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2004 ANNUAL REMEDIAL ACTION GROUND-WATER MONITORING REPORT ORMET CORPORATION SUPERFUND SITE HANNIBAL, OHIO

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2004 ANNUAL REMEDIAL ACTION GROUND-WATER MONITORING REPORT ORMET CORPORATION SUPERFUND SITE HANNIBAL, OHIO

BACKGROUND/INTRODUCTION

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

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

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

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

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

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

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

- Relocation of the Outfall 004 channel.

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

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

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

SUMMARY OF GROUND-WATER MONITORING PROGRAM

The current system of ground-water monitoring wells and piezometers at the Ormet site is shown in Figure 1. Under the RA Ground-Water Monitoring Plan, monitoring is to be conducted three times per year (approximately once every four months). During 2004, ground-water monitoring events were conducted during January 13 and 14, May 11 to 14, and September 28 to 30.

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 2004 monitoring events are provided in Tables 1, 2, and 3, respectively.

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

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

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

The RA Ground-Water Monitoring Plan specifies that one monitoring event each year is to be an expanded monitoring event which includes sampling of selected wells not hydraulically downgradient from any of the potential source areas at the site (i.e., background wells) and additional wells located within the plume outside of the FSPSA. These wells include the following:

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

Water Sampling Log forms for each of the monitoring events conducted during 2004 are provided in Appendix A.

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

Ground-water samples from all monitoring wells, except MW-44S and MW-44D, were analyzed for constituents for which cleanup goals were specified in the Record of Decision (ROD) for the site; i.e., arsenic, beryllium, cyanide, manganese, vanadium, and fluoride. Samples were also analyzed for pH, specific conductance, and sodium, which are additional indicators of the plume in the alluvial aquifer. Tetrachloroethene (PCE) was analyzed in samples from the MW-2, MW-5, MW-18, MW-30, and MW-31 monitoring wells, in which PCE was detected during the Remedial Investigation (RI). Samples from wells MW-44S and MW-44D were analyzed for PCBs only. Ground-water analyses for samples collected during the 2004 events were performed by Pace Analytical Services, Inc. (Pace) of Export, PA. Methods used by Pace to analyze ground-water samples from the 2004 RA monitoring events were as shown below.

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

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 2004 monitoring events are provided in Appendix B. The analytical results are summarized in Table 4 and Table 5 (PCBs). For purposes of comparison, Table 4 also includes historical results for the parameters and wells being monitored. Analytical results for the 2004 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 2004 REMEDIAL ACTION GROUND-WATER MONITORING

GROUND-WATER FLOW

Water-level elevation data collected during the 2004 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 2004 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 2004 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; Vanadium; F - Fluoride; Na - Sodium

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

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

Combinations of symbols indicate changes in trends.

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

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

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

* - Latest result at or below ROD Cleanup Goal.

+ - Latest result above Cleanup Goal, but below background.

Blanks indicate latest result is above cleanup goal. For arsenic, a blank indicates latest result is above background.

(1) Background values calculated by HMI (August, 1996). Arsenic background = 40 µg/L; manganese background = 9,780 µg/L.

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

Cyanide (Amenable to Chlorination)

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

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

Concentration versus time graphs for total cyanide and amenable cyanide are presented in Appendix D-1 and D-2, respectively. At four of the eleven compliance point wells (MW-12, MW-28, MW-31 and MW-32), the most recently reported amenable cyanide concentration was below the clean-up goal of 0.2 mg/L. Amenable cyanide results for MW-12 are predominantly below detection. At MW-18 and MW-28, more recent amenable cyanide concentrations exhibit a downward trend. The eight remaining compliance wells exhibit no consistent trend in

amenable cyanide concentrations. With regard to total cyanide, concentrations appear to exhibit a downward trend at seven of the 10 compliance wells with detectable concentrations. Total cyanide concentrations appear to exhibit an upward trend only at the MW-5 compliance well.

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 seven of the compliance wells (MW-5, MW-12, MW-18, MW-31, MW-35, MW-36, and MW-37). At compliance wells MW-16 and MW-32, concentrations of fluoride exhibit an increasing trend. The remaining two compliance wells exhibit no consistent trend. As shown on the ground-water contour maps for the 2004 monitoring events, (Figures 2, 3, and 4), the MW-16 monitoring well is located hydraulically downgradient from the FSPSA and MW-32 is within the FSPSA. Increases in concentrations of fluoride at these wells are believed to reflect the migration of higher concentrations of fluoride resulting from the increased leaching of residual spent potliner materials in the soil of the FSPSA due to soil flushing.

Arsenic

Concentration versus time graphs for arsenic for each of the compliance point wells are provided in Appendix D-4. At six of the eleven compliance point wells, MW-5, MW-12, MW-16, MW-28, MW-35, and MW-37, the concentrations of arsenic reported for the most recent sampling event are below the clean-up goal of 0.01 mg/L. At MW-12 and MW-28, arsenic concentrations have been consistently below detection. Data for MW-2, MW-5, MW-16, MW-31, MW-35, MW-36, and MW-37 wells show a decreasing trend, while data for two of the compliance wells (MW-18 and MW-32) exhibit no consistent 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-16, MW-28, MW-35, and MW-37), the most recent results are below the 0.010 mg/L cleanup goal presented in the ROD.

Beryllium

Concentration versus time graphs for beryllium are provided in Appendix D-5. The cleanup goal for beryllium established in the ROD was the MCL, 0.004 mg/L. Beryllium was reported above the MCL only in samples collected during the Phase I RI (June/July 1988) and only at two wells: MW-18 and MW-37. Except for a result of 0.012 mg/L at MW-18 during the September 2004 monitoring event, beryllium was consistently below the MCL in all samples analyzed from all of the compliance point monitoring wells during each of the 2004 monitoring events.

Manganese

Concentration versus time graphs for manganese are provided in Appendix D-6. Manganese results for MW-28 and MW-35 show increasing trends during more recent monitoring events. Results for MW-5, MW-16 and MW-37 show a decreasing trend. The data for the remaining six compliance wells exhibit no consistent trend with regard to manganese. The MW-35 well is within the soil flushing area and MW-28 is adjacent to the western edge of

the FSPSA. Increases in manganese concentrations at these wells are believed to be a result of soil flushing in the FSPSA.

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

At MW-28, the most recent result for manganese was below the 0.230 mg/L cleanup goal presented in the ROD. Manganese concentrations were below the background level in all of the compliance wells during each of the 2004 monitoring events, except for the September result for MW-18.

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 well MW-37. Except for anomalous results of 0.36 mg/L and 0.43 mg/L at MW-18 during the January 2002 and the September 2004 monitoring events, vanadium has been consistently below the cleanup goal in all samples analyzed since the Phase I RI, including samples from all of the compliance point monitoring wells during all of the 2004 monitoring events. More recent vanadium results exhibit a decreasing trend at wells MW-16 and MW-31 (just downgradient of the soil flushing area) and MW-37 (within the FSPSA soil flushing area) and an apparent increasing trend at MW-18 and MW-36.

Tetrachloroethene (PCE)

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

Contaminant Mass-in-Place

In accordance with Section II.3.C. of the Consent Decree SOW, data from the May 2004 expanded routine monitoring event were used to estimate the masses of fluoride and cyanide (the primary plume indicators) in the alluvial aquifer as a means of evaluating the progress of the remediation. The procedure used for estimating the mass-in-place was as described in the RD Work Plan and the HydroSystems Management, Inc. (HMI) report titled, "Estimation of Dissolved Contaminant Mass in the Alluvial Aquifer, Ormet Primary Aluminum Corporation Superfund Site, Hannibal, Ohio" (August 28, 1996) that was submitted to the USEPA in conjunction with the 30% RD submittal. The approach used for estimation of contaminant mass-in-place is based on methods described in "Methods for Monitoring Pump-and-Treat Performance" (USEPA, July 1994). Results of the mass-in-place estimates for fluoride and cyanide are summarized in Table 6. For comparison, Table 6 also includes fluoride and cyanide mass-in-place estimates based on previous monitoring events. The mass-in-place estimates are based on the fluoride and total cyanide isopleth maps shown in Figures 5 and 6, respectively. Data and supporting calculations for the May 2004 mass-in-place estimates are provided in Appendix E. Data and supporting calculations for the previous mass-in-place estimates have been submitted to the USEPA in prior reports.

Based on the estimates presented in Table 6, the mass of fluoride in the alluvial aquifer declined substantially during the period from June 1988 through May 1998, from approximately

85,700 pounds to just under 24,000 pounds (approximately 72%). However, the fluoride mass-in-place calculated in 1999 (after the start of full-time soil flushing in the FSPSA), some 30,400 pounds, represented an increase of more than 27% over the 1998 value. Between May 1999 and May 2001, the fluoride mass-in-place again declined, to an estimated 21,741 pounds, a decrease of about 28.5%. Since May 2001, the estimated fluoride mass-in-place has increased about 79%, to 38,836 pounds in May 2004.

Similar to fluoride, the estimated cyanide mass-in-place showed substantial decreases during the period from 1988 to 1998 (from over 6,800 pounds to about 2,600 pounds, a reduction of nearly 62%). In 1999, following the start of full-time soil flushing, the estimated cyanide mass-in-place increased to nearly 5,600 pounds, an increase of over 100%. Since 1999, the estimates of cyanide mass-in-place have shown an overall decreasing trend. In 2004, the estimated cyanide mass-in-place was 3,062 pounds, a nominal increase of nearly 9.4% from 2003.

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 2003 through May 2004) were calculated and compared to changes in the estimated masses in the aquifer over the same period. The masses of cyanide and fluoride removed through pumping of the interceptor wells were calculated using daily analytical and flow data for the influent to Ormet's ground-water treatment plant, which receives the water pumped by the interceptor wells. The masses of cyanide and fluoride removed through pumping of the Reduction Mill Ranney well were calculated using quarterly analytical data and daily flow data collected by Ormet for NPDES reporting purposes.

As discussed in the ROD and the remedial design documents for the Ormet site, the purpose of soil flushing in the FSPSA is to accelerate the rate at which contaminants are leached from the source area soils and subsequently removed from the aquifer and treated. A means of evaluating this process is to compare changes in the estimated cyanide and fluoride mass-in-place to the mass of these constituents removed from the aquifer during the same time period by

pumping. A summary of these data is provided in Table 7. During the period from May 2003 to May 2004, approximately 9,845 pounds of fluoride and approximately 1,597 pounds of cyanide (total) were removed from the alluvial aquifer by the interceptor wells and Ranney well. During the same period, the estimated mass of fluoride in the aquifer increased by approximately 6,709 pounds and the estimated mass of cyanide also increased by approximately 289 lbs. The mass of cyanide removed by pumping of approximately 1,597 pounds from 2003 to 2004, and the increase in the cyanide mass in the aquifer of about 300 pounds during the same period, suggests that leaching of cyanide by soil flushing continues to occur. With regard to fluoride, the increase in the estimated mass in the aquifer of some 6,700 pounds, despite the removal of approximately 9,845 pounds of fluoride, suggests that soil flushing is continuing to remove fluoride from the FSPSA at a significant rate. The relationship between mass removal and changes in the calculated mass-in-place will continue to be evaluated through the ongoing monitoring program.

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

- Variation in the soil flushing operation (e.g., duration of flushing, volume of water applied);
- Natural precipitation patterns;
- Presence and duration of frozen ground (less infiltration occurs when ground is frozen);
- Variability in laboratory results; and,
- Concentration contour area estimates used in the mass-in-place calculations.

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

Aquifer Area Above Cleanup Goals

As a further check of the progress of the remediation, the approximate areas of the aquifer containing fluoride and cyanide at concentrations above their respective cleanup goals were estimated using analytical results from the May 2004 sampling event. The results are summarized in Table 6. The estimates of aquifer areas above the cleanup goal are based on the fluoride and total cyanide isopleth maps shown in Figures 5 and 6, respectively. For comparison, Table 6 also includes estimates of the aquifer areas above the fluoride and cyanide cleanup goals prepared for previous monitoring events. These estimates are based on plume isopleth maps submitted to the USEPA in previous reports.

The area of the alluvial aquifer containing fluoride above the cleanup goal increased slightly between 1988 (approximately 43 acres) and 1995 (approximately 48 acres). Between 1995 and 1998, the area above the cleanup goal for fluoride decreased nearly 24%, from over 48 acres to approximately 37 acres. Following the start of soil flushing in the FSPSA in 1998, the area of aquifer above the fluoride cleanup goal increased approximately 18% to nearly 44 acres. Since 1998, the aquifer area with fluoride concentrations above the cleanup goal has been fairly consistent, ranging from 37.9 acres (2002) to 42.1 acres (2004).

The area of the aquifer with concentrations of amenable cyanide above the cleanup goal of 0.2 mg/L increased substantially during the period from May 1998 (approximately 10.5 acres) to May 2000 (approximately 36.5 acres). Since May 2000, the aquifer area with concentrations of amenable cyanide above the cleanup goal has shown little change, with the 2004 estimate being 38.1 acres. 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.

As discussed previously in this report, analytical results for total cyanide and cyanide amenable to chlorination indicate that the form of cyanide occurring in the ground water beneath

the Ormet site is predominantly the stable, cyanide complexes. This interpretation is supported by a comparison of the area of the alluvial aquifer with total cyanide concentrations above 0.2 mg/L to the area of the aquifer with amenable cyanide concentrations above 0.2 mg/L. As shown in Figure 8, the area of the aquifer with amenable cyanide above 0.2 mg/L is substantially less than the area with total cyanide above 0.2 mg/L.

Analytical Results for PCBs

During each of the 2004 sampling events, ground-water samples from monitoring wells MW-12, MW-44S and MW-44D were analyzed for PCBs. Analytical results for these samples (see Table 5) show no detections of PCBs.

SUMMARY/CONCLUSIONS

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

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

- Analytical results for the 2004 monitoring events suggest continued leaching (particularly with regard to fluoride) of residual spent potliner materials in the soil of the FSPSA as a result of soil flushing.

- Pumping of the interceptor wells and Ranney well removed approximately 9,845 pounds of fluoride and approximately 1,597 pounds of cyanide from the alluvial aquifer during the period May 2003 to May 2004.

- During the same period, the estimated mass of fluoride in the aquifer increased by about 6,709 pounds (about 17.5%) and the mass of cyanide in the aquifer increased by about 289 pounds (about 9.4%).

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

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

- The estimated area of the alluvial aquifer with fluoride concentrations above the cleanup goal set forth in the ROD increased about 8% between 2003 and 2004.

- The estimated area of the aquifer with total cyanide concentrations above the cleanup goal set forth in the ROD increased marginally (2.4%) between 2003 and 2004.

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

- Ground-water samples analyzed during 2004 for PCBs were reported as non-detect.

TABLES

TABLE 1
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: JANUARY 12, 2004

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-1	668.07	52.11	615.96
MW-2	668.12	53.38	614.74
MW-3	645.17	26.71	618.46
MW-4	661.07	51.69	609.38
MW-5	668.16	57.77	610.39
MW-7	667.94	55.70	612.24
MW-8	667.71	61.34	606.37
MW-9	666.59	59.61	606.98
MW-10	667.16	60.85	606.31
MW-11	667.31	57.43	609.88
MW-12	636.73	19.57	617.16
MW-13	661.44	40.15	621.29
MW-14	653.59	34.79	618.80
MW-15	657.31	35.39	621.92
MW-16	662.72	45.06	617.66
MW-17	655.03	34.60	620.43
MW-18	660.91	38.98	621.93
MW-19	662.03	39.54	622.49
MW-20	632.33	10.78	621.55
MW-21s	664.02	56.94	607.08
MW-21d	663.60	56.53	607.07
MW-22s	667.47	60.41	607.06
MW-22d	667.21	60.16	607.05
MW-23s	663.18	55.76	607.42
MW-23d	663.41	56.18	607.23
MW-24s	667.88	61.19	606.69
MW-24d	667.75	61.08	606.67
MW-25	667.73	59.19	608.54
MW-26s	665.54	58.66	606.88
MW-26d	665.59	58.77	606.82
MW-27	667.86	59.16	608.70
MW-28	663.27	20.18	643.09
MW-29s	653.40	36.19	617.21
MW-29d	653.07	35.84	617.23
MW-30	667.58	47.46	620.12
MW-31	661.59	43.03	618.56
MW-32	656.66	36.62	620.04
MW-34s	655.67	35.15	620.52
MW-34d	654.67	33.23	621.44
MW-35	661.90	35.83	626.07
MW-36	655.14	35.52	619.62
MW-37	661.14	20.45	640.69
MW-38	666.64	19.39	647.25
MW-39s	657.30	37.82	619.48
MW-39d	657.18	37.61	619.57
MW-40s	662.22	47.34	614.88
MW-40d	661.95	Not Measured	--
MW-41	637.67	13.58	624.09
MW-42s	654.37	36.51	617.86
MW-42d	654.34	36.41	617.93
MW-44s	662.01	47.36	614.65
MW-44d	661.76	47.91	613.85

TABLE 1 (CONT.)
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: JANUARY 12, 2004

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
PPB-01*	663.24	15.61	647.63
PPB-02s*	663.14	17.80	645.34
PPB-02d+	662.78	41.09	621.69
PPB-04+	661.57	42.28	619.29
PPB-05*	661.62	15.34	646.28
PPB-06+	663.04	Not Measured	--
PPB-07*	661.71	Not Measured	--
PPB-09+	664.30	42.18	622.12
PPB-10*	663.45	11.06	652.39
PPB-14*	660.64	Not Measured	--
TH-3	667.81	54.01	613.80
TH-10	658.17	35.85	622.32
TH-11	659.08	35.98	623.10
TH-15	663.62	56.75	606.87
TH-16	664.62	57.58	607.04
TH-17	663.93	56.69	607.24
RP-1	643.17	19.40	623.77
RP-2	643.05	19.25	623.80

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.

1-12-04WLE.XLS

TABLE 2
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: MAY 10, 2004

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-1	668.07	51.39	616.68
MW-2	668.12	52.60	615.52
MW-3	645.17	26.39	618.78
MW-4	661.07	50.53	610.54
MW-5	668.16	56.72	611.44
MW-7	667.94	54.97	612.97
MW-8	667.71	59.96	607.75
MW-9	666.59	58.01	608.58
MW-10	667.16	59.40	607.76
MW-11	667.31	56.33	610.98
MW-12	636.73	18.96	617.77
MW-13	661.44	Not Measured	--
MW-14	653.59	34.25	619.34
MW-15	657.31	35.08	622.23
MW-16	662.72	44.44	618.28
MW-17	655.03	34.12	620.91
MW-18	660.91	38.92	621.99
MW-19	662.03	39.43	622.60
MW-20	632.33	10.66	621.67
MW-21s	664.02	55.26	608.76
MW-21d	663.60	54.84	608.76
MW-22s	667.47	58.86	608.61
MW-22d	667.21	58.62	608.59
MW-23s	663.18	54.15	609.03
MW-23d	663.41	54.56	608.85
MW-24s	667.88	59.70	608.18
MW-24d	667.75	59.60	608.15
MW-25	667.73	58.05	609.68
MW-26s	665.54	57.14	608.40
MW-26d	665.59	57.25	608.34
MW-27	667.86	57.93	609.93
MW-28	663.27	20.92	642.35
MW-29s	653.40	35.56	617.84
MW-29d	653.07	35.20	617.87
MW-30	667.58	47.18	620.40
MW-31	661.59	42.45	619.14
MW-32	656.66	36.01	620.65
MW-34s	655.67	34.69	620.98
MW-34d	654.67	32.84	621.83
MW-35	661.90	35.74	626.16
MW-36	655.14	34.99	620.15
MW-37	661.14	20.93	640.21
MW-38	666.64	19.84	646.80
MW-39s	657.30	37.28	620.02
MW-39d	657.18	37.08	620.10
MW-40s	662.22	46.60	615.62
MW-40d	661.95	46.32	615.63
MW-41	637.67	13.52	624.15
MW-42s	654.37	35.94	618.43
MW-42d	654.34	35.84	618.50
MW-44s	662.01	46.59	615.42
MW-44d	661.76	47.11	614.65

TABLE 2 (CONT.)
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: MAY 10, 2004

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
PPB-01*	663.24	15.32	647.92
PPB-02s*	663.14	17.82	645.32
PPB-02d+	662.78	40.89	621.89
PPB-04+	661.57	41.74	619.83
PPB-05*	661.62	16.47	645.15
PPB-06+	663.04	Not Measured	--
PPB-07*	661.71	Not Measured	--
PPB-09+	664.30	41.96	622.34
PPB-10*	663.45	11.86	651.59
PPB-14*	660.64	Not Measured	--
TH-3	667.81	53.19	614.62
TH-10	658.17	35.50	622.67
TH-11	659.08	36.05	623.03
TH-15	663.62	55.18	608.44
TH-16	664.62	55.83	608.79
TH-17	663.93	55.11	608.82
RP-1	643.17	19.44	623.73
RP-2	643.05	19.13	623.92

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.

5-10-04WLE.XLS

TABLE 3
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: SEPTEMBER 28, 2004

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-1	668.07	49.55	618.52
MW-2	668.12	50.59	617.53
MW-3	645.17	24.53	620.64
MW-4	661.07	48.91	612.16
MW-5	668.16	55.12	613.04
MW-7	667.94	53.33	614.61
MW-8	667.71	58.60	609.11
MW-9	666.59	57.60	608.99
MW-10	667.16	58.36	608.80
MW-11	667.31	54.76	612.55
MW-12	636.73	16.88	619.85
MW-13	661.44	38.10	623.34
MW-14	653.59	32.10	621.49
MW-15	657.31	32.22	625.09
MW-16	662.72	42.13	620.59
MW-17	655.03	31.71	623.32
MW-18	660.91	36.76	624.15
MW-19	662.03	37.18	624.85
MW-20	632.33	8.84	623.49
MW-21s	664.02	55.19	608.83
MW-21d	663.60	54.78	608.82
MW-22s	667.47	58.44	609.03
MW-22d	667.21	58.18	609.03
MW-23s	663.18	53.97	609.21
MW-23d	663.41	54.38	609.03
MW-24s	667.88	58.90	608.98
MW-24d	667.75	58.77	608.98
MW-25	667.73	56.63	611.10
MW-26s	665.54	56.48	609.06
MW-26d	665.59	56.58	609.01
MW-27	667.86	56.45	611.41
MW-28	663.27	20.08	643.19
MW-29s	653.40	33.37	620.03
MW-29d	653.07	33.04	620.03
MW-30	667.58	45.29	622.29
MW-31	661.59	39.91	621.68
MW-32	656.66	33.10	623.56
MW-34s	655.67	32.01	623.66
MW-34d	654.67	30.45	624.22
MW-35	661.90	34.22	627.68
MW-36	655.14	31.77	623.37
MW-37	661.14	18.62	642.52
MW-38	666.64	18.86	647.78
MW-39s	657.30	34.95	622.35
MW-39d	657.18	34.80	622.38
MW-40s	662.22	44.59	617.63
MW-40d	661.95	NM	--
MW-41	637.67	13.41	624.26
MW-42s	654.37	33.71	620.66
MW-42d	654.34	33.64	620.70
MW-44s	662.01	44.62	617.39
MW-44d	661.76	45.15	616.61

TABLE 3 (CONT.)
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: SEPTEMBER 28, 2004

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
PPB-01*	663.24	16.56	646.68
PPB-02s*	663.14	17.79	645.35
PPB-02d+	662.78	38.37	624.41
PPB-04+	661.57	39.40	622.17
PPB-05*	661.62	15.96	645.66
PPB-06+	663.04	NM	--
PPB-07*	661.71	NM	--
PPB-09+	664.30	40.45	623.85
PPB-10*	663.45	11.72	651.73
PPB-14*	660.64	NM	--
TH-3	667.81	51.28	616.53
TH-10	658.17	32.65	625.52
TH-11	659.08	34.23	624.85
TH-15	663.62	54.58	609.04
TH-16	664.62	55.75	608.87
TH-17	663.93	55.00	608.93
RP-1	643.17	19.22	623.95
RP-2	643.05	18.96	624.09

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	
5/02	6.62	6.76	470	343	<0.01			0.67	<0.004	<0.0005		0.0298	24.6	<0.01	
5/03	6.32	6.39	570	416	<0.01			0.25	<0.004	<0.0005		0.048	24	<0.01	
5/04	6.66	6.46	690	701	<0.01			2.1	<0.004	<0.0005		0.47	50	<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
1/02	9.90	10.10	2,000	1,767	16		2.7	58	0.0858	0.000866		0.998	354	0.0531	<0.005
5/02	9.91	9.99	1,700	1,458	15		2.1	63	0.103	0.000873		0.845	347	0.0489	<0.005
5/02 (Dup.)	9.90	9.99	1,800	1,458	15		<0.50	66	0.107	0.000980		0.870	368	0.0531	<0.005
9/02	9.73	10.04	1,740	1,637	14.8		1.5	55.4	0.0989	0.000717		0.845	298	0.0474	0.00684
1/03	9.99	9.97	1,680	1,748	14.6		1.05	56.8	0.123	0.001140		0.978	324	0.0575	0.00644
5/03	9.80	10.08	1,700	1,246	14.0		5.1	74	0.088	<0.0005		0.94	310	0.057	0.009
5/03 (Dup.)	9.76	10.08	1,700	1,246	14.0		0.76	82	0.089	0.000850		0.95	310	0.058	0.0075
9/03	9.77	9.90	1,700	1,428	16		0.93	76	0.089	<0.0005		0.73	330	0.048	0.012
1/04	9.67	9.97	1,600	1,354	14		3.4	50	0.080	<0.0005		0.89	310	0.053	0.014
5/04	9.72	9.82	1,500	1,148	14		1.2	47	0.071	0.00088		0.91	490	0.056	0.017
5/04 (Dup.)	9.72	9.82	1,500	1,148	12		1.4	59	0.067	0.0008		0.85	490	0.053	0.018
9/04	9.55	9.79	1,600	1,099	13		4.6	54	0.069	0.00081		0.88	350	0.049	0.02
MW-5															
12/83	9.7	9.5	3,058	2,825	18.8	0.064		130			17.5	1.61	880		
2/84	9.6	9.6	3,636	2,700	14.5			120			18.0	1.39	1,030		
9/84	9.8	9.3	2,278	3,100	4.94	0.032		140			19.4	1.7	850		
5/85	9.8	9.9	4,800	2,400	25.0	0.037		91			15.8	1.01	710		
10/85	9.8		2,550		22.0	2.0		70		<0.01	13.0	0.93	650		
7/88	9.5	9.6	2,000	2,050	5.5		0.10	90	0.076	<0.0015	7.05	0.514	449	0.025	0.012
1/95	8.6	8.5	1,500	1,250	3.1		<0.01	32	0.008	<0.01	1.3	0.27	270	<0.01	
5/97	9.0	9.2	1,500	1,318	3.5		<0.25	16	0.015	<0.0005		0.4	310	<0.01	<0.005
5/98	8.83	8.84	1,400	1,340	2.1		<0.01	18	0.007	<0.0005		0.17	300	<0.01	<0.005
5/98 (DUP)	8.83	8.84	1,400	1,340	1.3		<0.01	18	0.007	<0.0005		0.18	300	<0.01	<0.005
9/98	8.92	8.66	1,200	1,219	2.0		0.02	18	0.0089	<0.0005		0.16	240	<0.01	<0.005
1/99	8.95	8.93	1,100	1,175	1.8		0.14	17	0.0086	<0.0005		0.16	240	<0.01	<0.005
5/99	8.97	8.60	1,200	1,260	1.9		<0.01	16	0.0094	<0.0005		0.27	250	<0.01	<0.005
5/99 (DUP)	8.97	8.60	1,200	1,260	2.2		2.2	16	0.0097	<0.0005		0.25	240	<0.01	<0.005
9/99	8.78	9.10	1,100	1,030	2.4		0.10	17	0.0074	<0.0005		0.23	230	<0.01	<0.005

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

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

ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Conductance (lab)	Specific Conductance (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	Tetrachloroethene
MW-5 (Cont.)															
1/00	8.76	8.30	1,200	1,040	2.0		2.0	15	0.0063	<0.0005		0.24	180	<0.01	<0.005
1/00 (DUP)	8.77	8.30	1,100	1,040	1.9		1.9	16	0.006	<0.005		0.23	180	<0.01	<0.005
5/00	8.81	8.59	1,100	1,020	2.3		2.3	16	0.0082	<0.0005	1.8	0.37	110	<0.01	<0.005
10/00	8.71	8.59	1,000	817	2.6		2.6	11	0.006	<0.0005		0.35	120	<0.01	<0.005
10/00 (DUP)	8.71	9	1,000	817	2.5		2.5	11	0.0061	<0.0005		0.35	110	<0.01	<0.005
1/01	8.65	9.27	1,000	863	2.7		0.13	13	<0.004	<0.0005		0.72	190	<0.01	<0.005
1/01 (DUP)	8.65	9.27	1,000	863	2.8		0.33	14	<0.004	<0.0005		0.58	210	<0.01	<0.005
5/01	8.51	8.99	960	791	2.9		2.9	13	<0.004	<0.0005		0.66	170	<0.01	<0.005
9/01	8.42	8.69	708	970	3.6		0.34	11	<0.004	<0.0005		0.80	160	<0.01	<0.005
9/01 (DUP)	8.46	8.69	708	950	3.6		0.22	13	<0.004	<0.0005		0.80	170	<0.01	<0.005
1/02	8.53	8.75	908	793	3.1		3.1	13	0.00445	<0.0005		0.59	162	<0.01	<0.005
5/02	7.80	8.51	930	600	2.9		<0.20	14	<0.004	<0.0005		0.67	171	<0.01	<0.005
10/02	8.28	8.59	1,090	1,013	4.13		0.66	15.3	<0.004	<0.0005		0.708	165	<0.01	<0.005
1/03	7.61	7.39	1,190	1,208	1.83		0.17	18.4	<0.004	<0.0005		0.303	246	<0.01	<0.005
5/03	8.35	8.55	1,100	797	3.8		0.093	25	<0.004	<0.0005		0.66	160	<0.01	<0.005
9/03	7.76	7.53	1,300	1,045	4.8		0.15	33	0.0073	<0.0005		0.61	210	<0.01	0.006
9/03 (Dup.)	7.74	7.53	1,300	1,045	4.8		0.34	37	0.0065	<0.0005		0.60	210	<0.01	0.0055
1/04	7.94	8.00	1,200	854	3.9		3.80	23	<0.004	<0.0005		0.41	190	<0.01	
5/04	8.00	8.03	1,200	907	3.6		0.59	25	<0.004	<0.0005		0.42	310	<0.01	<0.005
9/04	7.88	7.94	1,300	838	3.7		0.34	19	0.0046	<0.0005		0.52	210	<0.01	<0.005
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	
5/02	5.73	5.79	750	515	<0.01			0.16	0.0343	<0.0005		2.01	75.9	<0.01	
5/03	5.70	5.85	810	627	0.098		0.09	<0.10	0.025	<0.0005		2.3	64	<0.01	
5/04	6.12	5.81	840	631	<0.01			2.7	0.041	<0.0005		2.3	120	<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	
5/02	7.81	7.76	530	374	0.019		<0.01	1.9	<0.004	<0.0005		0.268	33.9	<0.01	
5/03	7.74	7.90	580	440	0.023		<0.01	2.4	<0.004	<0.0005		0.36	42	<0.01	
5/04	7.79	7.80	670	487	0.068		<0.01	3.2	<0.004	<0.0005		0.46	77	<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	670	510	<0.01			0.70	<0.004	<0.0005		<0.01	25	<0.01	
5/98	7.22	7.23	970	1,110	0.15		0.01	0.60	<0.008	<0.0005		<0.01	120	<0.01	
5/99	7.40	7.32	750	545	<0.01			0.41	<0.004	<0.0005		0.012	30	<0.01	
5/00	7.45	7.51	650	549	<0.01			0.48	<0.004	<0.0005	0.079	<0.01	21	<0.01	
5/01	8.19	7.21	610	502	0.013		0.013	0.47	<0.004	<0.0005		<0.01	27	<0.01	
5/02	7.27	7.13	990	605	0.19		<0.01	0.77	<0.004	<0.0005		0.0499	117	<0.01	
5/03	7.17	7.23	1200	897	0.13		0.019	1.0	<0.004	<0.0005		<0.01	120	<0.01	
5/04	7.81	7.25	740	542	<0.01			0.46	<0.004	<0.0005		0.011	31	<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-11															
12/83	9.6	9.4	980	825	0.52	0.021		33			0.48	0.06	238		
2/84	9.6	9.5	962	775	0.25			27			7.9	0.37	232		
9/84	9.7	9.1	656	800	0.20	0.015		22			4.90	0.21	213		
5/85	9.4	9.5	750	650	0.30	0.026		13			2.68	0.13	181		
6/88	8.5	8.4	570	565	0.12		<0.01	4.9	0.0043	<0.0015	0.071	0.227	78.5	<0.0026	<0.005
1/95	7.6	7.9	540	680	0.02		<0.01	2.3	<0.004	<0.01	<0.04	0.40	30	<0.01	
5/97	7.8	7.64	530	404	0.09		<0.01	1.8	<0.004	<0.0005		0.42	33	<0.01	
5/98	7.84	7.57	490	507	0.02		<0.01	1.7	<0.004	<0.0005		0.45	31	<0.01	
5/98 (DUP)	7.85	7.57	500	507	0.02		<0.01	1.7	<0.004	<0.0005		0.43	29	<0.01	
5/99	8.07	8.39	490	425	0.024		0.011	1.7	<0.004	<0.0005		0.45	28	<0.01	
5/00	7.96	7.58	580	500	0.013		0.013	1.4	<0.004	<0.0005	0.046	0.54	32	<0.01	
5/01	7.84	7.26	550	458	<0.01			1.6	<0.004	<0.0005		0.52	35	<0.01	
5/02	8.42	7.87	510	352	0.017		0.017	1.8	<0.004	<0.0005		0.488	34	<0.01	
5/03	7.87	7.99	540	405	0.016		<0.01	2.1	<0.004	<0.0005		0.57	37	<0.01	
5/04	7.83	7.86	530	394	<0.01		<0.01	1.9	<0.004	<0.0005		0.53	47	<0.01	
MW-12															
12/83	7.5	7.3	476	400	0.074	0.021		2.1			<0.01	0.94	24.3		
2/84	7.5	7.2	476	385	0.02			2.0			0.02	0.71	23.8		
9/84	7.7	6.3	366	375	<0.01	<0.01		2.2			<0.01	0.61	29.0		
5/85	7.7	7.4	540	390	0.024	0.022		1.6			<0.01	1.00	27.7		
5/86	7.5		494		<0.01						<0.01	1.23	27		
6/88	7.2	7.5	510	515	<0.01		<0.01	1.3	<0.0015	<0.0015	0.066	1.09	24.4	<0.0026	<0.005
1/95	7.4	7.6	530	350	<0.01		<0.01	1.1	<0.004	<0.01	<0.04	1.5	23	<0.01	
5/97	7.5	7.7	540	422	<0.01			0.90	<0.004	<0.0005		1.7	19	<0.01	
5/98	7.43	7.43	470	550	<0.01			0.80	<0.008	<0.0005		1.9	23	<0.01	
9/98	7.57	7.38	470	481	<0.01			0.92	<0.004	<0.0005		1.6	20	<0.01	
1/99	7.53	7.04	470	440	<0.01			0.89	<0.004	<0.0005		1.8	22	<0.01	
5/99	7.42	7.39	630	515	0.026		0.026	0.73	<0.004	<0.0005		2.5	29	<0.01	
9/99	7.54	7.25	530	565	0.017		0.012	0.68	<0.004	<0.0005		1.9	27	<0.01	
1/00	7.44	6.65	570	495	<0.01			0.74	<0.004	<0.0005		1.8	22	<0.01	
5/00	7.53	7.57	600	558	<0.01			0.73	<0.004	<0.0005	0.043	2.0	29	<0.01	
10/00	7.64	7.33	530	429	<0.01			0.83	<0.004	<0.0005		1.6	22	<0.01	
1/01	7.56	7.69	530	484	<0.01			0.92	<0.004	<0.0005		1.8	28	<0.01	
5/01	7.48	7.13	530	442	<0.01			0.82	<0.004	<0.0005		1.6	23	<0.01	
9/01	7.46	7.96	520	460	<0.01			0.83	<0.004	<0.0005		1.8	28	<0.01	
1/02	7.43	7.66	560	436	<0.01			1.1	<0.004	<0.0005		1.75	27	<0.01	
5/02	7.58	7.6	540	322	<0.01			1.1	<0.004	<0.0005		1.82	27.5	<0.01	
9/02	7.48	7.65	572	540	<0.01			0.629	<0.004	<0.0005		1.72	27.1	<0.01	
1/03	7.70	7.48	536	564	<0.01			0.884	<0.004	<0.0005		1.80	32.2	<0.01	
5/03	7.55	7.21	560	421	<0.01			0.76	<0.004	<0.0005		2.0	31	<0.01	
9/03	7.57	7.44	560	477	<0.01		<0.01	<3.2 B	<0.004	<0.0005		2.0	32	<0.01	
9/03 (Dup.)	7.60	7.44	560	477	<0.01		<0.01	<3.2 B	<0.004	<0.0005		2.0	33	<0.01	
1/04	7.58	7.66	510	400	<0.01			0.69	<0.004	<0.0005		1.9	28	<0.01	
1/04 (Dup.)	7.58	7.66	510	400	<0.01			0.60	<0.004	<0.0005		1.9	28	<0.01	
5/04	7.65	7.55	520	596	<0.01			0.61	<0.004	<0.0005		1.9	31	<0.01	
9/04	7.52	7.55	540	361	<0.01			<1.25 B	<0.004	<0.0005		1.9	30	<0.01	
9/04 (Dup.)	7.53	7.55	540	361	<0.01			<1.25 B	<0.004	<0.0005		1.9	30	<0.01	
MW-14															
5/02	7.64	7.61	500	309	0.018		<0.01	1.9	<0.004	<0.0005		1.05	29.5	<0.01	
5/03	7.59	7.20	530	398	0.014		<0.01	2.1	<0.004	<0.0005		1.2	34	<0.01	
5/04	7.67	7.64	560	633	0.022		<0.01	2.0	<0.004	<0.0005		1.2	51	<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	
5/02	7.29	7.21	590	333	1.1		<0.10	2.5	0.0222	<0.0005		0.0696	56.8	<0.01	
5/03	7.23	7.47	610	469	0.80		0.11	1.6	<0.004	<0.0005		<0.010	49	<0.01	
5/04	7.53	7.54	1,300	982	4.60		<0.01	13	<0.004	<0.0005		0.024	360	<0.01	

Note: All results in mg/L unless otherwise noted.
B - Fluoride reported in field blank. *Sample result less than 5x concentration in field blank.*

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

ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Conductance (lab)	Specific Conductance (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	Tetrachloroethene
MW-16															
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	
1/02	8.03	8.11	1,300	913	9.5		<0.5	57	0.0102	0.00211		1.46	237	0.055	
1/02 (DUP)	8.05	8.11	1,300	913	10		0 58	59	0.00816	0.00171		1.33	211	0.0422	
5/02	7.92	7.92	1,300	695	7.9		<0.20	57	0.0332	0.0015		1.12	254	0.0469	
5/02 (DUP)	8.06	7.92	1,300	695	7.4		<0.20	59	0.0269	0.0016		1.10	242	0.0500	
9/02	8.17	8.33	1,280	1176	9.75		0 56	50.1	0.0263	0.00155		1.12	208	0.0426	
9/02 (Dup.)	8.16	8.33	1,260	1176	10.9		1.56	49	0.0222	0.00198		1.4	211	0.0535	
1/03	8.31	7.78	1,310	1,299	7.03		0.77	27.5	0.0449	0.00136		0.792	235	0.0308	
1/03 (Dup.)	8.28	7.78	1,290	1,299	6.48		1.20	54	0.0381	0.00175		1.0	242	0.0441	
5/03	8.00	8.17	1,300	933	5 5		<0 01	58	0.012	0.0012		1.1	220	0.052	
5/03 (Dup.)	8.05	8.17	1,300	933	5.9		<0.01	52	0.0099	0.00093		1.0	220	0.044	
9/03	8.21	8.17	1,200	1,036	3.9		0.062	74	0.011	<0.0005		0.61	240	0.023	
1/04	7.89	8.07	1,300	883	6.0		1 5	52	<0.004	<0.0005		0.83	220	0 017	
5/04	8.18	8.22	1,300	1,410	5.3		0.35	71	0.0071	0.0014		1.1	390	0.037	
5/04 (Dup.)	8.15	8.22	1,300	1,410	5.9		0.35	71	0.016	0.0014		1.1	390	0.04	
9/04	8.10	8.15	1,400	914	12 0		3.1	56	0.0053	0.0011		1.2	270	0.027	
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	
5/02	7.64	7.62	550	328	0.35		0.35	5.4	<0.004	<0.0005		1.42	40.3	<0 01	
5/03	7.65	7.80	580	435	0.41		0.096	9.8	<0.004	<0.0005		1.6	44	<0.01	
5/04	7.71	7.83	670	511	0.41		<0.01	23	0.0044	<0.0005		1.1	130	<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

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

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

ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Conductance (lab)	Specific Conductance (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	Tetrachloroethene
MW-18 (Cont.)															
5/97	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
1/02	9.44	9.65	2,400	1,680	36		<0.01	150	0.15	0.0125		16.8	436	0.360	0.024
5/02	9.48	9.55	2,300	1,693	110		40	150	0.0716	0.00105		0.432	517	0.0269	0.020
5/02 (Dup.)	9.49	9.55	2,300	1,693	72		8.3	150	0.0703	0.00104		0.401	510	0.0248	0.052
9/02	9.49	9.77	1,720	1,599	74		<0.01	108	0.0906	0.00141		0.927	303	0.0525	0.0172
1/03	9.48	9.57	2,010	2,160	62.1		<2.5	163	0.0932	0.00133		0.285	452	0.0220	0.058
5/03	9.34	9.58	1,400	1,257	15		3.0	88	0.061	<0.0005		0.20	240	0.021	0.027
5/03 (Dup.)	9.39	9.58	1,400	1,257	20		<0.01	83	0.066	0.00068		0.30	230	0.034	0.047
9/03	9.42	9.61	1,800	1,424	4		<0.01	97	0.12	0.0044		5.60	380	0.17	0.018
1/04	9.33	9.62	2,400	1,237	17		5.5	77	0.061	0.00066		0.43	290	0.028	0.012
5/04	9.51	9.66	2,300	1,546	1.8		0.33	150	0.081	0.00095		0.35	680	0.037	0.012
5/04 (Dup.)	9.49	9.66	2,200	1,546	2		<0.01	140	0.079	0.00092		0.35	680	0.035	0.014
9/04	9.30	9.48	1,800	1,145	35		22	42	0.17	0.012		13	380	0.43	0.0097
MW-19															
12/83	7.2	7.1	581	435	0.068	0.013		0.3			<0.01	0.54	22.9		
2/84	7.1	6.8	575	405	0.04			0.5			0.05	0.26	20.2		
9/84	7.2	6.3	451	460	0.01	<0.01		0.4			0.02	0.04	23.5		
5/85	7.6	7.0	640	460	0.019	0.014		0.5			0.12	0.02	23.6		
7/88	7.3	7.3	630	600	<0.01		<0.01	0.5	0.0067	<0.0015	17.6	0.23	32.2	0.015	<0.005
2/90	7.3	7.27	520	560	0.2		<0.005	0.7					21.0		
1/95	7.3	7.2	630	410	<0.01		<0.01	1.0	<0.004	<0.01	0.09	<0.01	24	<0.01	
5/97	7.4	7.5	520	431	<0.01		<0.01	2.0	<0.004	<0.0005		<0.01	18	<0.01	
5/98	7.23	6.95	560	575	<0.01			1.4	<0.008	<0.0005		<0.01	23	<0.01	
5/99	7.47	7.40	570	460	<0.01			1.3	<0.004	<0.0005		<0.01	22	<0.01	
5/00	7.33	7.20	580	538	<0.01			1.2	<0.004	<0.0005	0.13	<0.01	16	<0.01	
5/01	7.18	6.96	580	494	<0.01			1.1	<0.004	<0.0005		<0.01	20	<0.01	
5/02	7.39	7.38	530	324	<0.01			1.2	<0.004	<0.0005		<0.005	23.4	<0.01	
5/03	7.53	7.38	550	420	<0.01			2.2	<0.004	<0.0005		<0.01	20	<0.01	
5/04	7.87	7.59	460	342	<0.01			3.6	<0.004	<0.0005		<0.01	16	<0.01	
MW-28															
5/86	5.5		382		0.89	0.08		<0.1			0.36	0.02	41		
6/88	5.7	5.8	640	665	7.4		0.6	<0.1	<0.0015	<0.0015	2.41	0.035	83.3	<0.0026	<0.005
1/95	6.2	7.4	500	700	0.74		0.26	2.7	<0.004	<0.01	0.38	0.02	79	<0.01	
7/96	5.7	5.92	440	429	0.26	<0.020		0.50	<0.004	<0.0005		0.01		<0.01	
5/97	5.6	6.4	590	453	0.11		<0.02	0.2	<0.004	<0.0005		0.01	62	<0.01	
5/98	5.74	5.32	500	550	0.12		<0.01	0.20	<0.004	<0.0005		0.01	65	<0.01	
9/98	5.81	5.28	540	527	0.11		0.11	0.27	<0.004	<0.0005		0.011	64	<0.01	
9/98 (DUP)	5.83	5.28	540	527	0.11		0.11	0.24	<0.004	<0.0005		0.01	65	<0.01	
1/99	5.72	5.17	470	450	0.087		0.027	0.38	<0.004	<0.0005		0.013	67	<0.01	
5/99	5.72	5.43	460	405	0.13		0.13	0.35	<0.004	<0.0005		0.011	70	<0.01	
9/99	5.95	6.15	480	480	0.12		0.016	0.26	<0.004	<0.0005		<0.01	57	<0.01	
1/00	6.04	5.25	460	410	0.23		0.22	0.35	<0.004	<0.0005		<0.01	58	<0.01	
5/00	5.89	5.90	470	464	1.0		1.0	0.30	<0.004	<0.0005	0.69	0.014	77	<0.01	
10/00	5.85	5.47	460	384	0.96		0.28	0.27	<0.004	<0.0005		0.014	52	<0.01	
1/01	5.75	5.45	460	412	0.9		0.9	0.32	<0.004	<0.0005		0.015	64	<0.01	
5/01	5.65	5.20	420	391	1.1		0.36	0.22	<0.004	<0.0005		0.014	54	<0.01	
9/01	5.70	6.01	430	415	1.3		<0.1	0.56	<0.004	<0.0005		0.015	64	<0.01	
1/02	5.73	5.77	450	396	0.9		0.9	0.37	<0.004	<0.0005		0.0196	60.5	<0.01	
5/02	5.63	5.71	400	311	0.60		<0.04	0.22	<0.004	<0.0005		0.0146	62.1	<0.01	
9/02	5.65	6.00	449	443	0.975		0.13	0.164	<0.004	<0.0005		0.0265	59.1	<0.01	
1/03	5.72	5.99	412	462	0.65		<0.02	0.305	<0.004	<0.0005		0.0192	70.4	<0.01	
5/03	5.73	6.09	390	305	0.38		0.068	0.13	<0.004	<0.0005		0.017	47	<0.01	
9/03	5.93	6.25	440	377	0.35		0.016	<3.2 B	0.0068	<0.0005		0.018	61	<0.01	
1/04	6.01	7.24	400	341	0.40		0.40	0.53	<0.004	<0.0005		0.021	54	<0.01	
5/04	6.48	5.77	410	306	0.15		0.01	0.21	<0.004	<0.0005		0.024	81	<0.01	
9/04	5.84	5.65	410	276	0.25		0.12	<1.25 B	<0.004	<0.0005		0.03	53	<0.01	

Note: All results in mg/L unless otherwise noted.
B - Fluoride reported in field blank. Sample result less than 5x concentration in field blank.

