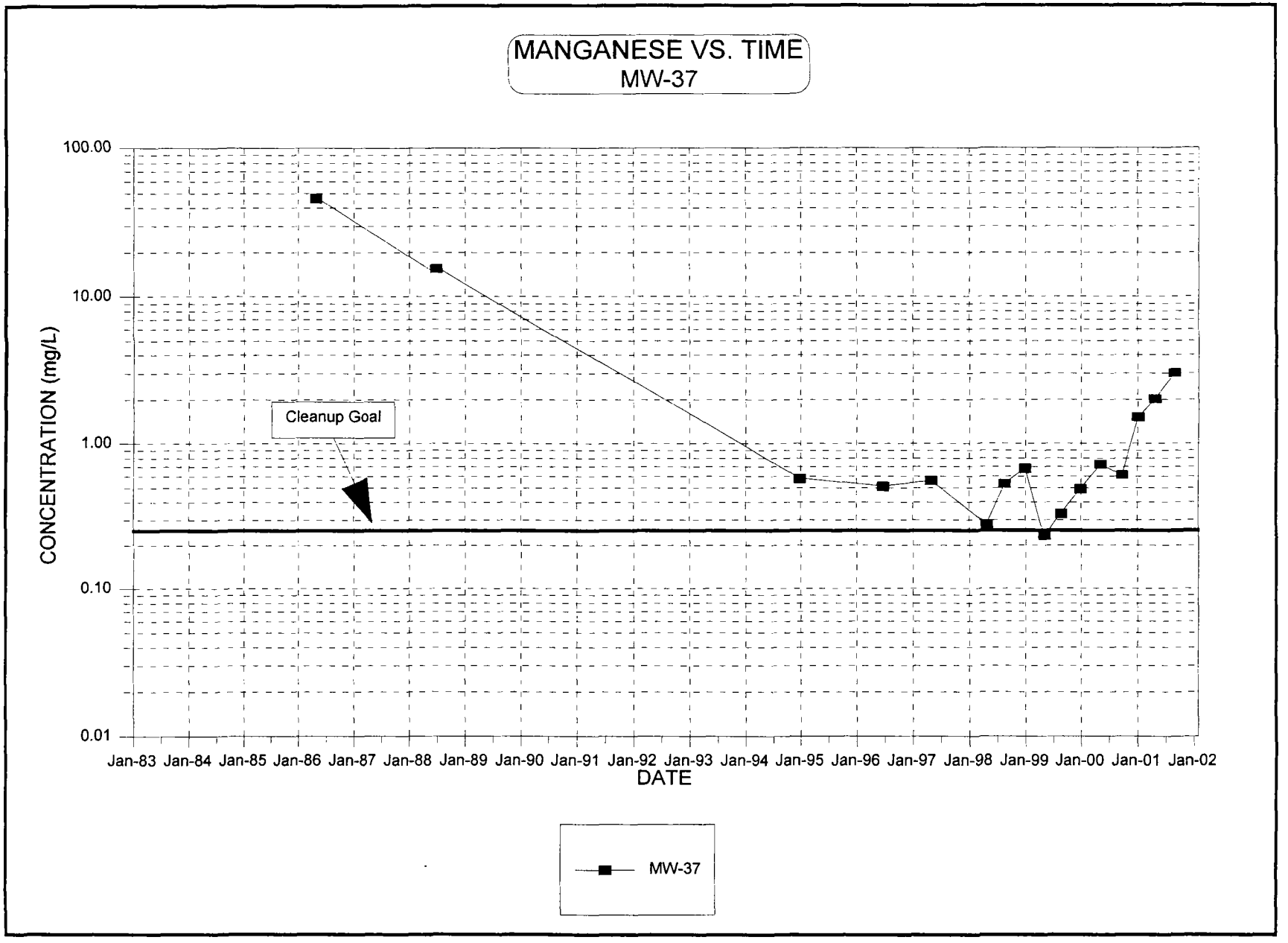

MANGANESE VS. TIME
MW-32
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-32



* = Below detection. Value plotted is detection limit.

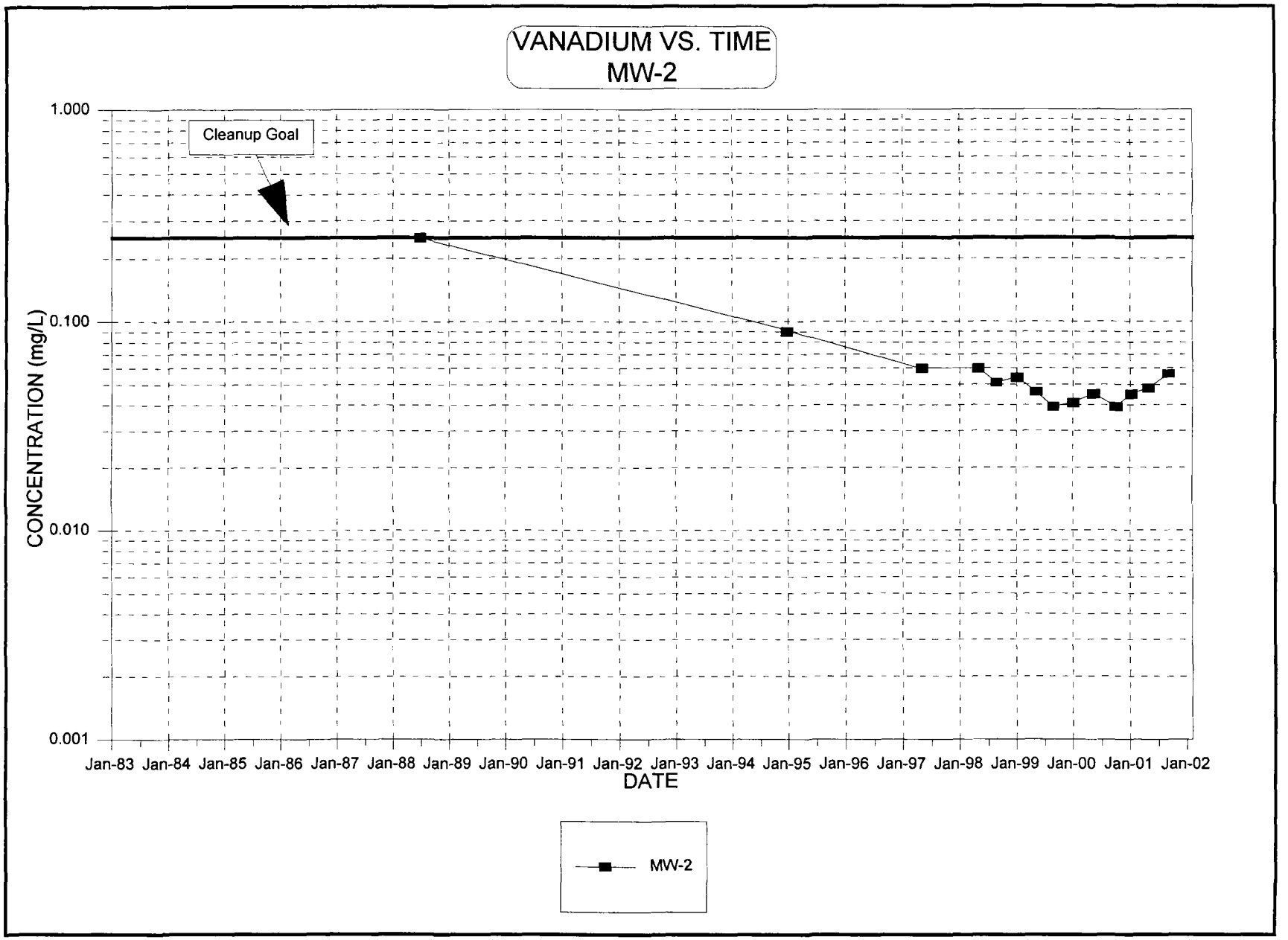


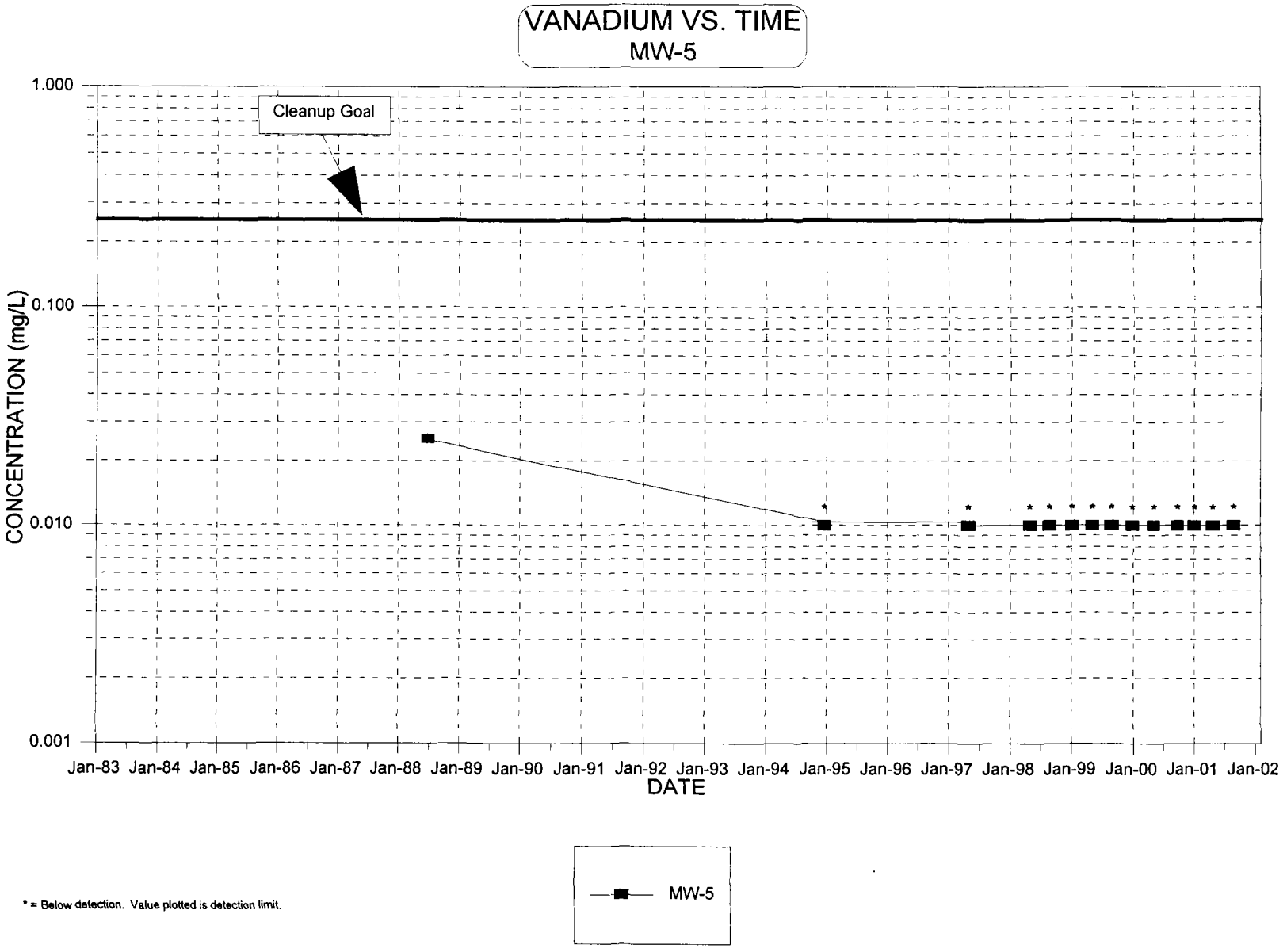
* =Below detection. Value plotted is detection limit.