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

ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Conductance (lab)	Specific Conductance (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	Tetrachloroethene
MW-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	
5/02	7.73	7.71	700	408	0.08		<0.01	10	<0.004	<0.0005		0.563	79.6	<0.01	
5/03	7.68	7.81	1,000	759	0 21		0.049	9.1	<0.004	<0.0005		0.78	110	<0.01	
5/04	7.48	7.56	1,700	1,760	0.93		0.93	8.7	<0.004	<0.0005		1.2	380	<0.01	
MW-29D															
5/86	8.6		648		0.31	0.01		9.7			0.18	0 26	139		
6/68	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	
5/02	7.56	7.42	540	342	0.13		<0.01	3 6	<0.004	<0.0005		1.7	30.3	<0.01	
5/03	7.64	7.74	590	449	0.13		<0.01	3.6	<0.004	<0.0005		2.0	32	<0 01	
5/04	8.03	7.68	610	682	0 16		0.16	2.4	<0.004	<0.0005		2.0	33	<0.01	
MW-30															
5/86	6.6		342		0 01	<0.01		0.5			<0.01	2 10	20		
6/88	6 3	6.3	340	400	0 01		<0 01	<0.1	0.0018	<0.0015	4.42	0.753	18.7	0.0044	0.005
1/95	6.2	6.0	430	570	0.01		<0.01	<0.1	<0.004	<0.01	0.78	0.60	19	<0.01	
5/97	6.2	6.47	420	334	<0.01			<0.1	<0.004	<0.005		0.6	18	<0.01	0.012
5/98	6.19	5.70	390	418	<0.01			0.10	<0.004	<0 0005		0.68	21	<0.01	0.013
5/99	6.43	6.10	400	390	0.016		0.013	0.19	<0.004	<0.0005		0.71	21	<0.01	0 02
5/00	6.34	5 91	430	380	0.026		0.026	0.12	<0.004	<0.0005	1.5	0.70	21	<0.01	0.017
5/01	6.14	6.21	420	409	0.79		0.79	0.17	<0.004	<0.0005		0.54	19	<0.01	0.015
5/02	6.27	6.27	430	282	0.051		0.05	0.18	<0.004	<0.0005		0.434	31.2	<0.01	0.024
5/03	6.27	6.70	440	342	0 019		<0.01	0.16	<0.004	<0.0005		0.81	23	<0.01	0.028
5/04	6.61	6.27	450	512	<0.01			2.1	<0.004	<0.0005		0.50	25	<0.01	0.0065
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
1/02	9.96	10.17	2,400	1,720	13		1.6	110	0.0493	0.00116		1.46	406	0.0968	0.017
1/02 (DUP)	9.97	10.17	2,400	1,720	13		2.8	110	0.0519	0.00148		1.98	400	0.106	0.020
5/02	9 91	9.95	1,900	1,651	14		<0.50	91	0.0628	0.00105		1.0	395	0.0691	0.017
9/02	9.80	10.02	1,520	1,991	11.3		3.55	91	0.056	0.000982		1.21	357	0.0698	0.0234
9/02 (Dup.)	9.79	10.02	2,150	1,991	14.7		2.70	92.6	0.0592	0.00106		1.30	356	0.0694	0.0232
1/03	9.87	9.93	2,090	2,270	13.6		<0.5	99.5	0.0745	0 00181		1.47	472	0.0797	0.0323
1/03 (Dup.)	9.88	9.93	2,140	2,270	14		1.41	102	0.0706	0.00146		1.16	438	0.0664	0.029
5/03	9.69	10.00	1,800	1,310	15		4.1	80	0.038	0.001		0.99	330	0.064	0.022
9/03	9.69	9.81	1,800	1,648	12		7.7	91	0.046	0.001		1.3	410	0.074	0.032
1/04	9.55	9.83	2,300	1,375	12		1.3	85	0.033	0.00084		1.2	380	0.062	0.045
1/04 (Dup)	9.55	9.83	2,300	1,375	13		1.3	62	0.027	0.00097		1.2	380	0.063	0.043
5/04	9.72	9 85	1,700	1,281	15		1 6	71	0.044	0.0015		1.5	570	0.078	0.025
9/04	9 50	9.81	1,800	1,215	15		<0.01	81	0.044	0.0018		1.6	400	0.087	0.041
9/04 (Dup.)	9.52	9.81	1,800	1,215	15		<0.01	95	0.044	0.0019		1.7	410	0 093	0.043

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	
1/02	8.45	8.69	770	627	4.3		2.4	14	0.0047	<0.0005		1.68	98.1	<0.01	
5/02	8.75	8.72	850	543	6.9		<0.25	28	0.0293	<0.0005		1.83	134	0.0107	
9/02	8.73	9.02	940	889	6.13		0.55	25.4	0.0299	<0.0005		1.60	101	0.0122	
1/03	8.35	7.70	747	768	4.41		0.11	13	0.00403	<0.0005		1.91	93.1	<0.01	
5/03	8.31	8.47	820	616	3.6		<0.01	21	0.010	<0.0005		2.2	82	<0.01	
9/03	8.67	8.88	920	745	5.9		1.4	32	0.013	<0.0005		1.7	130	0.011	
1/04	8.54	8.77	790	588	5.2		2.0	21	0.0082	<0.0005		1.7	99	<0.01	
5/04	9.43	9.76	1,200	872	5.2		0.38	49	0.034	0.00084		1.1	360	0.054	
9/04	9.72	10.03	1,600	1,100	13		<0.01	90	0.091	0.0026		2.6	360	0.16	
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	
5/02	7.90	7.98	920	457	0.064		<0.01	49	0.0367	0.00246		2.12	172	0.072	
5/03	7.36	7.63	700	520	0.14		0.012	13	<0.004	<0.0005		0.055	52	<0.01	
5/04	8.08	8.21	950	729	0.38		0.26	41	0.0043	<0.0005		0.068	270	0.01	
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	
5/02	7.38	7.37	560	298	0.059		0.022	4.6	<0.004	<0.0005		0.68	32.9	<0.01	
5/03	7.38	7.52	630	470	0.047		<0.01	4.4	0.0041	<0.0005		0.58	31	<0.01	
5/04	7.44	7.35	660	505	0.45		0.37	6.0	<0.004	<0.0005		<0.01	83	<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	

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-35 (Cont.)															
1/01	8.86	9.59	530	549	10		3.1	19	0.008	<0.0005		0.50	89	0.075	
5/01	9.17	9.43	800	790	17		2.6	35	0.013	<0.0005		0.48	130	0.04	
9/01	9.26	9.03	820	749	15		<0.5	41	0.0097	<0.0005		0.46	120	0.062	
1/02	9.24	9.44	850	662	14		2.1	41	0.0106	<0.0005		0.511	129	0.0659	
5/02	9.03	9.21	600	528	24		7.4	27	0.0347	0.000537		0.576	172	0.0365	
9/02	8.60	9.33	542	733	8.96		1.21	17.5	0.0254	<0.0005		0.435	70.3	0.0259	
1/03	8.85	8.94	579	621	10.8		<0.5	23.6	0.00733	<0.0005		0.449	72.4	0.0255	
5/03	8.87	9.05	660	466	6.6		<0.01	31	0.0099	<0.0005		0.52	76	0.025	
9/03	8.46	8.57	540	437	6.4		1.1	23	0.0098	<0.0005		0.52	53	0.016	
1/04	8.12	8.32	480	335	5.5		2.4	15	0.0046	<0.0005		0.68	49	0.015	
5/04	8.50	8.60	550	401	6.6		<0.01	22	0.011	<0.0005		0.63	120	0.017	
9/04	8.04	8.20	430	305	5.5		2.9	7.5	0.0096	<0.0005		0.61	48	<0.01	
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	
1/02	9.57	9.83	1,800	1,691	14		<0.01	120	0.0209	0.00205		1.0	310	0.0413	
5/02	9.61	9.61	1,800	1,286	16		4.6	98	0.0336	0.0018		1.15	381	0.0216	
9/02	9.55	9.80	1,400	1,304	4.14		<0.01	52	0.0217	0.000709		1.07	219	<0.01	
1/03	9.65	9.65	2,120	2,130	23.7		1.35	119	0.0711	0.0033		1.37	446	0.0791	
5/03	9.51	9.80	2,000	1,422	9.3		<0.01	120	0.049	0.0027		1.7	380	0.091	
9/03	9.50	9.56	1,500	1,252	6.2		0.74	110	0.046	<0.0005		0.75	290	0.038	
1/04	9.54	9.79	2,000	1,350	9.5		2.7	93	0.048	0.0013		0.81	350	0.077	
5/04	9.39	9.64	2,000	1,393	13		<0.01	120	0.043	0.0022		0.96	610	0.05	
9/04	9.63	9.82	1,000	701	4.9		2.3	52	0.047	0.00077		0.56	220	0.05	
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	
1/02	7.83	8.06	700	570	5.9		0.58	20	0.014	0.00113		3.12	129	0.0355	
5/02	8.15	8.05	610	406	5.0		<0.20	18	0.139	0.0169		14.8	141	0.273	
9/02	7.87	7.59	679	601	5.09		0.65	16.7	<0.004	<0.0005		<0.005	0.975	<0.01	
1/03	7.63	7.89	569	608	5.52		0.83	14.4	<0.004	<0.0005		2.48	107	<0.01	
5/03	7.25	7.50	440	342	6.3		0.093	9.8	0.0061	<0.0005		4.2	53	0.014	
9/03	6.89	7.31	520	444	2.4		0.093	14	0.01	0.0005		4.8	83	0.028	
1/04	7.06	7.34	570	422	1.7		0.72	17	<0.004	<0.0005		3.2	82	0.012	
5/04	7.34	7.01	460	365	2.5		0.66	14	0.0055	<0.0005		2.8	110	0.012	
9/04	6.58	6.60	520	367	4.1		2.0	8.8	0.0055	<0.0005		2.1	85	<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-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	
5/02	9.06	9.01	4,200	2,420	4.6		0.55	130	0.0311	0.000659		0.269	1,070	0.0244	
5/03	8.95	9.20	3,800	4,120	3.1		<0.01	140	0.012	<0.0005		0.15	800	0.013	
5/04	9.28	9.46	3,400	5,040	8.5		0.76	150	0.016	<0.0005		0.19	2,000	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	
5/02	7.61	7.56	510	301	0.026		<0.01	3.7	<0.004	<0.0005		0.785	32.3	<0.01	
5/03	7.60	7.78	580	430	0.033		<0.01	4.0	<0.004	<0.0005		0.93	33	<0.01	
5/04	7.57	7.66	590	649	0.024		0.024	4.2	<0.004	<0.0005		1.0	33	<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	
5/02	7.89	7.91	720	543	0.20		0.17	14	<0.004	<0.0005		0.0577	147	<0.01	
5/03	7.85	7.98	1,400	1,042	0.58		0.02	21	<0.004	<0.0005		0.64	200	<0.01	
5/04	7.86	7.83	1,200	855	0.61		0.017	9.2	<0.004	<0.0005		0.84	220	<0.01	
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	
5/02	7.68	7.73	600	450	0.10		<0.01	7.7	<0.004	<0.0005		1.14	79.4	<0.01	
5/03	7.65	7.9	1,000	739	0.13		<0.01	9.6	<0.004	<0.0005		1.2	86	<0.01	
5/04	7.69	7.79	820	595	0.11		0.012	11	<0.004	<0.0005		0.9	120	<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	
5/02	7.01	7.10	430	377	<0.01			0.24	0.0135	<0.0005		0.938	22.9	<0.01	
5/03	6.87	6.83	460	372	<0.01			0.28	0.016	<0.0005		1.1	23	<0.01	
5/04	6.85	6.85	450	361	<0.01			0.45	0.017	<0.0005		1.1	26	<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-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	
5/02	8.20	8.15	1,900	859	0.52		<0.02	37	<0 004	<0.0005		0.603	475	<0.01	
5/03	8.25	7.32	2,300	1,721	0.94		0.14	51	<0.004	<0.0005		0.41	430	<0.01	
5/04	8.29	8.37	4,500	4,040	3.1		<0.01	74	0.0068	<0 0005		0.38	1,500	<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	
5/02	7.57	7.60	530	316	0.021		<0.01	3.0	<0.004	<0.0005		1.17	29.5	<0.01	
5/03	7.57	7.21	600	461	0.017		0.017	4.0	<0.004	<0.0005		1.4	34	<0.01	
5/04	7.66	7 70	1,700	1,899	0.65		0.65	9.6	<0.004	<0.0005		1.6	430	<0.01	

Note: All results in mg/L unless otherwise noted

0318 ANN-14 XLS

TABLE 5

SUMMARY OF ANALYTICAL RESULTS FOR PCBS

ORMET CORPORATION

HANNIBAL, OHIO

		MW-12								MW-44S							
		5/15/02	10/01/02	1/15/03	5/22/03	9/11/03	1/13/04	5/11/04	9/28/04	5/15/02	10/01/02	1/15/03	5/22/03	9/11/03	1/14/04	5/14/04	9/28/04
Aroclor-1016	µg/L	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52/<0.52	<0.5	<0.51/<0.53	<0.52	<0.5	<0.5	<0.5	<0.5	<0.52	<0.5	<0.52
Aroclor-1221	µg/L	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52/<0.52	<0.5	<0.51/<0.53	<0.52	<0.5	<0.5	<0.5	<0.5	<0.52	<0.5	<0.52
Aroclor-1232	µg/L	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52/<0.52	<0.5	<0.51/<0.53	<0.52	<0.5	<0.5	<0.5	<0.5	<0.52	<0.5	<0.52
Aroclor-1242	µg/L	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52/<0.52	<0.5	<0.51/<0.53	<0.52	<0.5	<0.5	<0.5	<0.5	<0.52	<0.5	<0.52
Aroclor-1248	µg/L	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52/<0.52	<0.5	<0.51/<0.53	<0.52	<0.5	<0.5	<0.5	<0.5	<0.52	<0.5	<0.52
Aroclor-1254	µg/L	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52/<0.52	<0.5	<0.51/<0.53	<0.52	<0.5	<0.5	<0.5	<0.5	<0.52	<0.5	<0.52
Aroclor-1260	µg/L	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52/<0.52	<0.5	<0.51/<0.53	<0.52	<0.5	<0.5	<0.5	<0.5	<0.52	<0.5	<0.52

		MW-44D							
		5/15/02	10/01/02	1/15/03	5/22/03	9/11/03	1/14/04	5/14/04	9/28/04
Aroclor-1016	µg/L	<0.5	<0.51	<0.5	<0.5	<0.5	<0.51	<0.5	<0.51
Aroclor-1221	µg/L	<0.5	<0.51	<0.5	<0.5	<0.5	<0.51	<0.5	<0.51
Aroclor-1232	µg/L	<0.5	<0.51	<0.5	<0.5	<0.5	<0.51	<0.5	<0.51
Aroclor-1242	µg/L	<0.5	<0.51	<0.5	<0.5	<0.5	<0.51	<0.5	<0.51
Aroclor-1248	µg/L	<0.5	<0.51	<0.5	<0.5	<0.5	<0.51	<0.5	<0.51
Aroclor-1254	µg/L	<0.5	<0.51	<0.5	<0.5	<0.5	<0.51	<0.5	<0.51
Aroclor-1260	µg/L	<0.5	<0.51	<0.5	<0.5	<0.5	<0.51	<0.5	<0.51

0318-ANN-T5.XLS

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

Sampling Date	Estimated Area of Aquifer Above 4 mg/L Fluoride	% Change	Estimated Area of Aquifer Above 0.2 mg/L Total CN	% Change
6/88	43.3 a.		24.5 a.	
1/95	48.4 a.	+11.6	5.9 a.	-75.8
5/97	43.7 a.	-9.7	21.3 a.	+259
5/98	36.9 a.	-15.6	10.5 a.	-50.6
5/99	43.7*a.	+18.4	27.5 a.	+161
5/00	41.6 a.	-4.8	36.5 a.	+32.7
5/01	41.4 a.	-0.5	36.7 a.	+0.5
5/02	37.9 a.	-8.5	37.2 a.	+1.3
5/03	38.8 a.	+2.3	37.2 a.	0.0
5/04	42.1 a.	+7.8	38.1 a.	+2.4

Sampling Date	Estimated Fluoride Mass-in-Place	% Change	Estimated Total CN Mass-in-Place	% Change
6/88	85,702 lbs.		6,821 lbs.	
1/95	28,168 lbs.	-67.1	4,271 lbs.	-37.4
5/97	29,033 lbs.	+3.1	2,943 lbs.	-31.1
5/98	23,888 lbs.	-17.7	2,597 lbs.	-11.8
5/99	30,416* lbs.	+27.3	5,566 lbs.	+114
5/00	27,071 lbs.	-11.0	4,679 lbs.	-15.9
5/01	21,741 lbs.	-19.7	4,300 lbs.	-8.1
5/02	28,789 lbs.	+24.5	4,530 lbs.	+5.1
5/03	32,127 lbs.	+10.4	2,773 lbs.	-38.8
5/04	38,836 lbs.	+17.3	3,062 lbs.	+9.4

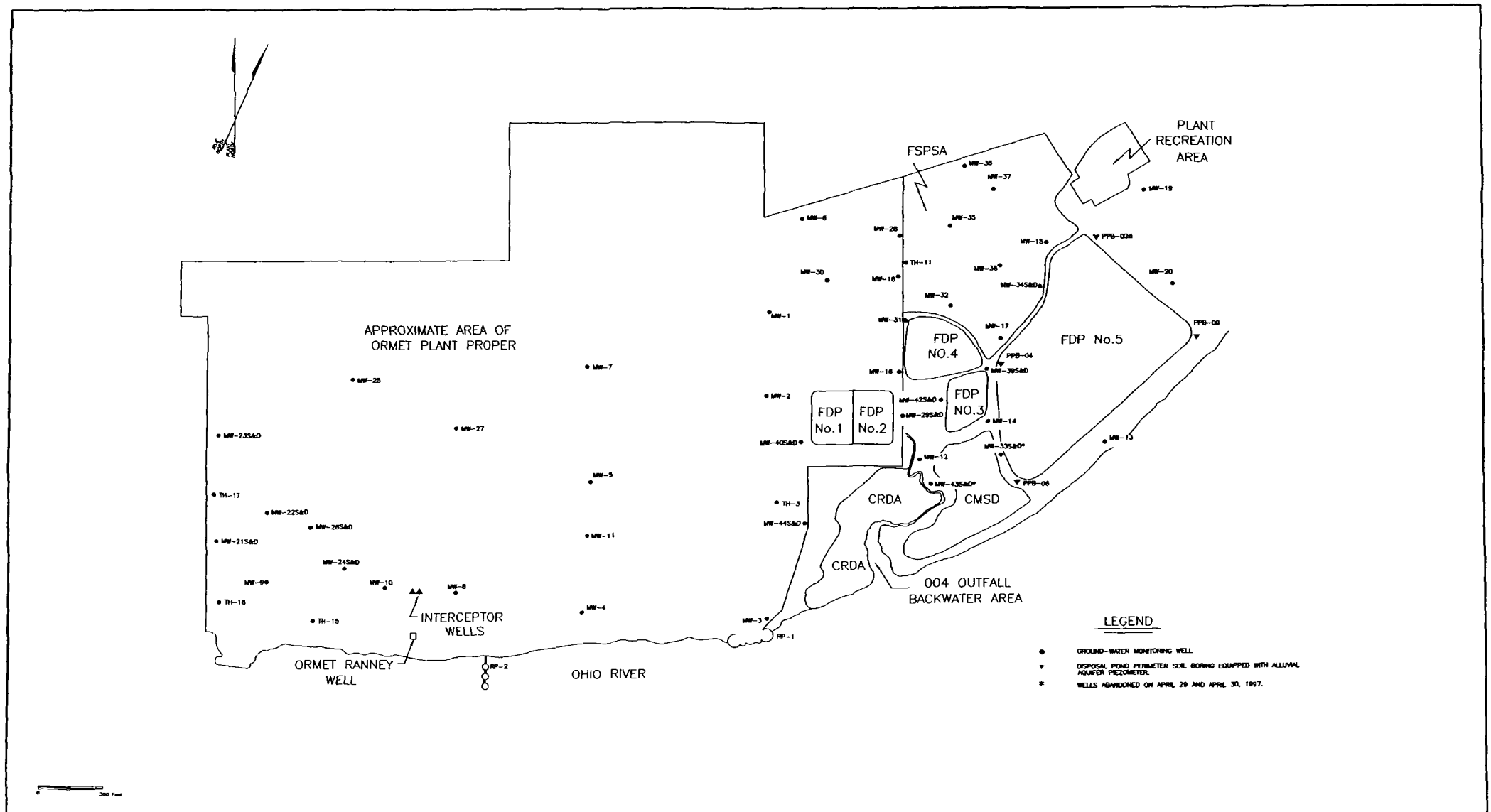
* - Value corrected due to omission during 1999 calculation.

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

	FLUORIDE			TOTAL CYANIDE		
SAMPLE DATE	ESTIMATED MASS-IN-PLACE	CHANGE	MASS REMOVED	ESTIMATED MASS-IN-PLACE	CHANGE	MASS REMOVED
6/88	85,702			6,821		
1/95	28,168	-57,534		4,271	-2,550	
5/97	29,033	+864		2,943	-1,328	
5/98	23,888	-5,145	26,383	2,597	-346	3,462
5/99	30,416	+6,528	29,516	5,566	+2,969	3,248
5/00	27,071	-3,345	18,934	4,679	-887	2,884
5/01	21,741	-5,330	19,653	4,300	-379	2,897
5/02	28,789	+7,048	16,470	4,530	+230	2,321
5/03	32,127	+3,338	12,042	2,773	-1,757	1,726
5/04	38,836	+6,709	9,845	3,062	+289	1,597
	TOTAL MASS REMOVED		132,843	TOTAL MASS REMOVED		18,135

All values given in pounds.

FIGURES



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Washington, Pennsylvania 15301

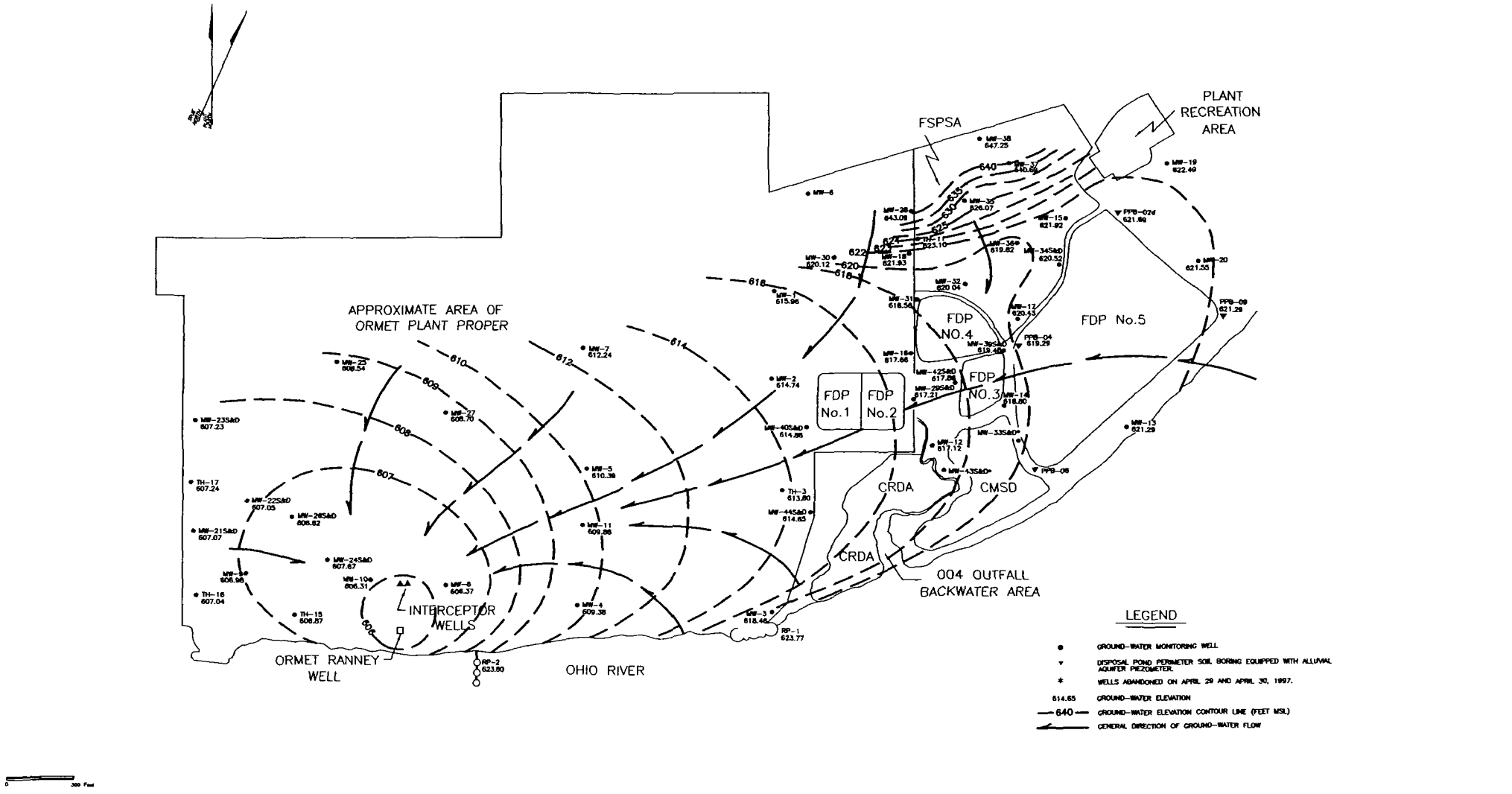
PROJECT NO: HM00318	FILE NO:
DRAWING:	
DRAFTED BY: CL	DATE: 02/23/2005
CHECKED BY: SCM	DATE: 02/23/2005
APPROVED BY: RLF	DATE: 02/23/2005
REVISION NO:	DATE:

GENERALIZED BASE MAP

ORMET CORPORATION

HANNIBAL OHIO

FIGURE 1



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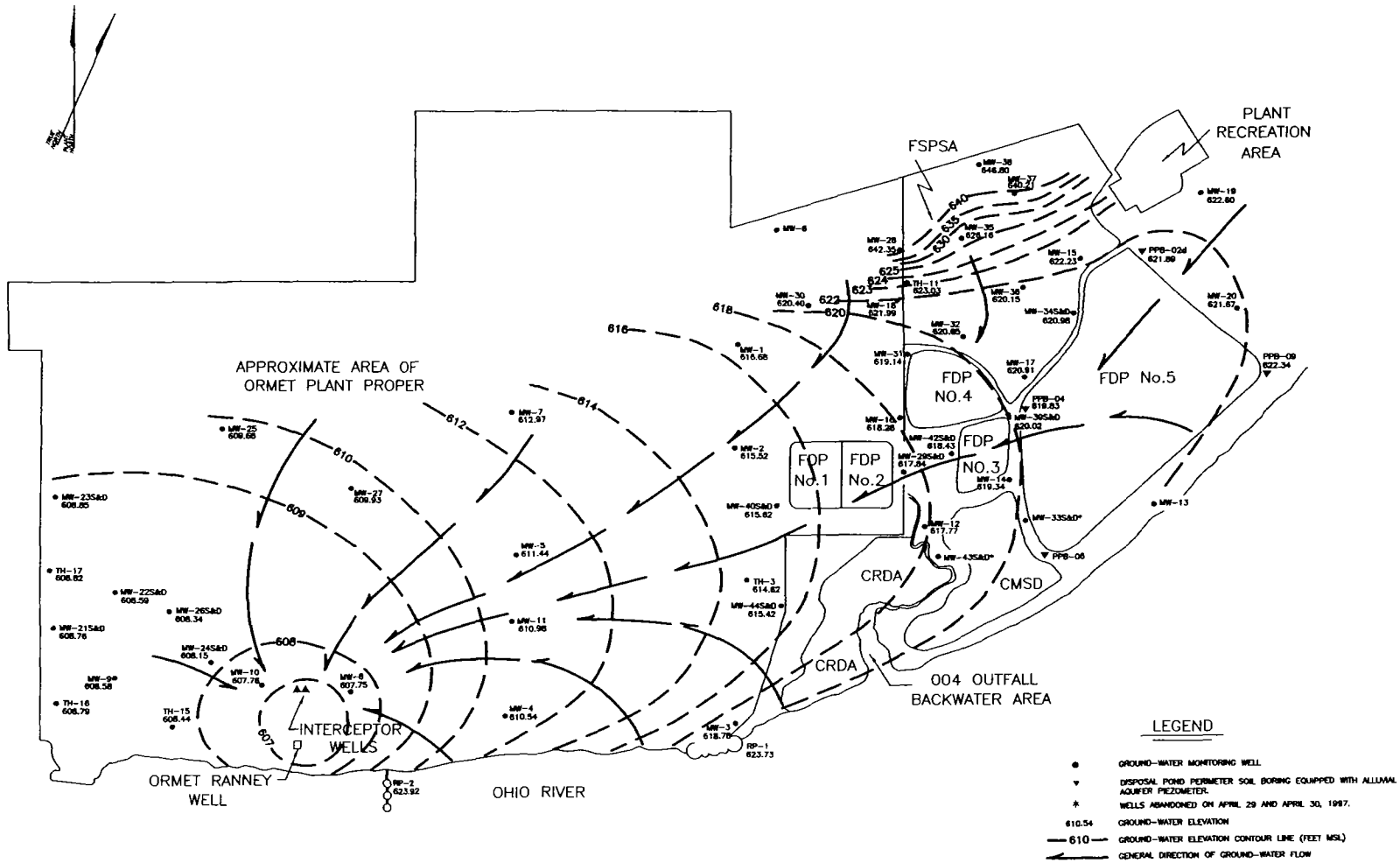
PROJECT NO: HM00318	FILE NO:
DRAWING:	
DRAFTED BY: CL	DATE: 02/23/2005
CHECKED BY: SCM	DATE: 02/23/2005
APPROVED BY: RLF	DATE: 02/23/2005
REVISION NO:	DATE:

GROUND-WATER ELEVATION CONTOUR MAP
(BASED ON DATA COLLECTED JANUARY 12, 2004)

ORMET CORPORATION

HANNIBAL OHIO

FIGURE 2



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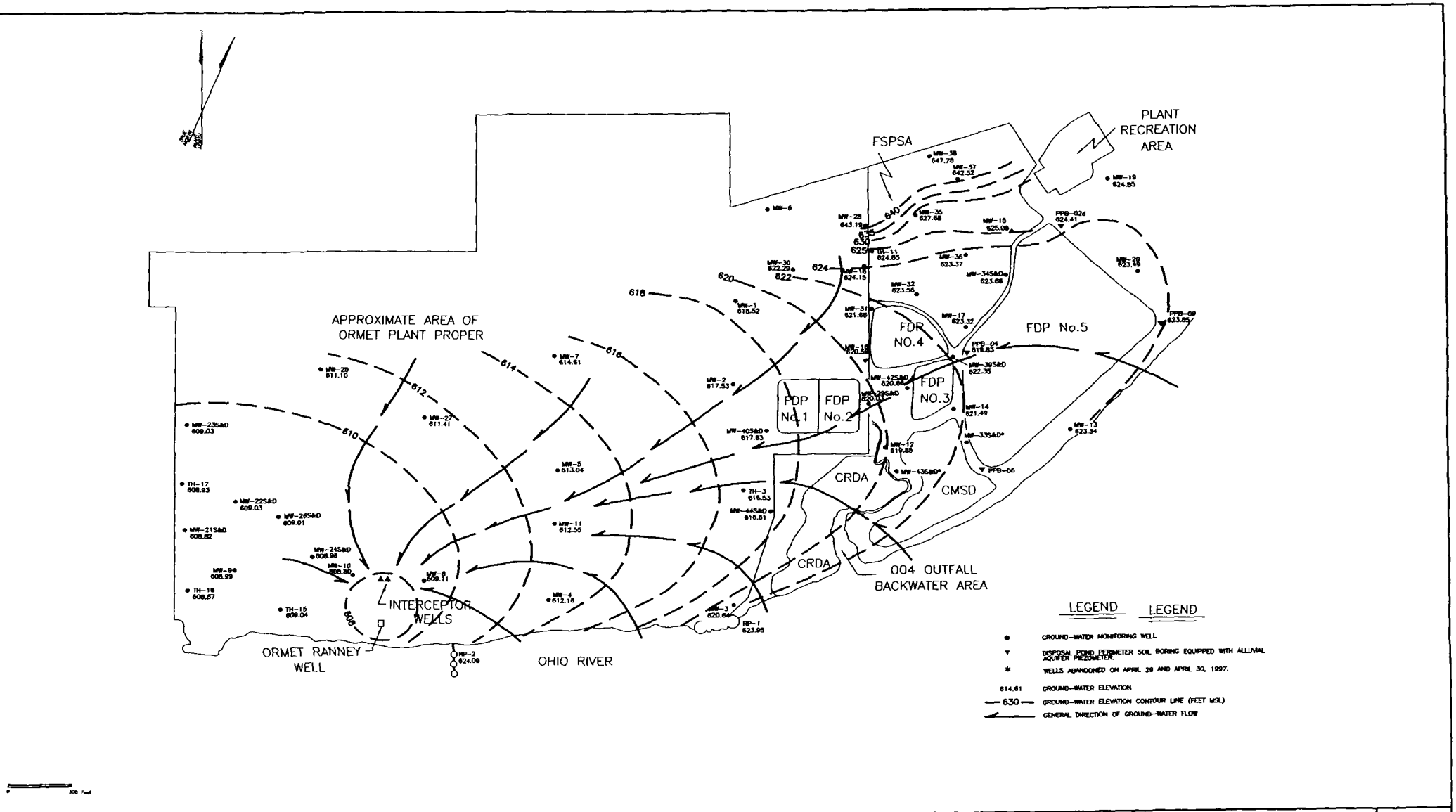
PROJECT NO: HM00318	FILE NO:
DRAWING:	
DRAFTED BY: CL	DATE: 8/25/04
CHECKED BY: SCM	DATE: 8/25/04
APPROVED BY: RLF	DATE: 8/25/04
REVISION NO:	DATE:

GROUND-WATER ELEVATION CONTOUR MAP
(BASED ON DATA COLLECTED MAY 10, 2004)

ORMET CORPORATION

HANNIBAL OHIO

FIGURE 3



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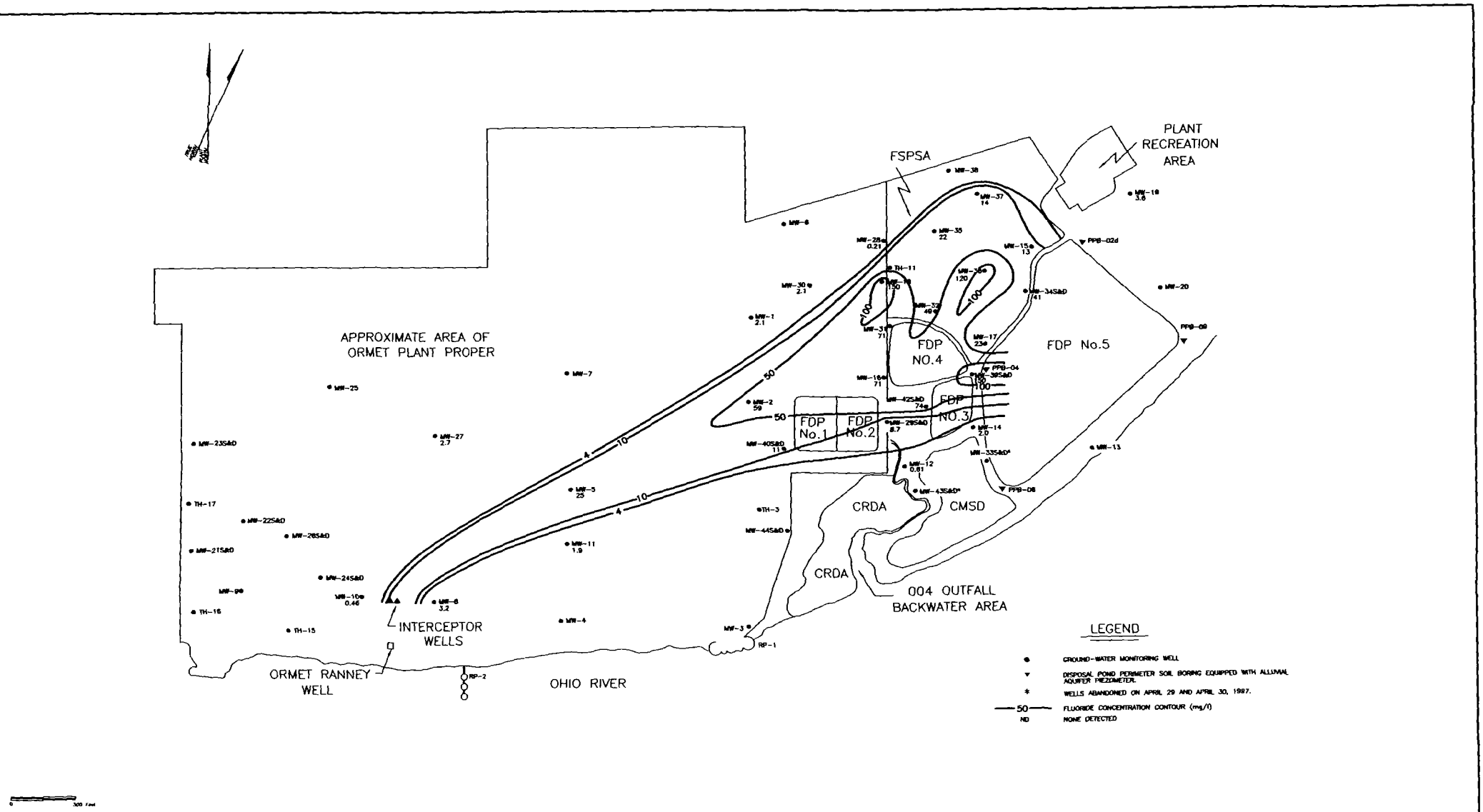
PROJECT NO: HM00318	FILE NO:
DRAWING:	
DRAFTED BY: CL	DATE: 02/23/2005
CHECKED BY: SCM	DATE: 02/23/2005
APPROVED BY: RLF	DATE: 02/23/2005
REVISION NO:	DATE:

GROUND-WATER ELEVATION CONTOUR MAP
(BASED ON DATA COLLECTED SEPTEMBER 28, 2004)
ORMET CORPORATION
HANNIBAL OHIO

FIGURE 4



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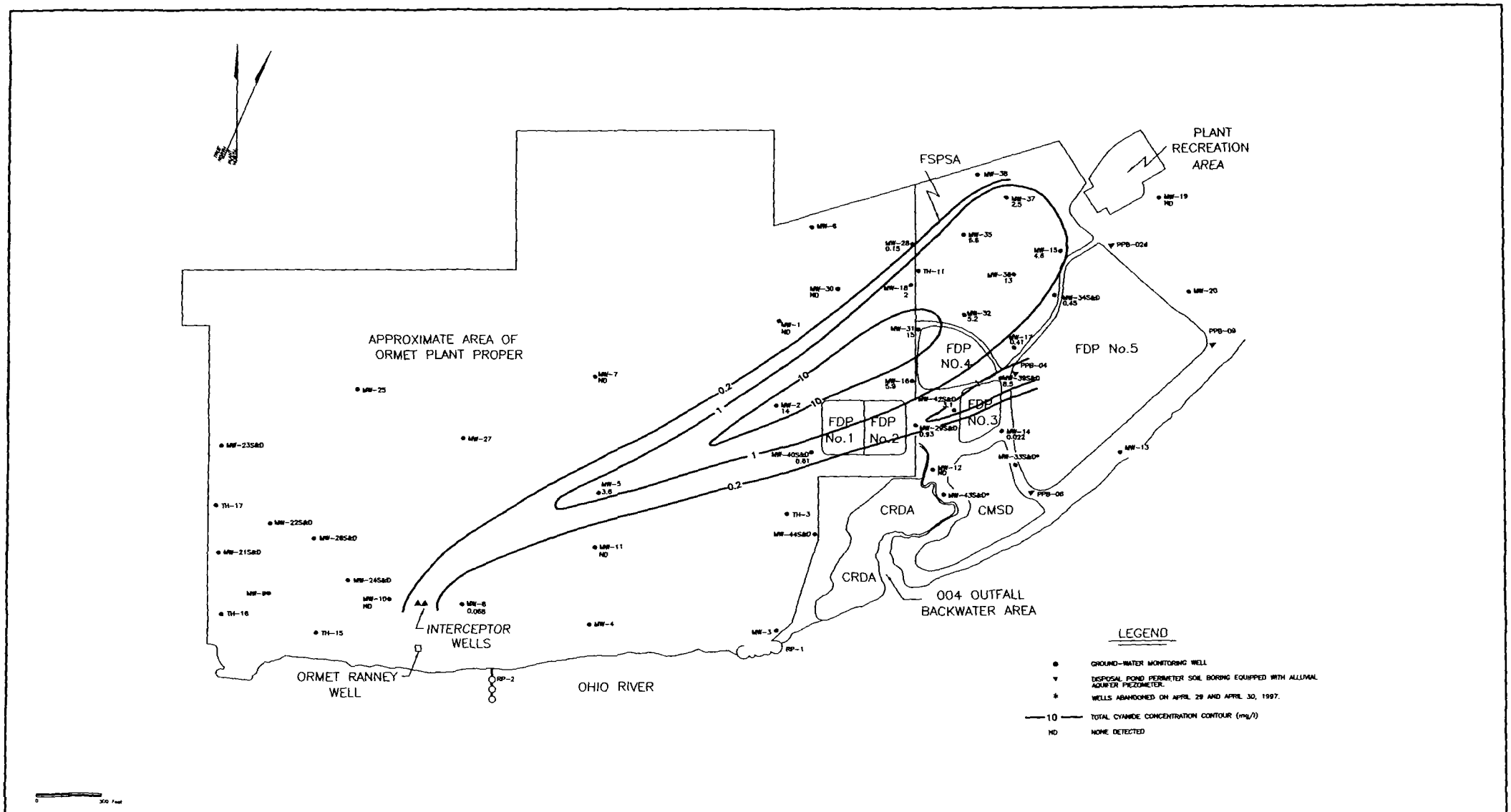
PROJECT NO: HM00318	FILE NO:
DRAWING:	
DRAFTED BY: CL	DATE: 02/23/2005
CHECKED BY: SCM	DATE: 02/23/2005
APPROVED BY: RLF	DATE: 02/23/2005
REVISION NO:	DATE:

FLUORIDE ISOPLETH MAP FOR THE ALLUVIAL AQUIFER
(BASED ON SAMPLES COLLECTED MAY 11-14, 2004)
ORMET CORPORATION

HANNIBAL OHIO

FIGURE 5



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PROJECT NO: HM00318	FILE NO:
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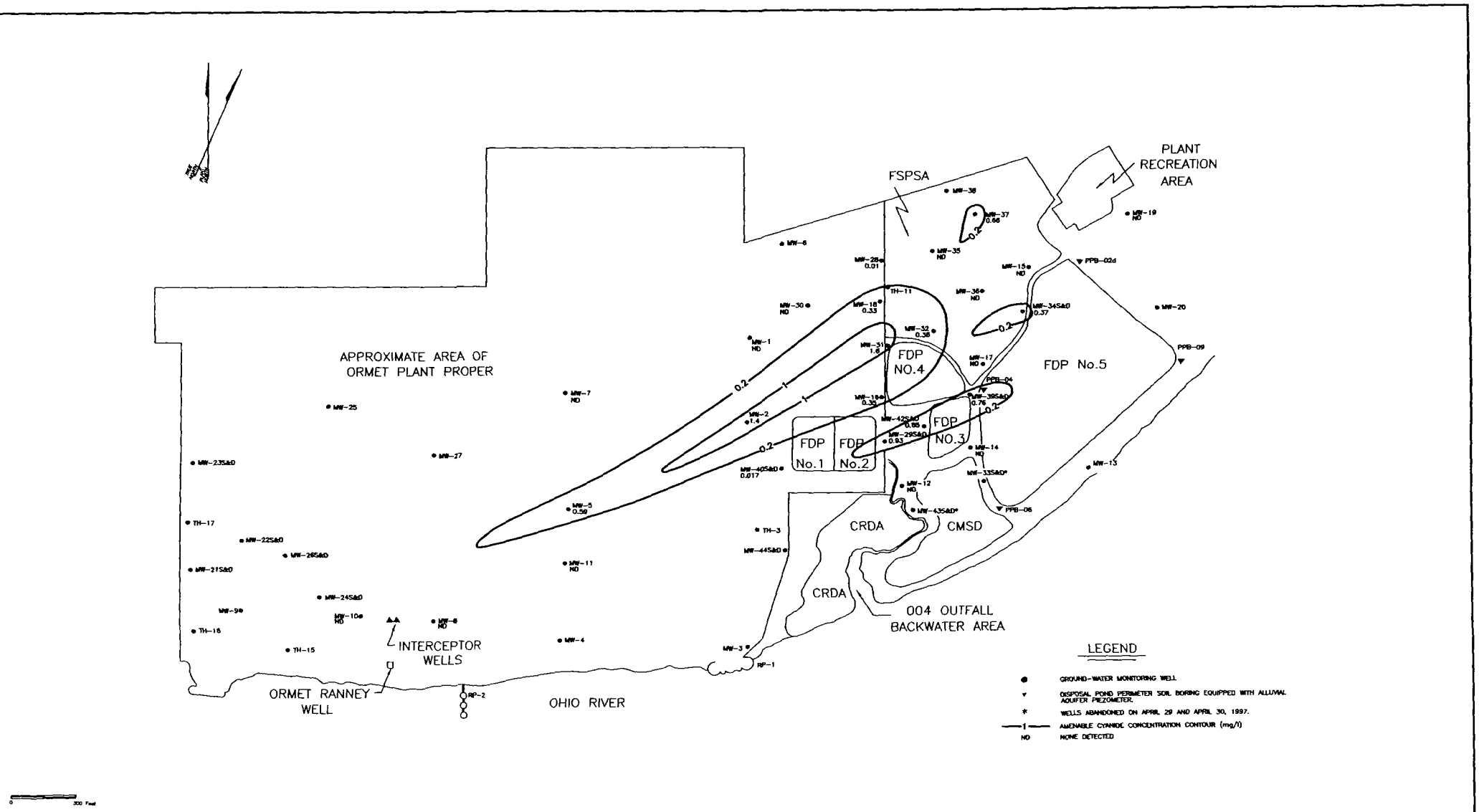
DRAFTED BY: CL	DATE: 02/23/2005
CHECKED BY: SCM	DATE: 02/23/2005
APPROVED BY: RLF	DATE: 02/23/2005
REVISION NO:	DATE:

TOTAL CYANIDE ISOPLETH MAP FOR THE ALLUVIAL AQUIFER
(BASED ON SAMPLES COLLECTED MAY 11-14, 2004)
ORMET CORPORATION
HANNIBAL OHIO

FIGURE 6



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PROJECT NO: HM00318	FILE NO:
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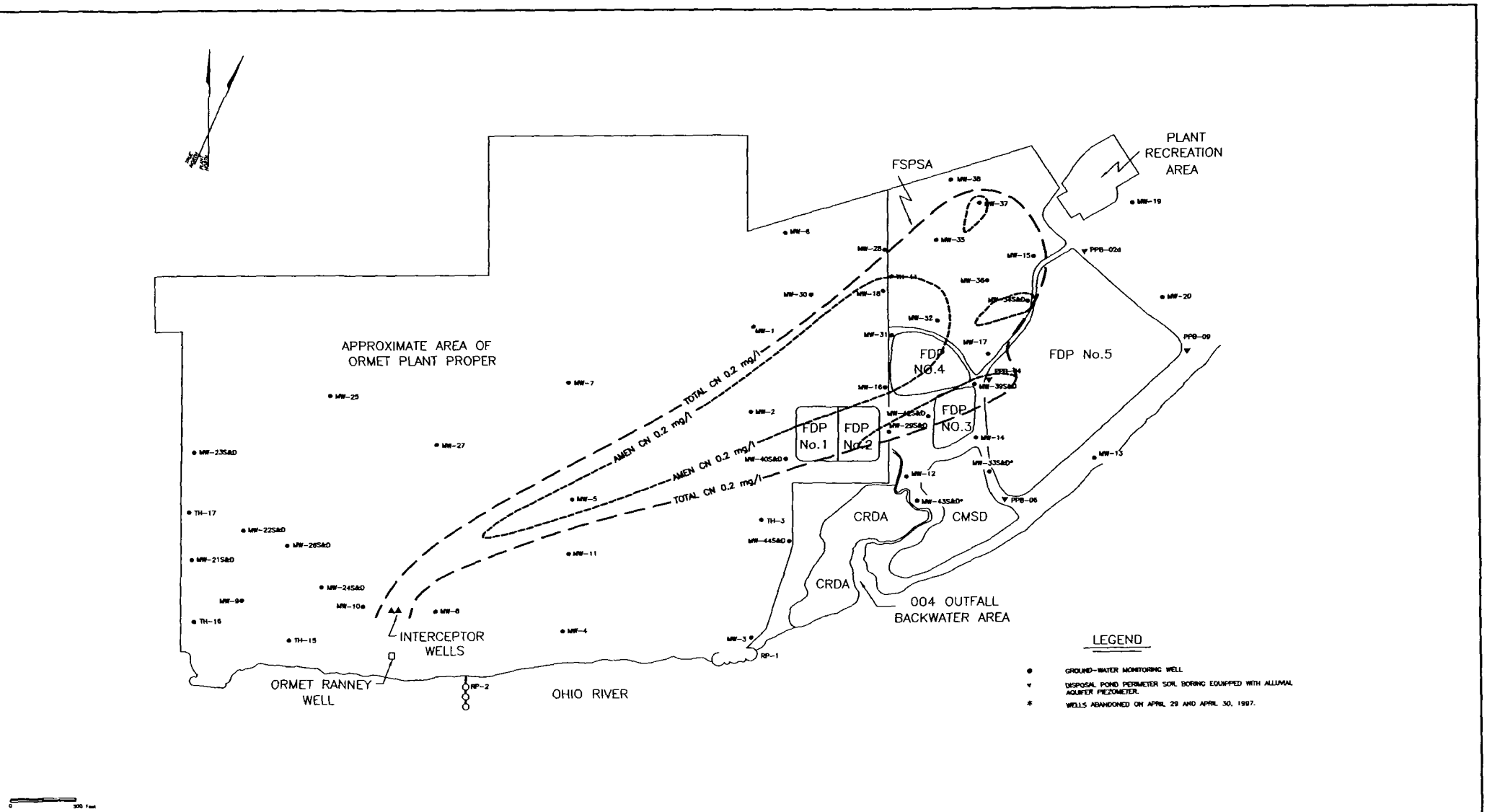
DRAFTED BY: CL	DATE: 02/23/2005
CHECKED BY: SCM	DATE: 02/23/2005
APPROVED BY: RLF	DATE: 02/23/2005
REVISION NO:	DATE:

AMENABLE CYANIDE ISOPLETH MAP
FOR THE ALLUVIAL AQUIFER
(BASED ON SAMPLES COLLECTED MAY 11-14, 2004)
ORMET CORPORATION

HANNIBAL OHIO

FIGURE 7



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PROJECT NO: HM00318	FILE NO:
DRAWING:	
DRAFTED BY: CL	DATE: 02/23/2005
CHECKED BY: SCM	DATE: 02/23/2005
APPROVED BY: RLF	DATE: 02/23/2005
REVISION NO:	DATE:

2004 COMPARISON OF TOTAL VS. AMENABLE CYANIDE DISTRIBUTION IN GROUND-WATER (BASED ON 0.2 mg/l CONCENTRATION CONTOURS)

ORMET CORPORATION

HANNIBAL OHIO

FIGURE 8

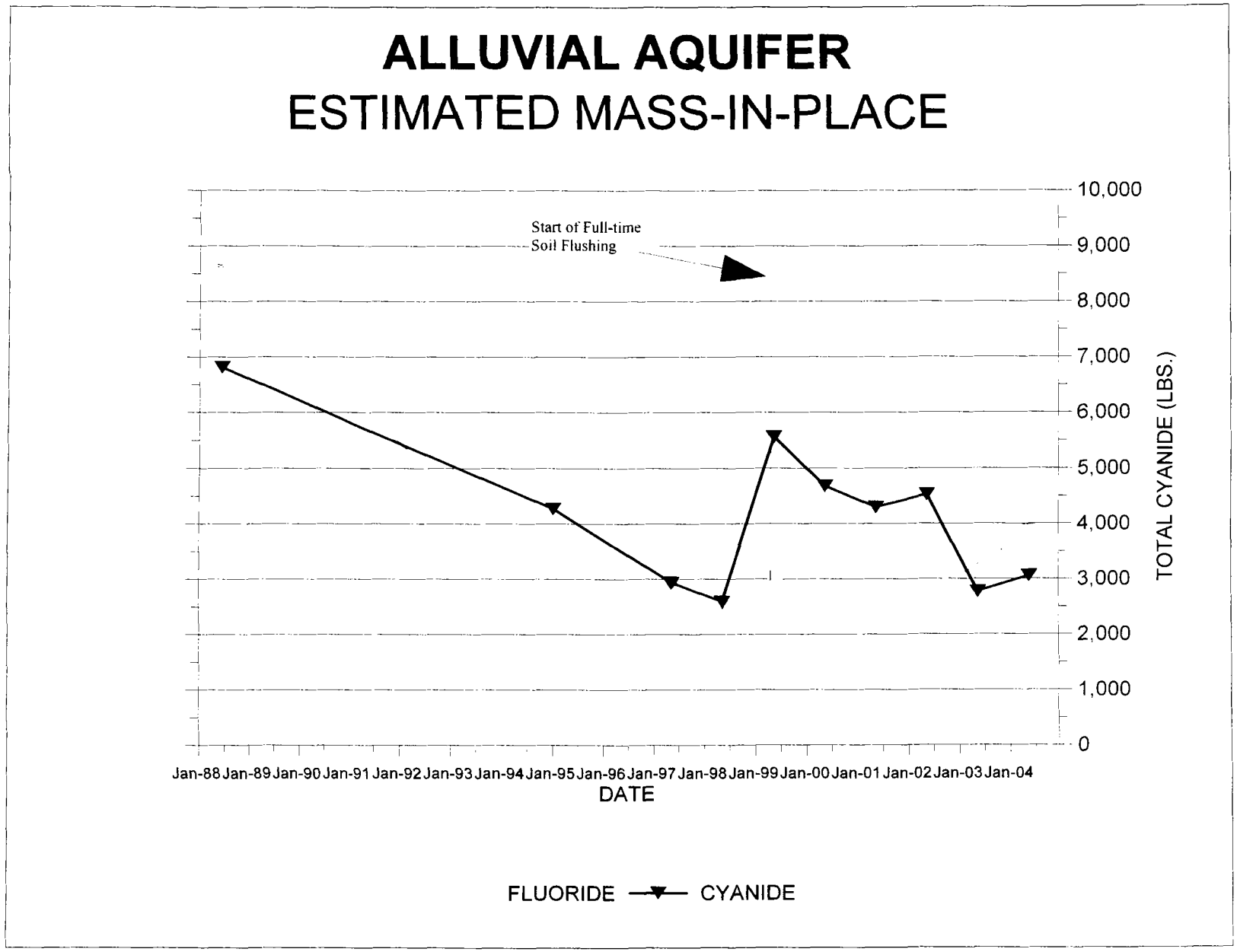
ALLUVIAL AQUIFER
ESTIMATED MASS-IN-PLACE
Start of Full-time
Soil Flushing
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
TOTAL CYANIDE (LBS.)
Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04
DATE
FLUORIDE
CYANIDE

FIGURE 9

APPENDIX A

WATER SAMPLING LOG FORMS

Appendix A-1	Water Sampling Log Forms for January 2004 Monitoring Event
Appendix A-2	Water Sampling Log Forms for May 2004 Monitoring Event
Appendix A-3	Water Sampling Log Forms for September 2004 Monitoring Event

APPENDIX A-1

WATER SAMPLING LOG FORMS FOR JANUARY 2004 MONITORING EVENT

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL OHIO
Sampling Date: 1/13/04 Weather: Cloudy 30's

Sample ID: MW-2
Replicate ID: ~
Time Sampling Began: 1450
Time Sampling Completed: 1518

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): 53.38
Water Column (WC) in Well [TD-DTW]: 28.87
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.6192

Diameter of Well Casing: 2.0"
Gallons to be Purged: 13.8576
(3 WCVs, 5 WCVs, etc.)
= Well Casing Volume (WCV)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Black Odor: None Turbidity: Stained

Well Volumes (gal.):	4.5	9.0	14	Final				
pH (s.u.):	9.87	10.00	9.98	9.97				
Sp. Cond. (µmhos/cm):	1,358	1,386	1,372	1,354				
Temperature (°C):	13°	14°	13°	13°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description From Lab ✓ or HMI ___	Preservative preserved by: Lab ✓ or HMI ___
pH, Spec. Cond., F	500ml. PLASTIC	4°C
Diss. As, Ba, Mn, Na, V	250ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250ml. PLASTIC	NAOH
PCE	3x40ml. GLASS	HCL

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

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL OHIO
Sampling Date: 1/13/04 Weather: Cloudy 30's

Sample ID: MW-5
Replicate ID: ~
Time Sampling Began: 1535
Time Sampling Completed: 1606

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): 57.77
Water Column (WC) in Well [TD-DTW]: 34.23
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 5.4768 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 16.4304
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

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

Well Volumes (gal.):	5.5	11	16.5	Final				
pH (s.u.):	8.10	8.15	8.03	8.00				
Sp. Cond. (µmhos/cm):	858	860	854	854				
Temperature (°C):	13°	13°	13°	14°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
pH, Spec. Cond., F	500ml. PLASTIC	4°C
Diss. As, Ba, Mn, Na, V	250ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250ml. PLASTIC	NAOH
PCE	3x40ml. GLASS	HCL

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

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL OHIO
Sampling Date: 1/13/04 Weather: Cloudy 30's

Sample ID: MW-12
Replicate ID: MW-12D
Time Sampling Began: 0920
Time Sampling Completed: 0951

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): 19.57
Water Column (WC) in Well [TD-DTW]: 48.85
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.816 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 23.448

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	8	16	23.5	Final				
pH (s.u.):	7.90	7.74	7.68	7.66				
Sp. Cond. (µmhos/cm):	404	397	397	400				
Temperature (°C):	13°	14°	15°	14°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
pH, Spec. Cond., F	500ml. PLASTIC	4°C
Diss. As, Ba, Mn, Na, V	250ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250ml. PLASTIC	NAOH
PCB'S	1 LITER AMBER GLASS	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL OHIO
Sampling Date: 1/13/04 Weather: Cloudy 30's

Sample ID: MW-16
Replicate ID: ~
Time Sampling Began: 0745
Time Sampling Completed: 0823

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): 45.06
Water Column (WC) in Well [TD-DTW]: 38.06
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.0896 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 18.2688
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. Brown Black Odor: None Turbidity: Stained, lt. silt

Well Volumes (gal.):	6	12	18.3	Final				
pH (s.u.):	7.85	7.84	7.86	8.07				
Sp. Cond. (µmhos/cm):	860	846	854	883				
Temperature (°C):	13°	13°	13°	13°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
pH, Spec. Cond., F	500ml. PLASTIC	4°C
Diss. As, Ba, Mn, Na, V	250ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250ml. PLASTIC	NAOH

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

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL OHIO
Sampling Date: 1/13/04 Weather: Cloudy 30's

Sample ID: MW-18
Replicate ID: ~
Time Sampling Began: 0825
Time Sampling Completed: 0856

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): 38.98
Water Column (WC) in Well [TD-DTW]: 22.18
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.5488 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 10.6464
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: V. Silty

Well Volumes (gal.):	3.5	7.0	11 *	Final				
pH (s.u.):	9.40	9.61		9.62				
Sp. Cond. (µmhos/cm):	960	1,180		1,237				
Temperature (°C):	13°	13°		13°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
pH, Spec. Cond., F	500ml. PLASTIC	4°C
Diss. As, Ba, Mn, Na, V	250ml. PLASTIC	HNO3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250ml. PLASTIC	NAOH
PCE	3x40ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: * Bailed dry @ 7 gals, sampled upon recovery
Color filters out

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL OHIO
Sampling Date: 1/13/04 Weather: Cloudy 30's

Sample ID: MW-28
Replicate ID: ~
Time Sampling Began: 1428
Time Sampling Completed: 1442

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): 20.18
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 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 12.4896

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

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

Well Volumes (gal.):	4.5	9.0	12.5	Final				
pH (s.u.):	7.78	7.61	7.59	7.24				
Sp. Cond. (µmhos/cm):	363	336	337	341				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
pH, Spec. Cond., F	500 ml. PLASTIC	4°C
Diss. As, Ba, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NAOH

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

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL OHIO
Sampling Date: 1/13/04 Weather: Snow 30's

Sample ID: MW-31
Replicate ID: MW-31D
Time Sampling Began: 1340
Time Sampling Completed: 1408

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): 43.03
Water Column (WC) in Well [TD-DTW]: 24.55
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.928 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 11.784
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown, Black Odor: None Turbidity: Stained, Hr. Silt

Well Volumes (gal.):	4	8	12	Final				
pH (s.u.):	9.72	9.87	9.84	9.83				
Sp. Cond. (µmhos/cm):	1,287	1,423	1,405	1,375				
Temperature (°C):	12°	13°	14°	13°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
pH, Spec. Cond., F	500ml. PLASTIC	4°C
Diss. As, Ba, Mn, Na, V	250ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250ml. PLASTIC	NAOH
PCE	3x40ml. GLASS	HCL

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

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL OHIO
Sampling Date: 1/13/04 Weather: Cloudy 30's

Sample ID: MW-32
Replicate ID: ~
Time Sampling Began: 1025
Time Sampling Completed: 1041

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): 36.62
Water Column (WC) in Well [TD-DTW]: 20.74
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.3184 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 9.9552
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

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

Well Volumes (gal.):	3.5	7.0	10.0	Final				
pH (s.u.):	8.37	8.47	8.51	8.77				
Sp. Cond. (µmhos/cm):	508	538	536	588				
Temperature (°C):	15°	15°	14°	14°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
pH, Spec. Cond., F	500ml. PLASTIC	4°C
Diss. As, Ba, Mn, Na, V	250ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250ml. PLASTIC	NAOH

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

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL OHIO
Sampling Date: 1/13/04 Weather: Drizzle 30's

Sample ID: MW-35
Replicate ID: ~
Time Sampling Began: 1048
Time Sampling Completed: 1105

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 46.94
Depth to Water Below MP (DTW): 35.83
Water Column (WC) in Well [TD-DTW]: 11.11
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 1.7776 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 5.3328

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Black Odor: None Turbidity: Stained

Well Volumes (gal.):	2	4 *	5.4	Final				
pH (s.u.):	8.79	8.48		8.32				
Sp. Cond. (µmhos/cm):	349	324		335				
Temperature (°C):	13°	13°		13°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
pH, Spec. Cond., F	500ml. PLASTIC	4°C
Diss. As, Ba, Mn, Na, V	250ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250ml. PLASTIC	NAOH

Sampling Personnel: S. MENOSKY, J. KELLER

Comments: Color somewhat filters out, * bailed dry @ 4 gals, sampled upon recovery

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL OHIO
Sampling Date: 1/13/04 Weather: Cloudy 30's

Sample ID: MW-36
Replicate ID: ~
Time Sampling Began: 1000
Time Sampling Completed: 1022

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): 35.52
Water Column (WC) in Well [TD-DTW]: 16.56
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.6496 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 7.9488
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Black, Brown Odor: None Turbidity: Stained H. Sft

Well Volumes (gal.):	2.5	5.0	8.0	Final				
pH (s.u.):	9.77	9.76	9.78	9.79				
Sp. Cond. (µmhos/cm):	1,273	1,316	1,332	1,350				
Temperature (°C):	14°	15°	15°	14°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
pH, Spec. Cond., F	500 ml. PLASTIC	4°C
Diss. As, Ba, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250 ml. PLASTIC	NAOH

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

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL OHIO
Sampling Date: 1/13/04 Weather: Cloudy 30's

Sample ID: MW-37
Replicate ID: ~
Time Sampling Began: 1110
Time Sampling Completed: 1128

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): 20.45
Water Column (WC) in Well [TD-DTW]: 16.45
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.632 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 7.896
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: Silty

Well Volumes (gal.):	2.5	5.0	8.0	Final				
pH (s.u.):	8.09	7.72	7.55	7.34				
Sp. Cond. (µmhos/cm):	421	431	435	422				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
pH, Spec. Cond., F	500ml. PLASTIC	4°C
Diss. As, Ba, Mn, Na, V	250ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250ml. PLASTIC	NAOH

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

HM07-07WS-LOG.WK3

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL

Project Number: HM00317

Site Location: HANNIBAL OHIO

Sampling Date: 1/19/04 Weather: Cloudy 30's

Sample ID: MW-44S

Replicate ID: ~

Time Sampling Began: 0850

Time Sampling Completed: 1017

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC

MP Elevation:

Total Sounded Depth of Well Below MP (TD): 69.05

Depth to Water Below MP (DTW): 36.51

Water Column (WC) in Well [TD-DTW]: 32.54

Gallons per foot (GPF); from chart: 0.16

Gallons in Well [WC x GPF]: 5.2064 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"

Gallons to be Purged: 15.6192

(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: H. brown Odor: None Turbidity: Cloudy Wispy Sheen

Well Volumes (gal.):	5.5	11.0	16	Final				
pH (s.u.):	7.18	6.94	6.87	6.84				
Sp. Cond. (µmhos/cm):	421	430	430	432				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

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

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

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00317
Site Location: HANNIBAL OHIO
Sampling Date: 1/14/04 Weather: Cloudy 30's

Sample ID: MW-44D
Replicate ID: ~
Time Sampling Began: 0856
Time Sampling Completed: 0930

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 93.97
Depth to Water Below MP (DTW): 47.91
Water Column (WC) in Well [TD-DTW]: 46.06
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.3696 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 22.1088

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	7.5	15.0	22.5	Final				
pH (s.u.):	7.33	7.53	7.51	7.97				
Sp. Cond. (µmhos/cm):	378	357	354	245				
Temperature (°C):	13°	13°	14°	13°				
Turbidity (N.T.U):								

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

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

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HM07 07WS LOG WK3

APPENDIX A-2

WATER SAMPLING LOG FORMS FOR MAY 2004 MONITORING EVENT

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/11/04 Weather: SUNNY 70's

Sample ID: MW-1
Replicate ID: ~
Time Sampling Began: 0927
Time Sampling Completed: 0950

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): 51.39
Water Column (WC) in Well [TD-DTW]: 19.72
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.1552 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 9.4656
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: Silty

Well Volumes (gal.):	3.6	6.6	9.5	Final				
pH (s.u.):	6.58	6.55	6.49	6.46				
Sp. Cond. (µmhos/cm):	730	765	702	701				
Temperature (°C):	16°	16°	17°	17°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

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

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/12/04 Weather: Sunny 80°

Sample ID: MW-2
Replicate ID: MW-2D
Time Sampling Began: 1002
Time Sampling Completed: 1050

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): 52.60
Water Column (WC) in Well [TD-DTW]: 32.63
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 5.2208 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 15.6624
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Black, brown Odor: None Turbidity: H. Silt

Well Volumes (gal.):	6	12	16	Final				
pH (s.u.):	9.94	9.90	9.89	9.82				
Sp. Cond. (µmhos/cm):	1,232	1,150	1,157	1,148				
Temperature (°C):	17°	17°	17°	17°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C
TETRACHLOROETHENE	3 x 40 ml. GLASS	HCL

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

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/12/04 Weather: Sunny 80°

Sample ID: MW-5
Replicate ID: ~
Time Sampling Began: 1058
Time Sampling Completed: 1135

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): 56.72
Water Column (WC) in Well [TD-DTW]: 35.16
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 5.6256 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 16.8768
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown, Lt. Silt Odor: None Turbidity: Lt. Silt

Well Volumes (gal.):	6	12	17	Final				
pH (s.u.):	8.10	8.07	8.02	8.03				
Sp. Cond. (µmhos/cm):	904	910	902	907				
Temperature (°C):	17°	17°	17°	17°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C
TETRACHLOROETHENE	3 x 40 ml. GLASS	HCL

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

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/13/04 Weather: Cloudy 70's

Sample ID: MW-7
Replicate ID: ~
Time Sampling Began: 0905
Time Sampling Completed: 0934

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): 54.97
Water Column (WC) in Well [TD-DTW]: 24.73
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.9568 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 11.8704

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: 14.54

Well Volumes (gal.):	4	8	12	Final				
pH (s.u.):	5.75	5.80	5.74	5.81				
Sp. Cond. (µmhos/cm):	679	642	637	631				
Temperature (°C):	35°	36°	36°	36°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Sample ID: MW - 8
Project Number: HM00318
Replicate ID: ~
Site Location: HANNIBAL, OHIO
Time Sampling Began: 1020
Sampling Date: 5/13/04 Weather: Sunny 80's
Time Sampling Completed: 1054

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): 99.78
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 19.1136
Depth to Water Below MP (DTW): 59.96
Water Column (WC) in Well [TD-DTW]: 39.82
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.3712 = Well Casing Volume (WCV)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	6.5	13.0	19.2	Final				
pH (s.u.):	7.89	7.86	7.82	7.80				
Sp. Cond. (µmhos/cm):	489	484	486	487				
Temperature (°C):	17°	17°	17°	17°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/13/04 Weather: Sunny 80's

Sample ID: MW-10
Replicate ID: ~
Time Sampling Began: 1102
Time Sampling Completed: 1143

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): 59.40
Water Column (WC) in Well [TD-DTW]: 41.32
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.6112 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 19.8336

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: H. brown Odor: None Turbidity: H. Silt

Well Volumes (gal.):	7	14	20	Final				
pH (s.u.):	7.24	7.20	7.21	7.25				
Sp. Cond. (µmhos/cm):	554	546	546	542				
Temperature (°C):	19°	19°	19°	19°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/13/04 Weather: Sunny 80°

Sample ID: MW-11
Replicate ID: ~
Time Sampling Began: 0940
Time Sampling Completed: 1015

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): 56.33
Water Column (WC) in Well [TD-DTW]: 41.02
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.5632 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 19.6896

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	7	14	20	Final				
pH (s.u.):	7.49	7.83	7.85	7.86				
Sp. Cond. (µmhos/cm):	413	398	397	394				
Temperature (°C):	17°	17°	17°	17°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/11/04 Weather: SUNNY 90's

Sample ID: MW-12
Replicate ID: ~
Time Sampling Began: 1445
Time Sampling Completed: 1510

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): 18.96
Water Column (WC) in Well [TD-DTW]: 49.28
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.8848 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 23.6544

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	8	16	24	Final				
pH (s.u.):	7.60	7.60	7.60	7.55				
Sp. Cond. (µmhos/cm):	631	600	596	596				
Temperature (°C):	18°	17°	17°	18°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C
PCB'S	1 LITER GLASS	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/11/04 Weather: Sunny 90's

Sample ID: MW-14
Replicate ID: ~
Time Sampling Began: 1515
Time Sampling Completed: 1545

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 86.90
Depth to Water Below MP (DTW): 35.25
Water Column (WC) in Well [TD-DTW]: 51.65
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 8.264 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 24.792

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	8	16	25	Final				
pH (s.u.):	7.62	7.65	7.71	7.64				
Sp. Cond. (µmhos/cm):	652	651	661	633				
Temperature (°C):	17°	17°	17°	17°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/12/04 Weather: Cloudy 80°

Sample ID: MW-15
Replicate ID: ~
Time Sampling Began: 1511
Time Sampling Completed: 1531

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): 35.08
Water Column (WC) in Well [TD-DTW]: 22.78
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.6448 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 10.9344
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. brown Odor: None Turbidity: Stained

Well Volumes (gal.):	4	8	11	Final				
pH (s.u.):	7.53	7.51	7.53	7.54				
Sp. Cond. (µmhos/cm):	940	952	988	982				
Temperature (°C):	17°	17°	16°	16				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

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

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/11/04 Weather: Cloudy 70°

Sample ID: MW-16
Replicate ID: MW-16D
Time Sampling Began: 0755
Time Sampling Completed: 0825

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): 44.44
Water Column (WC) in Well [TD-DTW]: 38.67
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.1872 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 18.5616

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. Brown Odor: None Turbidity: Lt. Silt / Stained

Well Volumes (gal.):	6.2	12.4	18.6	Final				
pH (s.u.):	8.22	8.22	8.22	8.22				
Sp. Cond. (µmhos/cm):	1,418	1,415	1,411	1,410				
Temperature (°C):	15°	16°	16°	16°				
Turbidity (N.T.U):	Lt. Silt							

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/12/04 Weather: Cloudy 80's

Sample ID: MW-17
Replicate ID: ~
Time Sampling Began: 1440
Time Sampling Completed: 1508

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): 34.12
Water Column (WC) in Well [TD-DTW]: 43.79
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.0064 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 21.0192

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: Silty

Well Volumes (gal.):	7	14	21.1	Final				
pH (s.u.):	7.86	7.86	7.81	7.83				
Sp. Cond. (µmhos/cm):	507	509	507	511				
Temperature (°C):	15°	15°	15°	15°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

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

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/12/04 Weather: Sunny 70°

Sample ID: MW-18
Replicate ID: MW-18D
Time Sampling Began: 0915
Time Sampling Completed: 0953

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): 38.92
Water Column (WC) in Well [TD-DTW]: 18.08
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.8928 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 8.6784

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: V. S.A.

Well Volumes (gal.):	3	6	9	Final				
pH (s.u.):	9.66	9.64	9.63	9.66				
Sp. Cond. (µmhos/cm):	1,563	1,546	1,546	1,546				
Temperature (°C):	16°	16°	16°	17°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C
TETRACHLOROETHENE	3x40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/13/04 Weather: Sunny 70's

Sample ID: MW-19
Replicate ID: ~
Time Sampling Began: 0815
Time Sampling Completed: 0850

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): 39.43
Water Column (WC) in Well [TD-DTW]: 25.77
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.1232 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 12.3696
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: H. Tan Odor: None Turbidity: H. Silt

Well Volumes (gal.):	4	8	12.5	Final				
pH (s.u.):	7.34	7.49	7.52	7.59				
Sp. Cond. (µmhos/cm):	344	342	339	342				
Temperature (°C):	14°	14°	14°	14°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/13/04 Weather: Sunny 80's

Sample ID: MW-28
Replicate ID: ~
Time Sampling Began: 1405
Time Sampling Completed: 1428

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): 20.92
Water Column (WC) in Well [TD-DTW]: 25.14
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.0224 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 12.0672
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: H. tan Odor: None Turbidity: Cloudy

Well Volumes (gal.):	4	8	12.1	Final				
pH (s.u.):	6.01	5.93	5.78	5.77				
Sp. Cond. (µmhos/cm):	314	311	310	306				
Temperature (°C):	16°	15°	15°	15°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/11/04 Weather: Sunny 70's

Sample ID: MW-29S
Replicate ID: ~
Time Sampling Began: 0835
Time Sampling Completed: 0925

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): 35.56
Water Column (WC) in Well [TD-DTW]: 25.79
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.1264 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 12.3792

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear tan tint Odor: None Turbidity: Tan tint

Well Volumes (gal.):	4	8	12.5	Final				
pH (s.u.):	7.59	7.50	7.58	7.56				
Sp. Cond. (µmhos/cm):	1,829	1,776	1,750	1,760				
Temperature (°C):	15°	15°	17°	16°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/11/04 Weather: Cloudy 70's

Sample ID: MW-29D
Replicate ID: ~
Time Sampling Began: 0835
Time Sampling Completed: 0910

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): 35.20
Water Column (WC) in Well [TD-DTW]: 46.78
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.4848 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 22.4544

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	8	16	22.5	Final				
pH (s.u.):	7.64	7.67	7.68	7.68				
Sp. Cond. (µmhos/cm):	698	712	681	682				
Temperature (°C):	15°	15°	16°	16°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/11/04 Weather: SUNNY 70's

Sample ID: MW-30
Replicate ID: ~
Time Sampling Began: 0950
Time Sampling Completed: 1020

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): 47.18
Water Column (WC) in Well [TD-DTW]: 13.23
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.1168 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 6.3504

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: V. Silty

Well Volumes (gal.):	2.5	5.0	6.5	Final				
pH (s.u.):	6.18	6.22	6.27	6.27				
Sp. Cond. (µmhos/cm):	525	519	517	512				
Temperature (°C):	16°	16°	16°	17°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C
TETRACHLOROETHENE	3x 40ml. GLASS	HCL

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/12/04 Weather: Fog 70's

Sample ID: MW-31
Replicate ID: ~
Time Sampling Began: 0835
Time Sampling Completed: 0909

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): 42.45
Water Column (WC) in Well [TD-DTW]: 25.06
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.0096 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 12.0288

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dk. brown Odor: None Turbidity: H.S.A

Well Volumes (gal.):	4	8	12.1	Final				
pH (s.u.):	9.82	9.84	9.84	9.85				
Sp. Cond. (µmhos/cm):	1,271	1,284	1,279	1,281				
Temperature (°C):	17°	17°	17°	17°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C
TETRACHLOROETHENE	3 x 40 ml. GLASS	HCL

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

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/12/04 Weather: Cloudy 80's

Sample ID: MW-32
Replicate ID: ~
Time Sampling Began: 1555
Time Sampling Completed: 1636

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): 36.01
Water Column (WC) in Well [TD-DTW]: 21.17
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.3872 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 10.1616

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color:			Odor:			Turbidity:		
Well Volumes (gal.):	3.5	7.0	10.2	Final				
pH (s.u.):	9.77	9.77	9.75	9.76				
Sp. Cond. (µmhos/cm):	849	866	870	872				
Temperature (°C):	16°	16°	16°	16°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/12/04 Weather: Sunny 90°

Sample ID: MW-34S
Replicate ID: ~
Time Sampling Began: 1400
Time Sampling Completed: 1436

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): 34.69
Water Column (WC) in Well [TD-DTW]: 14.66
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.3456 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 7.0368
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: Very Silty

Well Volumes (gal.):	2.5	5.0	7.1	Final				
pH (s.u.):	8.15	8.17	8.22	8.21				
Sp. Cond. (µmhos/cm):	618	614	735	729				
Temperature (°C):	15°	15°	15°	15				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/12/04 Weather: Sunny 90°

Sample ID: MW-34D
Replicate ID: ~
Time Sampling Began: 1400
Time Sampling Completed: 1436

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): 32.84
Water Column (WC) in Well [TD-DTW]: 35.40
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 5.664 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 16.992

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: 14.5 NTU

Well Volumes (gal.):	6	12	17	Final				
pH (s.u.):	7.21	7.32	7.40	7.35				
Sp. Cond. (µmhos/cm):	511	502	506	505				
Temperature (°C):	16°	15°	15°	15°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

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

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/13/04 Weather: SUNNY 80's

Sample ID: MW-35
Replicate ID: ~
Time Sampling Began: 1337
Time Sampling Completed: 1401

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 46.70
Depth to Water Below MP (DTW): 35.74
Water Column (WC) in Well [TD-DTW]: 10.96
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 1.7536 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 5.2608

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Black Odor: None Turbidity: H. Silt

Well Volumes (gal.):	1.5	3.6	5.3	Final				
pH (s.u.):	8.97	8.49	8.57	8.60				
Sp. Cond. (µmhos/cm):	361	362	396	401				
Temperature (°C):	17°	17°	17°	18°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER
Comments: * Dewatered @ 4 gal, sampled upon recovery

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/12/04 Weather: Cloudy 80's

Sample ID: MW-36
Replicate ID: ~
Time Sampling Began: 1535
Time Sampling Completed: 1552

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): 34.99
Water Column (WC) in Well [TD-DTW]: 17.09
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.7344 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 8.2032

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Black Odor: None Turbidity: Lt. Silt / Stained

Well Volumes (gal.):	3	6	8.5	Final				
pH (s.u.):	9.65	9.65	9.65	9.64				
Sp. Cond. (µmhos/cm):	1,378	1,396	1,402	1,393				
Temperature (°C):	17°	17°	17°	18°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

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

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/13/04 Weather: Sunny 80's

Sample ID: MW-37
Replicate ID: ~
Time Sampling Began: 1317
Time Sampling Completed: 1335

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): 20.93
Water Column (WC) in Well [TD-DTW]: 16.05
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.568 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 7.704

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: V. Silty

Well Volumes (gal.):	3	6	8	Final				
pH (s.u.):	7.35	7.14	7.10	7.01				
Sp. Cond. (µmhos/cm):	371	347	355	365				
Temperature (°C):	15°	16°	16°	16°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/11/04 Weather: Sunny 70s

Sample ID: MW-39S
Replicate ID: ~
Time Sampling Began: 1055
Time Sampling Completed: 1146

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): 37.28
Water Column (WC) in Well [TD-DTW]: 22.95
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.672 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 11.016

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: Tan / clear Odor: None Turbidity: Tan tint

Well Volumes (gal.):	4	8	11.1	Final				
pH (s.u.):	9.47	9.47	9.45	9.46				
Sp. Cond. (µmhos/cm):	5,200	5,110	5,060	5,040				
Temperature (°C):	16°	16°	16°	16°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/11/04 Weather: Sunny 70's

Sample ID: MW-39D
Replicate ID: ~
Time Sampling Began: 1055
Time Sampling Completed: 1130

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): 37.08
Water Column (WC) in Well [TD-DTW]: 43.13
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.9008 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 20.7024
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown Odor: None Turbidity: Hi Silt

Well Volumes (gal.):	7	14	21	Final				
pH (s.u.):	7.60	7.55	8.04	7.66				
Sp. Cond. (µmhos/cm):	668	659	716	649				
Temperature (°C):	16°	16°	16°	17°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/13/04 Weather: Sunny 90°