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
DATE
MW-37

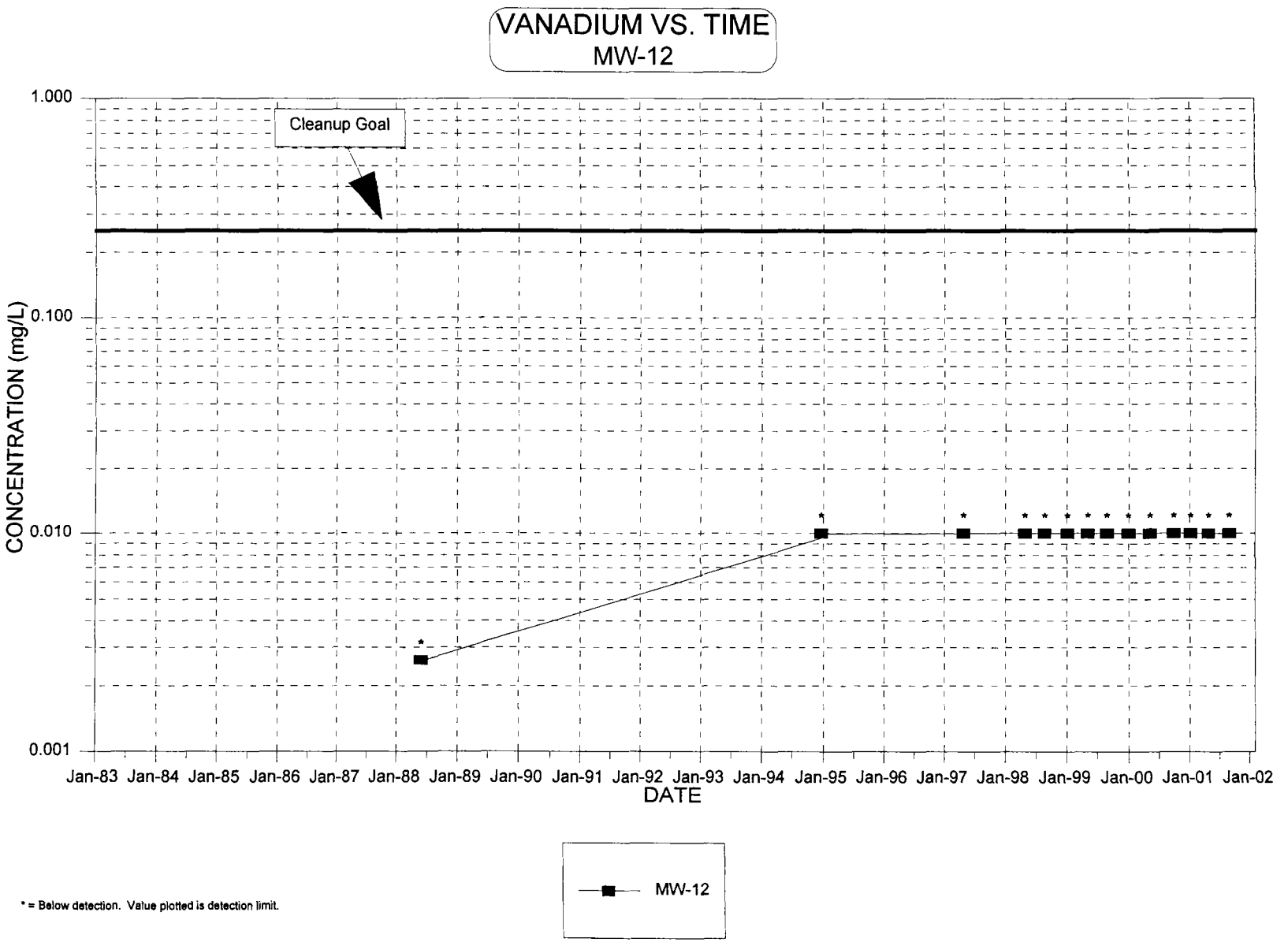
APPENDIX D-7

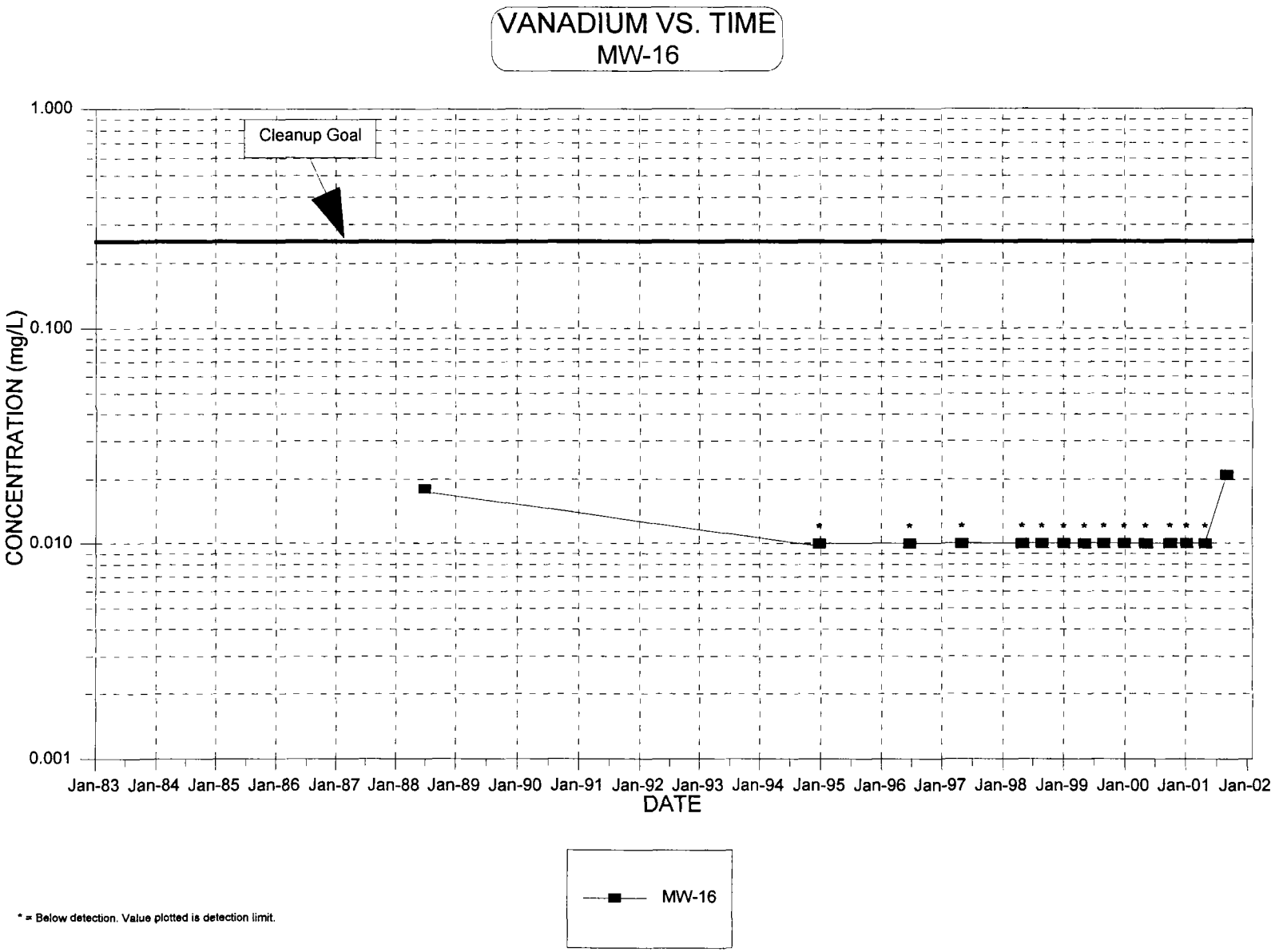
VANADIUM


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
DATE
MW-2

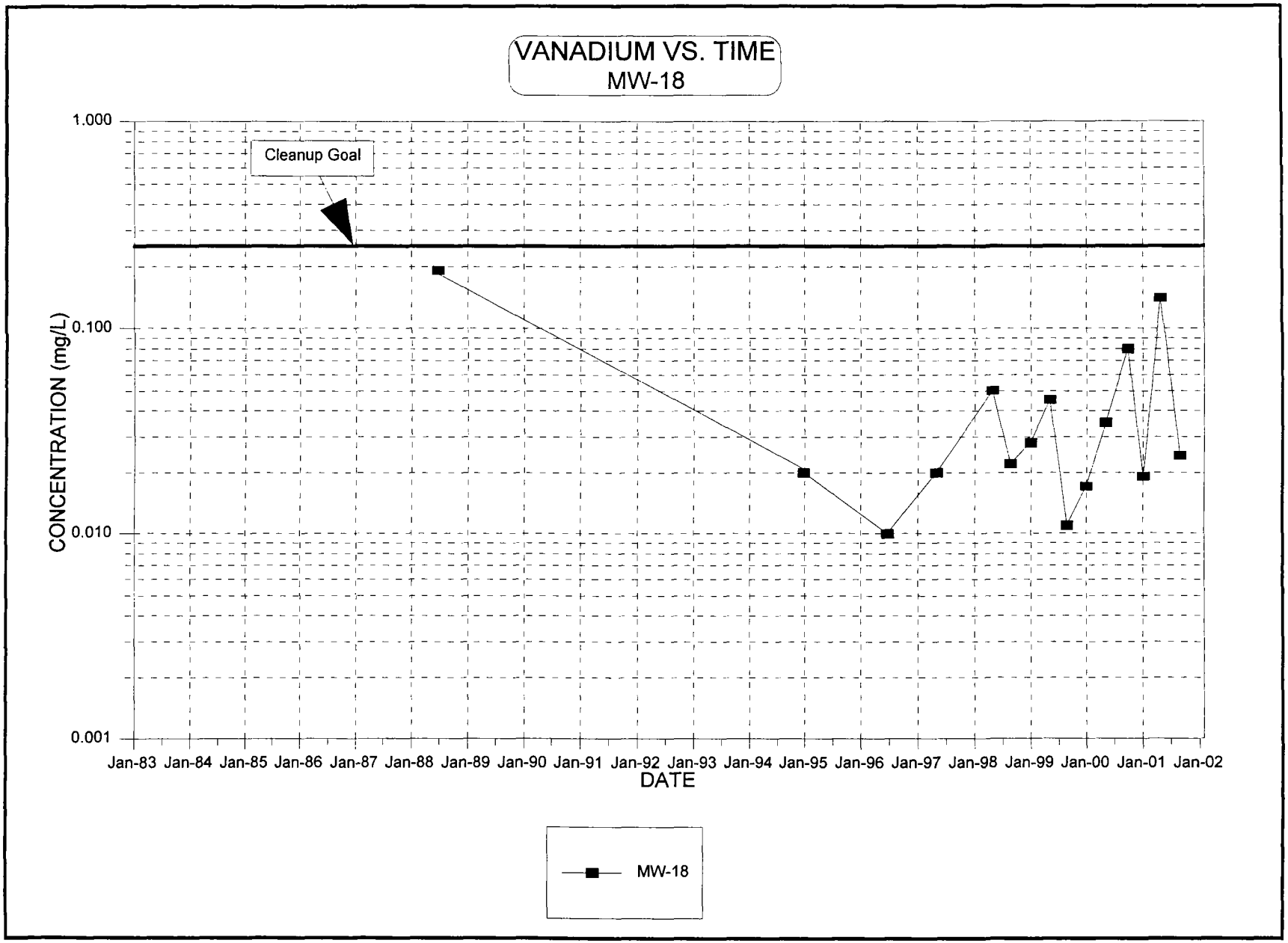


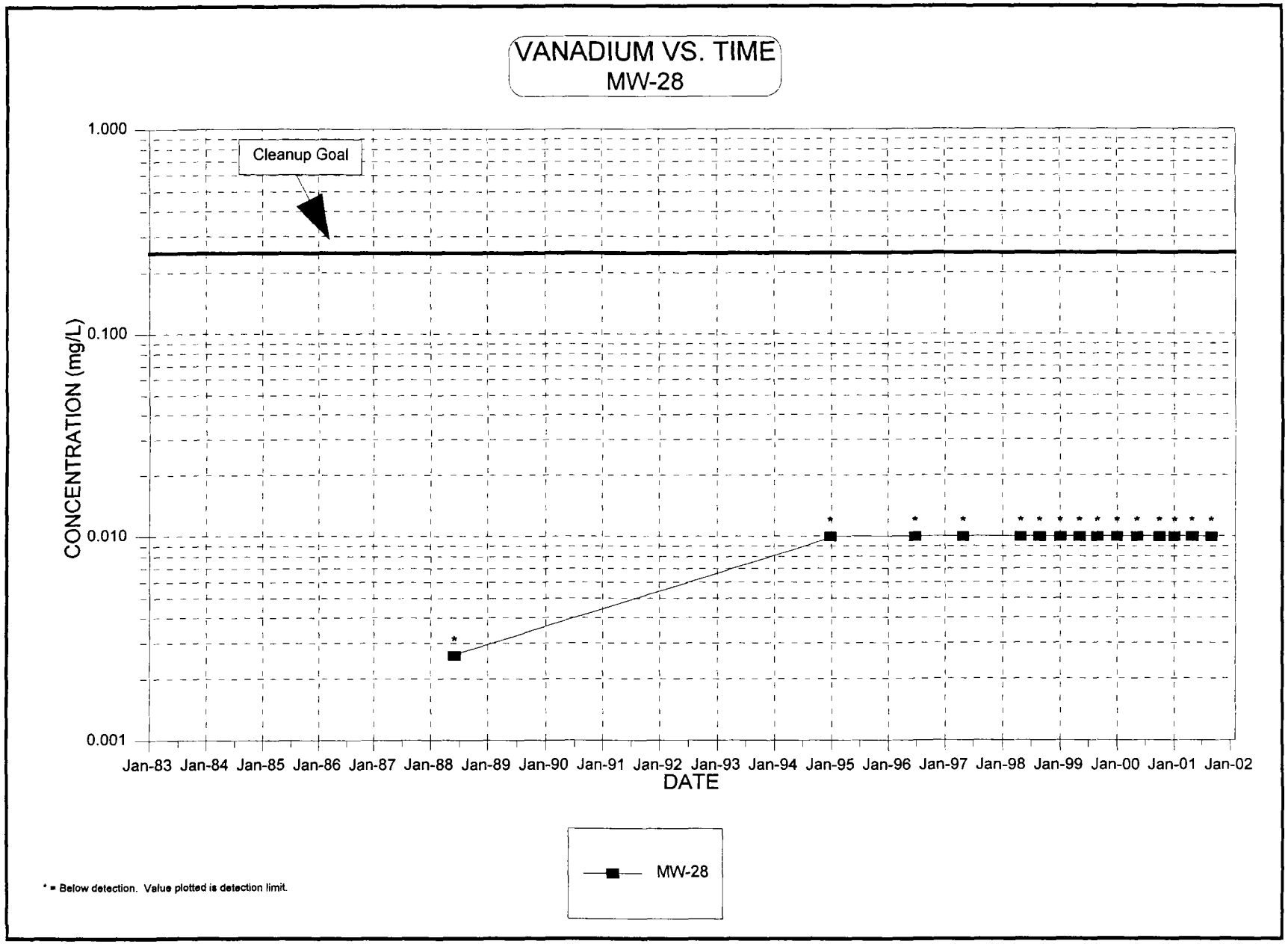
* = Below detection. Value plotted is detection limit.


VANADIUM VS. TIME
MW-12
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
DATE
MW-12
* = Below detection. Value plotted is detection limit.

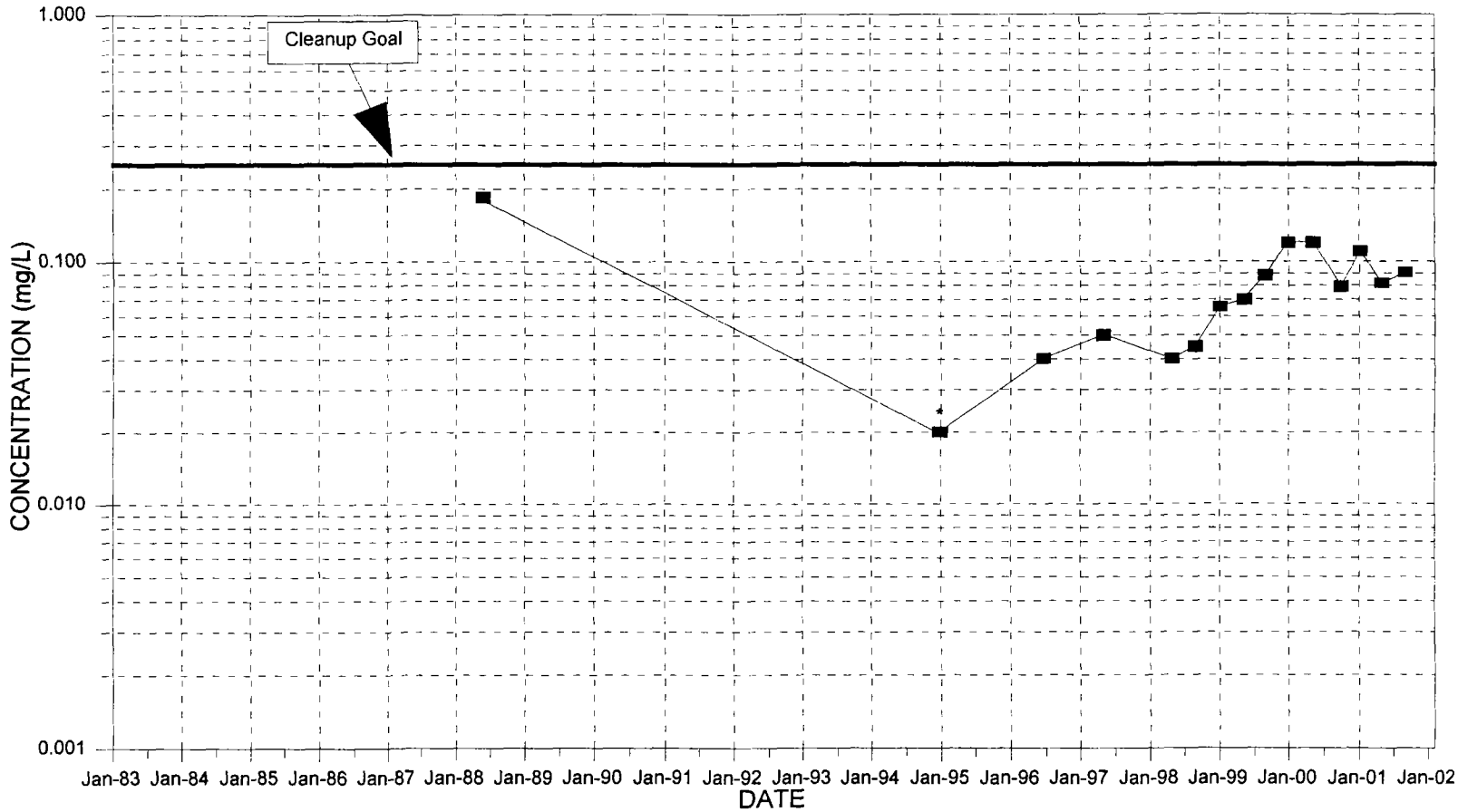


* = Below detection. Value plotted is detection limit.


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
DATE
MW-18

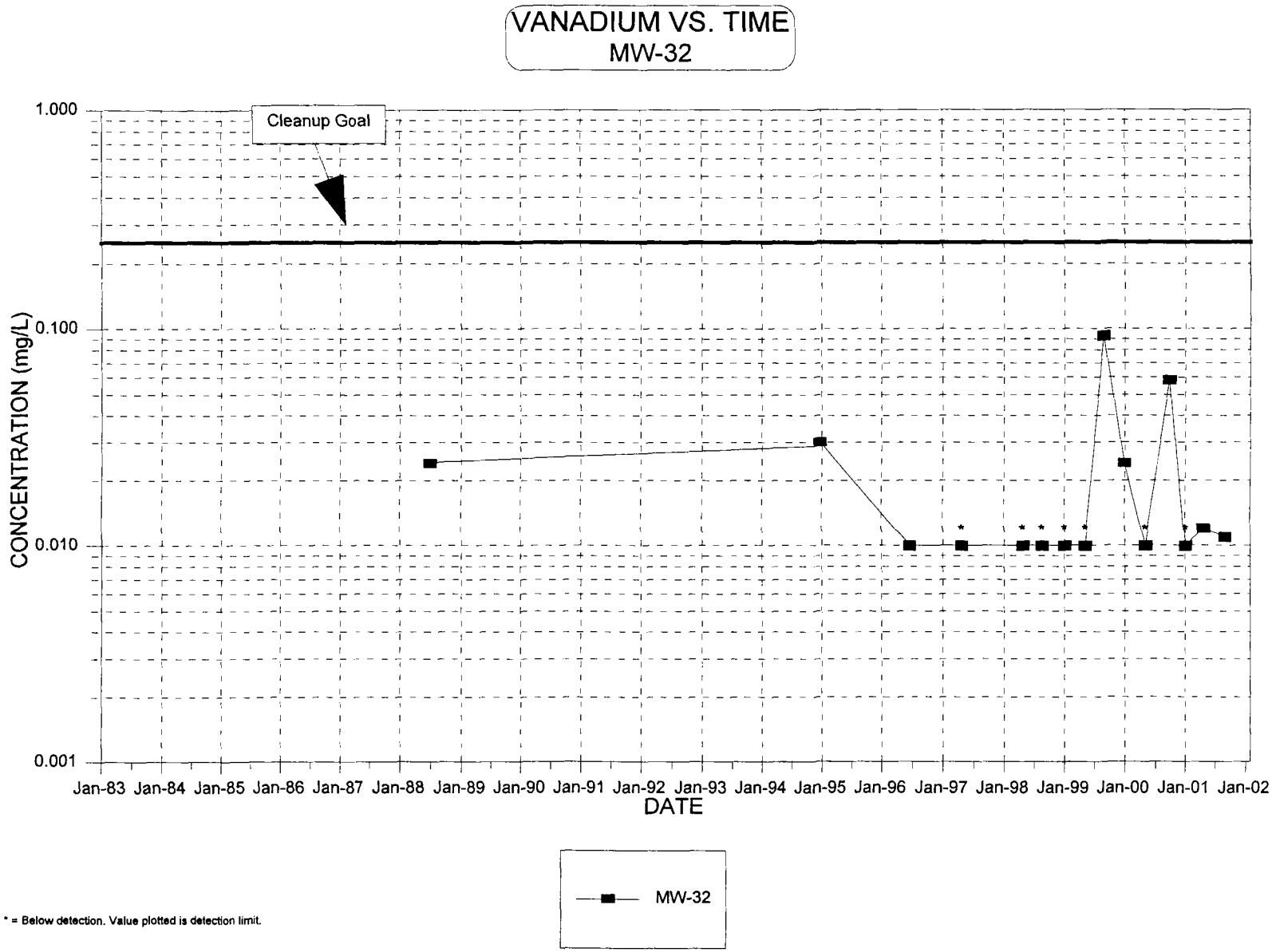

VANADIUM VS. TIME
MW-28
Cleanup Goal
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-28
* = Below detection. Value plotted is detection limit.

VANADIUM VS. TIME
MW-31

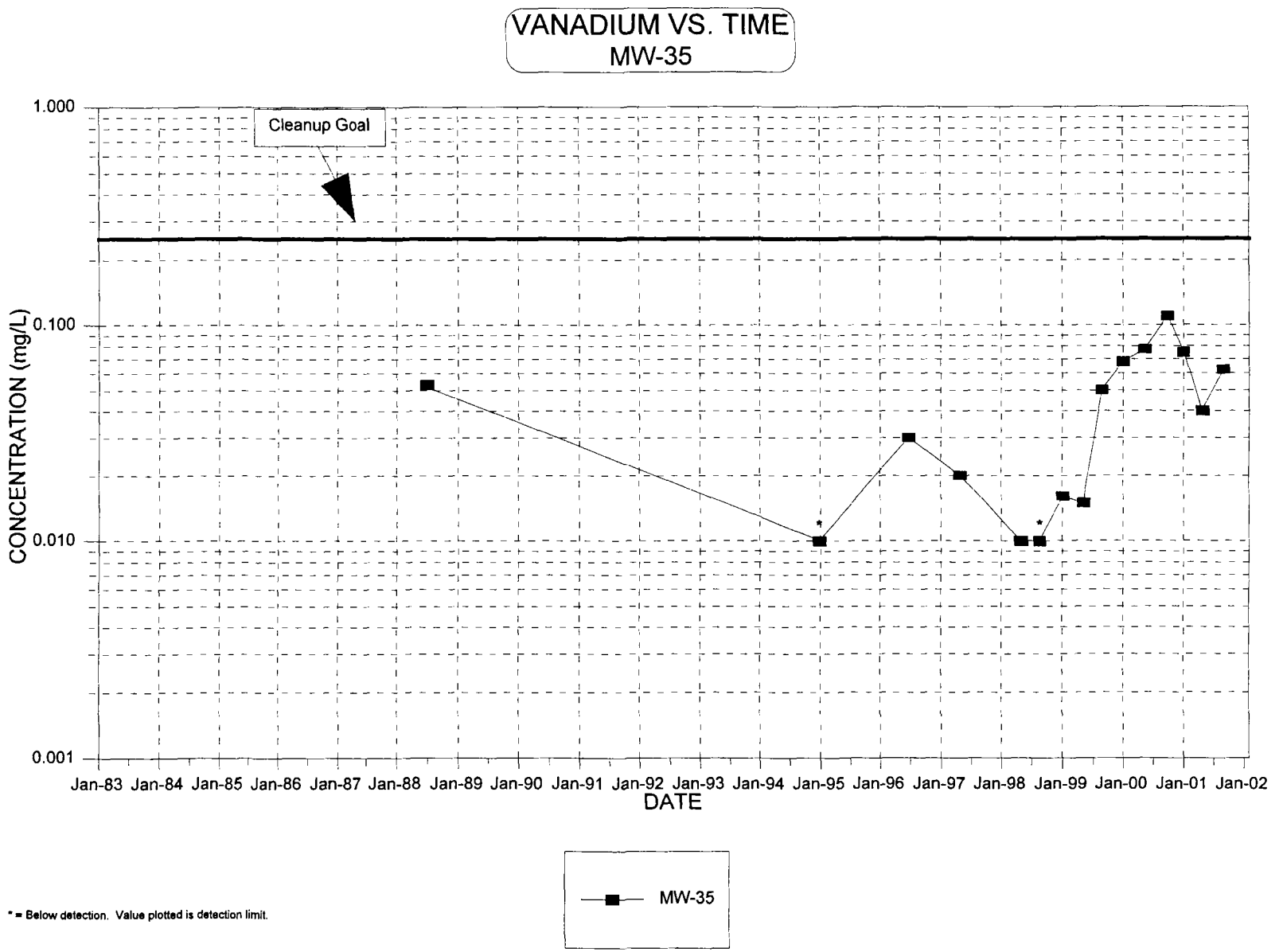


MW-31

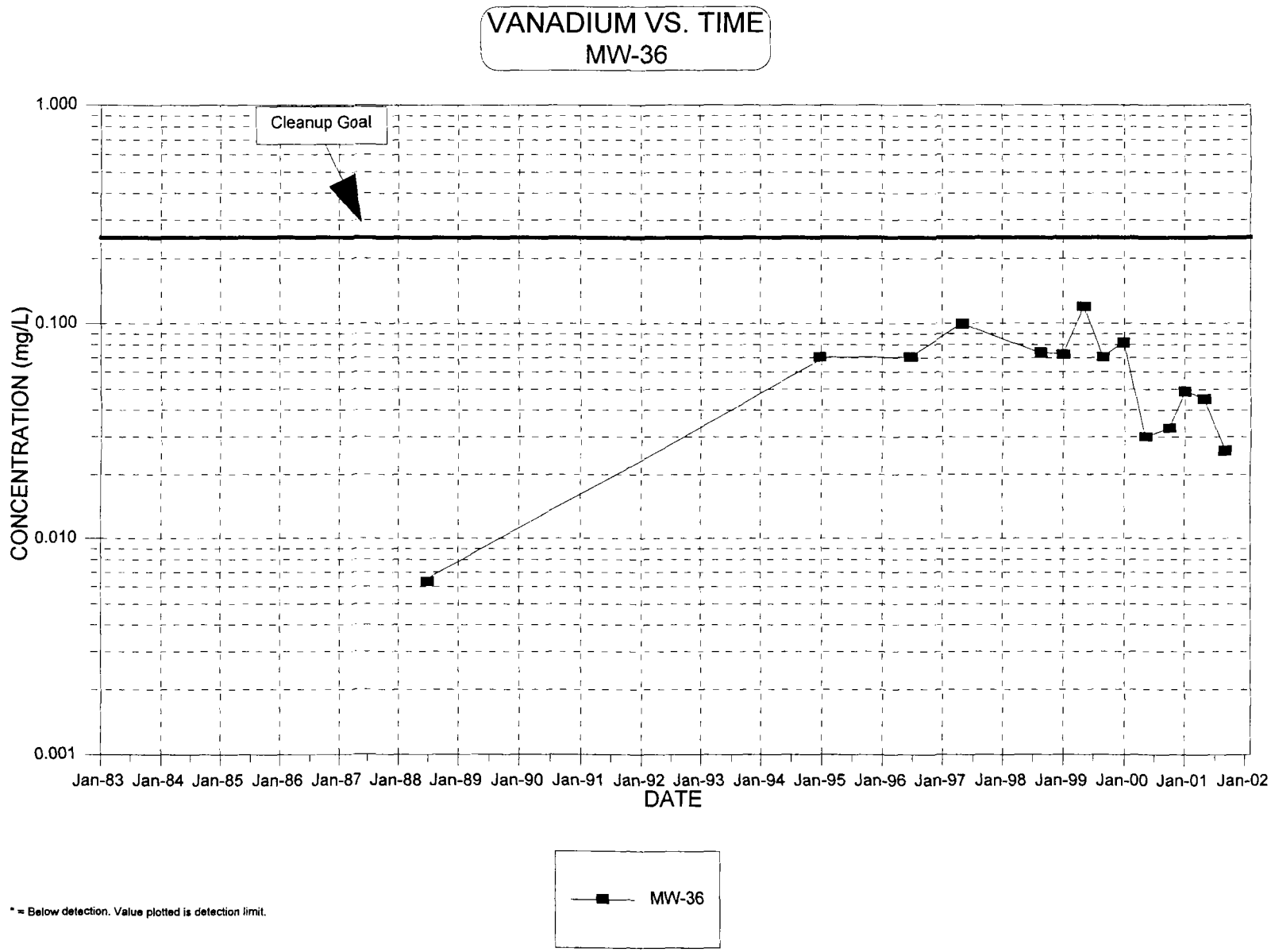
* = Below detection. Value plotted is detection limit.