Sample ID: MW-40S
Replicate ID: ~
Time Sampling Began: 1435
Time Sampling Completed: 1542

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): 46.60
Water Column (WC) in Well [TD-DTW]: ~~[illegible]~~ 23.80
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.808 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 11.424
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear tan tint Odor: None Turbidity: Clear

Well Volumes (gal.):	4	8	11.5	Final				
pH (s.u.):	7.73	~~7.79~~ 7.82	7.85	7.83				
Sp. Cond. (µmhos/cm):	820	~~844~~ 833	852	855				
Temperature (°C):	17°	~~17.0~~ 17.0	17°	17°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/13/04 Weather: SUNNY 90's

Sample ID: MW-40D
Replicate ID: ~
Time Sampling Began: 1435
Time Sampling Completed: 1530

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): 46.32
Water Column (WC) in Well [TD-DTW]: 44.08
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.0528 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 21.1584

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: Gray Odor: None Turbidity: Cloudy

Well Volumes (gal.):	7	14	21.2	Final				
pH (s.u.):	7.71	7.79	7.80	7.79				
Sp. Cond. (µmhos/cm):	685	594	591	595				
Temperature (°C):	17°	17°	16°	17°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

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

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/13/04 Weather: Sunny 70's

Sample ID: MW-41
Replicate ID: ~
Time Sampling Began: 0745
Time Sampling Completed: ~~0810~~ 0812

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): 13.52
Water Column (WC) in Well [TD-DTW]: 48.74
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.7984 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 23.3952

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	8	16	24	Final				
pH (s.u.):	6.89	6.90	6.92	6.85				
Sp. Cond. (µmhos/cm):	367	365	358	361				
Temperature (°C):	15°	15°	16°	16°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/11/04 Weather: Sunny 90°

Sample ID: MW-42S
Replicate ID: ~
Time Sampling Began: 1345
Time Sampling Completed: 1430

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): 35.94
Water Column (WC) in Well [TD-DTW]: 16.36
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 2.6176 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 7.8528
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Brown, clear Odor: None Turbidity: Clear

Well Volumes (gal.):	3	6	8	Final				
pH (s.u.):	8.37	8.39	8.37	8.37				
Sp. Cond. (µmhos/cm):	3,750	3,990	4,040	4,040				
Temperature (°C):	17°	17°	17	17°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/11/04 Weather: Sunny 90°

Sample ID: MW-42D
Replicate ID: ~
Time Sampling Began: 1345
Time Sampling Completed: 1430

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): 35.84
Water Column (WC) in Well [TD-DTW]: 49.26
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.8816 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 23.6448

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: clear

Well Volumes (gal.):	8	16	24	Final				
pH (s.u.):	7.65	7.67	7.68	7.70				
Sp. Cond. (µmhos/cm):	1,130	1,576	1,626	1,899				
Temperature (°C):	18	16°	16°	17°				
Turbidity (N.T.U):								

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

Parameters to be Analyzed	Container Description (From Lab ✓ or HMI ___)	Preservative (preserved by: Lab ✓ or HMI ___)
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
PH, SPEC. COND., F	500 ml. PLASTIC	4°C

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/14/04 Weather: SUNNY 70's

Sample ID: MW-44S
Replicate ID: ~
Time Sampling Began: 0825
Time Sampling Completed: 0915

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 69.05
Depth to Water Below MP (DTW): 46.59
Water Column (WC) in Well [TD-DTW]: 22.46
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.5936 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 10.7808

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: lt. tan Odor: None Turbidity: Cloudy

Well Volumes (gal.):	3.5	7.0	11	Final				
pH (s.u.):	6.85	6.95	6.93	6.95				
Sp. Cond. (µmhos/cm):	488	480	485	485				
Temperature (°C):	17°	16°	17°	17°				
Turbidity (N.T.U):								

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

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

Sampling Personnel: S. MENOSKY, J. KELLER

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL, OHIO
Sampling Date: 5/14/04 Weather: Sunny 70's

Sample ID: MW-44D
Replicate ID: ~
Time Sampling Began: 0825
Time Sampling Completed: 0915

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 93.97
Depth to Water Below MP (DTW): 47.11
Water Column (WC) in Well [TD-DTW]: 46.86
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.4976 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 22.4928
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: Clear

Well Volumes (gal.):	7.5	15	22.5	Final				
pH (s.u.):	7.51	7.58	7.61	7.68				
Sp. Cond. (µmhos/cm):	336	344	345	344				
Temperature (°C):	17°	17°	17°	16°				
Turbidity (N.T.U):								

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

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

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

APPENDIX A-3

WATER SAMPLING LOG FORMS FOR SEPTEMBER 2004
MONITORING EVENT

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Sample ID: MW-2
Project Number: HM00318
Replicate ID: ~
Site Location: HANNIBAL OHIO
Time Sampling Began: 9:00
Sampling Date: 9-30-04 Weather: CLOUDY 60°
Time Sampling Completed: 10:00

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): 82.25
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 15.21
Depth to Water Below MP (DTW): 50.59
Water Column (WC) in Well [TD-DTW]: 31.66
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 5.07 = Well Casing Volume (WCV)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: DR. BROWN Odor: NONE Turbidity: STAINED

Well Volumes (gal.):	5.07	10.14	15.21	FINAL				
pH (s.u.):	9.83	9.81	9.81	9.79				
Sp. Cond. (µmhos/cm):	1132	1110	1104	1099				
Temperature (°C):	16.0	16.1	16.2	16.4				
Turbidity (N.T.U):	STAIN	STAIN	STAIN	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 ___)
pH, Spec. COND., F	500 ml. PLASTIC	4°C
DISS. As, Ba, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NAOH
PCE	3 x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL OHIO
Sampling Date: 9-29-04 Weather: CLOUDY 65°

Sample ID: MW-5
Replicate ID: ~
Time Sampling Began: 4:30
Time Sampling Completed: 5:15

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): 55.12
Water Column (WC) in Well [TD-DTW]: 36.88
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 5.9 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 17.7

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: SL. TAN Odor: NONE Turbidity: CLOUDY

Well Volumes (gal.):	5.9	11.8	17.7	FINAL				
pH (s.u.):	7.98	7.93	7.92	7.94				
Sp. Cond. (µmhos/cm):	839	841	843	838				
Temperature (°C):	16.4	16.1	16.4	16.5				
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 ___)
pH, Spec. COND., F	500 ml. PLASTIC	4°C
DISS. As, Ba, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NAOH
PCE	3 x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY
Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL OHIO
Sampling Date: 9-28-04 Weather: CLOUDY 70°

Sample ID: MW-12
Replicate ID: MW-12D
Time Sampling Began: 4:10
Time Sampling Completed: 5:00

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): 16.88
Water Column (WC) in Well [TD-DTW]: 51.54
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 8.25 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 24.75
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: CLEAR Odor: NONE Turbidity: CLEAR

Well Volumes (gal.):	8.25	16.50	24.75	FINAL				
pH (s.u.):	7.55	7.57	7.54	7.55				
Sp. Cond. (µmhos/cm):	363	360	361	361				
Temperature (°C):	16.9	16.8	16.8	16.7				
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 ___)
pH, Spec. COND., F	500 ml. PLASTIC	4°C
DISS. As, Ba, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NAOH
PCB'S	2 x 1 LITER AMBER GLASS	4°C

Sampling Personnel: S. MENOSKY

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL OHIO
Sampling Date: 9-29-04 Weather: CLOUDY 65°

Sample ID: MW-16
Replicate ID: ~
Time Sampling Began: 11:15
Time Sampling Completed: 12:00

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): 42.13
Water Column (WC) in Well [TD-DTW]: 40.99
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 6.56 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 19.68

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: Dr. Brown Odor: NONE Turbidity: STAINED

Well Volumes (gal.):	6.56	13.12	19.68	FINAL				
pH (s.u.):	8.07	8.03	8.13	8.15				
Sp. Cond. (µmhos/cm):	912	911	910	914				
Temperature (°C):	15.8	15.8	15.9	16.0				
Turbidity (N.T.U):	STAIN	STAIN	STAIN	STAIN				

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

Sampling Personnel: S. MENOSKY

Comments:

HMI
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WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL OHIO
Sampling Date: 9-29-04 Weather: CLOUDY 65°

Sample ID: MW-18
Replicate ID: ~
Time Sampling Began: 9:00
Time Sampling Completed: 10:30

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): 36.76
Water Column (WC) in Well [TD-DTW]: 24.40
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.9 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 11.7

GALLONS PER FOOT (gpf)

1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: BROWN Odor: NONE Turbidity: TURBID

Well Volumes (gal.):	3.9	7.8	11.7	FINAL				
pH (s.u.):	9.69	9.73	9.63	9.48				
Sp. Cond. (µmhos/cm):	1104	1140	1168	1145				
Temperature (°C):	17.0	15.8	16.9	16.9				
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 ___
pH, Spec. COND., F	500 ml. PLASTIC	4°C
DISS. AS, Ba, MN, Na, V	250 ml. PLASTIC	HNO_3-FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NAOH
PCE	3 x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY

Comments: Color DID NOT FILTER OUT; DIFFICULT TO FILTER

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL OHIO
Sampling Date: 9-29-04 Weather: CLOUDY 65°

Sample ID: MW-28
Replicate ID: ~
Time Sampling Began: 10:45
Time Sampling Completed: 11:15

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): 20.08
Water Column (WC) in Well [TD-DTW]: 26.12
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 4.17 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 12.51

GALLONS PER FOOT (gpf)

1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: LT. TAN Odor: NONE Turbidity: CLOUDY

Well Volumes (gal.):	4.17	8.34	12.51	FINAL				
pH (s.u.):	5.70	5.68	5.66	5.65				
Sp. Cond. (µmhos/cm):	278	278	278	276				
Temperature (°C):	16.0	15.9	15.9	15.9				
Turbidity (N.T.U):	TAN	TAN	TAN	TAN				

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

Sampling Personnel: S. MENOSKY

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL OHIO
Sampling Date: 9-29-04 Weather: CLOUDY 65°

Sample ID: MW-31
Replicate ID: MW-31D
Time Sampling Began: 12:45
Time Sampling Completed: 2:00

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): 39.91

Water Column (WC) in Well [TD-DTW]: 27.67

Gallons per foot (GPF); from chart: 0.16

Gallons in Well [WC x GPF]: 4.43 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"

Gallons to be Purged (3 WCVs, 5 WCVs, etc.): 13.29

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: DR. BROWN Odor: NONE Turbidity: STAINED

Well Volumes (gal.):	4.43	8.86	13.29	FINAL				
pH (s.u.):	9.76	9.83	9.74	9.81				
Sp. Cond. (µmhos/cm):	1193	1227	1210	1215				
Temperature (°C):	15.9	16.1	15.8	16.0				
Turbidity (N.T.U):	STAIN	STAIN	STAIN	STAIN				

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 ___
pH, Spec. Cond., F	500 ml. PLASTIC	4°C
Diss. As, Ba, Mn, Na, V	250 ml. PLASTIC	HNO_3-FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NAOH
PCE	3 x 40 ml. GLASS	HCL

Sampling Personnel: S. MENOSKY

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL OHIO
Sampling Date: 9-29-04 Weather: CLOUDY 65°

Sample ID: MW-32
Replicate ID: ~
Time Sampling Began: 3:15
Time Sampling Completed: 4:00

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): 33.10
Water Column (WC) in Well [TD-DTW]: 24.26
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.88 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 11.64
(3 WCVs, 5 WCVs, etc.)

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: Dr. Brown Odor: NONE Turbidity: STAINED

Well Volumes (gal.):	3.88	7.76	11.64	FINAL				
pH (s.u.):	10.01	10.01	10.02	10.03				
Sp. Cond. (µmhos/cm):	1114	1101	1099	1100				
Temperature (°C):	19.0	18.8	18.7	18.7				
Turbidity (N.T.U):	STAIN	STAIN	STAIN	STAIN				

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

Sampling Personnel: S. MENOSKY

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name:	ORMET - REDUCTION MILL	Sample ID:	MW-35
Project Number:	HM00318	Replicate ID:	~
Site Location:	HANNIBAL OHIO	Time Sampling Began:	4:00
Sampling Date:	9-29-04 Weather: CLOUDY 65°	Time Sampling Completed:	4:30

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)	46.94	Gallons to be Purged	6.12
Depth to Water Below MP (DTW)	34.22	(3 WCVs, 5 WCVs, etc.)	
Water Column (WC) in Well [TD-DTW]	12.72		
Gallons per foot (GPF); from chart	0.16		
Gallons in Well [WC x GPF]	2.04	= Well Casing Volume (WCV)	

GALLONS PER FOOT (gpf)

1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: DR. BROWN Odor: NONE Turbidity: STAINED

Well Volumes (gal.):	2.04	4.08	6.12	FINAL				
pH (s.u.):	8.62	7.95		8.20				
Sp. Cond. (µmhos/cm):	311	288		305				
Temperature (°C):	16.4	16.1		16.0				
Turbidity (N.T.U):	STAINED	STAIN		STAIN				

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 ___
pH, Spec. COND., F	500 ml. PLASTIC	4°C
DISS. AS, Ba, MN, Na, V	250 ml. PLASTIC	HNO_3-FIELD FILTERED (1 MICRON)
TOTAL + AMENABLE CN	250 ml. PLASTIC	NAOH

Sampling Personnel: S. MENOSKY

Comments: DRY AT 4 GAL.

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL OHIO
Sampling Date: 9-29-04 Weather: CLOUDY 65°

Sample ID: MW-36
Replicate ID: ~
Time Sampling Began: 2:30
Time Sampling Completed: 3:00

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): 31.77
Water Column (WC) in Well [TD-DTW]: 20.31
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.25 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 9.75
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)

1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: DR. BROWN Odor: NONE Turbidity: STAINED

Well Volumes (gal.):	3.25	6.50	9.75	FINAL				
pH (s.u.):	9.81	9.83	9.83	9.82				
Sp. Cond. (µmhos/cm):	684	696	695	701				
Temperature (°C):	21.2	21.2	21.3	21.4				
Turbidity (N.T.U):	STAIN	STAIN	STAIN	STAIN				

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

Sampling Personnel: S. MENOSKY

Comments:

HM07-07WS LOG W3

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL OHIO
Sampling Date: 9-29-04 Weather: CLOUDY 65°

Sample ID: MW-37
Replicate ID: ~
Time Sampling Began: 2:00
Time Sampling Completed: 2:30

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): 18.62
Water Column (WC) in Well [TD-DTW]: 18.28
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

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

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: BROWN Odor: NONE Turbidity: SILTY

Well Volumes (gal.):	2.92	5.84	8.76	FINAL				
pH (s.u.):	6.58	6.56	6.52	6.60				
Sp. Cond. (µmhos/cm):	369	367	359	367				
Temperature (°C):	17.7	17.7	17.8	17.8				
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 ___)
pH, Spec. COND., F	500 ml. PLASTIC	4°C
DISS. As, Ba, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NAOH

Sampling Personnel: S. MENOSKY

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL OHIO
Sampling Date: 9-28-04 Weather: CLOUDY 70°

Sample ID: MW-44S
Replicate ID: ~
Time Sampling Began: 3:30
Time Sampling Completed: 4:00

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 69.05
Depth to Water Below MP (DTW): 44.62
Water Column (WC) in Well [TD-DTW]: 24.43
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 3.91 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 11.73
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)

1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: SL. TAN Odor: NONE Turbidity: SL. CLOUDY

Well Volumes (gal.):	3.91	7.82	11.73	FINAL				
pH (s.u.):	6.84	6.84	6.84	6.83				
Sp. Cond. (µmhos/cm):	443	443	444	442				
Temperature (°C):	16.6	16.5	16.5	16.6				
Turbidity (N.T.U):	CLEAR	SL. CLOUD	SL. CLOUD	SL. CLOUD				

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

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

Sampling Personnel: S. MENOSKY

Comments:

HMI
Environmental Consulting Services

WATER SAMPLING LOG

Project Name: ORMET - REDUCTION MILL
Project Number: HM00318
Site Location: HANNIBAL OHIO
Sampling Date: 9-28-04 Weather: CLOUDY 70°

Sample ID: MW-44D
Replicate ID: ~
Time Sampling Began: 2:30
Time Sampling Completed: 3:30

EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation:
Total Sounded Depth of Well Below MP (TD): 93.97
Depth to Water Below MP (DTW): 45.15
Water Column (WC) in Well [TD-DTW]: 48.82
Gallons per foot (GPF); from chart: 0.16
Gallons in Well [WC x GPF]: 7.81 = Well Casing Volume (WCV)

Diameter of Well Casing: 2.0"
Gallons to be Purged: 23.4
(3 WCVs, 5 WCVs, etc.)

GALLONS PER FOOT (gpf)

1¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1½" = 0.09	2½" = 0.26	3½" = 0.50	6" = 1.47

Evacuation Method and Material: DISPOSABLE BAILER WITH POLYPROPYLENE ROPE

SAMPLING DATA AND FIELD PARAMETERS

Color: CLEAR Odor: NONE Turbidity: NONE

Well Volumes (gal.):	7.81	15.6	23.4	FINAL				
pH (s.u.):	7.42	7.63	7.67	7.66				
Sp. Cond. (µmhos/cm):	313	312	315	314				
Temperature (°C):	16.9	16.9	16.9	16.8				
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 ___
PCB'S	2 x LITER AMBER GLASS	4°C

Sampling Personnel: S. MENOSKY

Comments:

APPENDIX B

LABORATORY ANALYTICAL REPORTS

Appendix B-1 Laboratory Analytical Report for January 2004 Monitoring Event

Appendix B-2 Laboratory Analytical Report for May 2004 Monitoring Event

Appendix B-3 Laboratory Analytical Report for September 2004 Monitoring Event

APPENDIX B-1

LABORATORY ANALYTICAL REPORT FOR JANUARY 2004 MONITORING EVENT

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5203 Triangle Lane
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Fax: 724.327.7793

January 29, 2004

Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Dear Mr. Fargo:

Enclosed are analytical results for samples submitted to Pace Analytical by Hydro Systems Management, Inc.. The samples were received on January 14, 2004. Please reference Pace project number 04-0193 when inquiring about this report.

Client Site: Reduction Mill
Client Ref.: HM00317

Pace Sample Identification	Client Sample Identification
0401-1013	MW-2
0401-1014	MW-5
0401-1015	MW-12
0401-1016	MW-12D
0401-1017	MW-16
0401-1018	MW-18
0401-1019	MW-28
0401-1020	MW-31
0401-1021	MW-31D

Pace Sample Identification	Client Sample Identification
0401-1022	MW-32
0401-1023	MW-35
0401-1024	MW-36
0401-1025	MW-37
0401-1026	MW-44S
0401-1027	MW-44D
0401-1028	Field Blank
0401-1029	Trip Blank

General Comments: Cooler temperature 4 ° C upon receipt. Ice was present.

Please call me if you have any questions regarding the information contained within this report.

Sincerely,

Rachel D. Christner
Project Coordinator

RDC: rdc

Enclosures

cc: John Reggi, Ormet Primary Materials, Corporation

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1013**
Client Sample ID: MW-2
Sample Matrix: Aqueous

Date Sampled: 01/13/2004
Date Received: 01/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	3.4	0.010	mg/l	TAT	01/28/2004	0027504-1	<0.010
Cyanide (Total)	335.2(1)	14	0.010	mg/l	TAT	01/19/2004	0027372-1	<0.010
Fluoride	340.2(1)	50	0.10	mg/l	CK0	01/27/2004	0027473-1	<0.10
pH	150.1(1)	9.67	1.00	pH	ALR	01/14/2004	0027249-1	4.98
Specific Conductance	120.1(1)	1600	1.0	umhos/cm	ALR	01/14/2004	0027250-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.080	0.0040	mg/l	CS0	01/16/2004	0027222-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	01/16/2004	0027222-1	<0.00050
Manganese	6010B(2)	0.89	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010
Sodium	6010B(2)	310	0.50	mg/l	CS0	01/16/2004	0027222-1	<0.50
Vanadium	6010B(2)	0.053	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.014	0.0050	mg/l	JEC	01/27/2004	0027487-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1014**
Client Sample ID: MW-5
Sample Matrix: Aqueous

Date Sampled: 01/13/2004
Date Received: 01/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	3.8	0.010	mg/l	TAT	01/28/2004	0027504-1	<0.010
Cyanide (Total)	335.2(1)	3.9	0.010	mg/l	TAT	01/19/2004	0027372-1	<0.010
Fluoride	340.2(1)	23	0.10	mg/l	CK0	01/27/2004	0027473-1	<0.10
pH	150.1(1)	7.94	1.00	pH	ALR	01/14/2004	0027249-1	4.98
Specific Conductance	120.1(1)	1200	1.0	umhos/cm	ALR	01/14/2004	0027250-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	01/16/2004	0027222-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	01/16/2004	0027222-1	<0.00050
Manganese	6010B(2)	0.41	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010
Sodium	6010B(2)	190	0.50	mg/l	CS0	01/16/2004	0027222-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.0053	0.0050	mg/l	JEC	01/27/2004	0027487-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1015**
Client Sample ID: MW-12
Sample Matrix: Aqueous

Date Sampled: 01/13/2004
Date Received: 01/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	01/19/2004	0027372-1	<0.010
Fluoride	340.2(1)	0.69	0.10	mg/l	CK0	01/27/2004	0027473-1	<0.10
pH	150.1(1)	7.58	1.00	pH	ALR	01/14/2004	0027249-1	4.98
Specific Conductance	120.1(1)	510	1.0	umhos/cm	ALR	01/14/2004	0027250-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	01/16/2004	0027222-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	01/16/2004	0027222-1	<0.00050
Manganese	6010B(2)	1.9	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010
Sodium	6010B(2)	28	0.50	mg/l	CS0	01/16/2004	0027222-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1221	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1232	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1242	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1248	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1254	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1260	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
PCB Total-TCL	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1016**
Client Sample ID: MW-12D
Sample Matrix: Aqueous

Date Sampled: 01/13/2004
Date Received: 01/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	01/19/2004	0027372-1	<0.010
Fluoride	340.2(1)	0.60	0.10	mg/l	CK0	01/27/2004	0027473-1	<0.10
pH	150.1(1)	7.58	1.00	pH	ALR	01/14/2004	0027249-1	4.98
Specific Conductance	120.1(1)	510	1.0	umhos/cm	ALR	01/14/2004	0027250-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	01/16/2004	0027222-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	01/16/2004	0027222-1	<0.00050
Manganese	6010B(2)	1.9	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010
Sodium	6010B(2)	28	0.50	mg/l	CS0	01/16/2004	0027222-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1221	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1232	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1242	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1248	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1254	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1260	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
PCB Total-TCL	8082(2)	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: *Results reported on an as received basis.*

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1017**
Client Sample ID: MW-16
Sample Matrix: Aqueous

Date Sampled: 01/13/2004
Date Received: 01/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	1.5	0.010	mg/l	TAT	01/28/2004	0027504-1	<0.010
Cyanide (Total)	335.2(1)	6.0	0.010	mg/l	TAT	01/19/2004	0027372-1	<0.010
Fluoride	340.2(1)	52	0.10	mg/l	CK0	01/27/2004	0027473-1	<0.10
pH	150.1(1)	7.89	1.00	pH	ALR	01/14/2004	0027249-1	4.98
Specific Conductance	120.1(1)	1300	1.0	umhos/cm	ALR	01/14/2004	0027250-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	01/16/2004	0027222-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	01/16/2004	0027222-1	<0.00050
Manganese	6010B(2)	0.83	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010
Sodium	6010B(2)	220	0.50	mg/l	CS0	01/16/2004	0027222-1	<0.50
Vanadium	6010B(2)	0.017	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1018**
Client Sample ID: MW-18
Sample Matrix: Aqueous

Date Sampled: 01/13/2004
Date Received: 01/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	5.5	0.010	mg/l	TAT	01/28/2004	0027504-1	<0.010
Cyanide (Total)	335.2(1)	17	0.010	mg/l	TAT	01/19/2004	0027372-1	<0.010
Fluoride	340.2(1)	77	0.10	mg/l	CK0	01/27/2004	0027473-1	<0.10
pH	150.1(1)	9.33	1.00	pH	ALR	01/14/2004	0027249-1	4.98
Specific Conductance	120.1(1)	2400	1.0	umhos/cm	ALR	01/14/2004	0027250-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.061	0.0040	mg/l	CS0	01/16/2004	0027222-1	<0.0040
Beryllium	6010B(2)	0.00066	0.00050	mg/l	CS0	01/16/2004	0027222-1	<0.00050
Manganese	6010B(2)	0.43	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010
Sodium	6010B(2)	290	0.50	mg/l	CS0	01/16/2004	0027222-1	<0.50
Vanadium	6010B(2)	0.028	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.012	0.0050	mg/l	JEC	01/27/2004	0027487-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1019**
Client Sample ID: MW-28
Sample Matrix: Aqueous

Date Sampled: 01/13/2004
Date Received: 01/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.40	0.010	mg/l	TAT	01/28/2004	0027504-1	<0.010
Cyanide (Total)	335.2(1)	0.40	0.010	mg/l	TAT	01/19/2004	0027372-1	<0.010
Fluoride	340.2(1)	0.53	0.10	mg/l	CK0	01/27/2004	0027473-1	<0.10
pH	150.1(1)	6.01	1.00	pH	ALR	01/14/2004	0027249-1	4.98
Specific Conductance	120.1(1)	400	1.0	umhos/cm	ALR	01/14/2004	0027250-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	01/16/2004	0027222-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	01/16/2004	0027222-1	<0.00050
Manganese	6010B(2)	0.021	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010
Sodium	6010B(2)	54	0.50	mg/l	CS0	01/16/2004	0027222-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1020**
Client Sample ID: MW-31
Sample Matrix: Aqueous

Date Sampled: 01/13/2004
Date Received: 01/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	1.3	0.010	mg/l	TAT	01/28/2004	0027504-1	<0.010
Cyanide (Total)	335.2(1)	12	0.010	mg/l	TAT	01/19/2004	0027372-1	<0.010
Fluoride	340.2(1)	85	0.10	mg/l	CK0	01/27/2004	0027473-1	<0.10
pH	150.1(1)	9.55	1.00	pH	ALR	01/14/2004	0027249-1	4.98
Specific Conductance	120.1(1)	2300	1.0	umhos/cm	ALR	01/14/2004	0027250-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.033	0.0040	mg/l	CS0	01/16/2004	0027222-1	<0.0040
Beryllium	6010B(2)	0.00084	0.00050	mg/l	CS0	01/16/2004	0027222-1	<0.00050
Manganese	6010B(2)	1.2	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010
Sodium	6010B(2)	380	0.50	mg/l	CS0	01/16/2004	0027222-1	<0.50
Vanadium	6010B(2)	0.062	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.045	0.0050	mg/l	JEC	01/27/2004	0027487-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1021**
Client Sample ID: MW-31D
Sample Matrix: Aqueous

Date Sampled: 01/13/2004
Date Received: 01/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1[1]	1.3	0.010	mg/l	TAT	01/28/2004	0027504-1	<0.010
Cyanide (Total)	335.2[1]	13	0.010	mg/l	TAT	01/19/2004	0027372-1	<0.010
Fluoride	340.2[1]	62	0.10	mg/l	CK0	01/27/2004	0027473-1	<0.10
pH	150.1[1]	9.55	1.00	pH	ALR	01/14/2004	0027249-1	4.98
Specific Conductance	120.1[1]	2300	1.0	umhos/cm	ALR	01/14/2004	0027250-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B[2]	0.027	0.0040	mg/l	CS0	01/16/2004	0027222-1	<0.0040
Beryllium	6010B[2]	0.00097	0.00050	mg/l	CS0	01/16/2004	0027222-1	<0.00050
Manganese	6010B[2]	1.2	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010
Sodium	6010B[2]	380	0.50	mg/l	CS0	01/16/2004	0027222-1	<0.50
Vanadium	6010B[2]	0.063	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B[2]	0.043	0.0050	mg/l	JEC	01/27/2004	0027487-1	<0.0050

[1] U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
[2] U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1022**
Client Sample ID: MW-32
Sample Matrix: Aqueous

Date Sampled: 01/13/2004
Date Received: 01/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	2.0	0.010	mg/l	TAT	01/28/2004	0027504-1	<0.010
Cyanide (Total)	335.2(1)	5.2	0.010	mg/l	TAT	01/19/2004	0027372-1	<0.010
Fluoride	340.2(1)	21	0.10	mg/l	CK0	01/27/2004	0027473-1	<0.10
pH	150.1(1)	8.54	1.00	pH	ALR	01/14/2004	0027249-1	4.98
Specific Conductance	120.1(1)	790	1.0	umhos/cm	ALR	01/14/2004	0027250-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0082	0.0040	mg/l	CS0	01/16/2004	0027222-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	01/16/2004	0027222-1	<0.00050
Manganese	6010B(2)	1.7	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010
Sodium	6010B(2)	99	0.50	mg/l	CS0	01/16/2004	0027222-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1023**
Client Sample ID: MW-35
Sample Matrix: Aqueous

Date Sampled: 01/13/2004
Date Received: 01/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	2.4	0.010	mg/l	TAT	01/28/2004	0027504-1	<0.010
Cyanide (Total)	335.2(1)	5.5	0.010	mg/l	TAT	01/19/2004	0027372-1	<0.010
Fluoride	340.2(1)	15	0.10	mg/l	CK0	01/27/2004	0027473-1	<0.10
pH	150.1(1)	8.12	1.00	pH	ALR	01/14/2004	0027249-1	4.98
Specific Conductance	120.1(1)	480	1.0	umhos/cm	ALR	01/14/2004	0027250-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0046	0.0040	mg/l	CS0	01/16/2004	0027222-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	01/16/2004	0027222-1	<0.00050
Manganese	6010B(2)	0.68	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010
Sodium	6010B(2)	49	0.50	mg/l	CS0	01/16/2004	0027222-1	<0.50
Vanadium	6010B(2)	0.015	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1024**
Client Sample ID: MW-36
Sample Matrix: Aqueous

Date Sampled: 01/13/2004
Date Received: 01/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	2.7	0.010	mg/l	TAT	01/28/2004	0027504-1	<0.010
Cyanide (Total)	335.2(1)	9.5	0.010	mg/l	TAT	01/19/2004	0027372-1	<0.010
Fluoride	340.2(1)	93	0.10	mg/l	CK0	01/27/2004	0027473-1	<0.10
pH	150.1(1)	9.54	1.00	pH	ALR	01/14/2004	0027249-1	4.98
Specific Conductance	120.1(1)	2000	1.0	umhos/cm	ALR	01/14/2004	0027250-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.048	0.0040	mg/l	CS0	01/16/2004	0027222-1	<0.0040
Beryllium	6010B(2)	0.0013	0.00050	mg/l	CS0	01/16/2004	0027222-1	<0.00050
Manganese	6010B(2)	0.81	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010
Sodium	6010B(2)	350	0.50	mg/l	CS0	01/16/2004	0027222-1	<0.50
Vanadium	6010B(2)	0.077	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1025**
Client Sample ID: MW-37
Sample Matrix: Aqueous

Date Sampled: 01/13/2004
Date Received: 01/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.72	0.010	mg/l	TAT	01/28/2004	0027504-1	<0.010
Cyanide (Total)	335.2(1)	1.7	0.010	mg/l	TAT	01/19/2004	0027372-1	<0.010
Fluoride	340.2(1)	17	0.10	mg/l	CK0	01/27/2004	0027473-1	<0.10
pH	150.1(1)	7.06	1.00	pH	ALR	01/14/2004	0027249-1	4.98
Specific Conductance	120.1(1)	570	1.0	umhos/cm	ALR	01/14/2004	0027250-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	01/16/2004	0027222-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	01/16/2004	0027222-1	<0.00050
Manganese	6010B(2)	3.2	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010
Sodium	6010B(2)	82	0.50	mg/l	CS0	01/16/2004	0027222-1	<0.50
Vanadium	6010B(2)	0.012	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1026**
Client Sample ID: MW-44S
Sample Matrix: Aqueous

Date Sampled: 01/14/2004
Date Received: 01/14/2004

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082[1]	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1221	8082[1]	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1232	8082[1]	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1242	8082[1]	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1248	8082[1]	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1254	8082[1]	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1260	8082[1]	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50
PCB Total-TCL	8082[1]	<0.52	0.52	ug/l	RDJ	01/26/2004	0027329-1	<0.50

[1] U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1027**
Client Sample ID: MW-44D
Sample Matrix: Aqueous

Date Sampled: 01/14/2004
Date Received: 01/14/2004

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(1)	<0.51	0.51	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1221	8082(1)	<0.51	0.51	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1232	8082(1)	<0.51	0.51	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1242	8082(1)	<0.51	0.51	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1248	8082(1)	<0.51	0.51	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1254	8082(1)	<0.51	0.51	ug/l	RDJ	01/26/2004	0027329-1	<0.50
Aroclor-1260	8082(1)	<0.51	0.51	ug/l	RDJ	01/26/2004	0027329-1	<0.50
PCB Total-TCL	8082(1)	<0.51	0.51	ug/l	RDJ	01/26/2004	0027329-1	<0.50

(1) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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www.pacelabs.com

Pace Analytical Services, Inc.
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Export, PA 15632
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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1028**
Client Sample ID: Field Blank
Sample Matrix: Aqueous

Date Sampled: 01/14/2004
Date Received: 01/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	01/19/2004	0027372-1	<0.010
Fluoride	340.2(1)	<0.10	0.10	mg/l	CK0	01/27/2004	0027473-1	<0.10
pH	150.1(1)	6.54	1.00	pH	ALR	01/14/2004	0027249-1	4.98
Specific Conductance	120.1(1)	4.4	1.0	umhos/cm	ALR	01/14/2004	0027250-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	01/16/2004	0027222-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	01/16/2004	0027222-1	<0.00050
Manganese	6010B(2)	<0.010	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010
Sodium	6010B(2)	0.96	0.50	mg/l	CS0	01/16/2004	0027222-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	01/16/2004	0027222-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	<0.0050	0.0050	mg/l	JEC	01/27/2004	0027487-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00317

Lab Project ID: **04-0193**
Lab Sample ID: **0401-1029**
Client Sample ID: Trip Blank
Sample Matrix: Aqueous

Date Sampled: 01/14/2004
Date Received: 01/14/2004

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B[1]	<0.0050	0.0050	mg/l	JEC	01/27/2004	0027487-1	<0.0050

[1] U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

REPORT OF LABORATORY ANALYSIS

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Project Number 04-0193

Chain Of Custody

HMI
Environmental Consulting Services

CHAIN-OF-CUSTODY RECORD

04-0193

Project Number	Project Name/Location	Laboratory	Sampling Personnel
HM00317	ORMET/HANNIBAL OH	PACE ANALYTICAL	S. MENOSKY / J. KELLER

Sample ID	Date/Time	Sample Code	500ml. PLASTIC pH, Spec. Cond., F (4°C)	250ml. PLASTIC DISS. As, Ba, Mn, Na, V FIELD FILTERED (HNO3)	250ml. PLASTIC TOTAL/AMENABLE CYANIDE* (NaOH)	40ml. GLASS TETRACHLOROETHENE (HCL)	1 LITER AMBER GLASS PCB'S (4°C)					TOTAL
MW-2	1-13-04	L	1	1	1	3				01-	1013	6
MW-5	1-13-04	↓	1	1	1	3					1014	6
MW-12	1-13-04	↓	1	1	1		1				1015	4
MW-12D	1-13-04	↓	1	1	1		1				1016	4
MW-16	1-13-04	↓	1	1	1						1017	3
MW-18	1-13-04	↓	1	1	1	3					1018	6
MW-28	1-13-04	↓	1	1	1						1019	3
MW-31	1-13-04	↓	1	1	1	3					1020	6
MW-31D	1-13-04	↓	1	1	1	3					1021	6
MW-32	1-13-04	↓	1	1	1						1022	3
MW-35	1-13-04	↓	1	1	1						1023	3
MW-36	1-13-04	↓	1	1	1						1024	3
MW-37	1-13-04	↓	1	1	1						1025	3
MW-44S	1-14-04	↓					1				1026	1
MW-44D	1-14-04	↓					1				1027	1

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

Total Number of Containers: 58

Relinquished by: STEVE MENOSKY	Organization: HMI	Date: 1-14-04	Time: 1305	Seal Intact? Yes No NA
Received by: [illegible]	Organization: PACE	Date: 1-14-04	Time: 1305	
Relinquished by: [illegible]	Organization: Pace	Date: 1-14-04	Time: 4:30	Seal Intact? Yes No NA
Received by: C Urbowitz	Organization: Pace	Date: 1-14-04	Time: 4:30	

REMARKS:

DELIVERY METHOD: In Person [ ] Common Carrier [1] 4° Lab Courier [PACE] Other [ ]

HMI
Environmental Consulting Services

CHAIN-OF-CUSTODY RECORD

04-0193

Project Number: HM00317
Project Name/Location: ORMET/HANNIBAL OH
Laboratory: PACE ANALYTICAL
Sampling Personnel: S. MENOSKY / J. KELLER

Sample ID	Date/Time	Sample Code	500 ml. PLASTIC pH, Spec.Cond., F (4°C)	250 ml. PLASTIC DISS. As, Ba, Mn, Na, V FIELD FILTERED (HNO3)	250 ml. PLASTIC TOTAL/AMENABLE CYANIDE* (NAOH)	40 ml. GLASS TETRACHLOROETHENE (HCL)						TOTAL
FIELD BLANK	1-14-04	L	1	1	1	3				01-	1028	6
TRIP BLANK	1-14-04	↓				3					1029	3

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

Total Number of Containers: 9

Relinquished by:	Steve MENOSKY	Organization:	HMI	Date: 1-14-04	Time: 1305	Seal Intact?
Received by:	[illegible]	Organization:	PACE	Date: 1-14-04	Time: 1305	Yes No NA
Relinquished by:	[illegible]	Organization:	Pace	Date: 1-14-04	Time: 4:30	Seal Intact?
Received by:	C Urbanity	Organization:	Pace	Date: 1-14-04	Time: 4:30	Yes No NA

REMARKS:

DELIVERY METHOD: In Person [ ] Common Carrier [ ] 4° Lab Courier [PACE] Other [ ]

Pace Analytical Services, Inc.
Matrix Spike/Matrix Spike Duplicate Summary

Pace Project Number 04-0182
Pace Sample Number 0401-0938

Compound	Spike Added mg/L	Sample Concentration mg/L	Matrix Spike Concentration mg/L	Matrix Spike % Recovery %	#	Spike Added mg/L	Matrix Spike Duplicate Concentration mg/L	Matrix Spike Duplicate % Recovery %	#	% RPD %	#	QC Limits RPD %	QC Limits Recovery %
Arsenic	0.5	0	0.50895	101.79		0.5	0.50877	101.75		0.01		20	75-125
Beryllium	0.5	0	0.52255	104.51		0.5	0.51652	103.30		0.29		20	75-125
Manganese	0.5	0	0.52106	104.21		0.5	0.51526	103.05		0.28		20	75-125
Sodium	2.5	11.78	14.599	112.76		2.5	14.216	97.44		0.66		20	75-125
Vanadium	0.5	0	0.52042	104.08		0.5	0.51366	102.73		0.33		20	75-125

Column used to flag recovery and RPD values with an asterisk
* Values outside of QC Limits
Comments:
Batch QC for project 04-0193

2/5/04

Pace Analytical

Matrix Spike/Matrix Spike Duplicate Summary

Pace Project Number 04-0193

Pace Sample Number 01-1016

Compound	Spike Added mg/L	Sample Concentration mg/L	Matrix Spike Concentration mg/L	Matrix Spike % Recovery %	#	Spike Added mg/L	Matrix Spike Duplicate Concentation mg/L	Matrix Spike Duplicate % Recovery %	#	% RPD %	#	QC Limits RPD %	QC Limits Recovery %
Ammenable CN	0.1	No Spike on	Ammenable										75-125
Total-CN	0.1	0.0064	0.0988	98.00									75-125
Fluoride	4	0.688	4.24	96.00									

Column used to flag recovery and RPD values with an asterisk

* Values outside of QC Limits

Comments:

* Sample concentration is taken times 0.9 to account for dilution during the spiking process

Project Number 04-0193

Volatiles

GC/MS QA-QC Check Report

File : C:\HPCHEM\1\DATA\304JA27\30127002.D
Time : 27 Jan 2004 9:47 am

ly Calibration File : C:\HPCHEM\1\DATA\304JA27\30127C07.D

		(DCE)	(TOL)	(BFB)	(FB)	(CBZ)	(DCB)
					268251	160320	71167
e	Sample	Surrogate Recovery %			Internal Standard Responses		
127015.D	VBLK 5ML	81	91	76	264956	142529	43963
127016.D	LCS [20]	94	97	76	181060	80580	35962
127017.D	LCS [20]	81	90	87	316352	190557	83387
~~127018.D~~	~~04-0193~~	~~91~~	~~96~~	~~79~~	~~209312~~	~~97681~~	~~28671*~~
127019.D	04-0193, 1028	88	97	86	262198	136322	40052
~~127020.D~~	~~04-0193~~	~~91~~	~~102~~	~~83~~	~~217764~~	~~101210~~	~~30290*~~
127021.D	04-0193 1013	86	93	86	285081	166314	52634
127022.D	04-0193, 1014	88	96	88	253701	136031	37009
127023.D	04-0193, 1020	84	94	86	275817	151976	44878
127024.D	04-0193 1021	84	93	88	278131	162598	50428
127025.D	04-0211	84	91	83	263773	154655	51597
127026.D	04-0211	85	97	82	273892	158265	64819
127027.D	04-0211	82	94	95	298266	192131	79309
127028.D	04-0193 1029	86	94	85	263894	142762	42716
~~127029.D~~	~~04-0193~~	~~91~~	~~99~~	~~81~~	~~231150~~	~~109677~~	~~32178*~~
127030.D	04-0193, 1018	86	94	89	299960	174786	55729
127031.D	04-0304	86	96	86	272284	141018	39381
127032.D	04-0264	85	95	84	275382	157755	51515
127033.D	04-0265	96	103	78	166982	71832*	20935*
127034.D	04-0267	84	92	79	281596	160549	52177
127035.D	04-0269	88	94	80	244618	124888	35684
127036.D	04-0272	86	95	82	255027	138250	43706
127037.D	04-0272	81	90	74	261000	142413	45595
127038.D	04-0272	116	100	77	91991*	36089*	10248*
127039.D	04-0272	86	93	84	268746	154170	50058

- fails 12hr time check * - fails criteria

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\304JA27\30127015.D Vial: 13
Acq On : 27 Jan 2004 1:29 pm Operator: JEW
Sample : VBLK 5ML JEW Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Jan 27 13:38 2004 Quant Results File: UNL0127W.RES

JEW 1-27-04

Quant Method : C:\HPCHEM\1\METHODS\UNL0127W.M (RTE Integrator)
Title : 8260 WATER
Last Update : Tue Jan 27 12:54:24 2004
Response via : Initial Calibration
DataAcq Meth : UNL0127W

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	2.86	96	264956	50.00 ug/l	0.00
8) Chlorobenzene-d5	4.38	117	142529	50.00 ug/l	0.00
17) 1,4-Dichlorobenzene-d4	5.62	152	43963	50.00 ug/l	0.00
System Monitoring Compounds					
4) 1,2-Dichloroethane-d4	2.71	65	66147	40.73 ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 81.46%		
9) Toluene-d8	3.63	98	168655	45.56 ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 91.12%		
19) Bromofluorobenzene	5.00	95	28874	38.10 ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 76.20%		
Target Compounds					Qvalue
20) Naphthalene	6.82	128	1446	0.69 ug/l	100

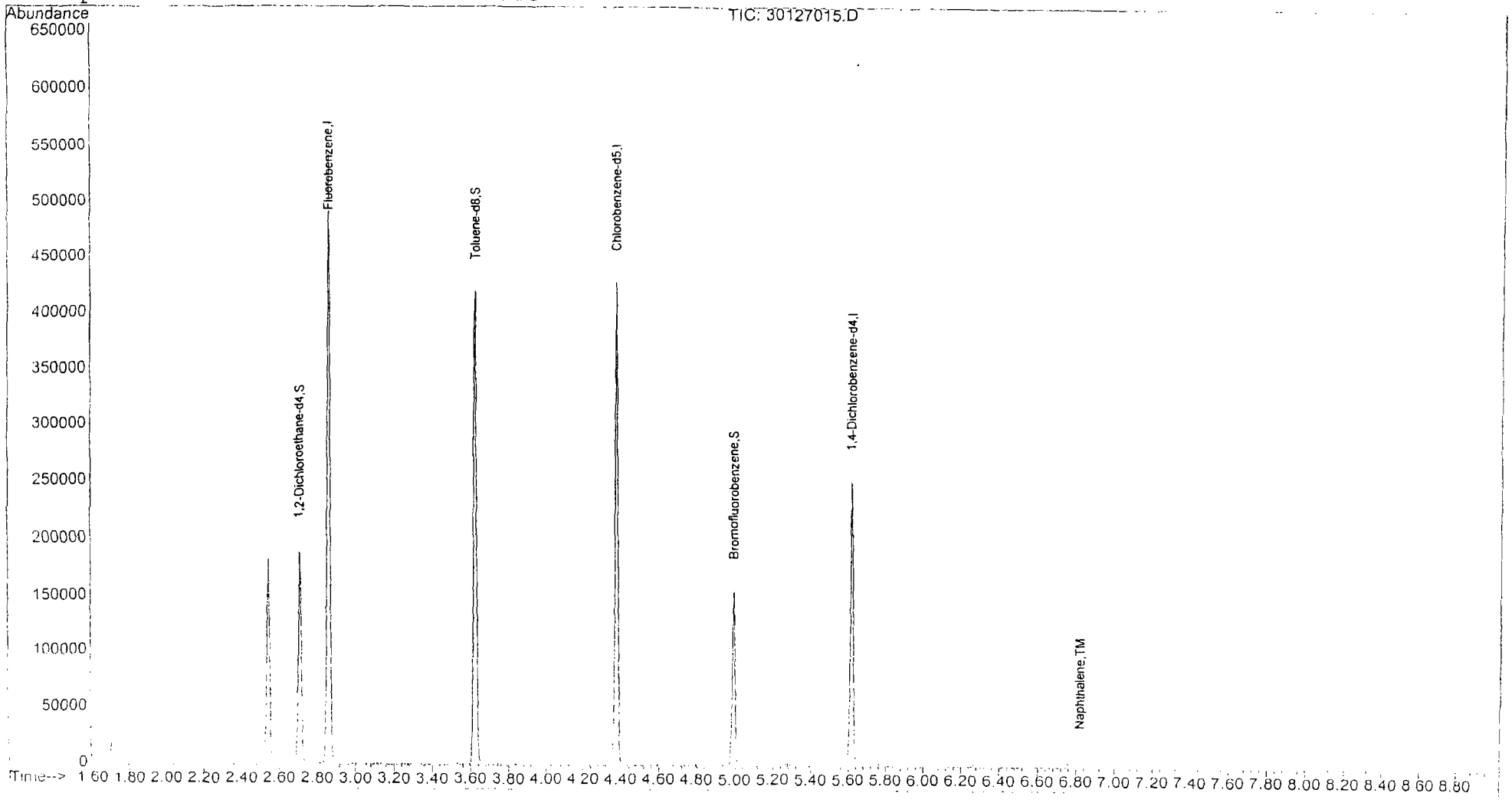
(#) = qualifier out of range (m) = manual integration

Data File : C:\HPC[illegible]DATA\304JA27\[illegible]127015.D
Acq On : 27 Jan 2004 1:29 pm
Sample : VBLK 5ML JEW
Misc :
MS Integration Params: rteint.p
Quant Time: Jan 27 13:38 2004

Vial: 13
Operator: JEW
Inst : GC/MS Ins
Multiplr: 1.00

Quant Results File: UNL0127W.RES

Method : C:\HPCHEM\1\METHODS\UNL0127W.M (RTE Integrator)
Title : 8260 WATER
Last Update : Tue Jan 27 12:54:24 2004
Response via : Initial Calibration



Data File Name 30127016.D
Operator JEW
Date Acquired 1/27/2004 1:46
Sample Name LCS [20] 5ML JEW

Name	Spike Amount	Amount	% Recovery	Q	Control Limits (%)
tert-butyl Methylether,MtBE	20	22.37	111.84		70-130
1,1,1-Trichloroethane	20	24.01	120.05	NP	
1,2-Dichloroethane-d4	50	46.82	93.63		70-130
Benzene	20	23.52	117.61		70-130
1,2-Dichloroethane	20	22.01	110.04	NP	
Trichloroethene	20	22.38	111.88	NP	70-130
Toluene-d8	50	48.29	96.57		70-130
Toluene	20	25.85	129.23		70-130
Tetrachloroethene	20	27.14	135.70	NP	
1,2-Dibromoethane,EDB	20	24.16	120.78	NP	
Ethylbenzene	20	17.61	88.04		70-130
m,p-Xylene	40	39.78	99.45		
o-Xylene	20	14.98	74.91		70-130
Xylenes (Total)	60	54.49	90.81 JEW 1-27-04		70-130
Isopropylbenzene,Cumene	20	0.00	0.00	*	70-130
Bromofluorobenzene	50 ~~20~~	37.86	~~189.28~~ 75.72	✓	70-130
Naphthalene	20 ~~50~~	15.37	~~30.74~~ 76.85	✓	70-130
0	20	0.00	0.00	*	70-130
0	20	0.00	0.00	*	
0	20	0.00	0.00	*	70-130
0	20	0.00	0.00	*	70-130
0	20	0.00	0.00	*	70-130
0	20	0.00	0.00	*	
0	20	0.00	0.00	NP	
0	20	0.00	0.00	*	70-130
0	20	0.00	0.00	*	70-130

NP = Not present in LCS mix.

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\304JA27\30127016.D Vial: 14
Acq On : 27 Jan 2004 1:46 pm Operator: JEW
Sample : LCS [20] 5ML JEW Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Jan 27 13:57 2004 Quant Results File: UNL0127W.RES

JEW 1-27-04

Quant Method : C:\HPCHEM\1\METHODS\UNL0127W.M (RTE Integrator)
Title : 8260 WATER
Last Update : Tue Jan 27 13:55:43 2004
Response via : Initial Calibration
DataAcq Meth : UNL0127W

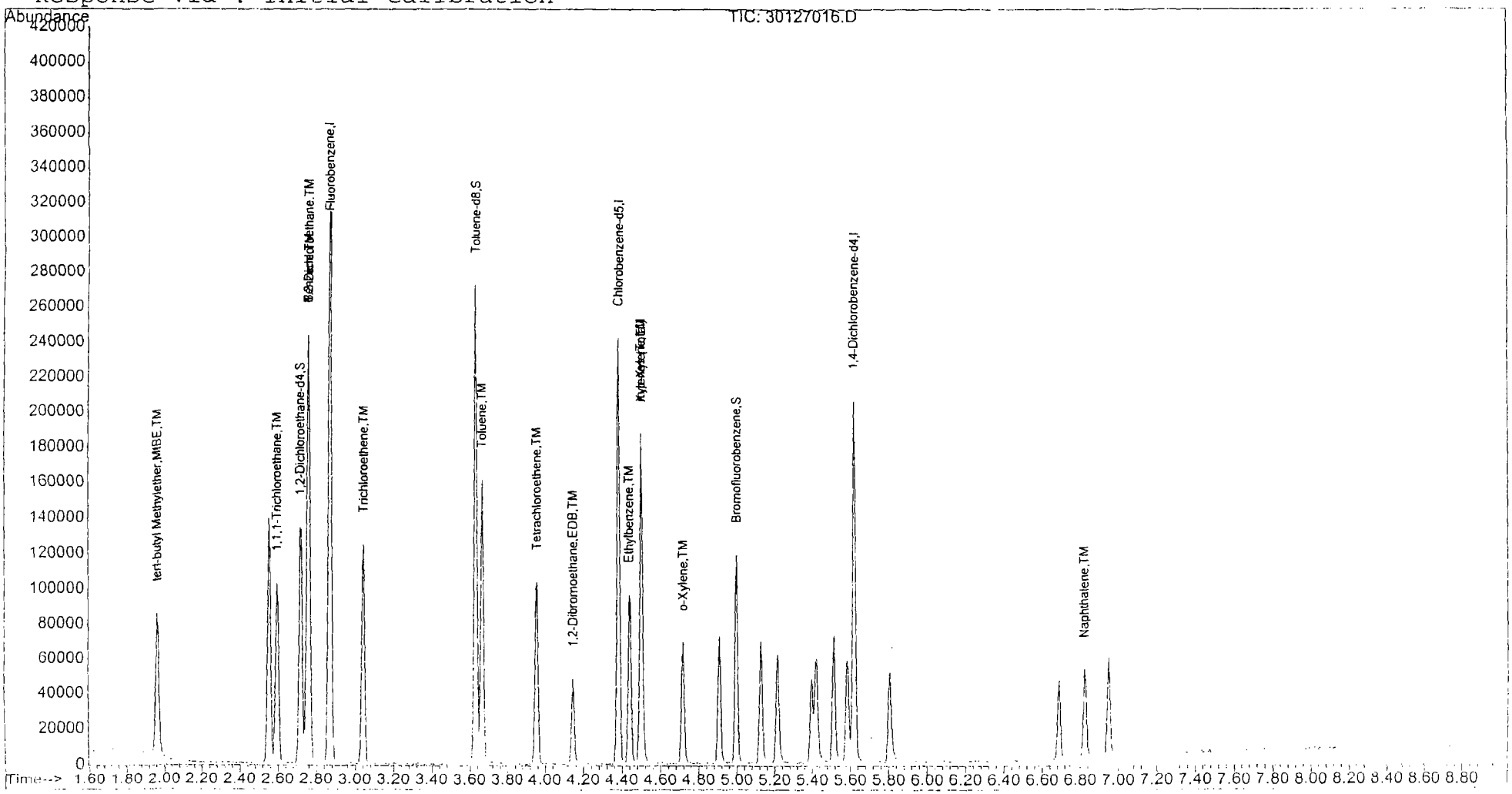
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	2.87	96	181060	50.00 ug/l	0.00
8) Chlorobenzene-d5	4.38	117	80580	50.00 ug/l	0.00
17) 1,4-Dichlorobenzene-d4	5.62	152	35962	50.00 ug/l	0.00
System Monitoring Compounds					
4) 1,2-Dichloroethane-d4	2.72	65	51961	46.82 ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 93.64%		
9) Toluene-d8	3.63	98	101064	48.29 ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 96.58%		
19) Bromofluorobenzene	5.00	95	23466	37.86 ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 75.72%		

Target Compounds					Qvalue
2) tert-butyl Methylether,MtB	1.96	73	41255	22.37 ug/l #	86
3) 1,1,1-Trichloroethane	2.59	97	38946	24.01 ug/l	96
5) Benzene	2.76	78	98950	23.52 ug/l	100
6) 1,2-Dichloroethane	2.75	62	33365	22.01 ug/l	96
7) Trichloroethene	3.04	95	22920	22.38 ug/l	90
10) Toluene	3.66	91	67630	25.85 ug/l	99
11) Tetrachloroethene	3.96	164	16281	27.14 ug/l #	86
12) 1,2-Dibromoethane,EDB	4.14	107	16987	24.16 ug/l #	99
13) Ethylbenzene	4.44	106	14566m	17.61 ug/l	
14) m,p-Xylene	4.50	106	33548m	39.78 ug/l	
15) o-Xylene	4.72	106	12618	14.98 ug/l	97
16) Xylenes (Total)	4.50	106	46212m	54.49 ug/l	
20) Naphthalene	6.82	128	26405	15.37 ug/l	100

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\3040\[illegible]\30127016 Vial: [illegible]
Acq On : 27 Jan 2004 1:46 pm Operator: JEW
Sample : LCS [20] 5ML JEW Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Jan 27 13:57 2004 Quant Results File: UNL0127W.RES

Method : C:\HPCHEM\1\METHODS\UNL0127W.M (RTE Integrator)
Title : 8260 WATER
Last Update : Tue Jan 27 13:55:43 2004
Response via : Initial Calibration



Data File Name 30127017.D
Operator JEW
Date Acquired 1/27/2004 2:04
Sample Name LCS [20] 5ML JEW

Name	Spike Amount	Amount	% Recovery	Q	Control Limits (%)
tert-butyl Methylether,MtBE	20	17.93	89.63		70-130
1,1,1-Trichloroethane	20	18.17	90.83	NP	
1,2-Dichloroethane-d4	50	40.72	81.44		70-130
Benzene	20	19.30	96.49		70-130
1,2-Dichloroethane	20	17.46	87.29	NP	
Trichloroethene	20	17.59	87.96	NP	70-130
Toluene-d8	50	44.84	89.69		70-130
Toluene	20	20.45	102.26		70-130
Tetrachloroethene	20	17.74	88.70	NP	
1,2-Dibromoethane,EDB	20	16.34	81.69	NP	
Ethylbenzene	20	18.47	92.35		70-130
m,p-Xylene	40	37.92	94.81		
o-Xylene	20	15.18	75.90	JEW 1-27-04	70-130
Xylenes (Total)	60	52.80	88.00		70-130
Isopropylbenzene,Cumene	20	0.00	0.00	*	70-130
Bromofluorobenzene	50 ~~20~~	43.67	~~218.37~~ 87.34	✓	70-130
Naphthalene	20 ~~50~~	15.14	~~30.27~~ 75.70	✓	70-130
0	20	0.00	0.00	*	70-130
0	20	0.00	0.00	*	
0	20	0.00	0.00	*	70-130
0	20	0.00	0.00	*	70-130
0	20	0.00	0.00	*	70-130
0	20	0.00	0.00	*	
0	20	0.00	0.00	NP	
0	20	0.00	0.00	*	70-130
0	20	0.00	0.00	*	70-130

NP = Not present in LCS mix.

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\304JA27\30127017.D Vial: 15
Acq On : 27 Jan 2004 2:04 pm Operator: JEW
Sample : LCS [20] 5ML JEW Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Jan 27 14:15 2004 Quant Results File: UNL0127W.RES

JEW 1-27-04

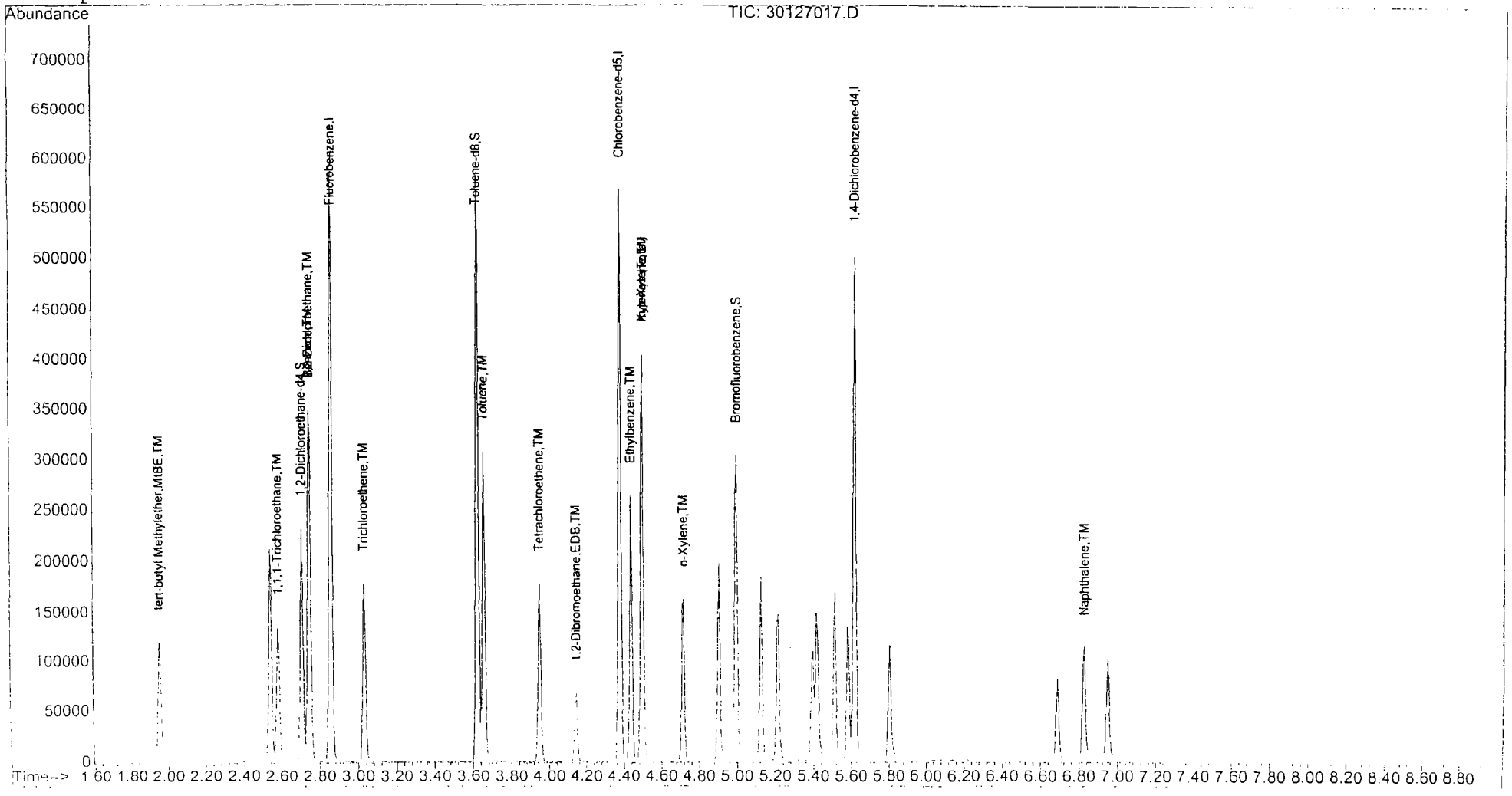
Quant Method : C:\HPCHEM\1\METHODS\UNL0127W.M (RTE Integrator)
Title : 8260 WATER
Last Update : Tue Jan 27 13:55:43 2004
Response via : Initial Calibration
DataAcq Meth : UNL0127W

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	2.86	96	316352	50.00 ug/l	0.00
8) Chlorobenzene-d5	4.37	117	190557	50.00 ug/l	0.00
17) 1,4-Dichlorobenzene-d4	5.61	152	83387	50.00 ug/l	0.00
System Monitoring Compounds					
4) 1,2-Dichloroethane-d4	2.71	65	78964	40.72 ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 81.44%		
9) Toluene-d8	3.62	98	221959	44.84 ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 89.68%		
19) Bromofluorobenzene	4.99	95	62774	43.67 ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 87.34%		
Target Compounds					Qvalue
2) tert-butyl Methylether,MtB	1.95	73	57770	17.93 ug/l #	89
3) 1,1,1-Trichloroethane	2.58	97	51484	18.17 ug/l	95
5) Benzene	2.75	78	141833	19.30 ug/l	100
6) 1,2-Dichloroethane	2.74	62	46243	17.46 ug/l	96
7) Trichloroethene	3.03	95	31482	17.59 ug/l	93
10) Toluene	3.66	91	126551	20.45 ug/l	100
11) Tetrachloroethene	3.95	164	25167	17.74 ug/l	90
12) 1,2-Dibromoethane,EDB	4.14	107	27169	16.34 ug/l #	98
13) Ethylbenzene	4.43	106	36134m	18.47 ug/l	
14) m,p-Xylene	4.50	106	75629	37.92 ug/l	89
15) o-Xylene	4.71	106	30234	15.18 ug/l	90
16) Xylenes (Total)	4.50	106	105895m	52.80 ug/l	
20) Naphthalene	6.83	128	60297	15.14 ug/l	100

(#) = qualifier out of range (m) = manual integration

Data File : [illegible]\304JA27\30127017.D Vial: 15
Acq On : 27 Jan 2004 [illegible]2:04 pm Operator: JEW
Sample : LCS [20] 5ML JEW Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Jan 27 14:15 2004 Quant Results File: UNL0127W.RES

Method : C:\HPCHEM\1\METHODS\UNL0127W.M (RTE Integrator)
Title : 8260 WATER
Last Update : Tue Jan 27 13:55:43 2004
Response via : Initial Calibration



Project Number 04-0193

Polychlorinated Biphenyls

2E
WATER AROCLOR SURROGATE RECOVERY

Lab Name: PACE ANALYTICAL SERVICES, Contract:

Lab Code: Case No.: 040193 SAS No.: SDG No.: 000

GC Column(1): RTX-1701 ID: 0.53 (mm)

	EPA SAMPLE NO.	TCX %REC #	DCB %REC #	S3 %REC #	S4 %REC #	S5 %REC #	S6 %REC #	TOT OUT
01	MW-12	66	47					0
02	MW-12D	63	47					0
03	MW-44S	65	35					0
04	MW-44D	75	61					0
05	LCS	70	59					0
06	LCSD	66	57					0
07	PBLK	70	60					0
08								
09								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

ADVISORY
QC LIMITS

S1 (TCX) = Tetrachloro-m-xylene (30-150)
S2 (DCB) = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

FORM 3
WATER AROCLOR LAB CONTROL SAMPLE

Lab Name: PACE ANALYTICAL SERVICES, Contract:

Lab Code: Case No.: 040193 SAS No.: SDG No.: 000

Matrix Spike - Sample No.: LCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Aroclor-1248	2.50		2.08	83	55-145

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor-1248	2.50	2.01	80	4	25	55-145

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS: _____

APPENDIX B-2

LABORATORY ANALYTICAL REPORT FOR MAY 2004 MONITORING EVENT

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Pace Analytical Services, Inc.
5203 Triangle Lane
Export, PA 15632
Phone: 724.733.1161
Fax: 724.327.7793

June 2, 2004

Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Dear Mr. Fargo:

Enclosed are analytical results for samples submitted to Pace Analytical by Hydro Systems Management, Inc.. The samples were received on May 12, 2004. Please reference Pace project number 04-2242 when inquiring about this report.

Client Site: Reduction Mill
Client Ref.: HM00318

Pace Sample Identification	Client Sample Identification
0405-1261	MW-12
0405-1262	MW-14
0405-1263	MW-42S
0405-1264	MW-42D
0405-1265	MW-39S
0405-1266	MW-39D
0405-1267	MW-30
0405-1268	MW-1
0405-1269	MW-29S
0405-1270	MW-29D

Pace Sample Identification	Client Sample Identification
0405-1271	MW-16
0405-1272	MW-16D
0405-1273	MW-31
0405-1274	MW-18
0405-1275	MW-18D
0405-1276	MW-2
0405-1277	MW-5
0405-1278	MW-2D
0405-1279	Field Blank-1
0405-1280	Trip Blank

General Comments: Cooler temperature 2 ° C upon receipt. Ice was present.

REPORT OF LABORATORY ANALYSIS

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Phone: 724.733.1161
Fax: 724.327.7793

Please call me if you have any questions regarding the information contained within this report.

Sincerely,

Rachel D. Christner
Project Coordinator

RDC: jld

Enclosures

cc: John Reggi, Ormet Primary Aluminum Corporation

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1261**
Client Sample ID: MW-12
Sample Matrix: Aqueous

Date Sampled: 05/11/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	0.61	0.10	mg/l	CK0	05/25/2004	0030460-1	<0.10
pH	150.1(1)	7.65	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	520	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	1.9	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	31	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(2)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1221	8082(2)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1232	8082(2)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1242	8082(2)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1248	8082(2)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1254	8082(2)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1260	8082(2)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
PCB Total-TCL	8082(2)	<0.52	0.52	ug/l	RDJ	05/24/2004	0030324-1	<0.50

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1262**
Client Sample ID: MW-14
Sample Matrix: Aqueous

Date Sampled: 05/11/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	0.022	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	2.0	0.10	mg/l	CK0	05/25/2004	0030460-1	<0.10
pH	150.1(1)	7.67	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	560	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	1.2	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	51	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1263**
Client Sample ID: MW-42S
Sample Matrix: Aqueous

Date Sampled: 05/11/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	3.1	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	74	0.10	mg/l	CKO	05/25/2004	0030460-1	<0.10
pH	150.1(1)	8.29	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	4500	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0068	0.0040	mg/l	CSO	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CSO	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	0.38	0.010	mg/l	CSO	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	1500	5.0	mg/l	CSO	05/25/2004	0030236-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CSO	05/24/2004	0030236-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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331 South Main St.
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Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1264**
Client Sample ID: MW-42D
Sample Matrix: Aqueous

Date Sampled: 05/11/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.65	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	0.65	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	9.6	0.10	mg/l	CK0	05/25/2004	0030460-1	<0.10
pH	150.1(1)	7.66	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	1700	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	1.6	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	430	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1265**
Client Sample ID: MW-39S
Sample Matrix: Aqueous

Date Sampled: 05/11/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.76	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	8.5	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	150	0.10	mg/l	CKO	05/25/2004	0030460-1	<0.10
pH	150.1(1)	9.28	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	3400	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.016	0.0040	mg/l	CSO	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CSO	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	0.19	0.010	mg/l	CSO	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	2000	5.0	mg/l	CSO	05/25/2004	0030236-1	<0.50
Vanadium	6010B(2)	0.015	0.010	mg/l	CSO	05/24/2004	0030236-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1266**
Client Sample ID: MW-39D
Sample Matrix: Aqueous

Date Sampled: 05/11/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.024	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	0.024	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	4.2	0.10	mg/l	CK0	05/25/2004	0030460-1	<0.10
pH	150.1(1)	7.57	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	590	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	1.0	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	33	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1267**
Client Sample ID: MW-30
Sample Matrix: Aqueous

Date Sampled: 05/11/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	2.1	0.10	mg/l	CKO	05/25/2004	0030460-1	<0.10
pH	150.1(1)	6.61	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	450	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CSO	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CSO	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	0.50	0.010	mg/l	CSO	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	25	0.50	mg/l	CSO	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CSO	05/24/2004	0030236-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.0065	0.0050	mg/l	JEC	05/24/2004	0030461-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1268**
Client Sample ID: MW-1
Sample Matrix: Aqueous

Date Sampled: 05/11/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	2.1	0.10	mg/l	CK0	05/25/2004	0030460-1	<0.10
pH	150.1(1)	6.66	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	690	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	0.47	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	50	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1269**
Client Sample ID: MW-29S
Sample Matrix: Aqueous

Date Sampled: 05/11/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.93	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	0.93	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	8.7	0.10	mg/l	CK0	05/26/2004	0030515-1	<0.10
pH	150.1(1)	7.48	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	1700	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	1.2	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	380	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1270**
Client Sample ID: MW-29D
Sample Matrix: Aqueous

Date Sampled: 05/11/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.16	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	0.16	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	2.4	0.10	mg/l	CK0	05/26/2004	0030515-1	<0.10
pH	150.1(1)	8.03	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	610	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	2.0	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	33	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1271**
Client Sample ID: MW-16
Sample Matrix: Aqueous

Date Sampled: 05/11/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.35	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	5.3	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	71	0.10	mg/l	CK0	05/26/2004	0030515-1	<0.10
pH	150.1(1)	8.18	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	1300	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0071	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	0.0014	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	1.1	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	390	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	0.037	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1272**
Client Sample ID: MW-16D
Sample Matrix: Aqueous

Date Sampled: 05/11/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.35	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	5.9	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	71	0.10	mg/l	CK0	05/26/2004	0030515-1	<0.10
pH	150.1(1)	8.15	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	1300	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.016	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	0.0014	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	1.1	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	390	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	0.040	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste. SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1273**
Client Sample ID: MW-31
Sample Matrix: Aqueous

Date Sampled: 05/12/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	1.6	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	15	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	71	0.10	mg/l	CKO	05/26/2004	0030515-1	<0.10
pH	150.1(1)	9.72	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	1700	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.044	0.0040	mg/l	CSO	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	0.0015	0.00050	mg/l	CSO	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	1.5	0.010	mg/l	CSO	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	570	0.50	mg/l	CSO	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	0.078	0.010	mg/l	CSO	05/24/2004	0030236-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.025	0.0050	mg/l	JEC	05/24/2004	0030461-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1274**
Client Sample ID: MW-18
Sample Matrix: Aqueous

Date Sampled: 05/12/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.33	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	1.8	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	150	0.10	mg/l	CK0	05/26/2004	0030515-1	<0.10
pH	150.1(1)	9.51	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	2300	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.081	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	0.00095	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	0.35	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	680	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	0.037	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.012	0.0050	mg/l	JEC	05/24/2004	0030461-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1275**
Client Sample ID: MW-18D
Sample Matrix: Aqueous

Date Sampled: 05/12/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	2.0	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	140	0.10	mg/l	CK0	05/26/2004	0030515-1	<0.10
pH	150.1(1)	9.49	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	2200	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.079	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	0.00092	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	0.35	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	680	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	0.035	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.014	0.0050	mg/l	JEC	05/24/2004	0030461-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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331 South Main St.
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Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1276**
Client Sample ID: MW-2
Sample Matrix: Aqueous

Date Sampled: 05/12/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	1.2	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	14	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	47	0.10	mg/l	CK0	05/26/2004	0030515-1	<0.10
pH	150.1(1)	9.72	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	1500	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.071	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	0.00088	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	0.91	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	490	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	0.056	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.017	0.0050	mg/l	JEC	05/24/2004	0030461-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: 04-2242
Lab Sample ID: 0405-1277
Client Sample ID: MW-5
Sample Matrix: Aqueous

Date Sampled: 05/12/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.59	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	3.6	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	25	0.10	mg/l	CK0	05/26/2004	0030515-1	<0.10
pH	150.1(1)	8.00	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	1200	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	0.42	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	310	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	<0.0050	0.0050	mg/l	JEC	05/24/2004	0030461-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1278**
Client Sample ID: MW-2D
Sample Matrix: Aqueous

Date Sampled: 05/12/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	1.4	0.010	mg/l	TAT	05/16/2004	0030260-1	<0.010
Cyanide (Total)	335.2(1)	12	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	59	0.10	mg/l	CK0	05/26/2004	0030515-1	<0.10
pH	150.1(1)	9.72	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	1500	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.067	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	0.00080	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	0.85	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	490	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	0.053	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.018	0.0050	mg/l	JEC	05/24/2004	0030461-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: 04-2242
Lab Sample ID: 0405-1279
Client Sample ID: Field Blank-1
Sample Matrix: Aqueous

Date Sampled: 05/12/2004
Date Received: 05/12/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	05/16/2004	0030259-1	<0.010
Fluoride	340.2(1)	<0.10	0.10	mg/l	CK0	05/26/2004	0030515-1	<0.10
pH	150.1(1)	7.31	1.00	pH	ALR	05/12/2004	0030213-1	5.99
Specific Conductance	120.1(1)	4.4	1.0	umhos/cm	ALR	05/12/2004	0030214-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/24/2004	0030236-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/24/2004	0030236-1	<0.00050
Manganese	6010B(2)	<0.010	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010
Sodium	6010B(2)	1.2	0.50	mg/l	CS0	05/24/2004	0030236-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/24/2004	0030236-1	<0.010

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(2)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1221	8082(2)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1232	8082(2)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1242	8082(2)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1248	8082(2)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1254	8082(2)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1260	8082(2)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
PCB Total-TCL	8082(2)	<0.52	0.52	ug/l	RDJ	05/24/2004	0030324-1	<0.50

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	<0.0050	0.0050	mg/l	JEC	05/24/2004	0030461-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2242**
Lab Sample ID: **0405-1280**
Client Sample ID: Trip Blank
Sample Matrix: Aqueous

Date Sampled: 05/12/2004
Date Received: 05/12/2004

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B[1]	<0.0050	0.0050	mg/l	JEC	05/24/2004	0030461-1	<0.0050

[1] U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Project Number 04-2242

Chain Of Custody

HMI
Environmental Consulting Services

Page 1 of 2

CHAIN – OF – CUSTODY RECORD

04-2242

Project Number	Project Name/Location	Laboratory	Sampling Personnel
HM0031B	ORMET/REDUCTION MILL	PACE ANALYTICAL	S. MENOSKY, J. KELLER

Container Description/ Number of Containers

Sample ID	Date/Time	Sample Code	DISSOLVED As, Be, MN, NA, V 250 ml. PLASTIC FIELD FILTERED (HNO3)	CN (TOTAL/AMENABLE) 250 ml. PLASTIC (NACH)	pH, Spec. COND., F 500 ml. PLASTIC (4°C)	PCB's 1 LITER GLASS (4°C)	Tetrachloroethene 40 ml. glass (HCL)					TOTAL
MW-12	5/11/04	L	1	1	1	1				05-	1261	4
MW-14			1	1	1						1262	3
MW-42			1	1	1						1263	3
MW-42d			1	1	1						1264	3
MW-17			1	1	1						1265	3
MW-35d			1	1	1						1266	3
MW-[illegible]			1	1	1		3				1267	6
MW-[illegible]			1	1	1						1268	3
MW-29c			1	1	1						1269	3
MW-29d			1	1	1						1270	3
MW-15			1	1	1						1271	3
MW-15d			1	1	1						1272	3
MW-[illegible]	5/12/04		1	1	1		3				1273	6
MW-18	5/12/04		1	1	1		3				1274	6
MW-18d	5/12/04		1	1	1		3				1275	6

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

Total Number of Containers: 58

Relinquished by: Stephen C. Menosky	Organization: HMI	Date: 5/12/04	Time: 1200	Seal Intact?	
Received by: [illegible]	Organization: PACE	Date: 5/12/04	Time: 12:00	Yes No NA	
Relinquished by: [illegible]	Organization: Pace	Date: 5-12-04	Time: 5:05	Seal Intact?	
Received by: [illegible]	Organization: Pace	Date: 5-12-04	Time: 5:05	Yes No NA	

REMARKS: Samples are in 2 coolers 2°

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

HMI
Environmental Consulting Services

CHAIN-OF-CUSTODY RECORD

04-2296

Project Number	Project Name/Location	Laboratory
HM00318	ORMET/REDUCTION MILL	PACE ANALYTICAL

Sampling Personnel: S. MENOSKY, J. KELLER

Sample ID	Date/Time	Sample Code	DISSOLVED As, Ba, Hg, Hg, V 250ml. PLASTIC (HNO3)	CN (TOTAL/AMENABLE) 250 ml. PLASTIC (NaOH)	pH, Spec. Cond., F 500ml. PLASTIC (4°C)	TETRACHLOROETHENE 40ml. GLASS (HCL)	[illegible]					TOTAL
MW [illegible]	5/11/04	L	1	1	1	3					05-1276	6
MW 5	5/11/04		1	1	1	2					1277	6
MW 5d	5/11/04		1	1	1	2					1278	6
Field Blank-1	5/11/04		1	1	1	3	1				1279	7
Trip Blank	5/11/04					3					1280	3

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

Total Number of Containers: 28

Relinquished by: Stephanie C. Menosky	Organization: HMI	Date: 5/12/04	Time: 1200	Seal Intact?	
Received by: [illegible]	Organization: Pace	Date: 5-12-04	Time: 1200	Yes No NA	
Relinquished by: [illegible]	Organization: Pace	Date: 5-12-04	Time: 5:05	Seal Intact?	
Received by: [illegible]	Organization: Pace	Date: [illegible]	Time: 5:05	Yes No NA	

REMARKS: ONLY ANALYZE AMENABLE CN IF TOTAL CN IS DETECTED / DISSOLVED METALS WERE FIELD FILTERED

Sample on ice 2 coolers

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

Pace Analytical Services, Inc.
Matrix Spike/Matrix Spike Duplicate Summary

Pace Project Number 04-2242
Pace Sample Number 0405-1261

Compound	Spike Added mg/L	Sample Concentration mg/L	Matrix Spike Concentration mg/L	Matrix Spike % Recovery %	#	Spike Added mg/L	Matrix Spike Duplicate Concentation mg/L	Matrix Spike Duplicate % Recovery %	#	% RPD %	#	QC Limits RPD %	QC Limits Recovery %
Arsenic (Dissolved)	0.5	0	0.50743	101.49		0.5	0.52753	105.51		0.97		20	75-125
Beryllium (Dissolved)	0.5	0	0.50302	100.60		0.5	0.51553	103.11		0.61		20	75-125
Manganese (Dissolved)	0.5	1.8871	2.316	85.78		0.5	2.392	100.98		0.81		20	75-125
Sodium (Dissolved)	2.5	30.64	33.095	98.20		2.5	37.681	281.64	*	3.24		20	75-125
Vanadium (Dissolved)	0.5	0	0.5041	100.82		0.5	0.51747	103.49		0.65		20	75-125

6/3/04

Pace Analytical Services, Inc.
Matrix Spike/Matrix Spike Duplicate Summary

Column used to flag recovery and RPD values with an asterisk
* Values outside of QC Limits
Comments:
Sodium indigenous concentrations is 4 times greater than the spike added

Project Number 04-7242

Volatiles

GC/MS QA-QC Check Report

Tune File : C:\HPCHEM\1\DATA\304MY24\30524T34.D
Tune Time : 24 May 2004 11:06 pm

Daily Calibration File : C:\HPCHEM\1\DATA\304MY24\30524V35.D

		(DCE)	(TOL)	(BFB)		(FB)	(CBZ)	(DCB)
						253666	187504	84448
File	Sample	Surrogate Recovery %				Internal Standard Responses		
30524036.D	LCS [20]	110	91	93		252854	191394	85531
30524037.D	VBLK 5ML	111	92	98		234444	167620	61481
30524038.D	VBLK 5ML	115	94	96		221786	154533	58017
30524039.D	VBLK 5ML	116	95	97		214992	148692	54868
30524040.D	04-2240	117	95	98		204019	140663	50863
30524041.D	04-2240	110	92	91		231227	169110	76079
30524042.D	04-2240	113	95	93		228877	166390	73499
30524043.D	BLK 5ML	115	92	94		209157	147480	53920
30524044.D	04-2237	117	94	98		199573	140806	50240
30524045.D	04-2237	117	96	98		198403	139400	50800
30524046.D	04-2237	114	92	92		205849	146675	63579
30524047.D	04-2240	114	93	94		206533	143422	52283
30524048.D	04-2240	117	93	93		200573	141026	51373
30524049.D	04-2241	118	92	94		190852	135258	48795
30524050.D	04-2250	122	93	92	JEW 9-27-04	185852	135914	53777
30524051.D	04-2242	123	95	97	05-1273	180264	129570	46884
30524052.D	04-2242	119	95	94	05-1274	190693	133549	48742
30524053.D	04-2242	122	95	98	05-1275	189893	134096	46448
30524054.D	04-2242	120	93	93	05-1276	182287	130522	46800
30524055.D	04-2242	121	93	96	05-1277	182608	127964	45275
30524056.D	04-2242	126	94	92	05-1278	174481	127747	45951
30524057.D	04-2242	123	94	96	05-1267	182343	129745	45432
30524058.D	04-2242	123	94	96	05-1279	176037	125416	44919
30524059.D	04-2242	125	96	91	05-1280	173722	121992	44600
30524060.D	04-2253	98	87	91		242626	217717	97273
30524061.D	04-2253	105	88	91		247338	204871	90025

Data File Name 30524036.D
Operator JEW
Date Acquired 5/24/2004 11:40
Sample Name LCS [20] 5ML JEW

Name	Spike Amount	Amount	% Recovery	Q	Control Limits (%)
tert-butyl Methylether,MtBE	20	24.47	122.35		70-130
1,1,1-Trichloroethane	20	24.04	120.20	~~NP~~	
1,2-Dichloroethane-d4	50	55.24	110.48		70-130
Benzene	20	23.80	118.99		70-130
1,2-Dichloroethane	20	22.60	113.01	~~NP~~	
Trichloroethene	20	24.43	122.17	~~NP~~	70-130
Toluene-d8	50	45.49	90.99		70-130
Toluene	20	19.88	99.38		70-130
Tetrachloroethene	20	20.29	101.47	~~NP~~	
1,2-Dibromoethane,EDB	20	19.55	97.75	~~NP~~	
Ethylbenzene	20	18.31	91.56		70-130
m,p-Xylene	40	38.66	96.64		
o-Xylene	20	18.88	94.40		70-130
Xylenes (Total)	60	57.40	95.67		70-130
1,3,5-Trimethylbenzene	20	19.66	98.32		70-130
Isopropylbenzene,Cumene	20	17.95	89.74		70-130
Bromofluorobenzene	50	46.57	93.14		70-130
n-propylbenzene	20	19.59	97.93		70-130
tert-butylbenzene	20	21.64	108.21		
1,2,4-Trimethylbenzene	20	19.30	96.48		70-130
sec-butyl benzene	20	17.92	89.62		70-130
4-isopropyl toluene	20	21.28	106.40		70-130
n-butylbenzene	20	16.78	83.91		
1,2,4-Trichlorobenzene	20	16.44	82.18	~~NP~~	
Naphthalene	20	21.71	108.53		70-130
1,2,3-Trichlorobenzene	20	18.00	90.01		70-130

~~NP = Not present in LCS mix.~~ All compounds present in LCS mix.
JEW 5-27-04

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\304MY24\30524036.D
Acq On : 24 May 2004 11:40 pm
Sample : LCS [20] 5ML JEW
Misc :
MS Integration Params: rteint.p
Quant Time: May 25 9:31 2004

Vial: 33
Operator: JEW
Inst : GC/MS Ins
Multiplr: 1.00

JEW 5-29-04

Quant Results File: STR0520W.RES

Quant Method : C:\HPCHEM\1\METHODS\STR0520W.M (RTE Integrator)
Title : 8260 WATER
Last Update : Mon May 24 13:24:17 2004
Response via : Initial Calibration
DataAcq Meth : STR0520W