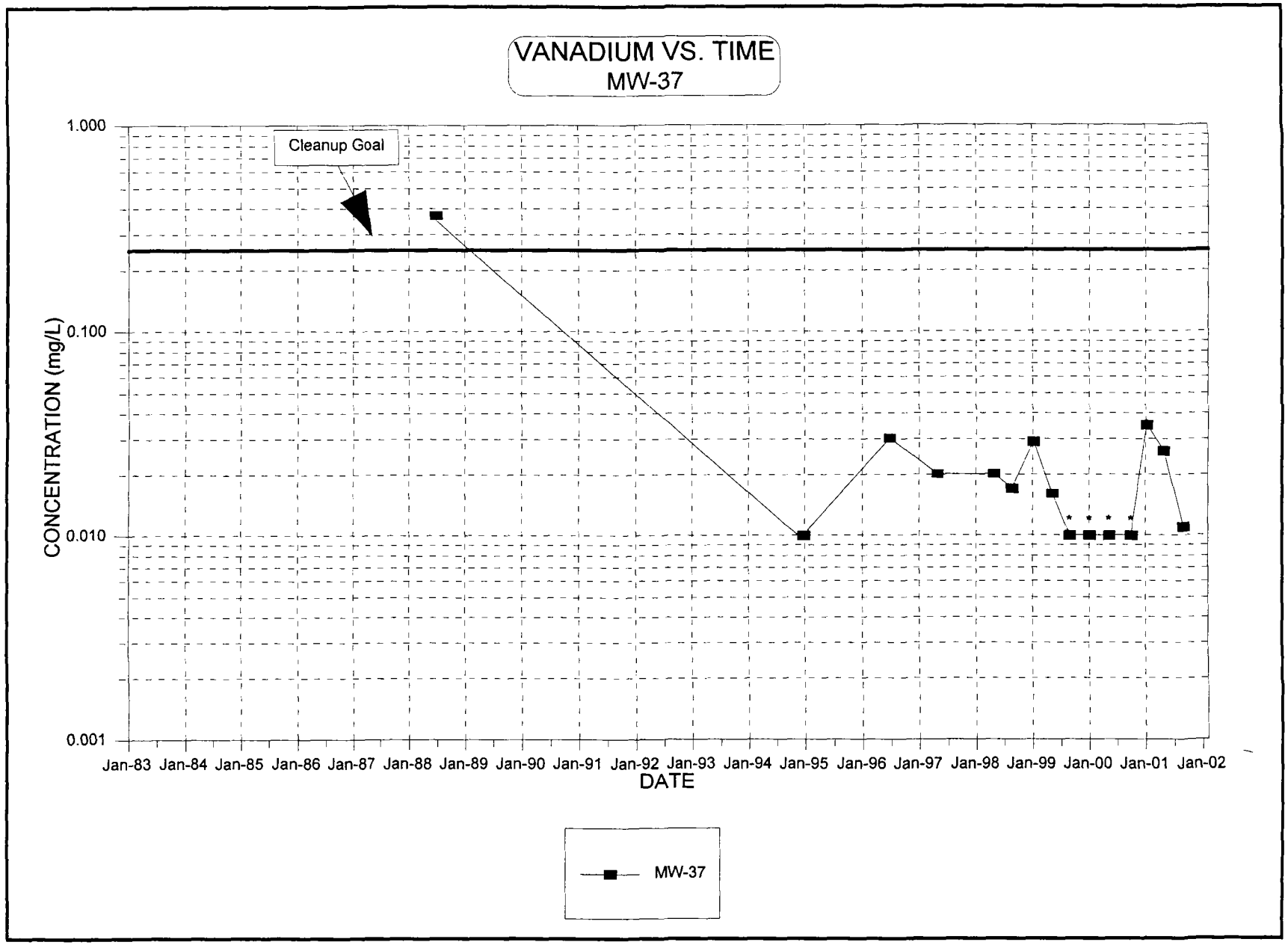
* = Below detection. Value plotted is detection limit.



* = Below detection. Value plotted is detection limit.

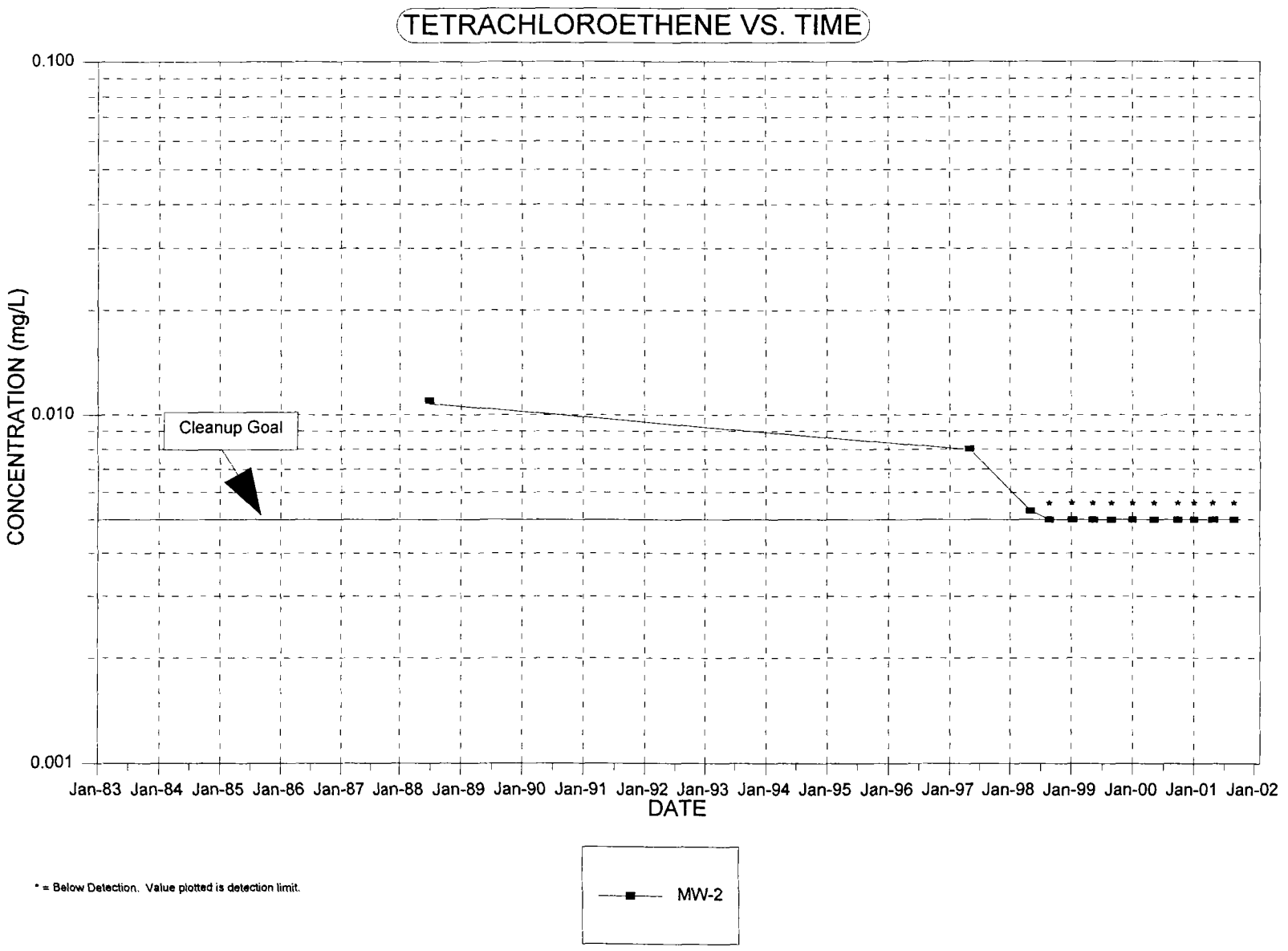


* = Below detection. Value plotted is detection limit.

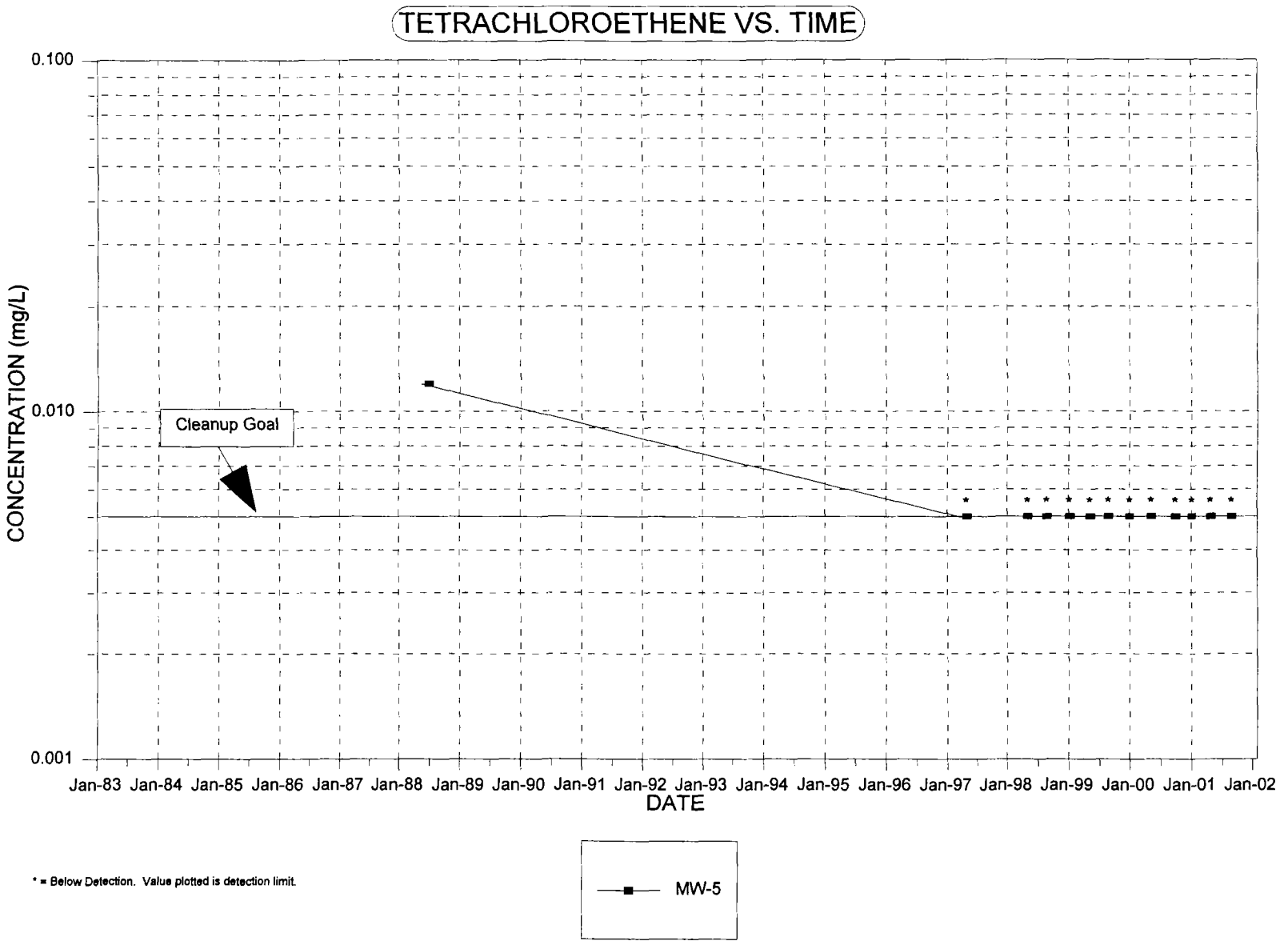

VANADIUM VS. TIME
MW-37
Cleanup Goal
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-37

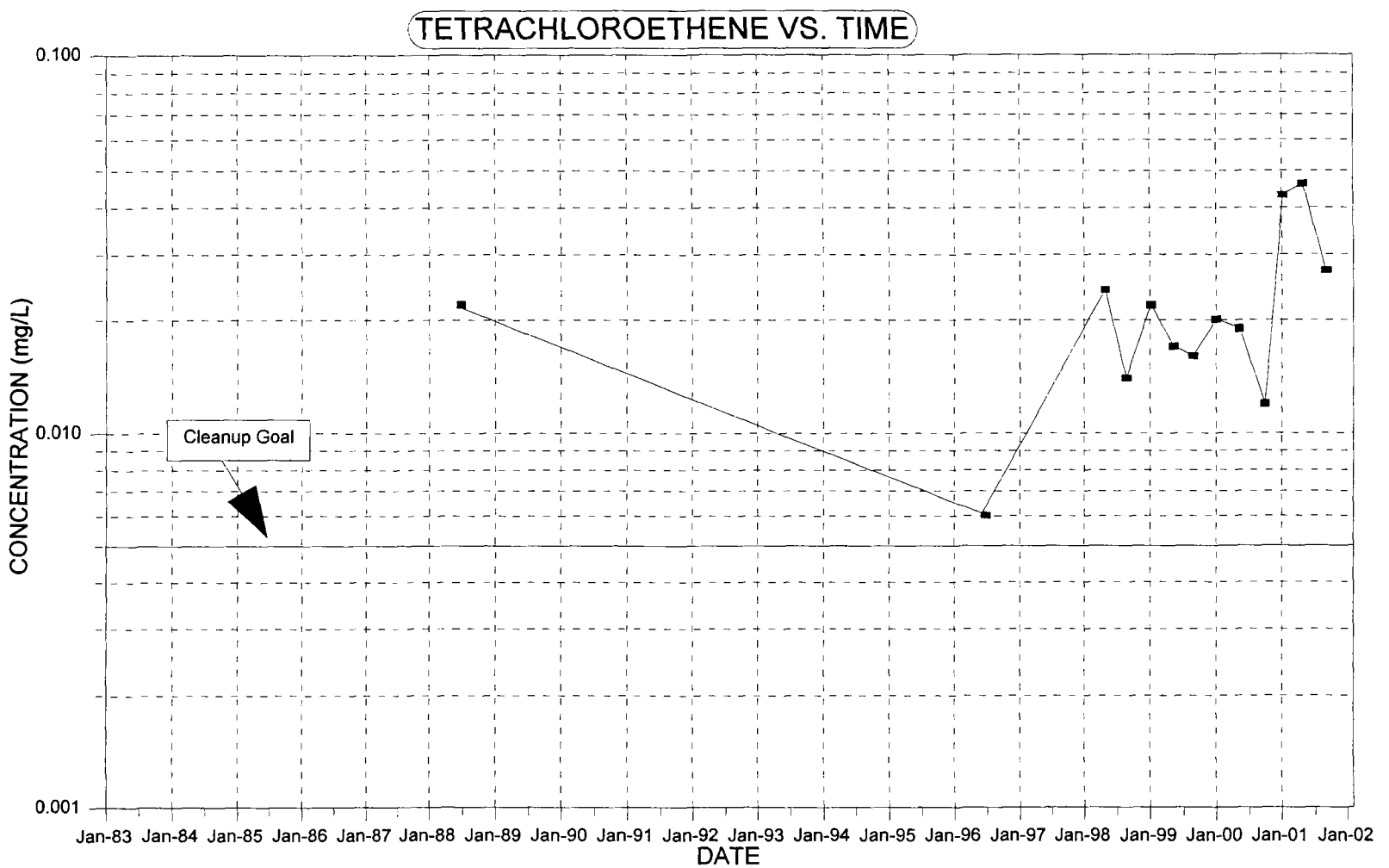
APPENDIX D-8

TETRACHLOROETHENE



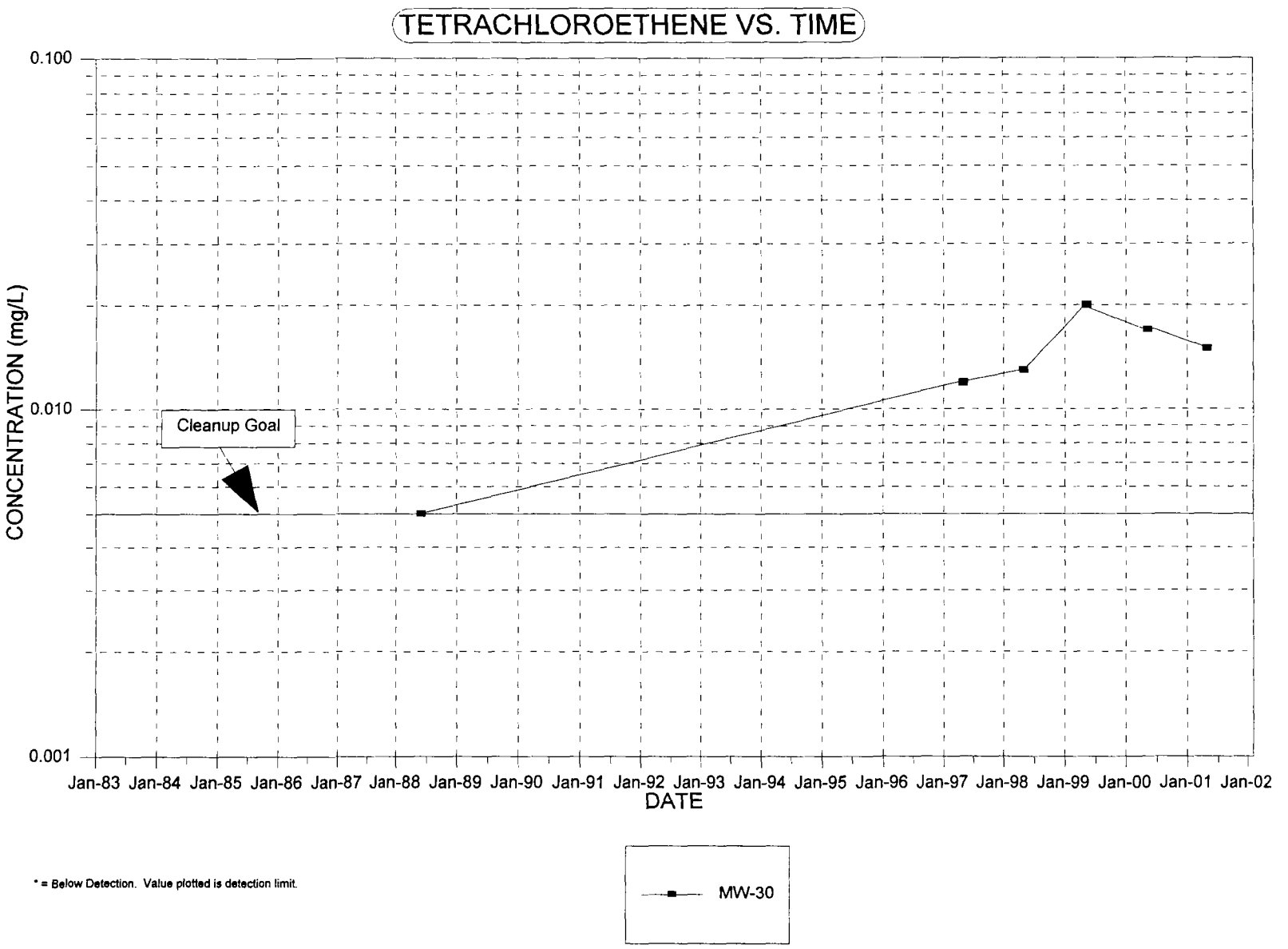
* = Below Detection. Value plotted is detection limit.


TETRACHLOROETHENE VS. TIME
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
DATE
* = Below Detection. Value plotted is detection limit.
MW-5

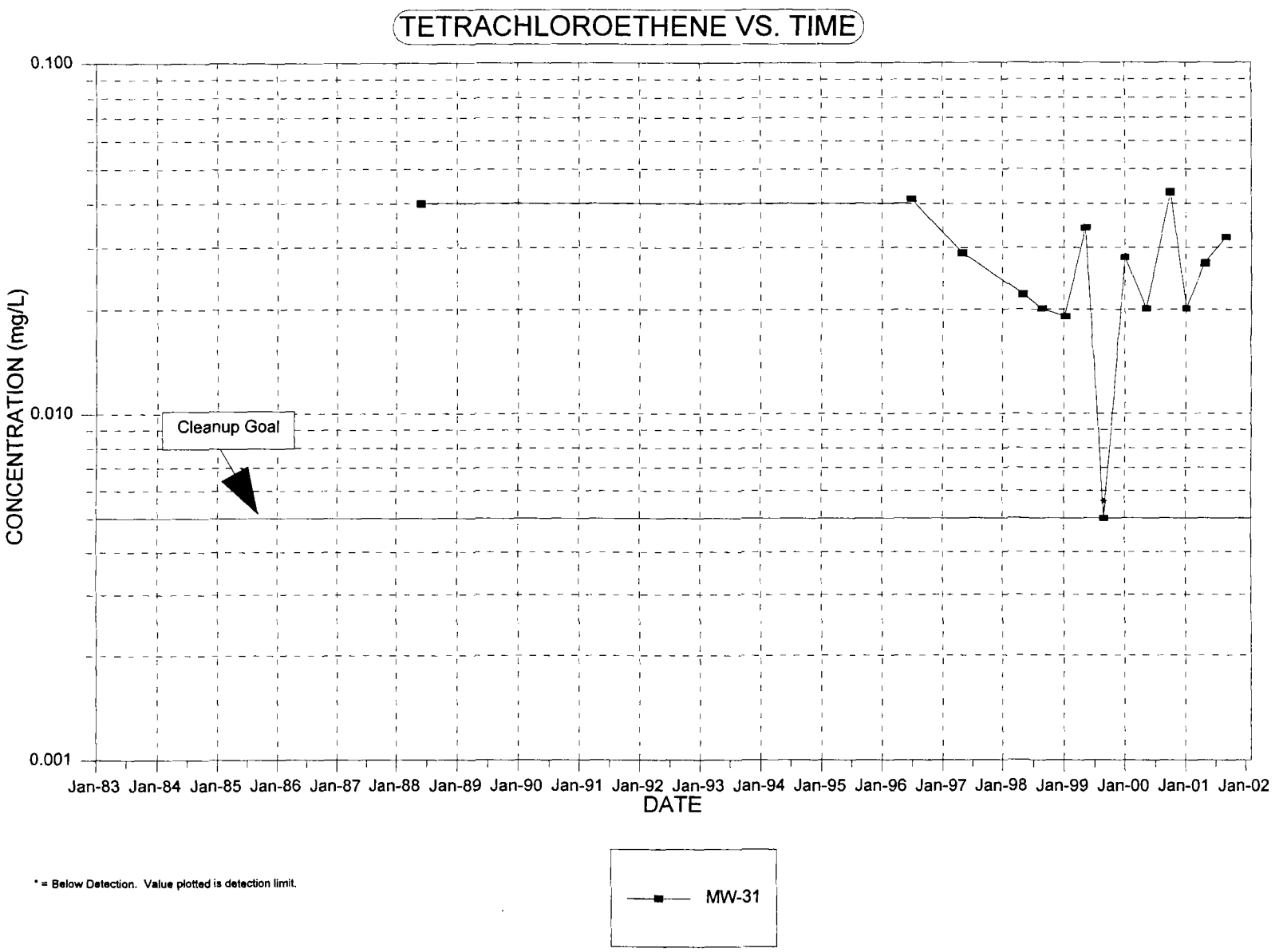


* = Below Detection. Value plotted is detection limit.

MW-18



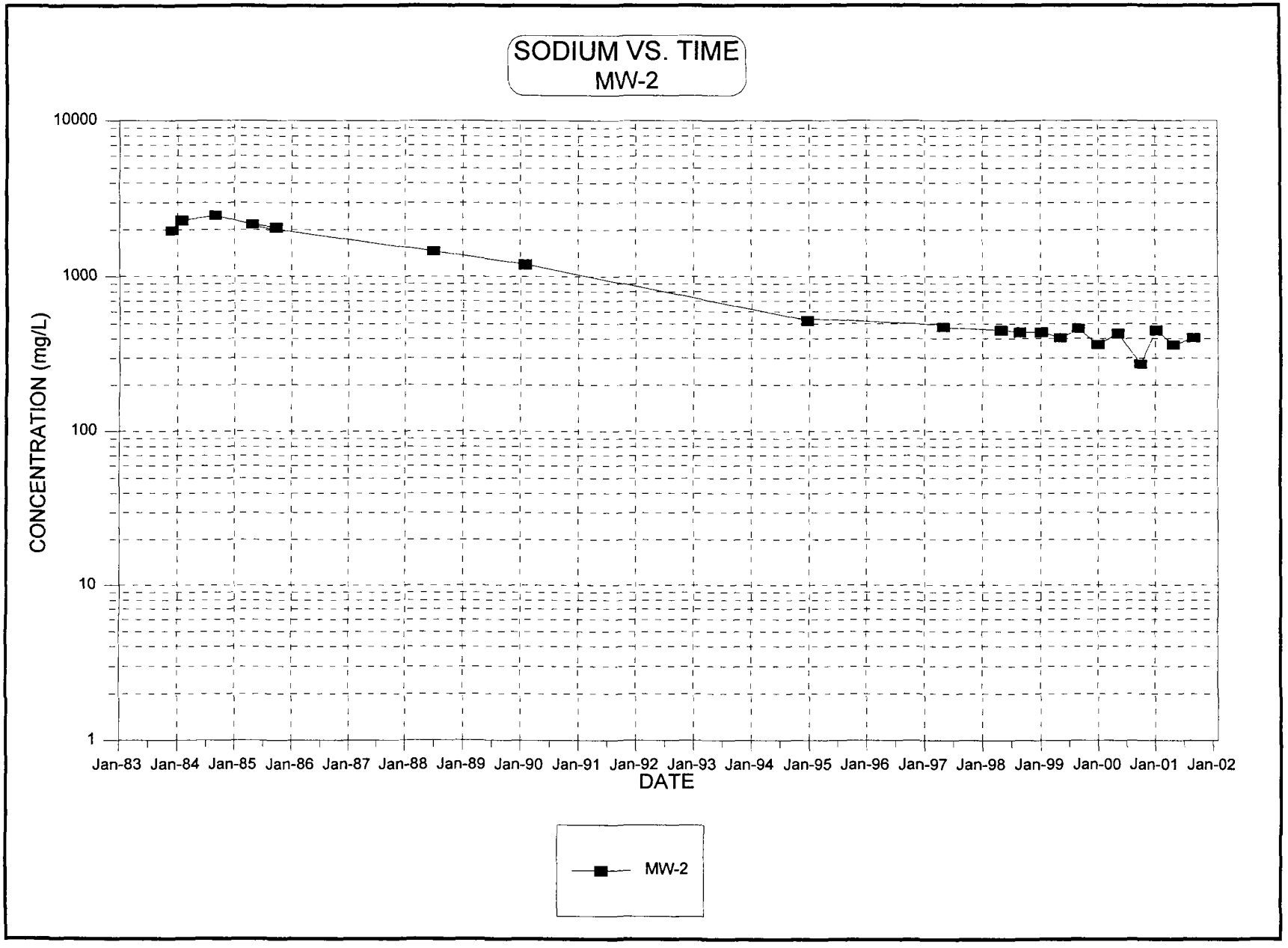
* = Below Detection. Value plotted is detection limit.