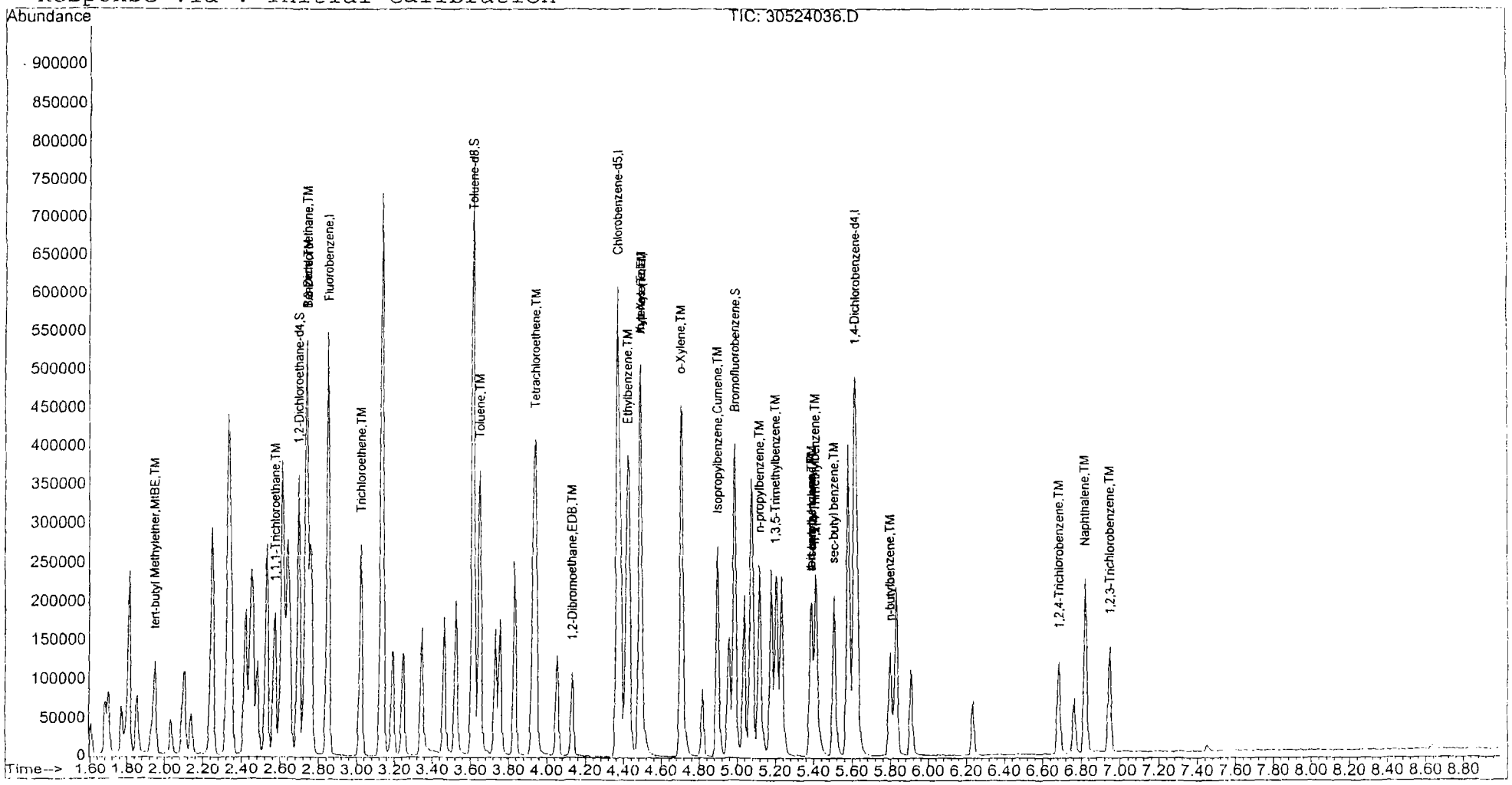
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Fluorobenzene	2.85	96	252854	50.00 ug/l	0.00
8) Chlorobenzene-d5	4.37	117	191394	50.00 ug/l	0.00
17) 1,4-Dichlorobenzene-d4	5.61	152	85531	50.00 ug/l	0.00
System Monitoring Compounds					
4) 1,2-Dichloroethane-d4	2.69	65	130623	55.24 ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 110.48%		
9) Toluene-d8	3.61	98	295132	45.49 ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 90.98%		
20) Bromofluorobenzene	4.99	95	89110	46.57 ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 93.14%		

Target Compounds					Qvalue
2) tert-butyl Methylether,MtB	1.94	73	39771	24.47 ug/l	91
3) 1,1,1-Trichloroethane	2.57	97	63744	24.04 ug/l #	92
5) Benzene	2.74	78	184871	23.80 ug/l	100
6) 1,2-Dichloroethane	2.73	62	80172	22.60 ug/l #	96
7) Trichloroethene	3.02	95	46286	24.43 ug/l #	78
10) Toluene	3.65	91	160742	19.88 ug/l	97
11) Tetrachloroethene	3.94	164	34197	20.29 ug/l	89
12) 1,2-Dibromoethane,EDB	4.13	107	43109	19.55 ug/l	100
13) Ethylbenzene	4.43	106	48694m	18.31 ug/l	
14) m,p-Xylene	4.49	106	113252m	38.66 ug/l	
15) o-Xylene	4.70	106	53641	18.88 ug/l #	66
16) Xylenes (Total)	4.49	106	166873m	57.40 ug/l	
18) 1,3,5-Trimethylbenzene	5.21	105	98450	19.66 ug/l #	83
19) Isopropylbenzene,Cumene	4.90	105	118321m	17.95 ug/l	
21) n-propylbenzene	5.12	91	135034	19.59 ug/l	92
22) tert-butylbenzene	5.39	134	20132	21.64 ug/l #	45
23) 1,2,4-Trimethylbenzene	5.41	105	97603	19.30 ug/l #	87
24) sec-butyl benzene	5.51	105	101837	17.92 ug/l	95
25) 4-isopropyl toluene	5.39	119	84802	21.28 ug/l	99
26) n-butylbenzene	5.80	91	59809	16.78 ug/l #	96
27) 1,2,4-Trichlorobenzene	6.69	180	24770	16.44 ug/l	99
28) Naphthalene	6.82	128	119259	21.71 ug/l	100
29) 1,2,3-Trichlorobenzene	6.95	180	26263	18.00 ug/l	97

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\304MY24\30524036.D Vial: 33
Acq On : 24 May 2004 11:40 pm Operator: JEW
Sample : LCS [20] 5ML JEW Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: May 25 9:31 2004 Quant Results File: STR0520W.RES

Method : C:\HPCHEM\1\METHODS\STR0520W.M (RTE Integrator)
Title : 8260 WATER
Last Update : Tue May 25 09:29:57 2004
Response via : Initial Calibration



Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\STR0520W.M (RTE Integrator)
Title : 8260 WATER
Last Update : Tue May 25 09:29:57 2004
Response via : Initial Calibration

Non-Spiked Sample: 30524040.D

JEW 5-25-04

	Spike Sample	Spike Duplicate Sample
File ID :	30524041.D	30524042.D
Sample :	04-2240 05-1257MS [20] 5ML JEW	04-2240 05-1257MSD [20
Acq Time:	25 May 2004 1:05 am	25 May 2004 1:21 am

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
tert-butyl Methyleth	0.0	20	23	26	115	129	11	30	70-130
1,1,1-Trichloroethan	0.0	20	21	21	103	104	1	30	70-130
Benzene	0.1	20	20	20	98	101	3	30	70-130
1,2-Dichloroethane	0.0	20	19	20	96	98	2	30	70-130
Trichloroethene	0.0	20	19	19	95	97	2	30	70-130
Toluene	0.0	20	16	17	82	86	6	30	70-130
Tetrachloroethene	0.0	20	16	17	82	86	4	30	70-130
1,2-Dibromoethane,ED	0.0	20	16	17	81	86	6	30	70-130
Ethylbenzene	0.0	20	15	15	74	76	3	30	70-130
m,p-Xylene	0.0	40	31	33	78	83	6	30	70-130
o-Xylene	0.0	20	14	15	71	76	6	30	70-130
1,3,5-Trimethylbenze	0.0	20	16	17	78	83	5	30	70-130
Isopropylbenzene,Cum	0.0	20	14	15	70#	75	6	30	70-130
n-propylbenzene	0.0	20	15	16	77	82	6	30	70-130
tert-butylbenzene	0.0	20	16	18	81	90	10	30	70-130
1,2,4-Trimethylbenze	0.0	20	15	16	77	80	4	30	70-130
sec-butyl benzene	0.0	20	14	15	71	75	6	30	70-130
4-isopropyl toluene	0.0	20	16	18	81	88	9	30	70-130
n-butylbenzene	0.0	20	13	14	63#	69#	8	30	70-130
1,2,4-Trichlorobenze	0.0	20	11	13	56#	64#	12	30	70-130
Naphthalene	0.4	20	12	15	58#	73	24	30	70-130
1,2,3-Trichlorobenze	0.0	20	13	14	64#	71	11	30	70-130

- Fails Limit Check

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\304MY24\30524039.D Vial: 36
Acq On : 25 May 2004 12:31 am Operator: JEW
Sample : VBLK 5ML JEW Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: May 25 0:40 2004 Quant Results File: STR0520W.RES

JEW 6/29/04

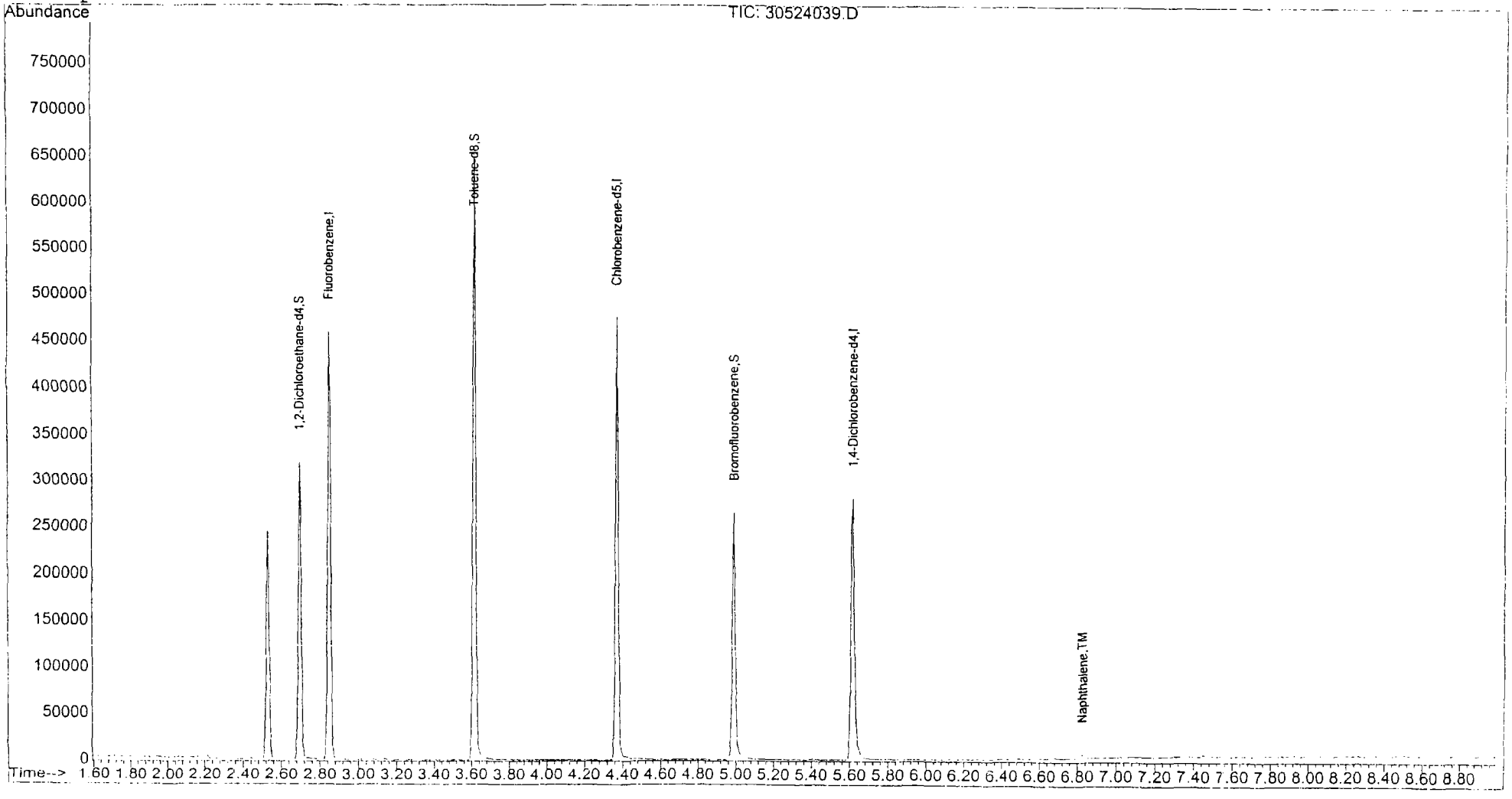
Quant Method : C:\HPCHEM\1\METHODS\STR0520W.M (RTE Integrator)
Title : 8260 WATER
Last Update : Mon May 24 13:24:17 2004
Response via : Initial Calibration
DataAcq Meth : STR0520W

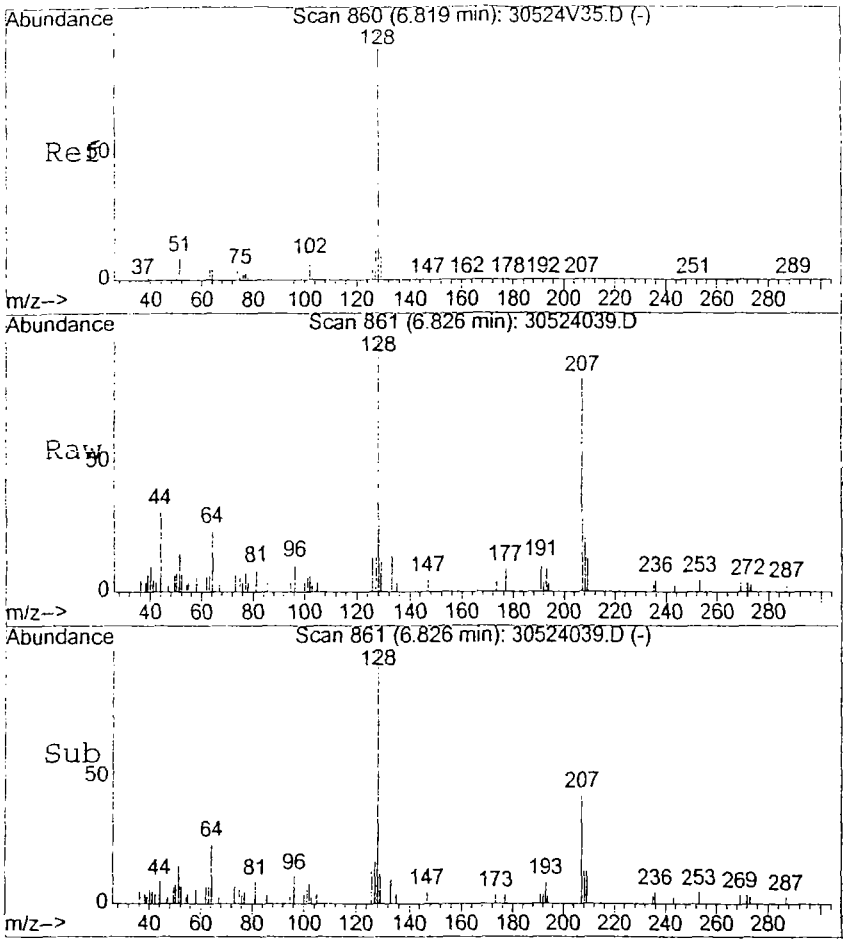
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	2.85	96	214992	50.00	ug/l	0.00
8) Chlorobenzene-d5	4.37	117	148692	50.00	ug/l	0.00
17) 1,4-Dichlorobenzene-d4	5.62	152	54868	50.00	ug/l	0.00
System Monitoring Compounds						
4) 1,2-Dichloroethane-d4	2.70	65	116458	57.92	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 115.84%			
9) Toluene-d8	3.61	98	238720	47.37	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 94.74%			
20) Bromofluorobenzene	4.99	95	59684	48.62	ug/l	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 97.24%			
Target Compounds						Qvalue
28) Naphthalene	6.83	128	2036	0.58	ug/l	100

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\1\DATA\304MY24\30524039.D Vial: 36
Acq On : 25 May 2004 12:31 am Operator: JEW
Sample : VBLK 5ML JEW Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: May 25 0:40 2004 Quant Results File: STR0520W.RES

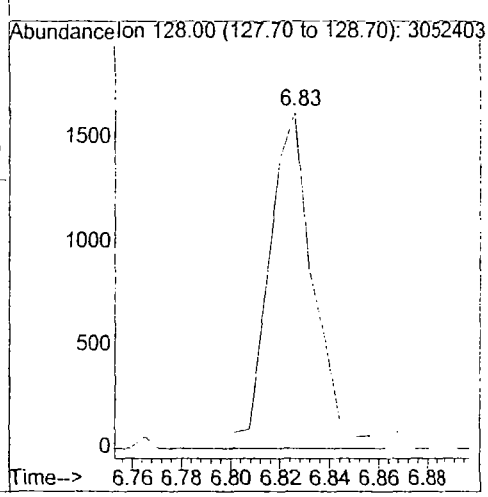
Method : C:\HPCHEM\1\METHODS\STR0520W.M (RTE Integrator)
Title : 8260 WATER
Last Update : Tue May 25 09:29:57 2004
Response via : Initial Calibration





#28
Naphthalene
Concen: 0.58 ug/l
RT: 6.83 min Scan# 861
Delta R.T. 0.01 min
Lab File: 30524039.D
Acq: 25 May 2004 12:31 am

Tgt Ion:128 Resp: 2036



2E
WATER AROCLOR SURROGATE RECOVERY

Lab Name: PACE ANALYTICAL SERVICES, Contract:

Lab Code: Case No.: 042242 SAS No.: SDG No.: 000

GC Column(1): RTX-1701 ID: 0.53 (mm)

	EPA SAMPLE NO.	TCX %REC #	DCB %REC #	S3 %REC #	S4 %REC #	S5 %REC #	S6 %REC #	TOT OUT
01	MW12	58	47					0
02	FIELDBLANK1	60	16*					1
03	BLK	65	48					0
04	LCS	80	52					0
05	LCSD	60	44					0
06								
07								
08								
09								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
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23								
24								
25								
26								
27								
28								
29								
30								

ADVISORY
QC LIMITS

S1 (TCX) = Tetrachloro-m-xylene (30-150)
S2 (DCB) = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

FORM 3
WATER AROCLOR LAB CONTROL SAMPLE

Lab Name: PACE ANALYTICAL SERVICES, Contract:

Lab Code: Case No.: 042242 SAS No.: SDG No.: 000

Matrix Spike - Sample No.: LCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Aroclor-1248	2.50		2.39	96	55-145

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor-1248	2.50	2.00	80	18	25	55-145

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS: _____

Project Number 04-2342

General Chemistry

Pace Analytical Services, Inc.
Matrix Spike/Matrix Spike Duplicate Summary

Pace Project Number 04-2242
Pace Sample Number 0405-1261

Compound	Spike Added mg/L	Sample Concentration mg/L	Matrix Spike Concentration mg/L	Matrix Spike % Recovery %	#	Spike Added mg/L	Matrix Spike Duplicate Concentation mg/L	Matrix Spike Duplicate % Recovery %	#	% RPD %	#	QC Limits RPD %	QC Limits Recovery %
Cyanide	0.5	0	0.50743	101.49		0.5	0.52753	105.51		0.97		20	75-125
Fluoride	0.5	0	0.50302	100.60		0.5	0.51553	103.11		0.61		20	75-125

6/3/04

Pace Analytical Services, Inc.
Matrix Spike/Matrix Spike Duplicate Summary

Column used to flag recovery and RPD values with an asterisk
* Values outside of QC Limits
Comments:
Sodium indigenous concentrations is 4 times greater than the spike added

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5203 Triangle Lane
Export, PA 15632
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Fax: 724.327.7793

June 2, 2004

Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Dear Mr. Fargo:

Enclosed are analytical results for samples submitted to Pace Analytical by Hydro Systems Management, Inc.. The samples were received on May 14, 2004. Please reference Pace project number 04-2280 when inquiring about this report.

Client Site: Reduction Mill
Client Ref.: HM00318

Pace Sample Identification	Client Sample Identification
0405-1443	MW-34S
0405-1444	MW-34D
0405-1445	MW-17
0405-1446	MW-15
0405-1447	MW-36
0405-1448	MW-32
0405-1449	MW-41
0405-1450	MW-19
0405-1451	MW-7
0405-1452	MW-11

Pace Sample Identification	Client Sample Identification
0405-1453	MW-8
0405-1454	MW-10
0405-1455	MW-37
0405-1456	MW-35
0405-1457	MW-28
0405-1458	MW-40S
0405-1459	MW-40D
0405-1460	MW-44S
0405-1461	MW-44D

General Comments: Cooler temperature 5 ° C upon receipt. Ice was present.

REPORT OF LABORATORY ANALYSIS

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Fax: 724.327.7793

Please call me if you have any questions regarding the information contained within this report.

Sincerely,

Rachel D. Christner
Project Coordinator

RDC: jld

Enclosures

cc: John Reggi, Ormet Primary Aluminum Corporation

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1443**
Client Sample ID: MW-34S
Sample Matrix: Aqueous

Date Sampled: 05/12/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.26	0.010	mg/l	TAT	05/24/2004	0030448-1	<0.010
Cyanide (Total)	335.2(1)	0.38	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	41	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1(1)	8.08	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	950	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0043	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	0.068	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	270	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1444**
Client Sample ID: MW-34D
Sample Matrix: Aqueous

Date Sampled: 05/12/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.37	0.010	mg/l	TAT	05/24/2004	0030448-1	<0.010
Cyanide (Total)	335.2(1)	0.45	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	6.0	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1(1)	7.44	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	660	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	<0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	83	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1445**
Client Sample ID: MW-17
Sample Matrix: Aqueous

Date Sampled: 05/12/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/24/2004	0030448-1	<0.010
Cyanide (Total)	335.2(1)	0.41	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	23	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1(1)	7.71	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	670	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0044	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	1.1	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	130	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1446**
Client Sample ID: MW-15
Sample Matrix: Aqueous

Date Sampled: 05/12/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/24/2004	0030448-1	<0.010
Cyanide (Total)	335.2(1)	4.6	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	13	0.10	mg/l	CKO	06/01/2004	0030601-1	<0.10
pH	150.1(1)	7.53	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	1300	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	0.024	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	360	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1447**
Client Sample ID: MW-36
Sample Matrix: Aqueous

Date Sampled: 05/12/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/24/2004	0030448-1	<0.010
Cyanide (Total)	335.2(1)	13	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	120	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1(1)	9.39	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	2000	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.043	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	0.0022	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	0.96	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	610	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	0.050	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1448**
Client Sample ID: MW-32
Sample Matrix: Aqueous

Date Sampled: 05/12/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.38	0.010	mg/l	TAT	05/24/2004	0030448-1	<0.010
Cyanide (Total)	335.2(1)	5.2	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	49	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1(1)	9.43	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	1200	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.034	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	0.00084	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	1.1	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	360	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	0.054	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, *Test Methods for Evaluating Solid Waste, SW-846, 3rd ed.*, Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1449**
Client Sample ID: MW-41
Sample Matrix: Aqueous

Date Sampled: 05/13/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	0.45	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1(1)	6.85	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	450	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.017	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	1.1	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	26	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1450**
Client Sample ID: MW-19
Sample Matrix: Aqueous

Date Sampled: 05/13/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	3.6	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1(1)	7.87	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	460	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	<0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	16	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1451**
Client Sample ID: MW-7
Sample Matrix: Aqueous

Date Sampled: 05/13/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	2.7	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1(1)	6.12	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	840	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.041	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	2.3	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	120	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1452**
Client Sample ID: MW-11
Sample Matrix: Aqueous

Date Sampled: 05/13/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/24/2004	0030448-1	<0.010
Cyanide (Total)	335.2(1)	0.010	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	1.9	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1(1)	7.83	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	530	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	0.53	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	47	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1453**
Client Sample ID: MW-8
Sample Matrix: Aqueous

Date Sampled: 05/13/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/24/2004	0030448-1	<0.010
Cyanide (Total)	335.2(1)	0.068	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	3.2	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1(1)	7.79	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	670	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	0.46	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	77	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1454**
Client Sample ID: MW-10
Sample Matrix: Aqueous

Date Sampled: 05/13/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	0.46	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1(1)	7.81	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	740	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	0.011	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	31	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1455**
Client Sample ID: MW-37
Sample Matrix: Aqueous

Date Sampled: 05/13/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.66	0.010	mg/l	TAT	05/24/2004	0030448-1	<0.010
Cyanide (Total)	335.2(1)	2.5	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	14	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1(1)	7.34	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	460	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0055	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	2.8	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	110	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	0.012	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1456**
Client Sample ID: MW-35
Sample Matrix: Aqueous

Date Sampled: 05/13/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	05/24/2004	0030448-1	<0.010
Cyanide (Total)	335.2(1)	6.6	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	22	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1(1)	8.50	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	550	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.011	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	0.63	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	120	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	0.017	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1457**
Client Sample ID: MW-28
Sample Matrix: Aqueous

Date Sampled: 05/13/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.010	0.010	mg/l	TAT	05/24/2004	0030448-1	<0.010
Cyanide (Total)	335.2(1)	0.15	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2(1)	0.21	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1(1)	6.48	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1(1)	410	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B(2)	0.024	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B(2)	81	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response. Washington, DC.

Sample Comments: Results reported on an as received basis.

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Fax: 724.327.7793

Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1458**
Client Sample ID: MW-40S
Sample Matrix: Aqueous

Date Sampled: 05/13/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1[1]	0.017	0.010	mg/l	TAT	05/24/2004	0030448-1	<0.010
Cyanide (Total)	335.2[1]	0.61	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2[1]	9.2	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1[1]	7.86	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1[1]	1200	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B[2]	<0.0040	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B[2]	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B[2]	0.84	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B[2]	220	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B[2]	<0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

[1] U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
[2] U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1459**
Client Sample ID: MW-40D
Sample Matrix: Aqueous

Date Sampled: 05/13/2004
Date Received: 05/14/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1[1]	0.012	0.010	mg/l	TAT	05/24/2004	0030448-1	<0.010
Cyanide (Total)	335.2[1]	0.11	0.010	mg/l	TAT	05/24/2004	0030447-1	<0.010
Fluoride	340.2[1]	11	0.10	mg/l	CK0	06/01/2004	0030601-1	<0.10
pH	150.1[1]	7.69	1.00	pH	ALR	05/14/2004	0030279-1	6.09
Specific Conductance	120.1[1]	820	1.0	umhos/cm	ALR	05/14/2004	0030280-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B[2]	<0.0040	0.0040	mg/l	CS0	05/19/2004	0030294-1	<0.0040
Beryllium	6010B[2]	<0.00050	0.00050	mg/l	CS0	05/19/2004	0030294-1	<0.00050
Manganese	6010B[2]	0.90	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010
Sodium	6010B[2]	120	0.50	mg/l	CS0	05/19/2004	0030294-1	<0.50
Vanadium	6010B[2]	<0.010	0.010	mg/l	CS0	05/19/2004	0030294-1	<0.010

[1] U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
[2] U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1460**
Client Sample ID: MW-44S
Sample Matrix: Aqueous

Date Sampled: 05/14/2004
Date Received: 05/14/2004

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(1)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1221	8082(1)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1232	8082(1)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1242	8082(1)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1248	8082(1)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1254	8082(1)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1260	8082(1)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
PCB Total-TCL	8082(1)	<0.51	0.51	ug/l	RDJ	05/24/2004	0030324-1	<0.50

(1) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-2280**
Lab Sample ID: **0405-1461**
Client Sample ID: MW-44D
Sample Matrix: Aqueous

Date Sampled: 05/14/2004
Date Received: 05/14/2004

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(1)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1221	8082(1)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1232	8082(1)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1242	8082(1)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1248	8082(1)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1254	8082(1)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
Aroclor-1260	8082(1)	<0.50	0.50	mg/l	RDJ	05/24/2004	0030324-1	<0.50
PCB Total-TCL	8082(1)	<0.51	0.51	ug/l	RDJ	05/24/2004	0030324-1	<0.50

(1) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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HMI
Environmental Consulting Services

CHAIN-OF-CUSTODY RECORD

OY 2280

Project Number	Project Name/Location	Container Description/ Number of Containers
HM00318	ORMET/REDUCTION MILL	
	Laboratory: PACE ANALYTICAL	
Sampling Personnel: S. MENOSKY, J. KELLER		

Sample ID	Date/Time	Sample Code	DISSOLVED As, Be, Mn, Na, V 250 ml. PLASTIC FIELD FILTERED (HNO3)	CN (TOTAL/AMENABLE) 250 ml. PLASTIC (NAOH)	pH, Spec. Cond., F 500 ml. PLASTIC (4°C)							TOTAL
MW-34S	5/12/04	L	1	1	1					1443	1436	3
MW-34d	↓	↓	1	1	1					1444	1437	3
MW-17	↓	↓	1	1	1					1445	1438	3
MW-15	↓	↓	1	1	1					1446	1439	3
MW-36	↓	↓	1	1	1					1447	1440	3
MW-32	↓	↓	1	1	1					1448	1441	3
MW-41	5/13/04	↓	1	1	1					1449	1442	3
MW-19	↓	↓	1	1	1					1450	1443	3
MW-7	↓	↓	1	1	1					1451	1444	3
MW-11	↓	↓	1	1	1					1452	1445	3
MW-8	↓	↓	1	1	1					1457	1446	3
MW-10	↓	↓	1	1	1					1454	1447	3
MW-37	↓	↓	1	1	1					1455	1448	3
MW-35	↓	↓	1	1	1					1456	1449	3
MW-28	↓	↓	1	1	1					1457	1450	3

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

Total Number of Containers: 45

Relinquished by: [signature]	Organization: HMI	Date: 5/14/04	Time: 1300	Seal Intact?	
Received by: [signature]	Organization:	Date: [illegible]	Time: [illegible]	Yes No NA	
Relinquished by: [illegible]	Organization:	Date:	Time:	Seal Intact?	
Received by: [illegible]	Organization:	Date:	Time:	Yes No NA	

REMARKS: Only analyze amenable CN if total CN is detected. Dis. Metals are field filtered

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

HMI
Environmental Consulting Services

CHAIN – OF – CUSTODY RECORD

04 2280

Project Number	Project Name/Location	Laboratory	Sampling Personnel
HM0038	Ouvert/Red Mill	PACE Analytical	J Menosky J Keller

Container Description/ Number of Containers

Sample ID	Date/Time	Sample Code	Dissolved As, Be, Mn, Na, V 250 ml Plastic Field Filtered (HNO3)	CN (Total/Amenable) 250 ml Plastic NaOH	pH Spec. Cond F 500 ml Plastic (4°C)	PCB 1 liter Glass 4°C						TOTAL
MW-40-	5/13/04	L	1	1	1						05 14 51	3
MW-40d	5/13/04	L	1	1	1						14 50	3
MW-44-	5/14/04	L	*	*	1	1					14 53	1
MW-44d	5/14/04	L				1					14 54	1

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

Total Number of Containers: 2

Total 53

Relinquished by: [signature]	Organization: HMI	Date: 5/14/04	Time: 1300	Seal Intact?		
Received by: [signature]	Organization:	Date: [illegible]	Time: [illegible]	Yes	No	NA
Relinquished by: [signature]	Organization:	Date:	Time:	Seal Intact?		
Received by: [signature]	Organization:	Date:	Time:	Yes	No	NA

REMARKS: Only analyze amenable CN & total CN is detected. Dis Metals are field filtered (5°)

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

Project Number 04-2280

Metals

Pace Analytical Services, Inc.
Matrix Spike/Matrix Spike Duplicate Summary

Pace Project Number 04-2280
Pace Sample Number 0405-1444

Compound	Spike Added mg/L	Sample Concentration mg/L	Matrix Spike Concentration mg/L	Matrix Spike % Recovery %	#	Spike Added mg/L	Matrix Spike Duplicate Concentation mg/L	Matrix Spike Duplicate % Recovery %	#	% RPD %	#	QC Limits RPD %	QC Limits Recovery %
Arsenic (Dissolved)	0.5	0.00242	0.50371	100.26		0.5	0.50849	101.21		0.24		20	75-125
Beryllium (Dissolved)	0.5	0.00012	0.4813	96.24		0.5	0.47954	95.88		0.09		20	75-125
Manganese (Dissolved)	0.5	0.00715	0.49278	97.13		0.5	0.49133	96.84		0.07		20	75-125
Sodium (Dissolved)	2.5	82.81	85.925	124.60	*	2.5	85.471	106.44		0.13		20	75-125
Vanadium (Dissolved)	0.5	0.00081	0.49655	99.15		0.5	0.49627	99.09		0.01		20	75-125

6/3/04

Pace Analytical Services, Inc.
Matrix Spike/Matrix Spike Duplicate Summary

Column used to flag recovery and RPD values with an asterisk
* Values outside of QC Limits
Comments:
Sodium indigenous concentrations is 4 times greater than the spike added

2E
WATER AROCLOR SURROGATE RECOVERY

Lab Name: PACE ANALYTICAL SERVICES, Contract:

Lab Code: Case No.: 042280 SAS No.: SDG No.: 000

GC Column(1): RTX-1701 ID: 0.53 (mm)

	EPA SAMPLE NO.	TCX %REC #	DCB %REC #	S3 %REC #	S4 %REC #	S5 %REC #	S6 %REC #	TOT OUT
01	MW44S	64	55					0
02	MW44D	62	64					0
03	BLK	65	48					0
04	LCS	80	52					0
05	LCSD	60	44					0
06								
07								
08								
09								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

ADVISORY
QC LIMITS

S1 (TCX) = Tetrachloro-m-xylene (30-150)
S2 (DCB) = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

FORM 3
WATER AROCLOR LAB CONTROL SAMPLE

Lab Name: PACE ANALYTICAL SERVICES, Contract:

Lab Code: Case No.: 042242 SAS No.: SDG No.: 000

Matrix Spike - Sample No.: LCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Aroclor-1248	2.50		2.39	96	55-145

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor-1248	2.50	2.00	80	18	25	55-145

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS: Project 04-2280 associated with QC from project 04-2242.

Project Number 04-2280

General Chemistry

Pace Analytical Services, Inc.
Matrix Spike/Matrix Spike Duplicate Summary

Pace Project Number 04-2280
Pace Sample Number Batch

Compound	Spike Added	Sample Concentration	Matrix Spike Concentration	Matrix Spike % Recovery	#	Limits Recovery
	mg/L	mg/L	mg/L	%		%
Cyanide	0.1	0	0.0988	98.80		
Fluoride	4	0.453	5.17	122.00		

Column used to flag recovery and RPD values with an asterick
* Values outside of QC Limits
Comments:

APPENDIX B-3

LABORATORY ANALYTICAL REPORT FOR
SEPTEMBER 2004 MONITORING EVENT

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October 22, 2004

Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Dear Mr. Fargo:

Enclosed are analytical results for samples submitted to Pace Analytical by Hydro Systems Management, Inc.. The samples were received on September 30, 2004. The results reported in this project meet the requirements as specified in Chapter 5 of the NELAC Standards. Any deviations or discrepancies from the NELAC standards are documented in the case narrative(s) of this report. Please reference Pace project number 04-4657 when inquiring about this report.

Client Site: Reduction Mill
Client Ref.: HM00318

Pace Sample Identification	Client Sample Identification
0409-2785	MW-2
0409-2786	MW-5
0409-2787	MW-12
0409-2788	MW-12D
0409-2789	MW-16
0409-2790	MW-18
0409-2791	MW-28
0409-2792	MW-31
0409-2793	MW-31D

Pace Sample Identification	Client Sample Identification
0409-2794	MW-32
0409-2795	MW-35
0409-2796	MW-36
0409-2797	MW-37
0409-2798	MW-44S
0409-2799	MW-44D
0409-2800	Field Blank
0409-2801	Trip Blank

General Comments: Cooler temperature 6 ° C upon receipt. Ice was present.

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Please call me if you have any questions regarding the information contained within this report.

Sincerely,

Rachel D. Christner
Project Coordinator

RDC: jld

Enclosures

Page 1 of ____

cc: John Reggi, Ormet Primary Aluminum Corporation

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2785**
Client Sample ID: MW-2
Sample Matrix: Aqueous

Date Sampled: 09/30/2004
Date Received: 09/30/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	4.6	0.010	mg/l	TAT	10/12/2004	0034060-1	<0.010
Cyanide (Total)	335.2(1)	13	0.010	mg/l	TAT	10/06/2004	0033947-1	<0.010
Fluoride	340.2(1)	54	0.10	mg/l	TAT	10/13/2004	0034107-1	0.25
pH	150.1(1)	9.55	1.00	pH	ALR	09/30/2004	0033811-1	5.77
Specific Conductance	120.1(1)	1600	1.0	umhos/cm	ALR	09/30/2004	0033810-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.069	0.0040	mg/l	CS0	10/06/2004	0033828-1	<0.0040
Beryllium	6010B(2)	0.00081	0.00050	mg/l	CS0	10/06/2004	0033828-1	<0.00050
Manganese	6010B(2)	0.88	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010
Sodium	6010B(2)	350	0.50	mg/l	CS0	10/06/2004	0033828-1	<0.50
Vanadium	6010B(2)	0.049	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.020	0.0050	mg/l	MAK	10/08/2004	0034023-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2786**
Client Sample ID: MW-5
Sample Matrix: Aqueous

Date Sampled: 09/29/2004
Date Received: 09/30/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.34	0.010	mg/l	TAT	10/12/2004	0034060-1	<0.010
Cyanide (Total)	335.2(1)	3.7	0.010	mg/l	TAT	10/06/2004	0033947-1	<0.010
Fluoride	340.2(1)	19	0.10	mg/l	TAT	10/13/2004	0034107-1	0.25
pH	150.1(1)	7.88	1.00	pH	ALR	09/30/2004	0033811-1	5.77
Specific Conductance	120.1(1)	1300	1.0	umhos/cm	ALR	09/30/2004	0033810-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0046	0.0040	mg/l	CS0	10/06/2004	0033828-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	10/06/2004	0033828-1	<0.00050
Manganese	6010B(2)	0.52	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010
Sodium	6010B(2)	210	0.50	mg/l	CS0	10/06/2004	0033828-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	<0.0050	0.0050	mg/l	MAK	10/08/2004	0034023-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2787**
Client Sample ID: MW-12
Sample Matrix: Aqueous

Date Sampled: 09/28/2004
Date Received: 09/30/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	10/06/2004	0033947-1	<0.010
Fluoride	340.2(1)	0.61	0.10	mg/l	TAT	10/13/2004	0034107-1	0.25
pH	150.1(1)	7.52	1.00	pH	ALR	09/30/2004	0033811-1	5.77
Specific Conductance	120.1(1)	540	1.0	umhos/cm	ALR	09/30/2004	0033810-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	10/06/2004	0033828-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	10/06/2004	0033828-1	<0.00050
Manganese	6010B(2)	1.9	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010
Sodium	6010B(2)	30	0.50	mg/l	CS0	10/06/2004	0033828-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(2)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1221	8082(2)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1232	8082(2)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1242	8082(2)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1248	8082(2)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1254	8082(2)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1260	8082(2)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50
PCB Total-TCL	8082(2)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50

(1) U.S. Environmental Protection Agency, 1983. Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2788**
Client Sample ID: MW-12D
Sample Matrix: Aqueous

Date Sampled: 09/28/2004
Date Received: 09/30/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	10/06/2004	0033947-1	<0.010
Fluoride	340.2(1)	0.59	0.10	mg/l	TAT	10/13/2004	0034107-1	0.25
pH	150.1(1)	7.53	1.00	pH	ALR	09/30/2004	0033811-1	5.77
Specific Conductance	120.1(1)	540	1.0	umhos/cm	ALR	09/30/2004	0033810-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	10/06/2004	0033828-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	10/06/2004	0033828-1	<0.00050
Manganese	6010B(2)	1.9	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010
Sodium	6010B(2)	30	0.50	mg/l	CS0	10/06/2004	0033828-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(2)	<0.53	0.53	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1221	8082(2)	<0.53	0.53	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1232	8082(2)	<0.53	0.53	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1242	8082(2)	<0.53	0.53	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1248	8082(2)	<0.53	0.53	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1254	8082(2)	<0.53	0.53	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1260	8082(2)	<0.53	0.53	ug/l	RDJ	10/07/2004	0033885-1	<0.50
PCB Total-TCL	8082(2)	<0.53	0.53	ug/l	RDJ	10/07/2004	0033885-1	<0.50

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2789**
Client Sample ID: MW-16
Sample Matrix: Aqueous

Date Sampled: 09/29/2004
Date Received: 09/30/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	3.1	0.010	mg/l	TAT	10/12/2004	0034060-1	<0.010
Cyanide (Total)	335.2(1)	12	0.010	mg/l	TAT	10/07/2004	0033957-1	<0.010
Fluoride	340.2(1)	56	0.10	mg/l	TAT	10/13/2004	0034107-1	0.25
pH	150.1(1)	8.10	1.00	pH	ALR	09/30/2004	0033811-1	5.77
Specific Conductance	120.1(1)	1400	1.0	umhos/cm	ALR	09/30/2004	0033810-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0053	0.0040	mg/l	CS0	10/06/2004	0033828-1	<0.0040
Beryllium	6010B(2)	0.0011	0.00050	mg/l	CS0	10/06/2004	0033828-1	<0.00050
Manganese	6010B(2)	1.2	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010
Sodium	6010B(2)	270	0.50	mg/l	CS0	10/06/2004	0033828-1	<0.50
Vanadium	6010B(2)	0.027	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2790**
Client Sample ID: MW-18
Sample Matrix: Aqueous

Date Sampled: 09/29/2004
Date Received: 09/30/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	22	0.010	mg/l	TAT	10/12/2004	0034060-1	<0.010
Cyanide (Total)	335.2(1)	35	0.010	mg/l	TAT	10/07/2004	0033957-1	<0.010
Fluoride	340.2(1)	42	0.10	mg/l	TAT	10/13/2004	0034107-1	0.25
pH	150.1(1)	9.30	1.00	pH	ALR	09/30/2004	0033811-1	5.77
Specific Conductance	120.1(1)	1800	1.0	umhos/cm	ALR	09/30/2004	0033810-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.17	0.0040	mg/l	CS0	10/06/2004	0033828-1	<0.0040
Beryllium	6010B(2)	0.012	0.00050	mg/l	CS0	10/06/2004	0033828-1	<0.00050
Manganese	6010B(2)	13	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010
Sodium	6010B(2)	380	0.50	mg/l	CS0	10/06/2004	0033828-1	<0.50
Vanadium	6010B(2)	0.43	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.0097	0.0050	mg/l	MAK	10/08/2004	0034023-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2791**
Client Sample ID: MW-28
Sample Matrix: Aqueous

Date Sampled: 09/29/2004
Date Received: 09/30/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	0.12	0.010	mg/l	TAT	10/12/2004	0034060-1	<0.010
Cyanide (Total)	335.2(1)	0.25	0.010	mg/l	TAT	10/07/2004	0033957-1	<0.010
Fluoride	340.2(1)	0.34	0.10	mg/l	TAT	10/13/2004	0034107-1	0.25
pH	150.1(1)	5.84	1.00	pH	ALR	09/30/2004	0033811-1	5.77
Specific Conductance	120.1(1)	410	1.0	umhos/cm	ALR	09/30/2004	0033810-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	10/06/2004	0033828-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	10/06/2004	0033828-1	<0.00050
Manganese	6010B(2)	0.030	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010
Sodium	6010B(2)	53	0.50	mg/l	CS0	10/06/2004	0033828-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2792**
Client Sample ID: MW-31
Sample Matrix: Aqueous

Date Sampled: 09/29/2004
Date Received: 09/30/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	10/12/2004	0034060-1	<0.010
Cyanide (Total)	335.2(1)	15	0.010	mg/l	TAT	10/07/2004	0033957-1	<0.010
Fluoride	340.2(1)	81	0.10	mg/l	TAT	10/13/2004	0034107-1	0.25
pH	150.1(1)	9.50	1.00	pH	ALR	09/30/2004	0033811-1	5.77
Specific Conductance	120.1(1)	1800	1.0	umhos/cm	ALR	09/30/2004	0033810-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.044	0.0040	mg/l	CS0	10/06/2004	0033828-1	<0.0040
Beryllium	6010B(2)	0.0018	0.00050	mg/l	CS0	10/06/2004	0033828-1	<0.00050
Manganese	6010B(2)	1.6	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010
Sodium	6010B(2)	400	0.50	mg/l	CS0	10/06/2004	0033828-1	<0.50
Vanadium	6010B(2)	0.087	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.041	0.0050	mg/l	MAK	10/08/2004	0034023-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2793**
Client Sample ID: MW-31D
Sample Matrix: Aqueous

Date Sampled: 09/29/2004
Date Received: 09/30/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	10/12/2004	0034060-1	<0.010
Cyanide (Total)	335.2(1)	15	0.010	mg/l	TAT	10/07/2004	0033957-1	<0.010
Fluoride	340.2(1)	95	0.10	mg/l	TAT	10/13/2004	0034107-1	0.25
pH	150.1(1)	9.52	1.00	pH	ALR	09/30/2004	0033811-1	5.77
Specific Conductance	120.1(1)	1800	1.0	umhos/cm	ALR	09/30/2004	0033810-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.044	0.0040	mg/l	CS0	10/06/2004	0033828-1	<0.0040
Beryllium	6010B(2)	0.0019	0.00050	mg/l	CS0	10/06/2004	0033828-1	<0.00050
Manganese	6010B(2)	1.7	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010
Sodium	6010B(2)	410	0.50	mg/l	CS0	10/06/2004	0033828-1	<0.50
Vanadium	6010B(2)	0.093	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	0.043	0.0050	mg/l	MAK	10/08/2004	0034023-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2794**
Client Sample ID: MW-32
Sample Matrix: Aqueous

Date Sampled: 09/29/2004
Date Received: 09/30/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	<0.010	0.010	mg/l	TAT	10/12/2004	0034060-1	<0.010
Cyanide (Total)	335.2(1)	13	0.010	mg/l	TAT	10/07/2004	0033957-1	<0.010
Fluoride	340.2(1)	90	0.10	mg/l	TAT	10/13/2004	0034107-1	0.25
pH	150.1(1)	9.72	1.00	pH	ALR	09/30/2004	0033811-1	5.77
Specific Conductance	120.1(1)	1600	1.0	umhos/cm	ALR	09/30/2004	0033810-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.091	0.0040	mg/l	CS0	10/06/2004	0033828-1	<0.0040
Beryllium	6010B(2)	0.0026	0.00050	mg/l	CS0	10/06/2004	0033828-1	<0.00050
Manganese	6010B(2)	2.6	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010
Sodium	6010B(2)	360	0.50	mg/l	CS0	10/06/2004	0033828-1	<0.50
Vanadium	6010B(2)	0.16	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Export, PA 15632
Phone: 724.733.1161
Fax: 724.327.7793

Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2795**
Client Sample ID: MW-35
Sample Matrix: Aqueous

Date Sampled: 09/29/2004
Date Received: 09/30/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	2.9	0.010	mg/l	TAT	10/12/2004	0034060-1	<0.010
Cyanide (Total)	335.2(1)	5.5	0.010	mg/l	TAT	10/07/2004	0033957-1	<0.010
Fluoride	340.2(1)	7.5	0.10	mg/l	TAT	10/13/2004	0034107-1	0.25
pH	150.1(1)	8.04	1.00	pH	ALR	09/30/2004	0033811-1	5.77
Specific Conductance	120.1(1)	430	1.0	umhos/cm	ALR	09/30/2004	0033810-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0096	0.0040	mg/l	CS0	10/06/2004	0033828-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	10/06/2004	0033828-1	<0.00050
Manganese	6010B(2)	0.61	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010
Sodium	6010B(2)	48	0.50	mg/l	CS0	10/06/2004	0033828-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2796**
Client Sample ID: MW-36
Sample Matrix: Aqueous

Date Sampled: 09/29/2004
Date Received: 09/30/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	2.3	0.010	mg/l	TAT	10/12/2004	0034060-1	<0.010
Cyanide (Total)	335.2(1)	4.9	0.010	mg/l	TAT	10/07/2004	0033957-1	<0.010
Fluoride	340.2(1)	52	0.10	mg/l	TAT	10/13/2004	0034107-1	0.25
pH	150.1(1)	9.63	1.00	pH	ALR	09/30/2004	0033811-1	5.77
Specific Conductance	120.1(1)	1000	1.0	umhos/cm	ALR	09/30/2004	0033810-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.047	0.0040	mg/l	CS0	10/06/2004	0033828-1	<0.0040
Beryllium	6010B(2)	0.00077	0.00050	mg/l	CS0	10/06/2004	0033828-1	<0.00050
Manganese	6010B(2)	0.56	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010
Sodium	6010B(2)	220	0.50	mg/l	CS0	10/06/2004	0033828-1	<0.50
Vanadium	6010B(2)	0.050	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2797**
Client Sample ID: MW-37
Sample Matrix: Aqueous

Date Sampled: 09/29/2004
Date Received: 09/30/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Amenable)	335.1(1)	2.0	0.010	mg/l	TAT	10/12/2004	0034060-1	<0.010
Cyanide (Total)	335.2(1)	4.1	0.010	mg/l	TAT	10/07/2004	0033957-1	<0.010
Fluoride	340.2(1)	8.8	0.10	mg/l	TAT	10/13/2004	0034107-1	0.25
pH	150.1(1)	6.58	1.00	pH	ALR	09/30/2004	0033811-1	5.77
Specific Conductance	120.1(1)	520	1.0	umhos/cm	ALR	09/30/2004	0033810-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	0.0055	0.0040	mg/l	CS0	10/06/2004	0033828-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	10/06/2004	0033828-1	<0.00050
Manganese	6010B(2)	2.1	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010
Sodium	6010B(2)	85	0.50	mg/l	CS0	10/06/2004	0033828-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

Sample Comments: Results reported on an as received basis.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2798**
Client Sample ID: MW-44S
Sample Matrix: Aqueous

Date Sampled: 09/28/2004
Date Received: 09/30/2004

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(1)	<0.52	0.52	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1221	8082(1)	<0.52	0.52	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1232	8082(1)	<0.52	0.52	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1242	8082(1)	<0.52	0.52	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1248	8082(1)	<0.52	0.52	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1254	8082(1)	<0.52	0.52	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1260	8082(1)	<0.52	0.52	ug/l	RDJ	10/07/2004	0033885-1	<0.50
PCB Total-TCL	8082(1)	<0.52	0.52	ug/l	RDJ	10/07/2004	0033885-1	<0.50

(1) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2799**
Client Sample ID: MW-44D
Sample Matrix: Aqueous

Date Sampled: 09/28/2004
Date Received: 09/30/2004

Pesticides/PCB

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Polychlorinated Biphenyls, ECD								
Aroclor-1016	8082(1)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1221	8082(1)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1232	8082(1)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1242	8082(1)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1248	8082(1)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1254	8082(1)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50
Aroclor-1260	8082(1)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50
PCB Total-TCL	8082(1)	<0.51	0.51	ug/l	RDJ	10/07/2004	0033885-1	<0.50

(1) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2800**
Client Sample ID: Field Blank
Sample Matrix: Aqueous

Date Sampled: 09/30/2004
Date Received: 09/30/2004

General Chemistry

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Cyanide (Total)	335.2(1)	<0.010	0.010	mg/l	TAT	10/07/2004	0033957-1	<0.010
Fluoride	340.2(1)	<0.10	0.10	mg/l	TAT	10/13/2004	0034107-1	0.25
pH	150.1(1)	5.99	1.00	pH	ALR	09/30/2004	0033811-1	5.77
Specific Conductance	120.1(1)	1.1	1.0	umhos/cm	ALR	09/30/2004	0033810-1	<1.0

Metals

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Trace Metals, Dissolved, ICP								
Arsenic	6010B(2)	<0.0040	0.0040	mg/l	CS0	10/06/2004	0033828-1	<0.0040
Beryllium	6010B(2)	<0.00050	0.00050	mg/l	CS0	10/06/2004	0033828-1	<0.00050
Manganese	6010B(2)	<0.010	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010
Sodium	6010B(2)	<0.50	0.50	mg/l	CS0	10/06/2004	0033828-1	<0.50
Vanadium	6010B(2)	<0.010	0.010	mg/l	CS0	10/06/2004	0033828-1	<0.010

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B(2)	<0.0050	0.0050	mg/l	MAK	10/08/2004	0034023-1	<0.0050

(1) U.S. Environmental Protection Agency, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio.
(2) U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Mr. Robert L. Fargo (Principal/Senior Consultant)
Hydro Systems Management, Inc.
331 South Main St.
Suite 109
Washington, PA 15301

Client Site: Reduction Mill
Client Ref.: HM00318

Lab Project ID: **04-4657**
Lab Sample ID: **0409-2801**
Client Sample ID: Trip Blank
Sample Matrix: Aqueous

Date Sampled: 09/30/2004
Date Received: 09/30/2004

Volatiles

Test	Method	Result	Reporting Limit	Units	Analyst	Analysis Date	Method Blank ID	Blank Result
Volatile Organic Compounds, MS								
Tetrachloroethene	8260B[1]	<0.0050	0.0050	mg/l	MAK	10/08/2004	0034023-1	<0.0050

[1] U.S. Environmental Protection Agency, 1996, Test Methods for Evaluating Solid Waste, SW-846, 3rd ed., Office of Solid Waste and Emergency Response, Washington, DC.

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Project Number _____

Chain of Custody
and
Sample Condition upon Receipt Form

HMI
Environmental Consulting Services

LABORATORY TASK ORDER

DATE: 9-20-04

FROM:	HydroSystems Management, Inc. Glass Works Center - Suite 109 331 South Main Street Washington, PA 15301 (724) 228-4310 (724) 228-4343 FAX	TO:	PACE ANALYTICAL SERVICES, INC. 5203 TRIANGLE LANE EXPORT PA 15632 (724) 733-1161 / (724) 327-7793
CONTACT:	STEVE MENOSKY	ATTENTION:	RACHEL CHRISTNER
Project Number:	HM00318	Estimated Sample Delivery Date	WEEK OF 9/27/04
Date Bottles Required	9-23-04	Laboratory Report Due Date	STANDARD TURNAROUND
Shipping Address	SAME AS ABOVE	Send Reports To:	STEVE MENOSKY @ HMI

ANALYTICAL AND CONTAINER INFORMATION

Parameter	Analytical Method	Detection Limits	Matrix	Number of Bottles/Sets	Bottle Size	Bottle Type	Preservative
DISSOLVED ARSENIC	SW846/6010 TRACE	0.004 mg/L	WATER	14			
DISSOLVED BERYLLIUM	SW846/6010 TRACE	0.0005 mg/L					
DISSOLVED MANGANESE	SW846/6010	0.01 mg/L					
DISSOLVED SODIUM	SW846/6010	0.5 mg/L					
DISSOLVED VANADIUM	SW846/6010	0.01 mg/L					
* ALSO SEND (14) UNPRESERVED EMPTY	PLASTIC BOTTLES TO	FILTER FROM				TO BE DETERMINED	
CYANIDE - TOTAL	SW846/9010A	0.01 mg/L	WATER	14		BY LAB	
CYANIDE - AMENABLE	SW846/9010A	0.01 mg/L					
FLUORIDE	EPA 340.2	0.1 mg/L					
pH	EPA 150.1	S.U.					
SPECIFIC CONDUCTANCE	EPA 120.1	1 mmhos/cm					
TETRACHLOROETHENE	SW846/8260	0.005 mg/L		9			
PCB'S	SW846/8082	0.5 mg/L		4			
TRIP BLANKS	SW846/8260	(MICRO) 0.005 mg/L		2			

HMI
Environmental Consulting Services

CHAIN-OF-CUSTODY RECORD

04 4657

Project Number	Project Name/Location	Laboratory	Sampling Personnel
HM00318	ORMET/HANNIBAL OH	PACE ANALYTICAL	S. MENOSKY

Sample ID	Date/Time	Sample Code	500ml. PLASTIC pH, Spec. Cond., F (4°C)	250ml. PLASTIC DISS. As, Ba, Mn, Na, V FIELD FILTERED (HNO_3)	250 ml. PLASTIC TOTAL/AMENABLE CYANIDE* (NAOH)	40ml. GLASS TETRACHLOROETHENE (HCL)	1 LITER AMBER GLASS PCB'S (4°C)					TOTAL
MW-2	9-30-04	L	1	1	1	3					2285	6
MW-5	9-29-04		1	1	1	3					86	6
MW-12	9-28-04		1	1	1		2				87	5
MW-12D	9-28-04		1	1	1		2				88	5
MW-16	9-29-04		1	1	1						89	3
MW-18			1	1	1	3					90	6
MW-28			1	1	1						91	3
MW-31			1	1	1	3					92	6
MW-31D			1	1	1	3					93	6
MW-32			1	1	1						94	3
MW-35			1	1	1						95	3
MW-36			1	1	1						96	3
MW-37			1	1	1						97	3
MW-44S	9-28-04						2				98	2
MW-44D	9-28-04						2				99	2

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

Total Number of Containers: 62

Relinquished by:	Steve C. Menosky	Organization:	HMI	Date:	9-30-04	Time:	1:30
Received by:	[illegible]	Organization:	Pace	Date:	9-30-04	Time:	1:30
Relinquished by:	[illegible]	Organization:	Pace	Date:	9-30-04	Time:	6:00
Received by:		Organization:		Date:		Time:	

Seal Intact? Yes No (NA)

Seal Intact? Yes No NA

REMARKS: *ANALYZE AMENABLE CYANIDE ONLY IF TOTAL CYANIDE IS DETECTED.
SAMPLES IN TWO COOLERS

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

60

HMI
Environmental Consulting Services

CHAIN-OF-CUSTODY RECORD

04 4657

Project Number	Project Name/Location	Laboratory	Sampling Personnel
HM00318	OAMET/ HANNIBAL OH	PACE ANALYTICAL	S. MENOSKY

Sample ID	Date/Time	Sample Code	500ml. PLASTIC pH, Spec. Cond., F (4°C)	250ml. PLASTIC DISS. As, Ba, Mn, Na, V FIELD FILTERED (HNO_3)	250ml. PLASTIC TOTAL/AMENABLE CYANIDE * (NAOH)	40ml. GLASS TETRACHLOROETHENE (HCL)						TOTAL
FIELD BLANK		L	1	1	1	3					2800	6
TRIP BLANK		L				3					2801	3

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

Total Number of Containers: 9

Relinquished by:	Steve Menosky	Organization:	HMI	Date:	9-30-04	Time:	1:30
Received by:	[illegible]	Organization:	PACE	Date:	9-30-04	Time:	1:30
Relinquished by:	[illegible]	Organization:	Pace	Date:	9-30	Time:	6:00
Received by:		Organization:		Date:		Time:	

Seal Intact? Yes No (NA)

Seal Intact? Yes No NA

REMARKS: * ANALYZE AMENABLE CYANIDE ONLY IF TOTAL CYANIDE IS DETECTED

DELIVERY METHOD: In Person [ ] Common Carrier [ ] Lab Courier [PACE] (60) Other [ ]

Pace Analytical Services – Pittsburgh

Sample Condition Upon Receipt Checklist

Pace Analytical Project Number: 09 4657

Client: CRMET **Date:** 9-30-09 **Rec. by:** JEH

Site: _____

Sample Received Via:	Shipping Container:	Packing Material:	Custody seals:
UPS	Cooler	Bubble Wrap	Present Yes No
Federal Express	Box	Bubble Bags	Intact Yes No
Airborne	None	Paper	Container Taped:
Mail	Other	Peanuts	Yes No
Pace Courier		None	
Client			

Chain of Custody (COC) Information

Include details on the back of this form for all items marked NO

Sampler name & signature on COC?		NA	Yes	No
Information on the sample bottles match COC?	**Date, Time, ID, Test**	NA	Yes	No
Sample preservation section completed properly?	**Bottles, Preservative**	NA	Yes	No
Is matrix code section completed properly?		NA	Yes	No
Chain of Custody relinquished properly?		NA	Yes	No
Were all samples received listed on COC?		NA	Yes	No
Are tests requested listed on COC?		NA	Yes	No

Sample Integrity

Include details on the back of this form for all items marked NO

Samples received on ice?	Temp: 6 C	NA	Yes	No
Vials head space free?		NA	Yes	No
Pace container(s) used?		NA	Yes	No
Samples collected in EPA recommended containers?		NA	Yes	No
All samples intact?		NA	Yes	No
All samples received within hold time?		NA	Yes	No
All samples preserved correctly?		NA	Yes	No
Sufficient sample volume received for each sample?		NA	Yes	No
Was the chlorine level less than 0.1 mg/l?		NA	Yes	No

Radioactivity Level: _____ **or NDA**

09 2800 3 VOA To many

Sample Bottle Code (Please complete only if there is a discrepancy on the COC)

Item #	Matrix Code	Date Collected	Time Collected	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2SO4	Methanol	Other	Details
09 2785				CHEM 500		DM 250	3VOA	C.V 250				
86												
87				CHEM 500 20X1GA								
88												
89				500 CHEM			~~3VOA~~					
90							3VOA					
91												
92							3VOA					
93							3VOA					
94												
97												
98				20X1GA								
99												

Client Sample ID	Sample Discrepancy					
2800	CHEM 500		DM 250	6VOA	C.V 250	
2801				3VOA		

General Comments:

Pace Analytical

Metals Data Reporting Form

Initial Calibration Verification Standard

Instrument: ICP **Units:** ug/L

Chart Number: D1006A.ARC **Acceptable Range:** 95% - 105%

Standard Source: High-Purity **Standard ID:**

Element	WL/ Mass	True Conc	ICV 10/6/2004 8:04 AM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Arsenic	189.042	2000.0	1993.20	**99.7**								
Beryllium	313.042	2000.0	1963.88	**98.2**								
Manganese	257.61	2000.0	1990.22	**99.5**								
Sodium	330.232	10000.0	9918.78	**99.2**								
Vanadium	292.402	2000.0	1945.31	**97.3**								

Pace Analytical

Metals Data Reporting Form

Continuing Calibration Verification

Instrument: ICP **Units:** ug/L

Chart Number: D1006A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Inorganic Ventures **Standard ID:**

Element	WL/ Mass	True Conc	CCV 10/6/2004 9:55 AM		CCV 10/6/2004 11:03 AM		CCV 10/6/2004 11:58 AM		CCV 10/6/2004 3:22 PM		CCV 10/6/2004 4:26 PM	
			Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Arsenic	189.042	1000.0	992.92	**99.3**	989.05	**98.9**	1008.92	**100.9**	989.85	**99.0**	992.58	**99.3**
Beryllium	313.042	1000.0	996.31	**99.6**	996.88	**99.7**	1004.29	**100.4**	987.31	**98.7**	987.43	**98.7**
Manganese	257.61	1000.0	1002.09	**100.2**	1003.38	**100.3**	1003.04	**100.3**	984.77	**98.5**	987.72	**98.8**
Sodium	330.232	5000.0	4973.06	**99.5**	4782.24	**95.6**	4925.36	**98.5**	5030.26	**100.6**	4715.57	**94.3**
Vanadium	292.402	1000.0	984.28	**98.4**	988.98	**98.9**	988.46	**98.8**	981.33	**98.1**	987.74	**98.8**

Pace Analytical

Metals Data Reporting Form

Continuing Calibration Verification

strument: ICP **Units:** ug/L

Chart Number: D1006A.ARC **Acceptable Range:** 90% - 110%

Standard Source: Inorganic Ventures **Standard ID:**

Element	WL/ Mass	True Conc	CCV 10/6/2004 5:36 PM		CCV 10/6/2004 6:38 PM		CCV 10/6/2004 7:18 PM					
			Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Arsenic	189.042	1000.0	992.92	99.3	996.96	99.7	989.67	99.0				
Beryllium	313.042	1000.0	985.63	98.6	985.65	98.6	988.37	98.8				
Manganese	257.61	1000.0	988.61	98.9	986.86	98.7	990.59	99.1				
Sodium	330.232	5000.0	4965.49	99.3	4974.53	99.5	4970.82	99.4				
Vanadium	292.402	1000.0	991.49	99.1	985.20	98.5	993.63	99.4				

Pace Analytical

Metals Data Reporting Form

tial Calibration Blank Results

Instrument: ICP **Units:** ug/L

Chart Number: D1006A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Blank 10/6/2004 8:50 AM Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Arsenic	189.042	5	1.7	U								
Beryllium	313.042	1	0.1	U								
Manganese	257.61	10	0.2	U								
Sodium	330.232	5000	170.0	U								
Vanadium	292.402	10	0.4	U								

U Result is less than the MDL
B Result is between MDL and RL

Form 3 Equivalent

Pace Analytical

Metals Data Reporting Form

Continuing Calibration Blank Result

Instrument: ICP **Units:** ug/L

Chart Number: D1006A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Blank 10/6/2004 10:07 AM		Blank 10/6/2004 11:15 AM		Blank 10/6/2004 12:10 PM		Blank 10/6/2004 3:39 PM		Blank 10/6/2004 4:38 PM	
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Arsenic	189.042	5	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Beryllium	313.042	1	**0.2**	**B**	**0.1**	**B**	0.1	U	**0.1**	**B**	0.1	U
Manganese	257.61	10	**0.2**	**B**	0.2	U	0.2	U	**0.2**	**B**	0.2	U
Sodium	330.232	5000	170.0	U	170.0	U	170.0	U	170.0	U	170.0	U
Vanadium	292.402	10	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U

U Result is less than the MDL

B Result is between MDL and RL

Form 3 Equivalent

Pace Analytical

Metals Data Reporting Form

Continuing Calibration Blank Result

Instrument: ICP **Units:** ug/L

Chart Number: D1006A.ARC

Standard Source: _____ **Standard ID:** _____

Element	WL/ Mass	Report Limit	Blank 10/6/2004 5:52 PM		Blank 10/6/2004 7:01 PM		Blank 10/6/2004 7:50 PM					
			Found	Q	Found	Q	Found	Q	Found	Q	Found	Q
Arsenic	189.042	5	1.7	U	1.7	U	1.7	B				
Beryllium	313.042	1	0.1	U	0.1	U	0.1	U				
Manganese	257.61	10	0.2	U	0.2	U	0.2	U				
Sodium	330.232	5000	170.0	U	170.0	U	170.0	U				
Vanadium	292.402	10	-0.7	B	0.4	U	0.4	U				

U Result is less than the MDL

B Result is between MDL and RL

Form 3 Equivalent

Pace Analytical

Metals Data Reporting Form

Preparation Blank Results

Lab Sample ID: QC33828MB

Matrix: Water **Units:** ug/L **Prep Date:** 10/5/2004 **Prep Batch:** 123456

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	IDL	Report Limit	Conc	Q	DF	Instr	Anal Date	Anal Time
Arsenic	**189.042**	**1.7**	**5.0**	**3.8**	**B**	**1**	**ICP**	**10/6/2004**	**10:23**
Beryllium	313.042	0.070	1.0	0.070	U	1	ICP	10/6/2004	10:23
Manganese	257.61	0.20	10.0	0.20	U	1	ICP	10/6/2004	10:23
Sodium	**330.232**	**170**	**5000**	**199**	**B**	**1**	**ICP**	**10/6/2004**	**10:23**
Vanadium	292.402	0.40	10.0	0.40	U	1	ICP	10/6/2004	10:23

Comments:

Version 4.80.0

U Result is less than the MDL
B Result is between MDL and RL

Form 3 Equivalent

Pace Analytical

Metals Data Reporting Form

Interference Check Standard A

strument: ICP **Units:** ug/L

Chart Number: D1006A.ARC **Acceptable Range:** 0% - 0%

Standard Source: Inorganic Ventures **Standard ID:**

Element	WL/ Mass	Reporting Limit	True Conc	ICSA 10/6/2004 7:54 PM Found	Found	Found	Found	Found
Arsenic	189.042	5		-2				
Beryllium	313.042	1		0				
Manganese	257.61	10		1				
Sodium	330.232	5000		86				
Vanadium	292.402	10		0				

Version 4.80.0

U Result is less than the MDL

B Result is between MDL and RL

Form 4 Equivalent

Pace Analytical

Metals Data Reporting Form

Interference Check Standard AB

ıstrument: ICP **Units:** ug/L

Chart Number: D1006A.ARC **Acceptable Range:** 0% - 0%

Standard Source: Inorganic Ventures **Standard ID:**

Element	WL/ Mass	True Conc	ICSAB 10/6/2004 7:57 PM Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec	Found	% Rec
Arsenic	189.042	0	0.0	**0.0**								
Beryllium	313.042	500	516.6	**103.3**								
Manganese	257.61	500	505.4	**101.1**								
Sodium	330.232	0	188.9	**0.0**								
Vanadium	292.402	500	502.6	**100.5**								

Version 4.80.0

U Result is less than the MDL
B Result is between MDL and RL
N Spike recovery failed

Form 4 Equivalent

Pace Analytical

Metals Data Reporting Form

Matrix Spike Duplicate RPD Report

Matrix Spike Duplicate Sample ID: QC33828MSD D

Matrix Spike Sample ID: QC33828MS D **Client ID:**

Matrix: Water **Units:** ug/L **Prep Date:** 10/5/2004 **Prep Batch:** 123456

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	MS Conc	Q	MSD Conc	Q	% RPD	MS DF	MSD DF	Instr	MS Anal Date	MS Anal Time	MSD Anal Date	MSD Anal Time
Arsenic	189.042	504		508		0.8	1	1	ICP	10/6/2004	10:40	10/6/2004	10:43
Beryllium	313.042	508		505		0.6	1	1	ICP	10/6/2004	10:40	10/6/2004	10:43
Manganese	257.61	547		545		0.2	1	1	ICP	10/6/2004	10:40	10/6/2004	10:43
Sodium	330.232	2720	B	2590	B	132.7	1	1	ICP	10/6/2004	10:40	10/6/2004	10:43
Vanadium	292.402	501		497		0.9	1	1	ICP	10/6/2004	10:40	10/6/2004	10:43

Comments:

Version 4.80.0

U Result is less than the MDL
B Result is between MDL and RL
N Spike recovery failed
NC Percent recovery was not calculated
R Duplicate analysis RPD was not within limits

Form 6 Equivalent

Pace Analytical

Metals Data Reporting Form

Laboratory Control Sample Results

Lab Sample ID: QC33828LCS

Matrix: Water **Units:** ug/L **Prep Date:** 10/5/2004 **Prep Batch:** 123456

Weight: NA **Volume:** 50 **Percent Moisture:** NA

Element	WL/ Mass	Spike Level	Conc	Percent Recovery	Q	Range	DF	Instr	Anal Date	Anal Time
Arsenic	189.042	500	506	101.2		80-120	1	ICP	10/6/2004	10:26
Beryllium	313.042	500	513	102.6		80-120	1	ICP	10/6/2004	10:26
Manganese	257.61	500	522	104.4		80-120	1	ICP	10/6/2004	10:26
Sodium	330.232	2500	2580	103.1	B	80-120	1	ICP	10/6/2004	10:26
Vanadium	292.402	500	503	100.5		80-120	1	ICP	10/6/2004	10:26

Comments:

U Result is less than the MDL

B Result is between MDL and RL

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name : Pace Analytical Contract :
Project : 04-4657 Site : Location : Group :
Lab File ID (Standard): 21008003.D Date Analyzed : 8 Oct 2004
Instrument ID : GC/MS Ins Time Analyzed : 17:35
GC Column : DB624 ID : .2 Heated Purge (Y:N) : N
Level :

File	Sample	SMC1 (DCE) #	SMC2 (TOL) #	SMC3 (BFB) #	SMC4 #	SMC5 #	SMC6 #	TOTAL OUT
21008005	LCS[20]	109	100	101	0	0	0	0
21008007	VBLK	107	96	102	0	0	0	0
21008009	MW-5	119	100	108	0	0	0	0
21008011	MW-5MS	119	102	104	0	0	0	0
21008013	MW-5MSD	116	101	102	0	0	0	0
21008015	MW-2	122	102	108	0	0	0	0
21008017	MW-18	125	97	106	0	0	0	0
21008019	MW31	124	98	110	0	0	0	0
21008021	MW31D	119	97	111	0	0	0	0
21008023	Trip Blank	127	100	111	0	0	0	0
21008027	Field Blank	130	104	110	0	0	0	0

		QC Limits
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(70 -130)
SMC2 (TOL)	= Toluene-d8	(70 -130)
SMC3 (BFB)	= Bromofluorobenzene	(70 -130)
SMC4	=	(0 -0)
SMC5	=	(0 -0)
SMC6	=	(0 -0)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name : Pace Analytical
Project : 04-4657 Site :
Lab File ID (Standard): 21008003.D
Instrument ID : GC/MS Ins
GC Column : DB624 ID : .2

Contract :
Location : Group :
Date Analyzed : 8 Oct 2004
Time Analyzed : 17:35
Heated Purge (Y:N) : N

	IS1 (FB)		IS2 (CBZ)		IS3 (DCB)	
	Area #	RT #	Area #	RT #	Area #	RT #
12 HOUR STD	133428	4.52	91993	7.59	53490	8.94
UPPER LIMIT	266856	5.02	183986	8.09	106980	9.44
LOWER LIMIT	66714	4.02	45997	7.09	26745	8.44
File ID Sample						
21008005 LCS[20]	138691	4.52	90935	7.59	52826	8.94
21008007 VBLK	138924	4.52	90053	7.58	46654	8.94
21008009 MW-5	135069	4.52	86044	7.59	42805	8.94
21008011 MW-5MS	121933	4.52	80147	7.59	47573	8.94
21008013 MW-5MSD	123932	4.52	82523	7.58	48952	8.94
21008015 MW-2	116934	4.52	76469	7.58	39176	8.94
21008017 MW-18	111382	4.52	73559	7.58	37409	8.94
21008019 MW-31	111445	4.52	68754	7.58	34324	8.94
21008021 MW-31D	113327	4.52	68173	7.59	33811	8.94
21008023 Trip Blk	107747	4.52	64001	7.58	32004	8.94
21008027 Field Blk	105851	4.52	62925	7.59	32423	8.94

IS1 (FB) = Fluorobenzene
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DCB) = 1,4-Dichlorobenzene-d4
AREA UPPER LIMIT = 200% of internal standard area
AREA LOWER LIMIT = 50% of internal standard area
RT UPPER LIMIT = 0.5 minutes of internal standard RT
RT LOWER LIMIT = -0.5 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk
* Values outside of contract required QC limits

Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\2UL10051.M (RTE Integrator)
Title : 8260 Water Concentrator #1
Last Update : Tue Oct 05 14:12:12 2004
Response via : Initial Calibration

n-Spiked Sample: 21008009.D

	Spike Sample	Spike Duplicate Sample
File ID :	21008011.D	21008013.D
Sample :	04-4657 09-2786MS	04-4657 09-2786MSD
Acq Time:	8 Oct 2004 19:25	8 Oct 2004 19:52

Surrogate	Sample Conc	Amnt Added	Sampl %Rec	Spike Conc	Spike %Rec	Dup Conc	Dup %Rec	QC Limits % Rec
1,2-Dichloroethane-d	35.7	30	119	35.7	119	34.8	116	70-130
Toluene-d8	29.9	30	100	30.7	102	30.4	101	70-130
Bromofluorobenzene	32.3	30	108	31.1	104	30.6	102	70-130

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
tert-butyl Me	0.0	20	26	24	127.8	122.5	4.3	30	70-130
1,1,1-Trichlo	0.9	20	30	30	147.9#	146.7#	0.8	30	70-130
Benzene	0.0	20	23	23	113.5	113.1	0.3	30	70-130
1,2-Dichloroe	0.0	20	27	26	132.9#	129.8	2.3	30	70-130
Trichloroethe	0.7	20	24	24	117.7	117.2	0.4	30	70-130
Toluene	0.0	20	23	23	114.5	113.1	1.2	30	70-130
Tetrachloroet	3.5	20	26	25	113.7	109.7	3.5	30	70-130
1,2-Dibromoet	0.0	20	24	23	119.8	116.5	2.8	30	70-130
hylbenzene	0.1	20	22	22	110.9	111.1	0.2	30	70-130
p-Xylene	0.1	40	46	46	115.4	114.3	1.0	30	70-130
o-Xylene	0.0	20	22	22	112.0	111.8	0.2	30	70-130
Xylenes (Tota	0.1	60	69	68	114.3	113.4	0.7	30	70-130
Isopropylbenz	0.0	20	23	23	115.0	113.6	1.2	30	70-130
Naphthalene	0.1	20	19	19	96.4	96.0	0.4	30	70-130

- Fails Limit Check

LCS Blank Summary Report

Data File : D:\DATA\204OC08\1\21008005.D Vial: 5
Acq On : 8 Oct 2004 18:02 Operator: MAK
Sample : LCS[20] Inst : GC/MS Ins
Misc : Multiplr: 1.00
Matrix : WATERrams: LSCINT.P

Method : C:\HPCHEM\1\METHODS\2UL10051.M (RTE Integrator)
Title : 8260 Water Concentrator #1
Last Update : Tue Oct 05 14:12:12 2004
Response via : Single (D:\DATA\204OC07\1\21007003.D 7 Oct 2004 11:38)

		Compound Name	Conc	Added	Recv(%)	QC Range	Q
4)	S	1,2-Dichloroethane-d	32.75	30.00	109.17	70 to 130%	[ ]
9)	S	Toluene-d8	30.04	30.00	100.12	70 to 130%	[ ]
19)	S	Bromofluorobenzene	30.43	30.00	101.44	70 to 130%	[ ]
2)	T	tert-butyl Methyleth	23.95	20.00	119.74	70 to 130%	[ ]
3)	T	1,1,1-Trichloroethan	24.63	20.00	123.14	70 to 130%	[ ]
5)	T	Benzene	19.81	20.00	99.04	70 to 130%	[ ]
6)	T	1,2-Dichloroethane	22.93	20.00	114.63	70 to 130%	[ ]
7)	T	Trichloroethene	20.22	20.00	101.09	70 to 130%	[ ]
10)	T	Toluene	20.20	20.00	100.98	70 to 130%	[ ]
11)	T	Tetrachloroethene	19.53	20.00	97.67	70 to 130%	[ ]
12)	T	1,2-Dibromoethane,ED	22.91	20.00	114.53	70 to 130%	[ ]
13)	T	Ethylbenzene	19.58	20.00	97.91	70 to 130%	[ ]
14)	T	m,p-Xylene	41.00	40.00	102.50	70 to 130%	[ ]
15)	T	o-Xylene	20.11	20.00	100.53	70 to 130%	[ ]
16)	MG	Xylenes (Total)	61.12	60.00	101.86	70 to 130%	[ ]
18)	T	Isopropylbenzene,Cum	20.60	20.00	103.02	70 to 130%	[ ]
20)	T	Naphthalene	19.15	20.00	95.76	70 to 130%	[ ]

* = out of control limits

Quantitation Report (QT Reviewed)

Data File : D:\DATA\204OC08\1\21008005.D
Acq On : 8 Oct 2004 18:02
Sample : LCS[20]
Misc :
MS Integration Params: LSCINT.P
Quant Time: Oct 22 8:44 19104

Vial: 5
Operator: MAK
Inst : GC/MS Ins
Multiplr: 1.00

Quant Results File: 2UL10051.RES

Quant Method : C:\HPCHEM\1\METHODS\2UL10051.M (RTE Integrator)
Title : 8260 Water Concentrator #1
Last Update : Tue Oct 05 14:12:12 2004
Response via : Initial Calibration
DataAcq Meth : 28260
IS QA File : D:\DATA\204OC07\1\21007003.D (7 Oct 2004 11:38)

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min) Rcv(Ar)
1) Fluorobenzene	4.52	96	138691	30.00	ug/l	0.00 102.23%
8) Chlorobenzene-d5	7.59	117	90935	30.00	ug/l	0.00 94.15%
17) 1,4-Dichlorobenzene-d4	8.94	152	52826	30.00	ug/l	0.00 93.29%

System Monitoring Compounds

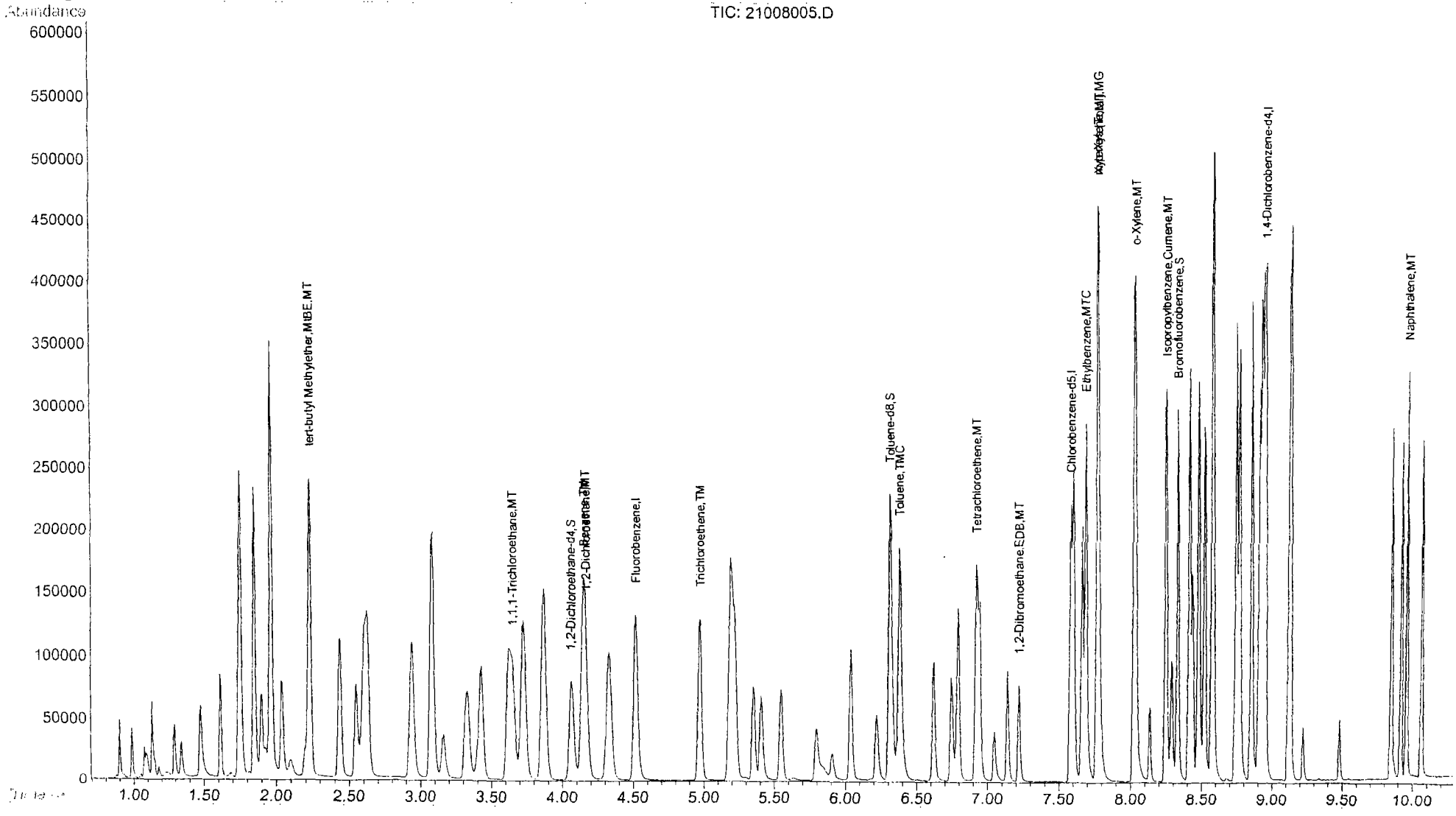
4) 1,2-Dichloroethane-d4	4.06	65	67083	32.75	ug/l	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 109.17%			
9) Toluene-d8	6.31	98	167189	30.04	ug/l	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 100.13%			
19) Bromofluorobenzene	8.33	95	64272	30.43	ug/l	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 101.43%			

Target Compounds						Qvalue
2) tert-butyl Methylether,MtB	2.23	73	113179	23.95	ug/l	98
3) 1,1,1-Trichloroethane	3.66	97	68215	24.63	ug/l	98
5) Benzene	4.15	78	151596	19.81	ug/l	100
6) 1,2-Dichloroethane	4.17	62	60112	22.93	ug/l #	97
7) Trichloroethene	4.98	95	42485	20.22	ug/l	94
10) Toluene	6.38	91	142310	20.20	ug/l	98
11) Tetrachloroethene	6.92	164	35563	19.53	ug/l	97
12) 1,2-Dibromoethane,EDB	7.22	107	36588	22.91	ug/l	100
13) Ethylbenzene	7.69	106	49844	19.58	ug/l	91
14) m,p-Xylene	7.77	106	126228	41.00	ug/l	94
15) o-Xylene	8.02	106	59341	20.11	ug/l	93
16) Xylenes (Total)	7.77	106	185569m	61.12	ug/l #	49
18) Isopropylbenzene,Cumene	8.25	105	158874	20.60	ug/l	98
20) Naphthalene	9.96	128	133615	19.15	ug/l	100

(#) = qualifier out of range (m) = manual integration

Data File : D:\DATA\204OC08\1\21008005.D I: 5
Acq On : 8 Oct 2004 18:02 Operator: MAK
Sample : LCS[20] Inst : GC/MS Ins
Misc : Multiplr: 1.00
MS Integration Params: LSCINT.P
Quant Time: Oct 22 8:44 19104 Quant Results File: 2UL10051.RES

Method : C:\HPCHEM\1\METHODS\2UL10051.M (RTE Integrator)
Title : 8260 Water Concentrator #1
Last Update : Tue Oct 05 14:12:12 2004
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : D:\DATA\204OC08\1\21008007.D
Acq On : 8 Oct 2004 18:30
Sample : VBLK
Misc :
MS Integration Params: LSCINT.P
Quant Time: Oct 11 8:44 19104

Vial: 7
Operator: MAK
Inst : GC/MS Ins
Multiplr: 1.00

Quant Results File: 2UL10051.RES

Quant Method : C:\HPCHEM\1\METHODS\2UL10051.M (RTE Integrator)
Title : 8260 Water Concentrator #1
Last Update : Tue Oct 05 14:12:12 2004
Response via : Initial Calibration
DataAcq Meth : 28260
IS QA File : D:\DATA\204OC07\1\21007003.D (7 Oct 2004 11:38)

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min) Rcv(Ar)
1) Fluorobenzene	4.52	96	138924	30.00	ug/l	0.00 102.40%
8) Chlorobenzene-d5	7.58	117	90053	30.00	ug/l	0.00 93.23%
17) 1,4-Dichlorobenzene-d4	8.94	152	46654	30.00	ug/l	0.00 82.39%

System Monitoring Compounds

4) 1,2-Dichloroethane-d4	4.07	65	65584	31.97	ug/l	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 106.57%			
9) Toluene-d8	6.32	98	158046	28.67	ug/l	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 95.57%			
19) Bromofluorobenzene	8.33	95	56802	30.45	ug/l	0.00
Spiked Amount 30.000	Range 70 - 130		Recovery = 101.50%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