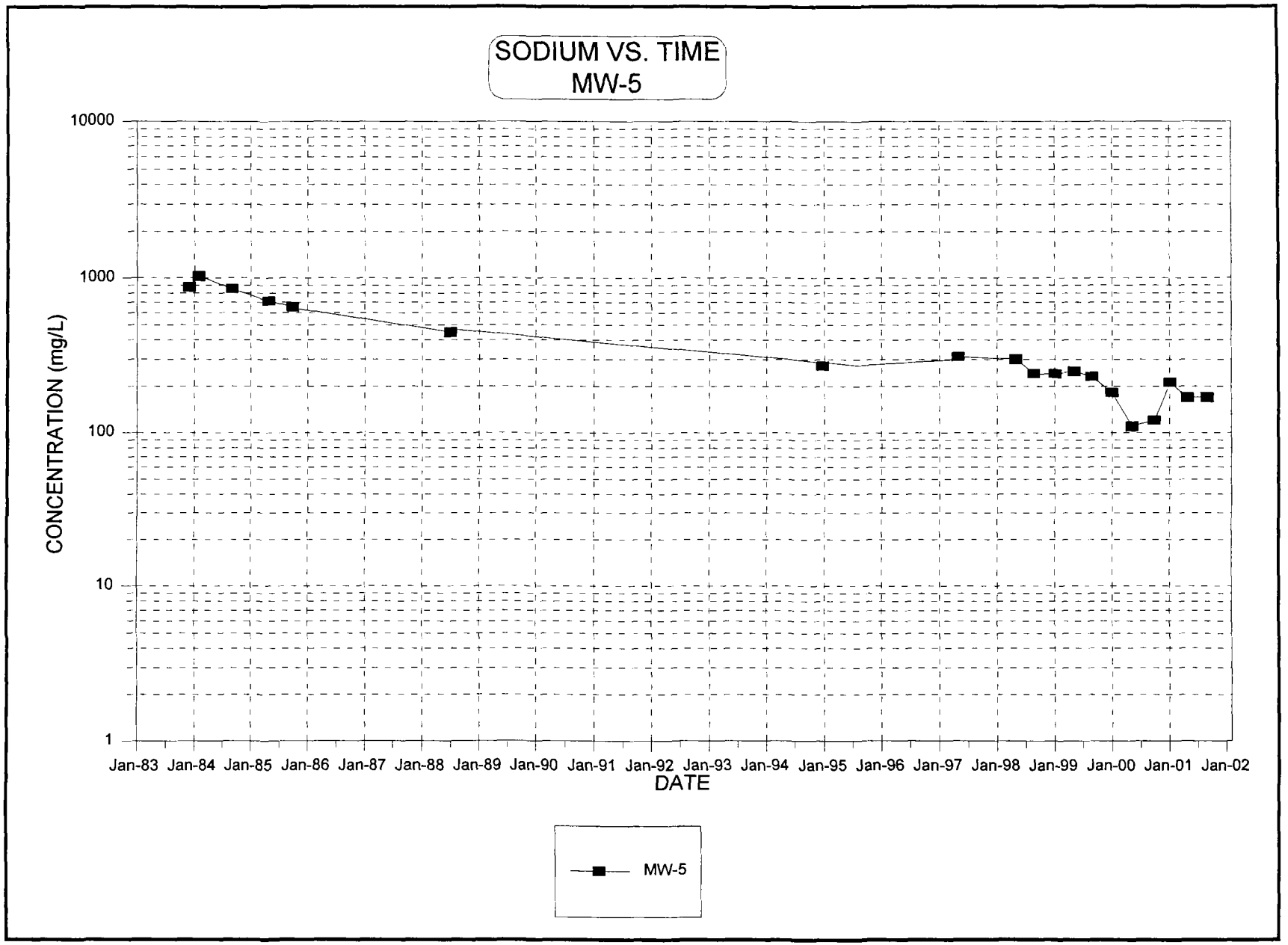


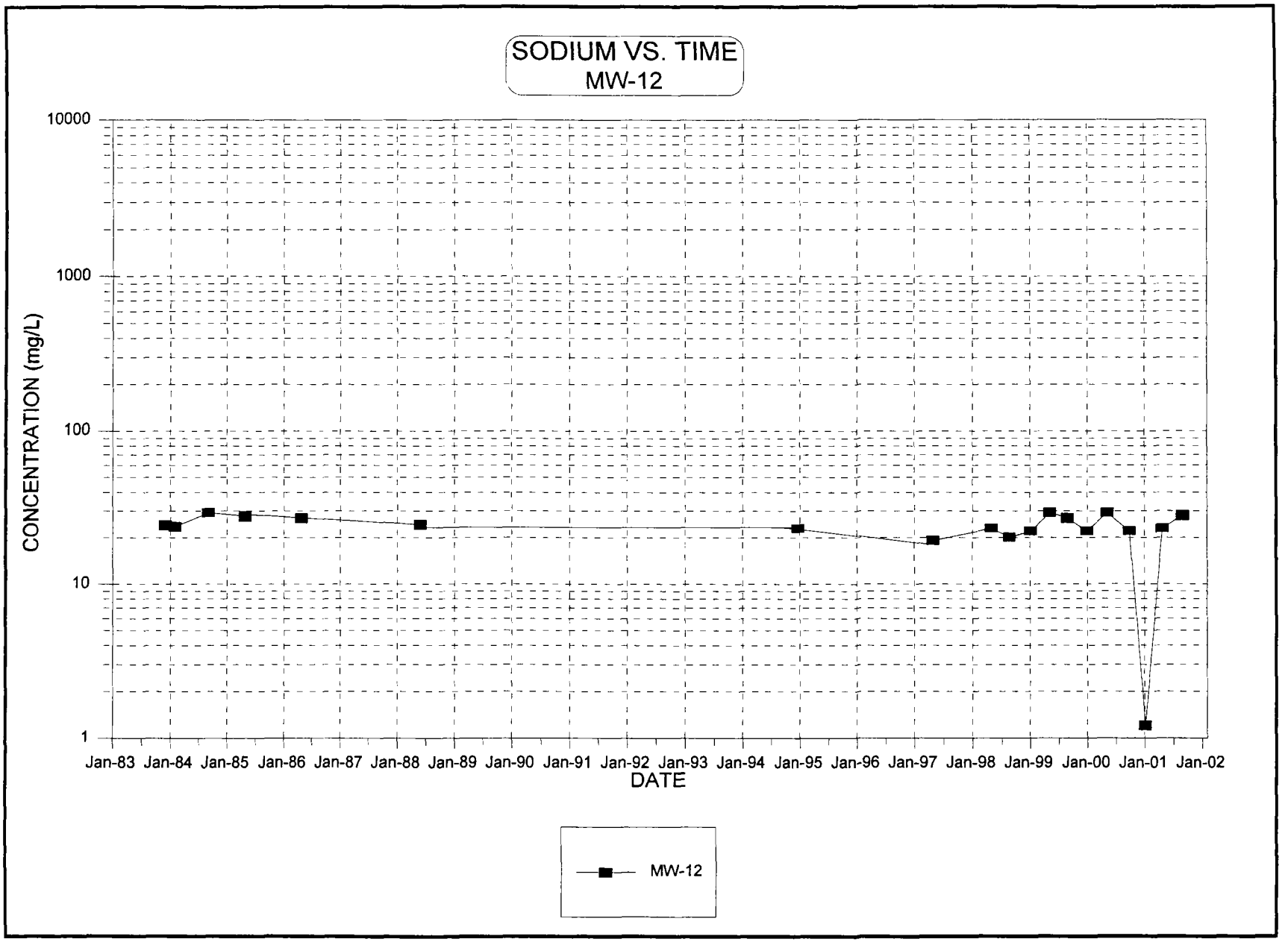
* = Below Detection. Value plotted is detection limit.

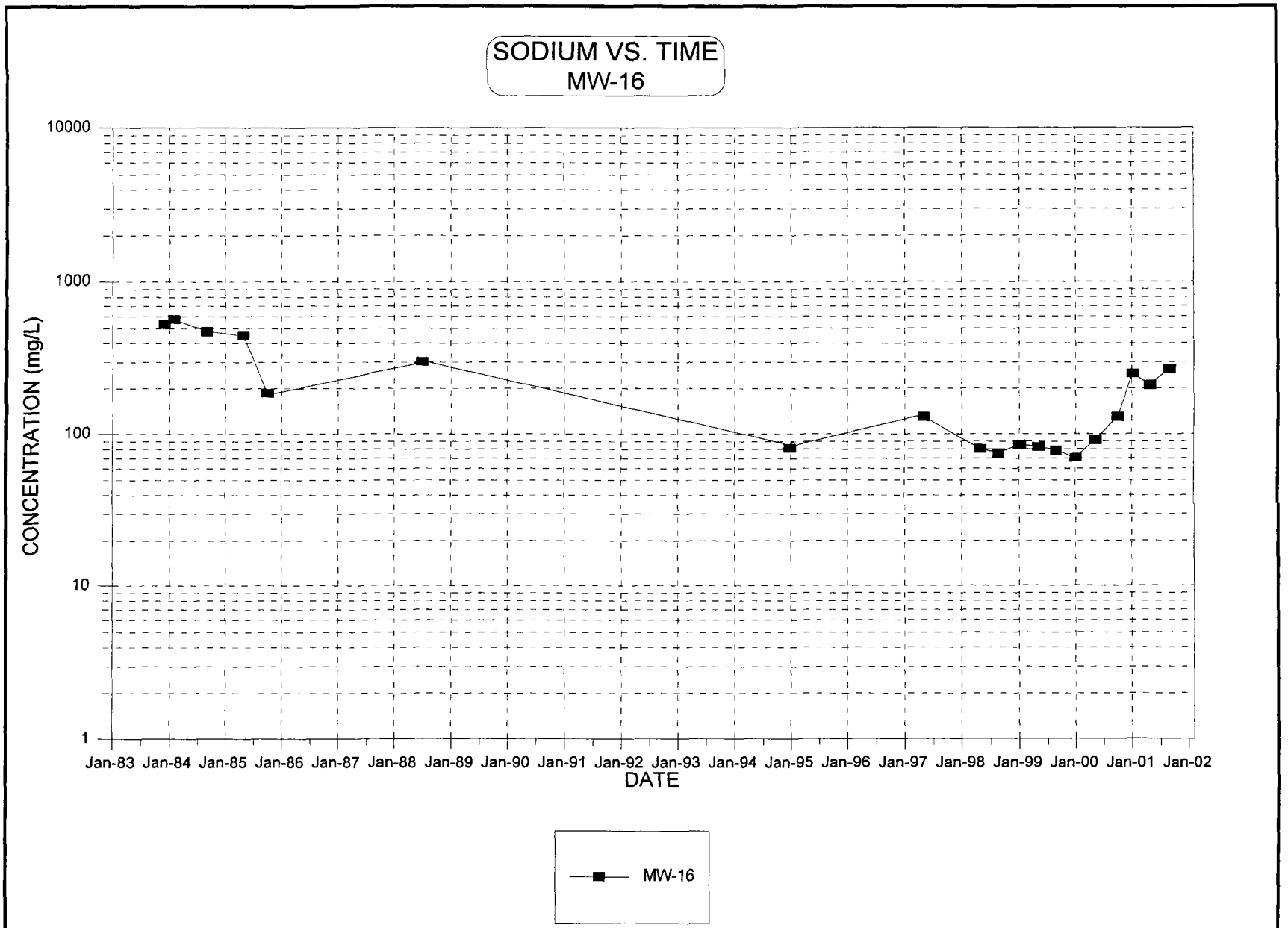
APPENDIX D-9

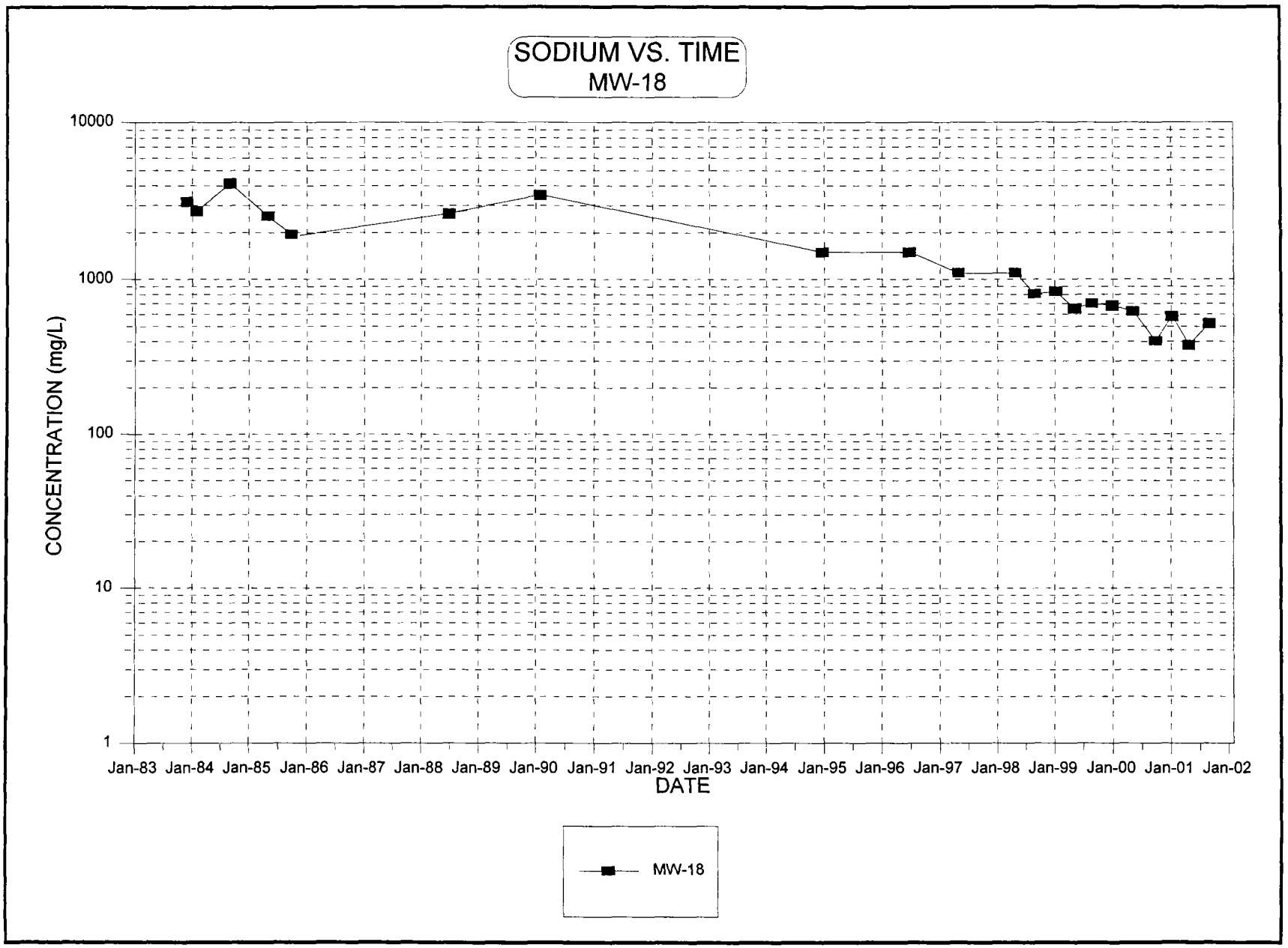
SODIUM

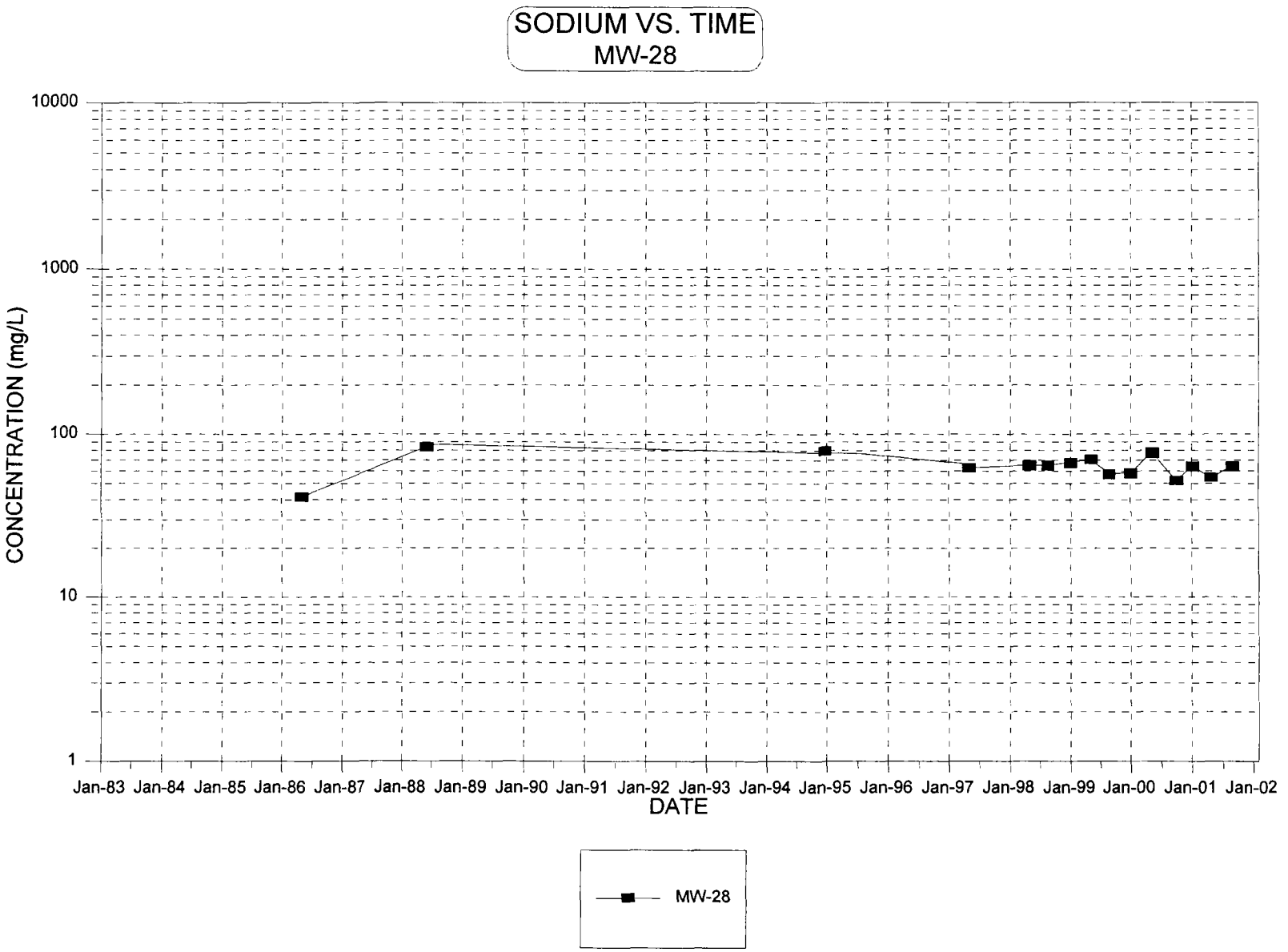

SODIUM VS. TIME
MW-2
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
DATE
MW-2

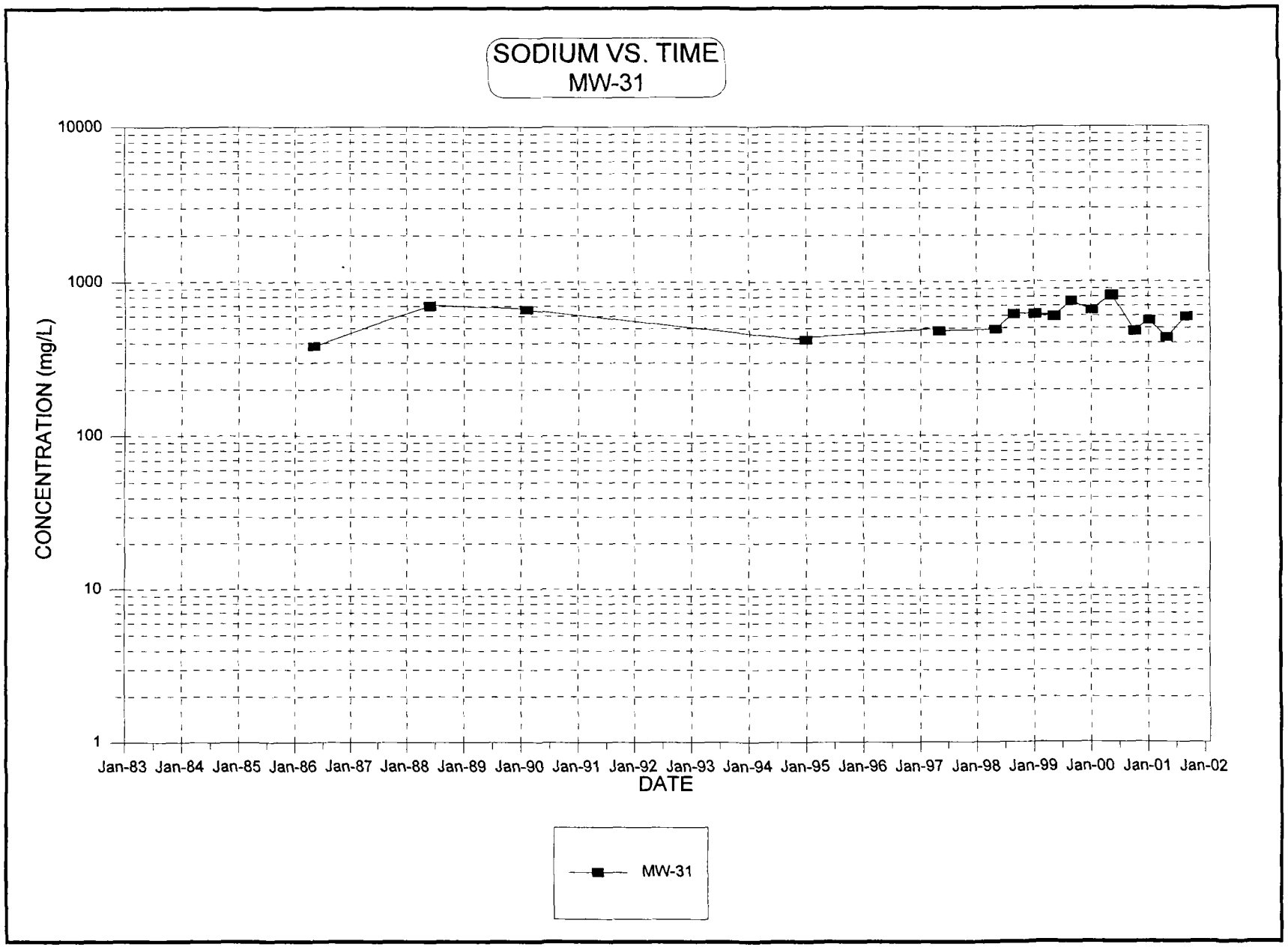

SODIUM VS. TIME
MW-5
10000
1000
100
10
1
CONCENTRATION (mg/L)
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
DATE
MW-5

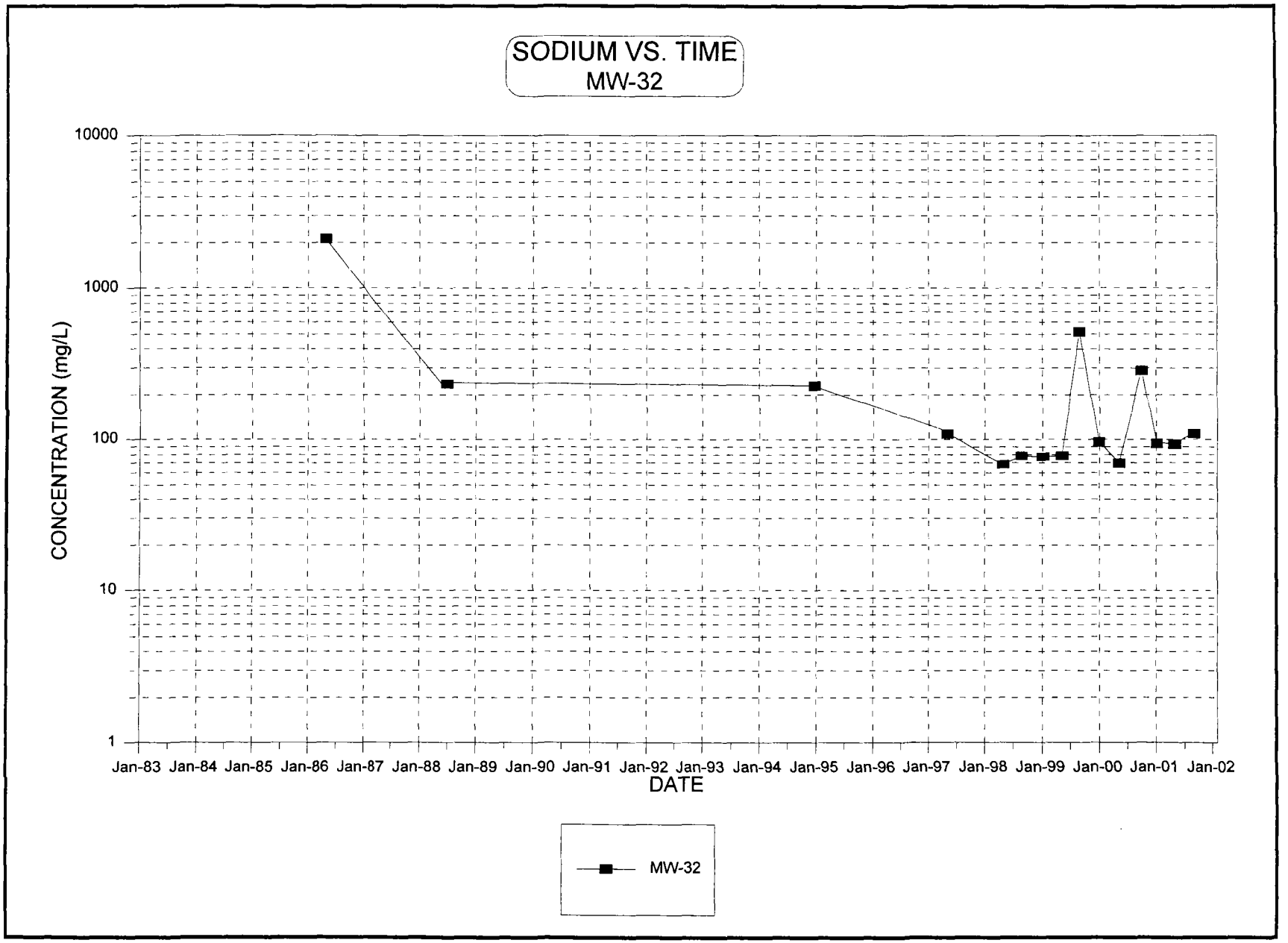

SODIUM VS. TIME
MW-12
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
DATE
MW-12

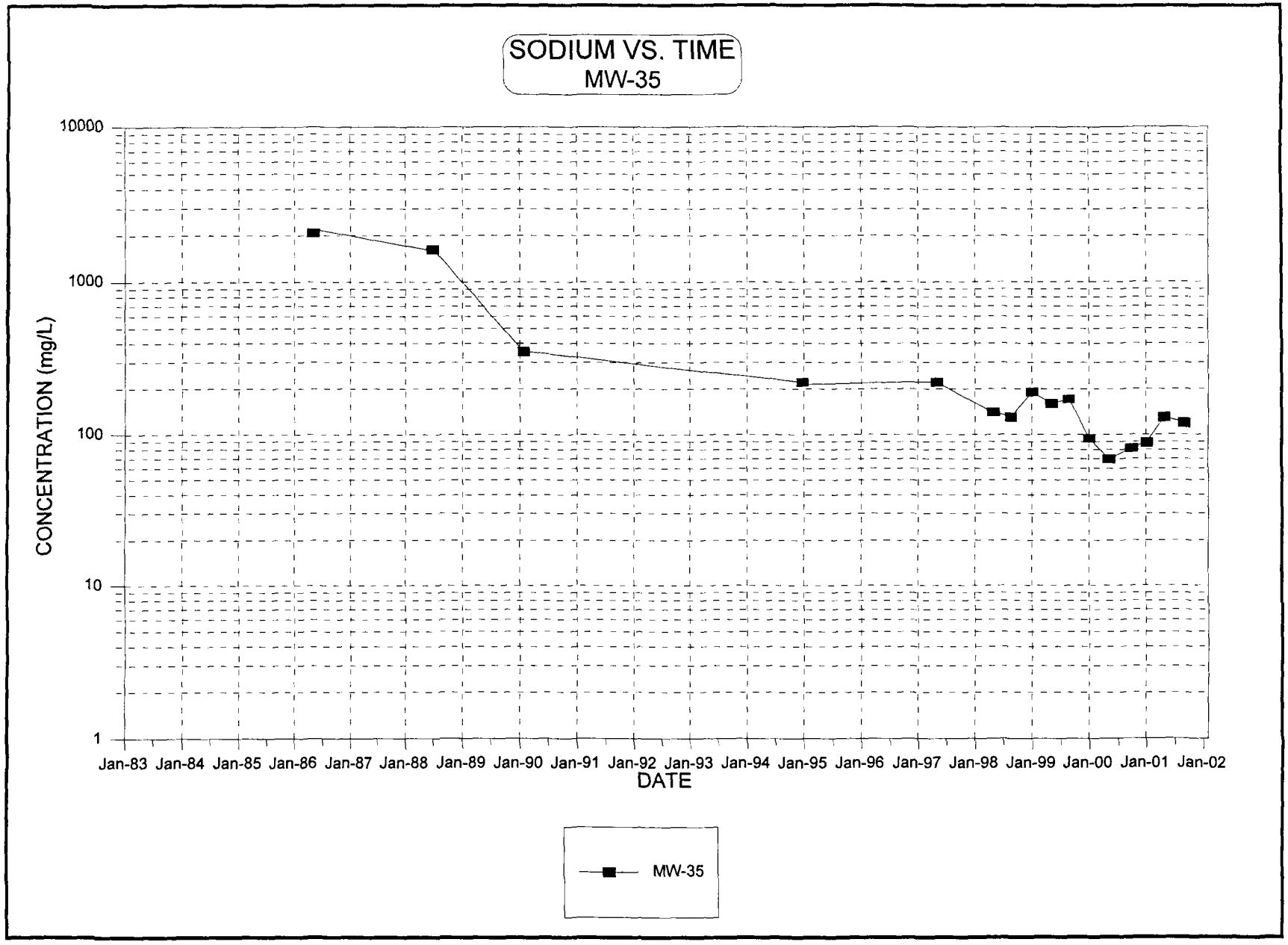

SODIUM VS. TIME
MW-16
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-16

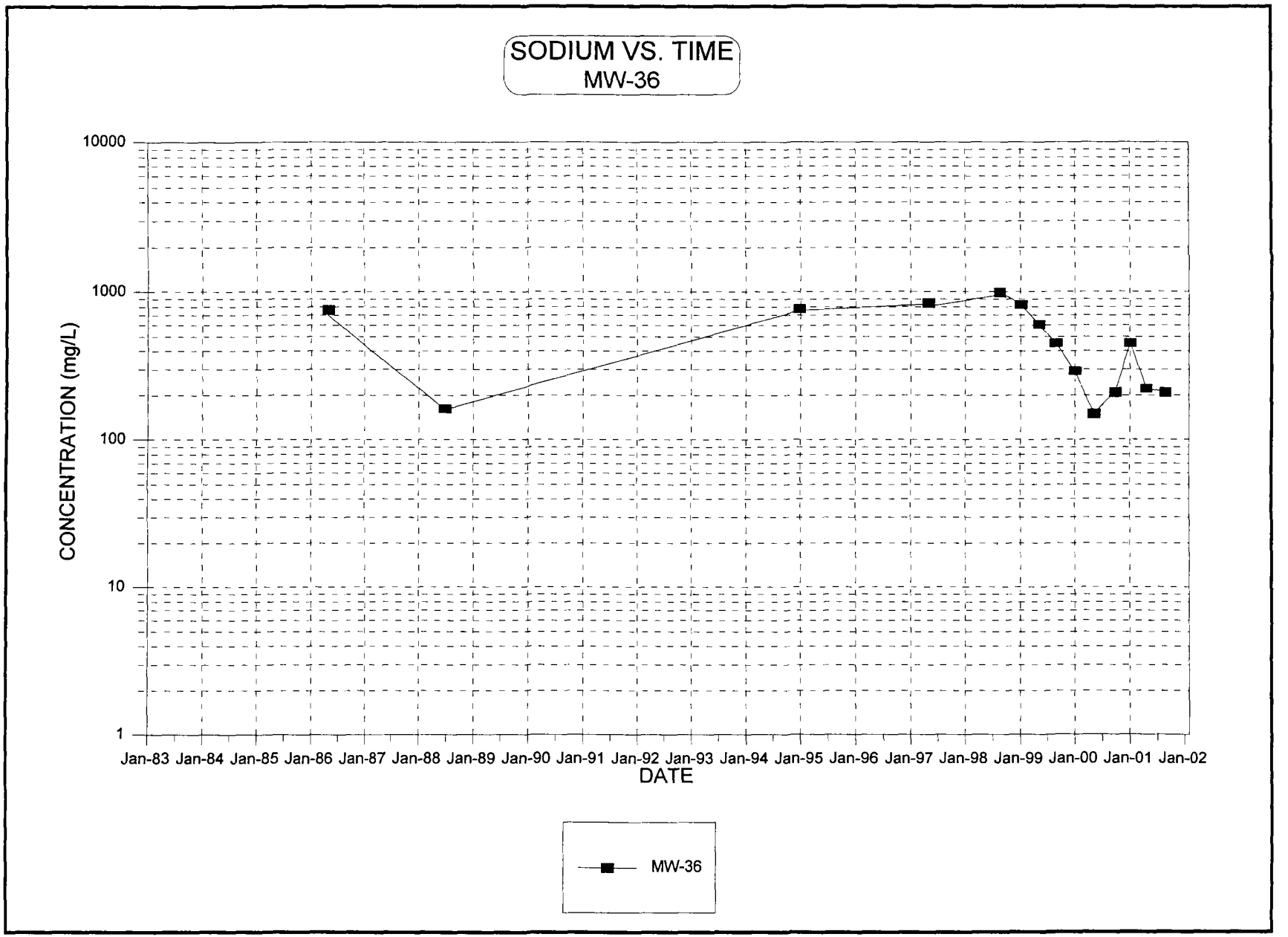

SODIUM VS. TIME
MW-18
10000
1000
100
10
1
CONCENTRATION (mg/L)
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
DATE
MW-18

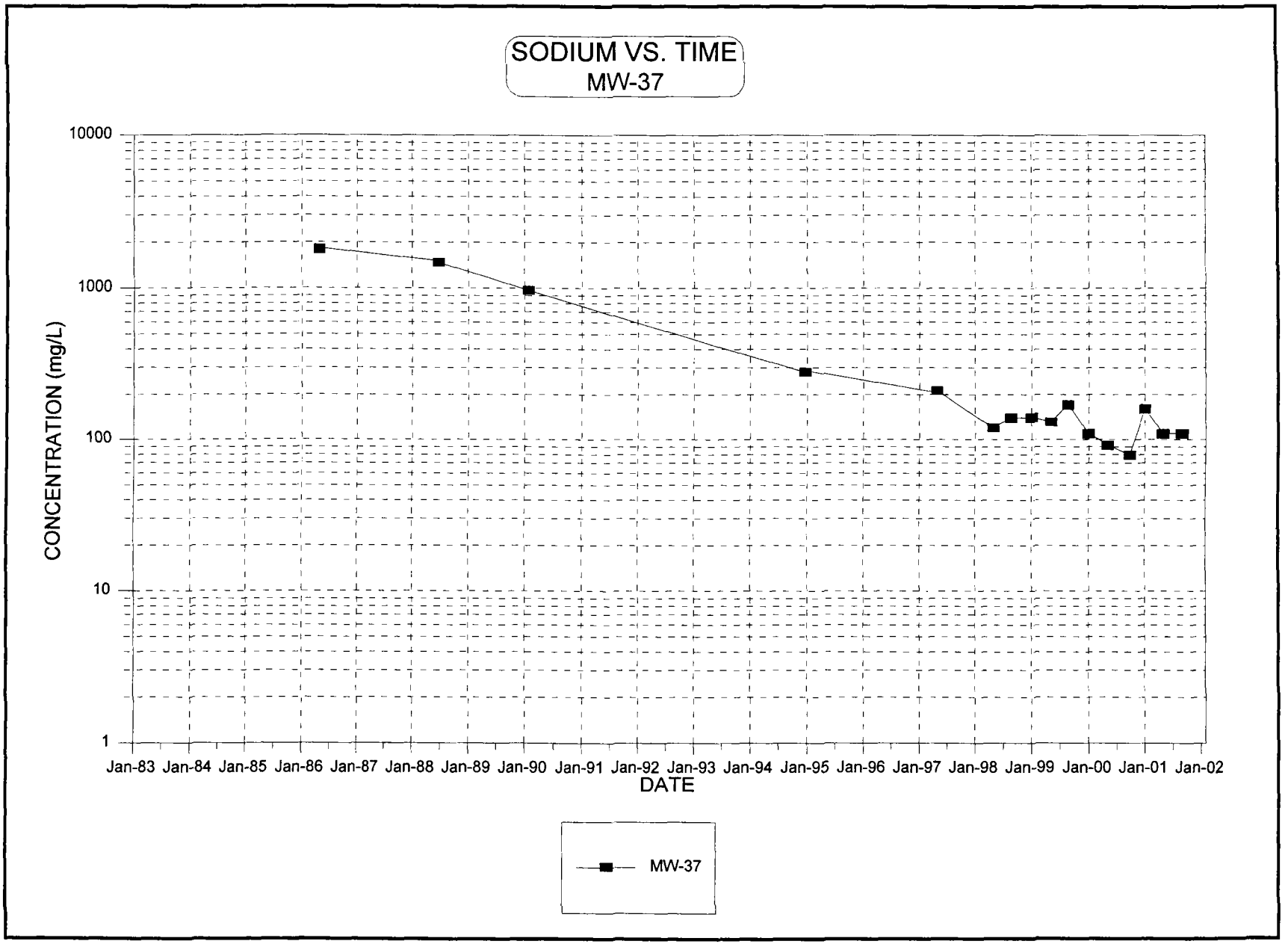

SODIUM VS. TIME
MW-28
10000
1000
100
10
1
CONCENTRATION (mg/L)
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-28


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
DATE
MW-31


SODIUM VS. TIME
MW-32
10000
1000
100
10
1
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
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 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02
DATE
MW-35


SODIUM VS. TIME
MW-36
10000
1000
100
10
1
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
DATE
MW-36


SODIUM VS. TIME
MW-37
10000
1000
100
10
1
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
DATE
MW-37

APPENDIX E

CONTAMINANT MASS-IN-PLACE ESTIMATION SUPPORTING DATA

MAY 2001 MONITORING EVENT

APPENDIX E-1
ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES
COLLECTED MAY 2001

ORMET CORPORATION
HANNIBAL, OHIO

SAMPLE I.D.:	MW-2	MW-5	MW-7	MW-8	MW-10	MW-11	MW-12	MW-15	MW-16	MW-17
Cyanide, Total	15/15	2.9	<0.01	0.024	0.013	<0.01	<0.01	0.49	12/11	0.50
Fluoride	67/68	13	0.13	1.9	0.47	1.6	0.82	2.0	39/40	3.0

SAMPLE I.D.:	MW-18	MW-19	MW-28	MW-29S	MW-29D	MW-30	MW-31	MW-32	MW-34S	MW-34D
Cyanide, Total	15/49	<0.01	1.1	0.16	0.15	0.79	12	4.9	0.12	0.13
Fluoride	100/110	1.1	0.22	16	3.1	0.17	77	17	8.6	3.9

SAMPLE I.D.:	MW-35	MW-36	MW-37	MW-39S	MW-39D	MW-40S	MW-40D	MW-41	MW-42S	MW-42D
Cyanide, Total	17	3.0	7.9	2.0	0.024	0.25	0.15	<0.01	0.51	0.023
Fluoride	35	49	10	97	3.1	13	8.6	0.34	23	3.1

NOTE: All results in mg/L.

01-E1a.123

APPENDIX E-1 (CONT.)
PLUME CONTOUR AREA CALCULATIONS
FOR TOTAL CYANIDE AND FLUORIDE
BASED ON RESULTS OF SAMPLING CONDUCTED MAY 2001

ORMET CORPORATION
HANNIBAL, OHIO

TOTAL CYANIDE	CONTOUR INTERVAL (from Figure 6)	CONTOUR AREA in sqare feet (estimated using CAD* software)
	>40 mg/L	12,710
	30-40 mg/L	77,513
	20-30 mg/L	93,050
	10-20 mg/L	292,478
	1-10 mg/L	461,977
	>1 mg/L	15,982
	0.2-1 mg/L	645,891

TOTAL FLUORIDE	CONTOUR INTERVAL (from Figure 5)	CONTOUR AREA in sqare feet (estimated using CAD* software)
	>100 mg/L	13,532
	50-100 (center) mg/L	253,897
	>50 mg/L	20,348
	10-50 mg/L	1,168,134
	4-10 mg/L	347,175

* CAD - Computer Aided Drafting

01-E1b.123

APPENDIX E-1 (CONT.)
AVERAGE AQUIFER THICKNESS CALCULATIONS
WITHIN EACH PLUME CONTOUR INTERVAL
BASED ON RESULTS OF SAMPLING CONDUCTED MAY 2001

ORMET CORPORATION
HANNIBAL, OHIO

TOTAL CYANIDE

CONTOUR INTERVAL (from Figure 6)	MONITORING WELL ID	AQUIFER THICKNESS (in feet)	AVERAGE AQUIFER THICKNESS (b, in feet)
>40 mg/L	MW-18	21	21
30-40 mg/L	MW-18	21	21
20-30 mg/L	MW-18	21	21
10-20 mg/L	MW-2	26	22
	MW-16	33	
	MW-31	19	
	MW-35	11	
1-10 mg/L	MW-5	23	21
	MW-16	33	
	MW-28	25	
	MW-32	15	
	MW-36	13	
	MW-37	15	
>1 mg/L	MW-39	40	40
0.2-1 mg/L	MW-15	19	30
	MW-17	39	
	MW-28	25	
	MW-31	19	
	MW-34	31	
	MW-40	36	
	MW-42	44	

01-E1c.123

APPENDIX E-1 (CONT.)
AVERAGE AQUIFER THICKNESS CALCULATIONS
WITHIN EACH PLUME CONTOUR INTERVAL
BASED ON RESULTS OF SAMPLING CONDUCTED MAY 2001

ORMET CORPORATION
HANNIBAL, OHIO

FLUORIDE

CONTOUR INTERVAL (from Figure 5)	MONITORING WELL ID	AQUIFER THICKNESS (in feet)	AVERAGE AQUIFER THICKNESS (b, in feet)
>100 mg/L	MW-18	21	21
50-100 mg/L	MW-2	26	22
	MW-18	21	
	MW-31	19	
>50 mg/L	MW-39	40	40
10-50 mg/L	MW-5	23	25
	MW-15	19	
	MW-16	33	
	MW-29	40	
	MW-32	15	
	MW-34	31	
	MW-35	11	
	MW-36	13	
	MW-37	15	
	MW-40	36	
	MW-42	44	
4-10 mg/L	MW-11	28	31
	MW-28	25	
	MW-29	40	

01-E1d.123

APPENDIX E-1 (CONT.)
TOTAL CYANIDE AND FLUORIDE MASS-IN-PLACE
CALCULATION WORKSHEET
BASED ON RESULTS OF SAMPLING CONDUCTED MAY 2001

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	>40 mg/L	12,710	21	266,910	0.25	66,728	1,889,737	45	85,038,165	188
	30-40 mg/L	77,513	21	1,627,773	0.25	406,943	11,524,626	35	403,361,910	889
	20-30 mg/L	93,050	21	1,954,050	0.25	488,513	13,834,688	25	345,867,200	763
	10-20 mg/L	292,478	22	6,434,516	0.25	1,608,629	45,556,373	15	683,345,595	1,507
	1-10 mg/L	461,977	21	9,701,517	0.25	2,425,379	68,686,733	5	343,433,665	757
	>1 mg/L	15,982	40	639,280	0.25	159,820	4,526,102	1.5	6,789,153	15
	0.2-1 mg/L	645,891	30	19,376,730	0.25	4,844,183	137,187,263	0.6	82,312,358	181
									Total Cyanide Mw:	4,300
FLUORIDE	(from Figure 5)									
	>100 mg/L	13,532	21	284,172	0.25	71,043	2,011,938	105	211,253,490	466
	50-100 (center) mg/L	253,897	22	5,585,734	0.25	1,396,434	39,547,011	75	2,966,025,825	6,540
	>50 mg/L	20,348	40	813,920	0.25	203,480	5,762,554	74	426,428,996	940
	10-15 mg/L	1,168,134	25	29,203,350	0.25	7,300,838	206,759,732	30	6,202,791,960	13,677
	4-10 mg/L	347,175	31	10,762,425	0.25	2,690,606	7,619,796	7	53,338,572	118
									TOTAL Fluoride Mw:	21,741

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

01-E1e.123