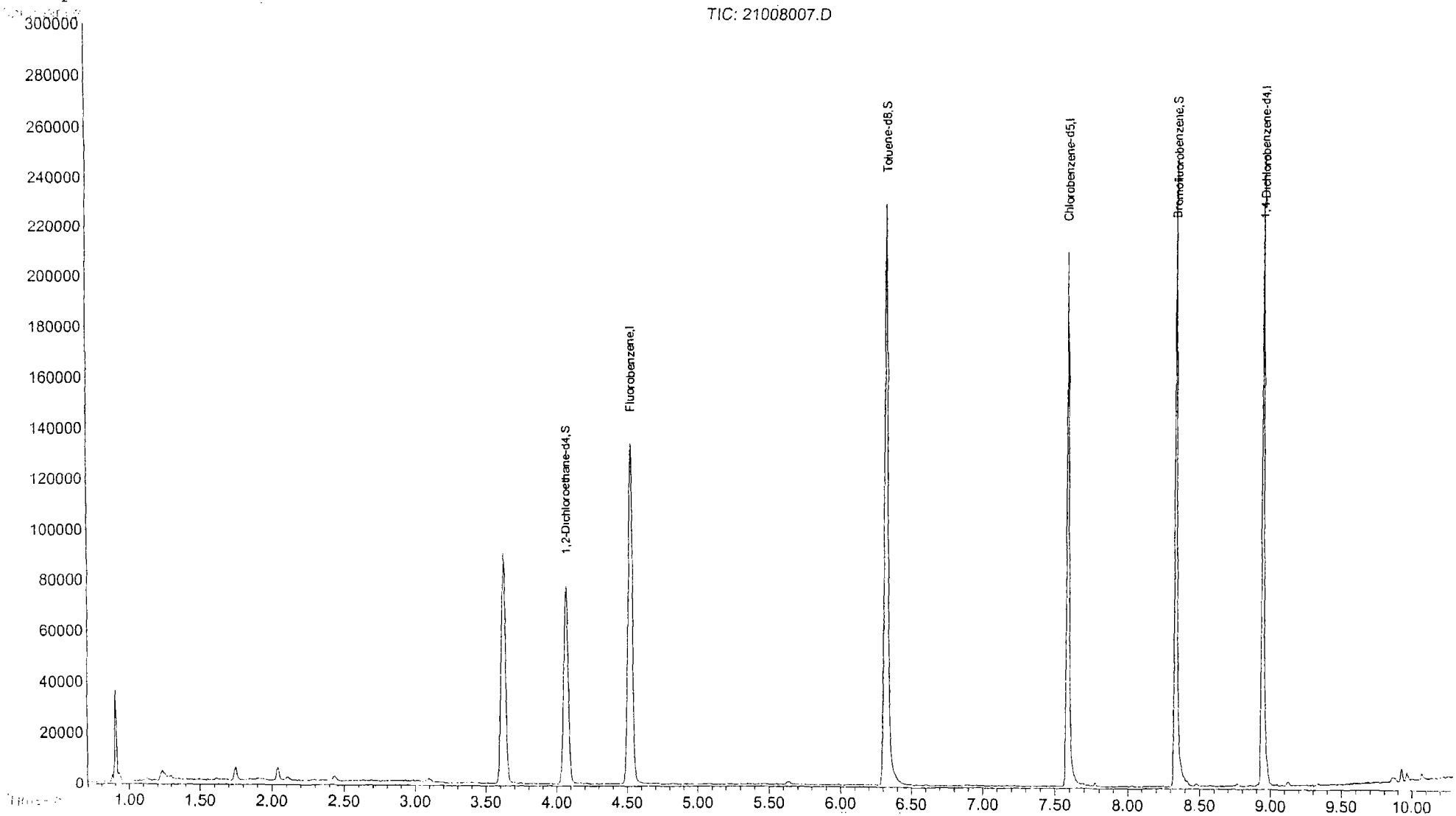
Quantitation Report

Data : D:\DATA\204OC08\1\21008007.D
Acq On : 8 Oct 2004 18:30
Sample : VBLK
Misc :
MS Integration Params: LSCINT.P
Quant Time: Oct 11 8:44 19104

al: 7
Operator: MAK
Inst : GC/MS Ins
Multiplr: 1.00

Quant Results File: 2UL10051.RES

Method : C:\HPCHEM\1\METHODS\2UL10051.M (RTE Integrator)
Title : 8260 Water Concentrator #1
Last Update : Tue Oct 05 14:12:12 2004
Response via : Initial Calibration



Project Number OH-4657

Polychlorinated Biphenyls

2E
WATER AROCLOR SURROGATE RECOVERY

Lab Name: PACE ANALYTICAL SERVICES, Contract:

Lab Code: Case No.: 044657 SAS No.: SDG No.: 044657

GC Column(1): RTX-1701 ID: 0.53 (mm)

	EPA SAMPLE NO.	TCX %REC #	DCB %REC #	S3 %REC #	S4 %REC #	S5 %REC #	S6 %REC #	TOT OUT
01	MW-12	77	42					0
02	MW-12D	72	39					0
03	MW-44S	77	33					0
04	MW-44D	80	54					0
05	LCS	82	44					0
06	LCSD	83	36					0
07	BLANK	78	41					0
08								
09								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

ADVISORY
QC LIMITS

S1 (TCX) = Tetrachloro-m-xylene (30-150)
S2 (DCB) = Decachlorobiphenyl (30-150)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

FORM 3
WATER AROCLOR LAB CONTROL SAMPLE

Lab Name: PACE ANALYTICAL SERVICES, Contract:

Lab Code: Case No.: 044657 SAS No.: SDG No.: 044657

Matrix Spike - Sample No.: LCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Aroclor-1248	2.50		2.11	84	55-145

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor-1248	2.50	2.13	85	1	25	55-145

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS:

Pace Analytical Services, Inc.
Matrix Spike/Matrix Spike Duplicate Summary

Pace Project Number 04-4657

Pace Sample Number

						Limits
Compound	Spike Added	Sample Concentration	Matrix Spike Concentration	Matrix Spike % Recovery	#	Recovery
	mg/L	mg/L	mg/L	%		%
Fluoride	4	7.53	11	94.00		75-125
Cyanide	0.1	0	0.1086	108.60		75-125

Column used to flag recovery and RPD values with an asterick
* Values outside of QC Limits
Comments:

APPENDIX C

DATA VALIDATION SUMMARY REPORT FOR 2004 MONITORING EVENTS

APPENDIX C
DATA VALIDATION SUMMARY REPORT
2004 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. Samples were analyzed by Pace Analytical Services, Incorporated of Export, Pennsylvania, 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, as available for each group of analyses. A summary of the validation results for each of the monitoring events conducted during 2004 is provided below.

January 2004 Monitoring Event

Dissolved sodium was reported in the field blank at 0.96 mg/L. By application of the 5x rule, results below 4.80 mg/l would be considered non-detect. No data were affected by this result.

May 2004 Monitoring Event

Dissolved sodium was reported in the field blank at 1.2 mg/L. By application of the 5x rule, results below 6.0 mg/L would be considered non-detect. No data were affected by this result.

Dissolved sodium matrix spike result was within QC limits. The matrix spike duplicate result for sodium (281.64%) was above the QC range of 75%-125%. Given that all sodium results for ground-water samples were substantially above reporting limits, no data were qualified based on this result.

For PCB analyses, the surrogate recovery for decachlorobiphenyl was 16% for Field Blank 1. This is outside the QC advisory limit of 30%-15%. No results for ground-water samples were qualified based on this result.

September 2004 Monitoring Event

Fluoride was detected in the method blank at 0.25 mg/L. This result is greater than the Reporting Limit of 0.10 mg/L. By application of the 5x Rule, the reporting limit for fluoride is regarded to be 1.25 mg/L. By this approach, fluoride results for MW-12 (0.61 mg/L), MW-12D (0.59 mg/L), and MW-28 (0.34 mg/L) were revised to <1.25 mg/L and qualified with a 'B'.

ORMET-04-C doc

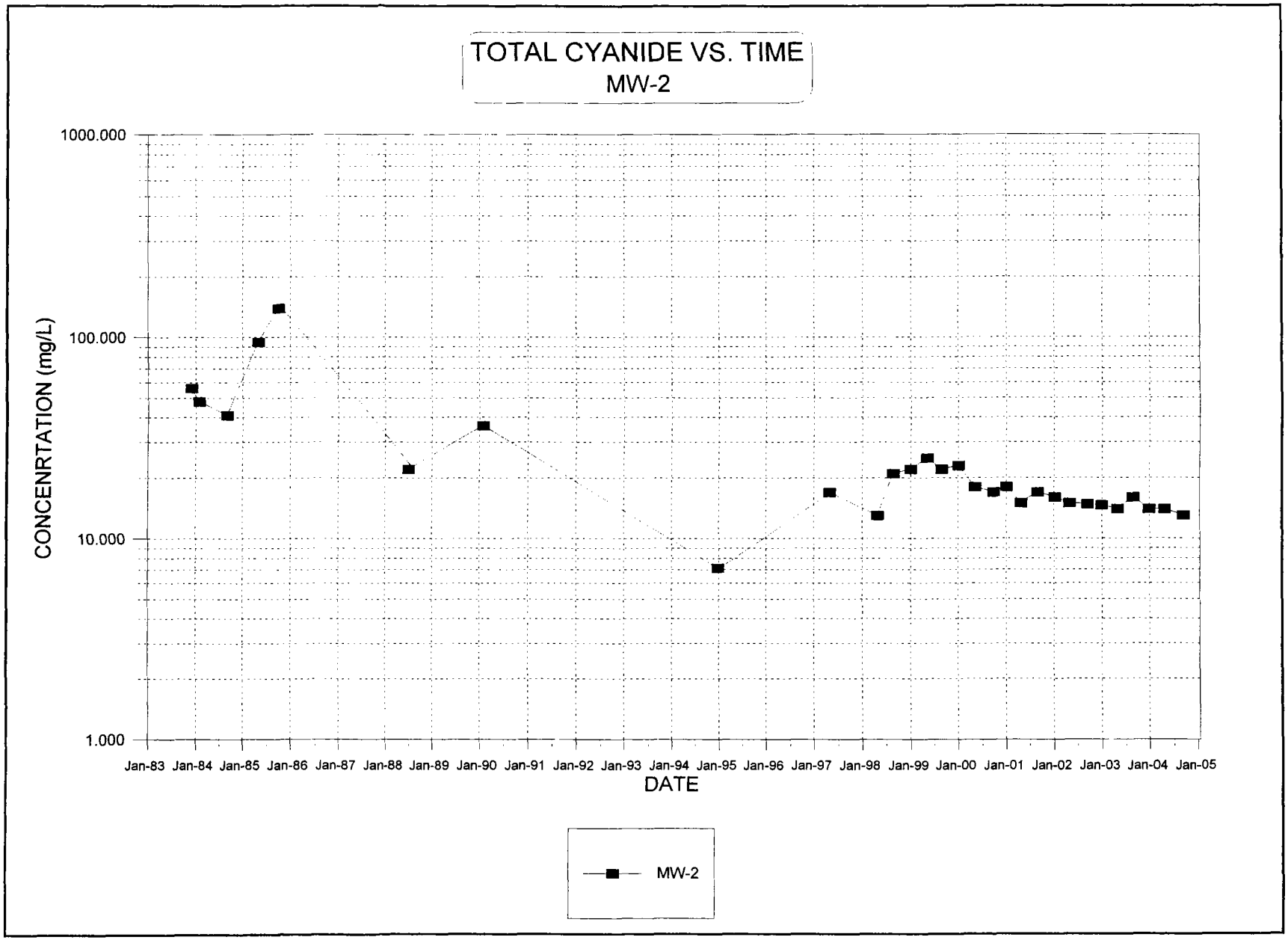
APPENDIX D

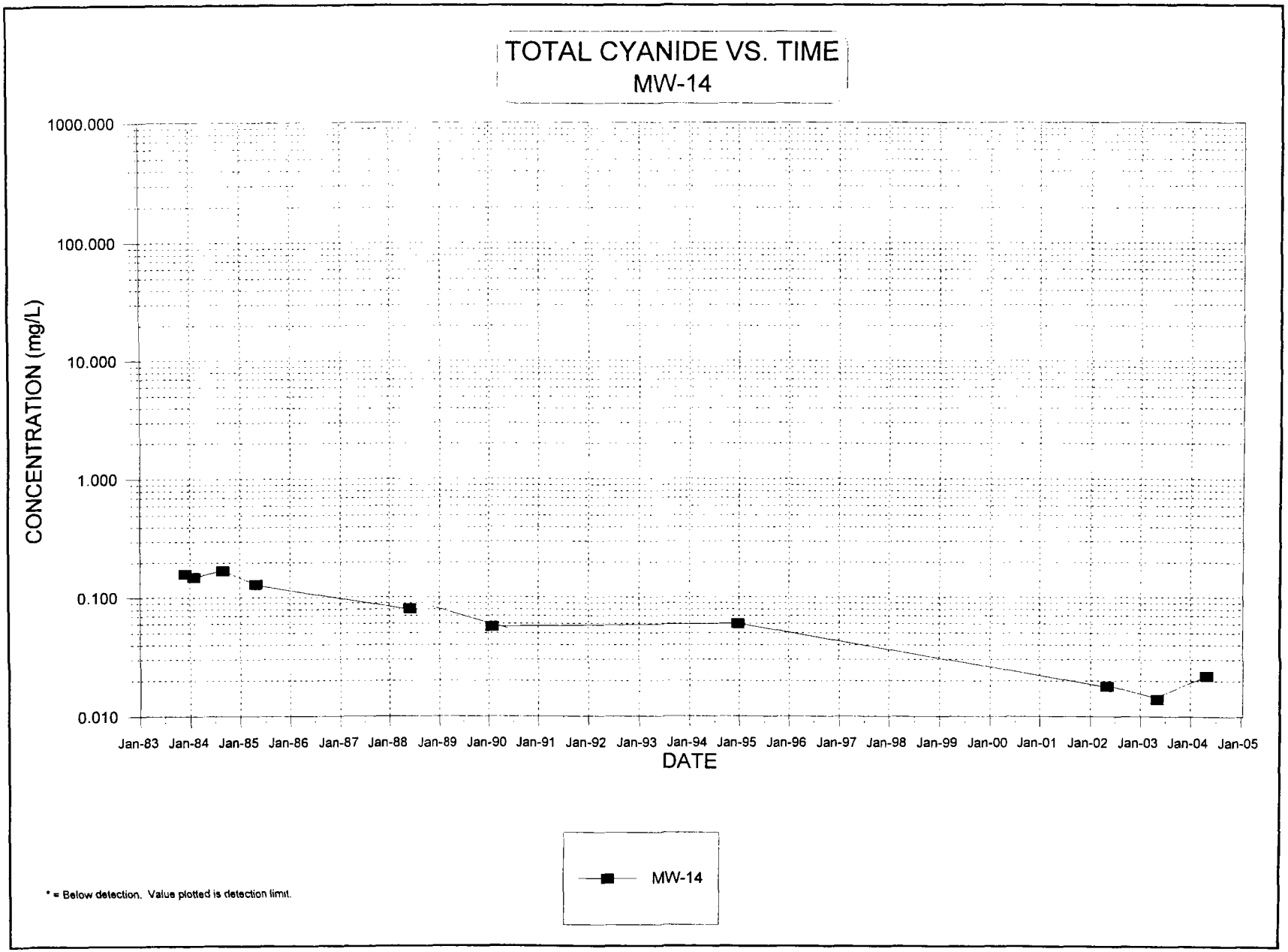
CONCENTRATION VS. TIME GRAPHS FOR REMEDIAL ACTION MONITORING PARAMETERS

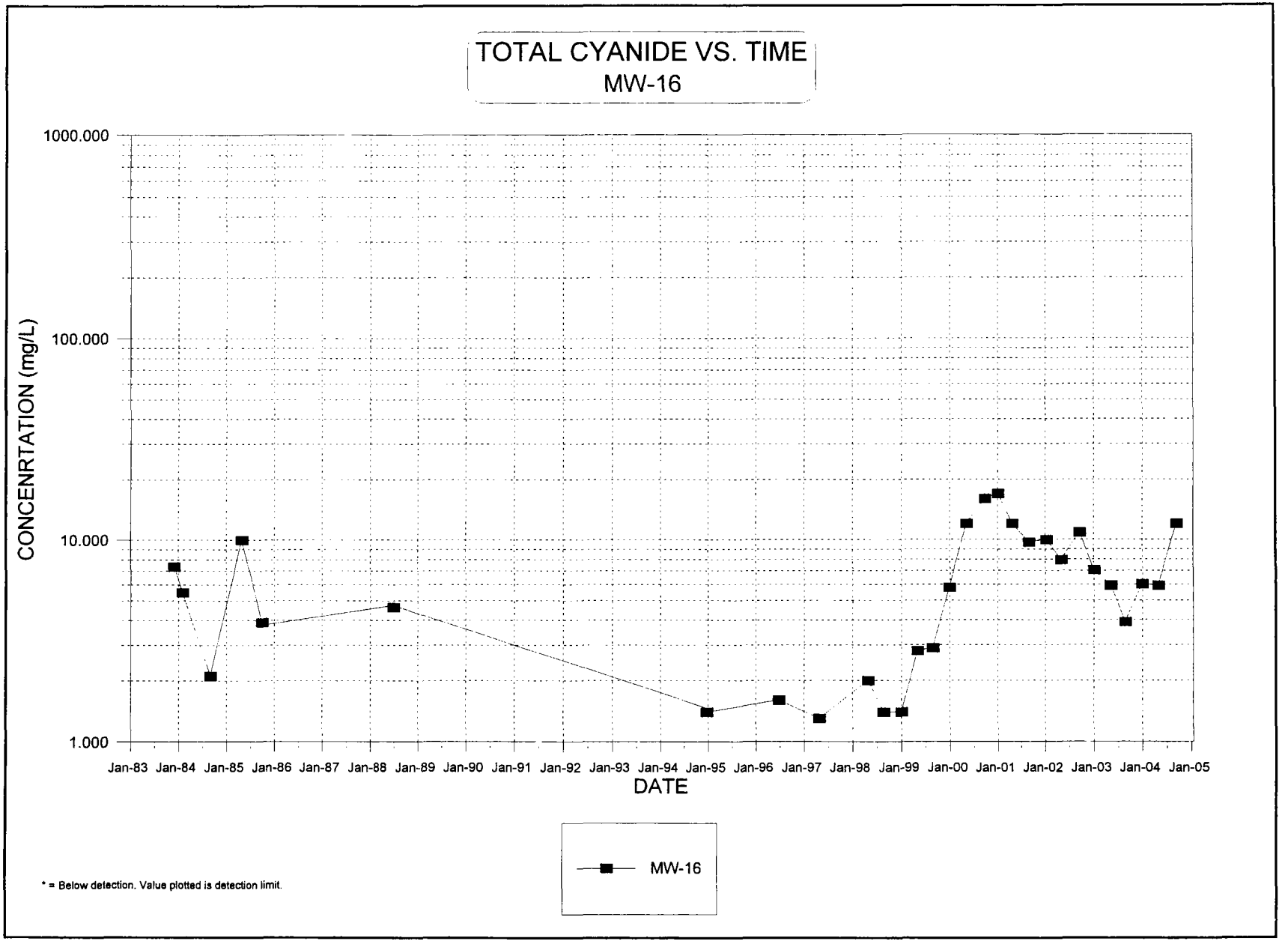
Appendix D-1	Total Cyanide
Appendix D-2	Cyanide Amenable to Chlorination
Appendix D-3	Fluoride
Appendix D-4	Arsenic
Appendix D-5	Beryllium
Appendix D-6	Manganese
Appendix D-7	Vanadium
Appendix D-8	Tetrachloroethene
Appendix D-9	Sodium

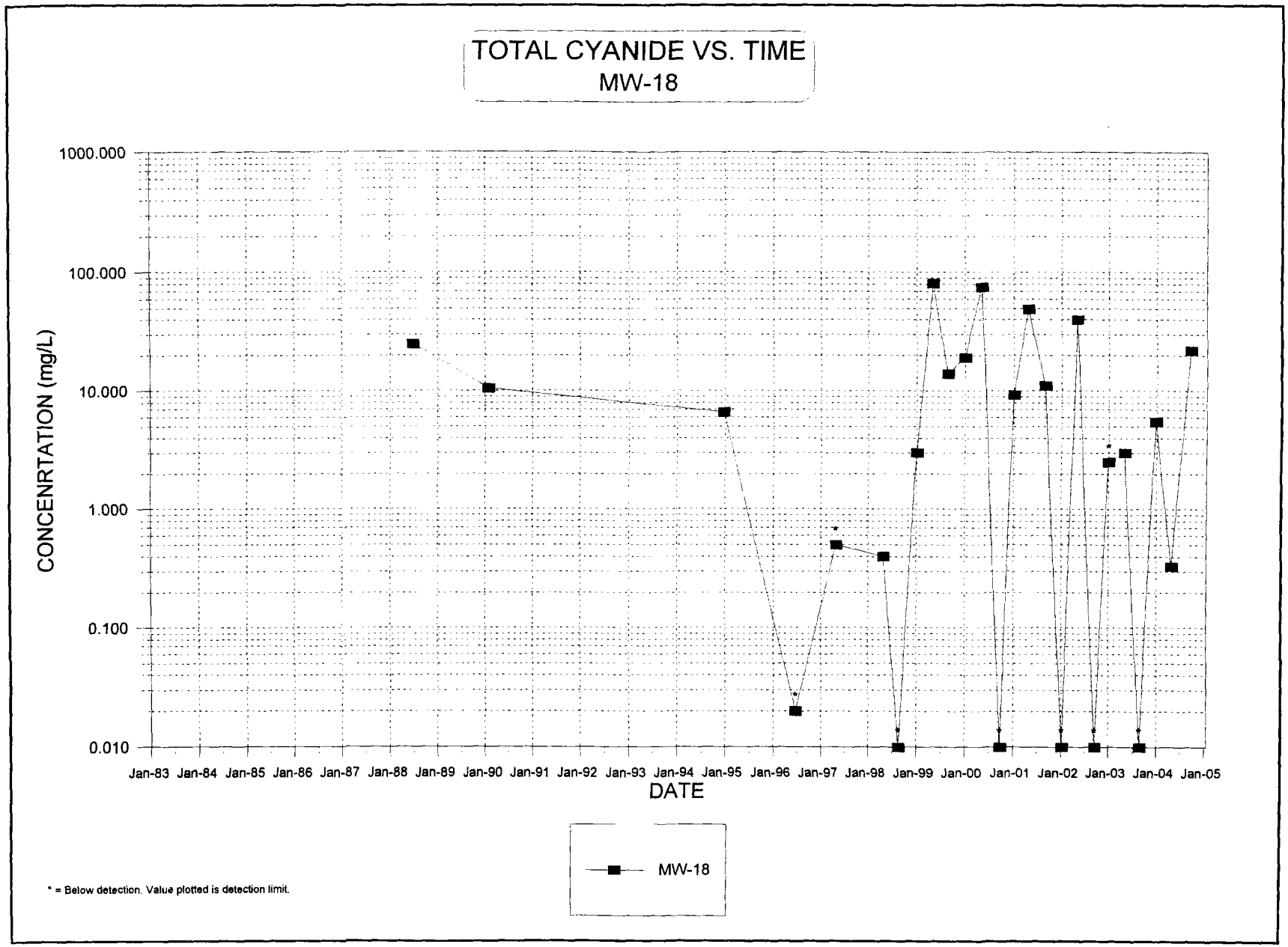
APPENDIX D-1

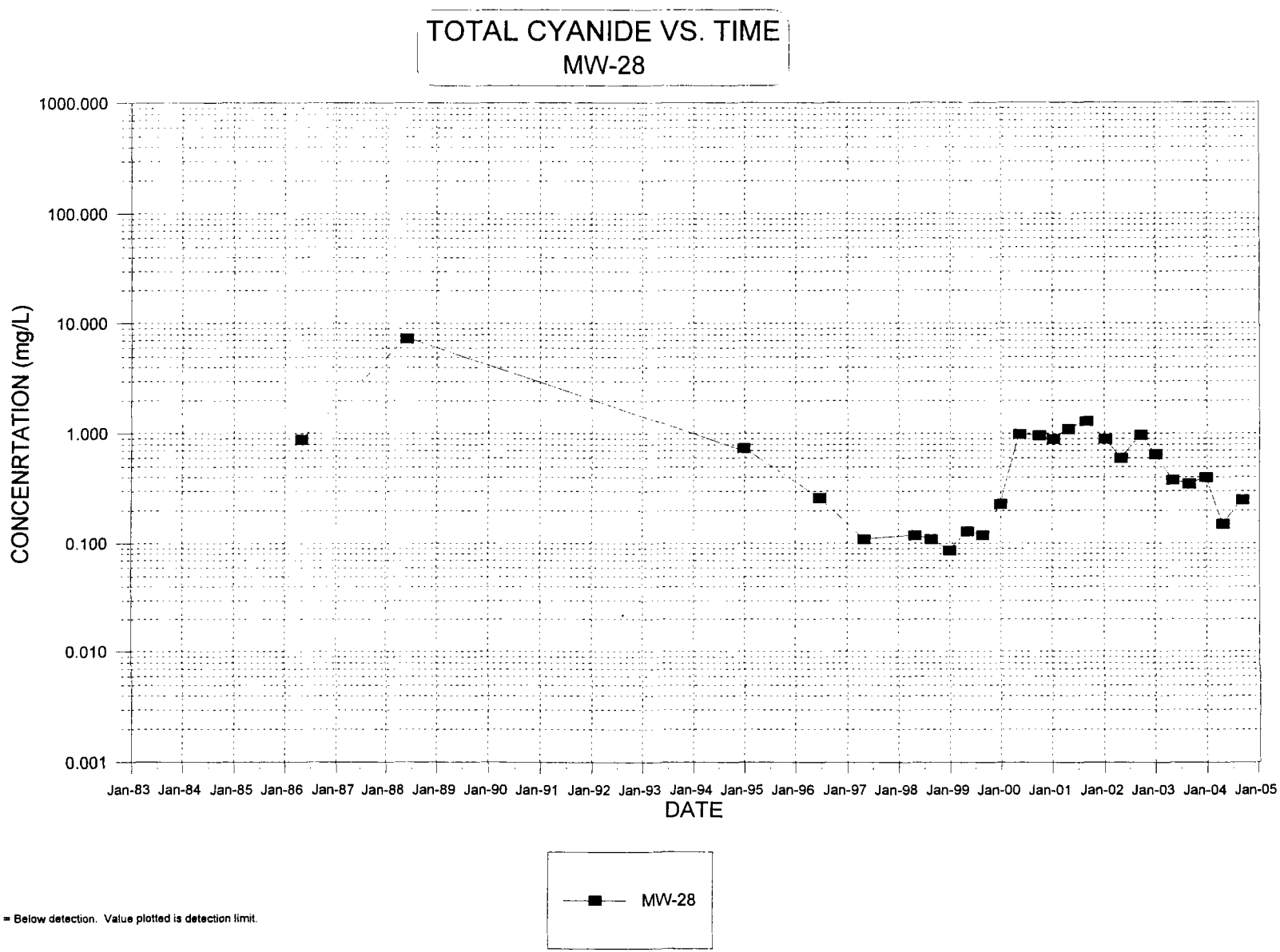
TOTAL CYANIDE


TOTAL CYANIDE VS. TIME
MW-2
1000.000
100.000
10.000
1.000
CONCENRTATION (mg/L)
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-2

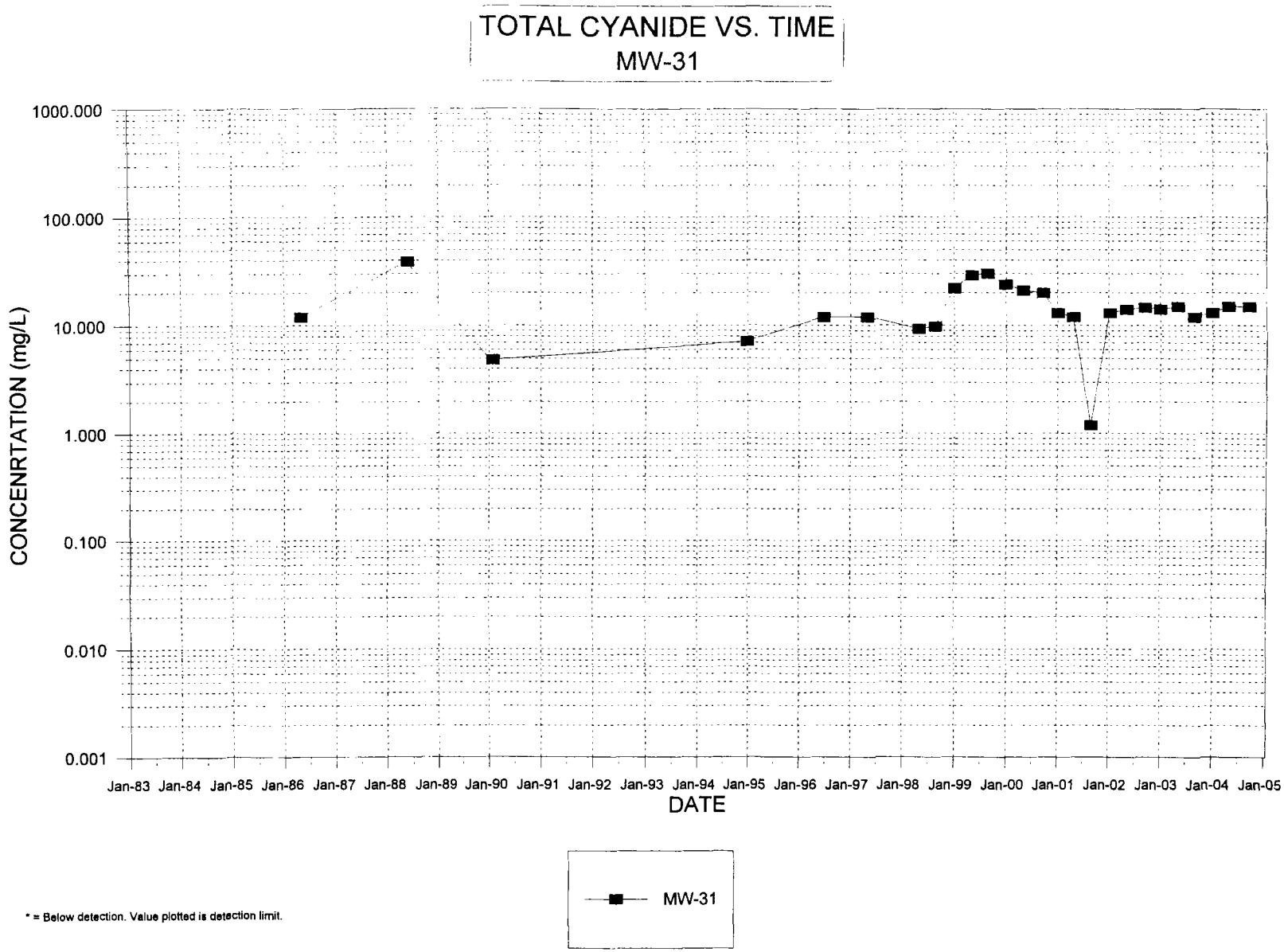

TOTAL CYANIDE VS. TIME
MW-14
CONCENTRATION (mg/L)
1000.000
100.000
10.000
1.000
0.100
0.010
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-14
* = Below detection. Value plotted is detection limit.


TOTAL CYANIDE VS. TIME
MW-16
1000.000
100.000
10.000
1.000
CONCENRTATION (mg/L)
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-16
* = Below detection. Value plotted is detection limit.

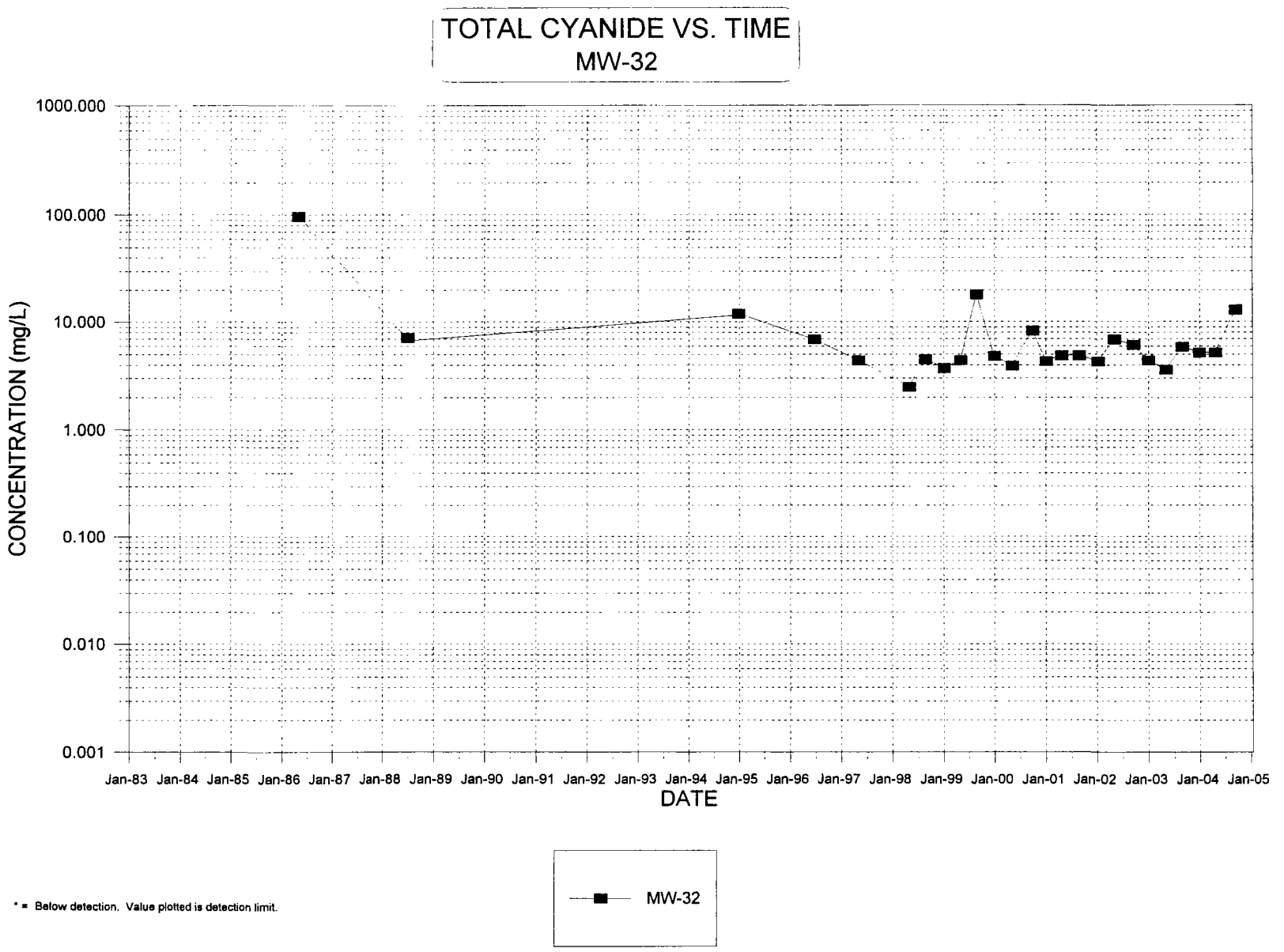

TOTAL CYANIDE VS. TIME
MW-18
CONCENRTATION (mg/L)
1000.000
100.000
10.000
1.000
0.100
0.010
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-18
* = Below detection. Value plotted is detection limit.



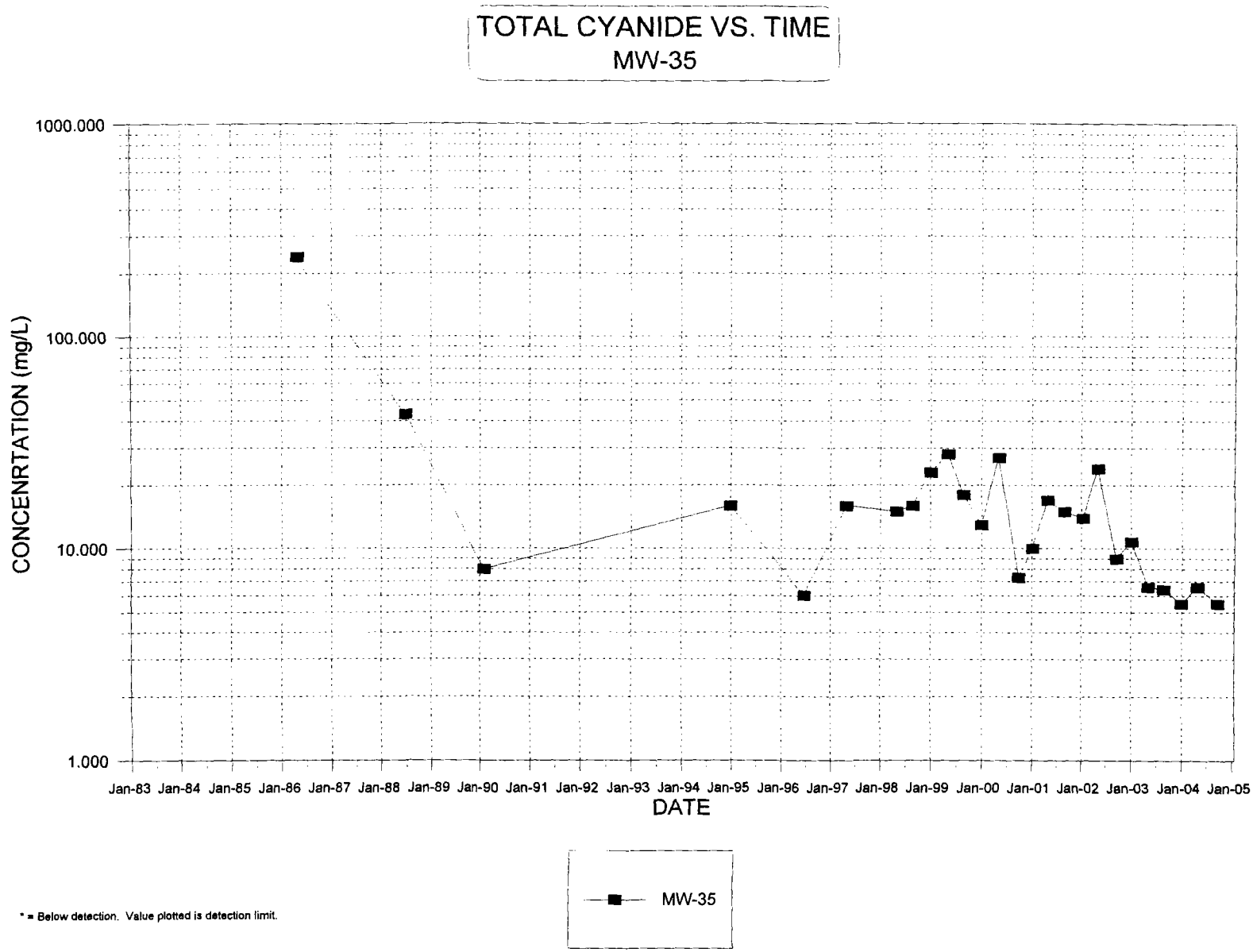
* = Below detection. Value plotted is detection limit.



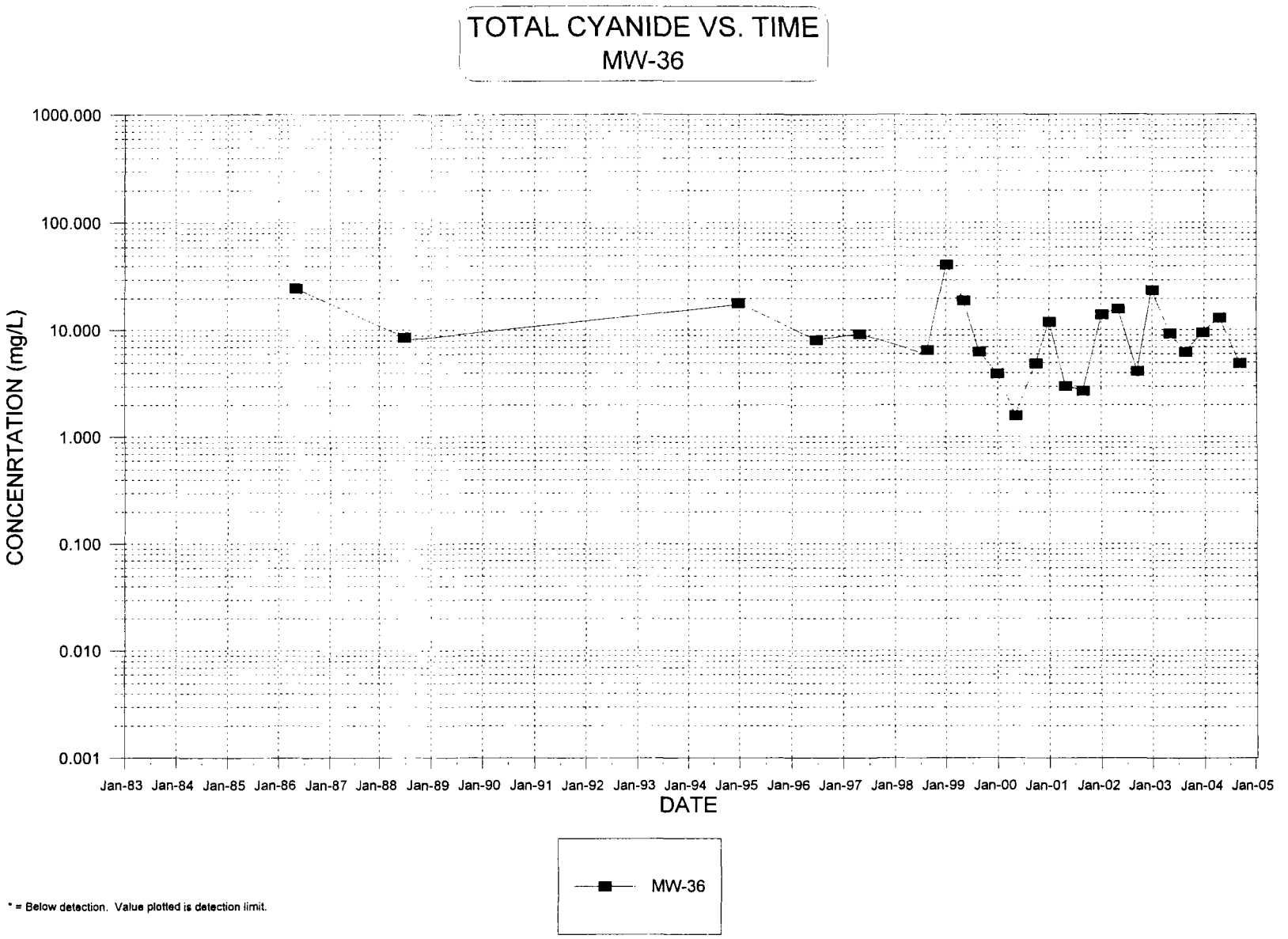
* = Below detection. Value plotted is detection limit.



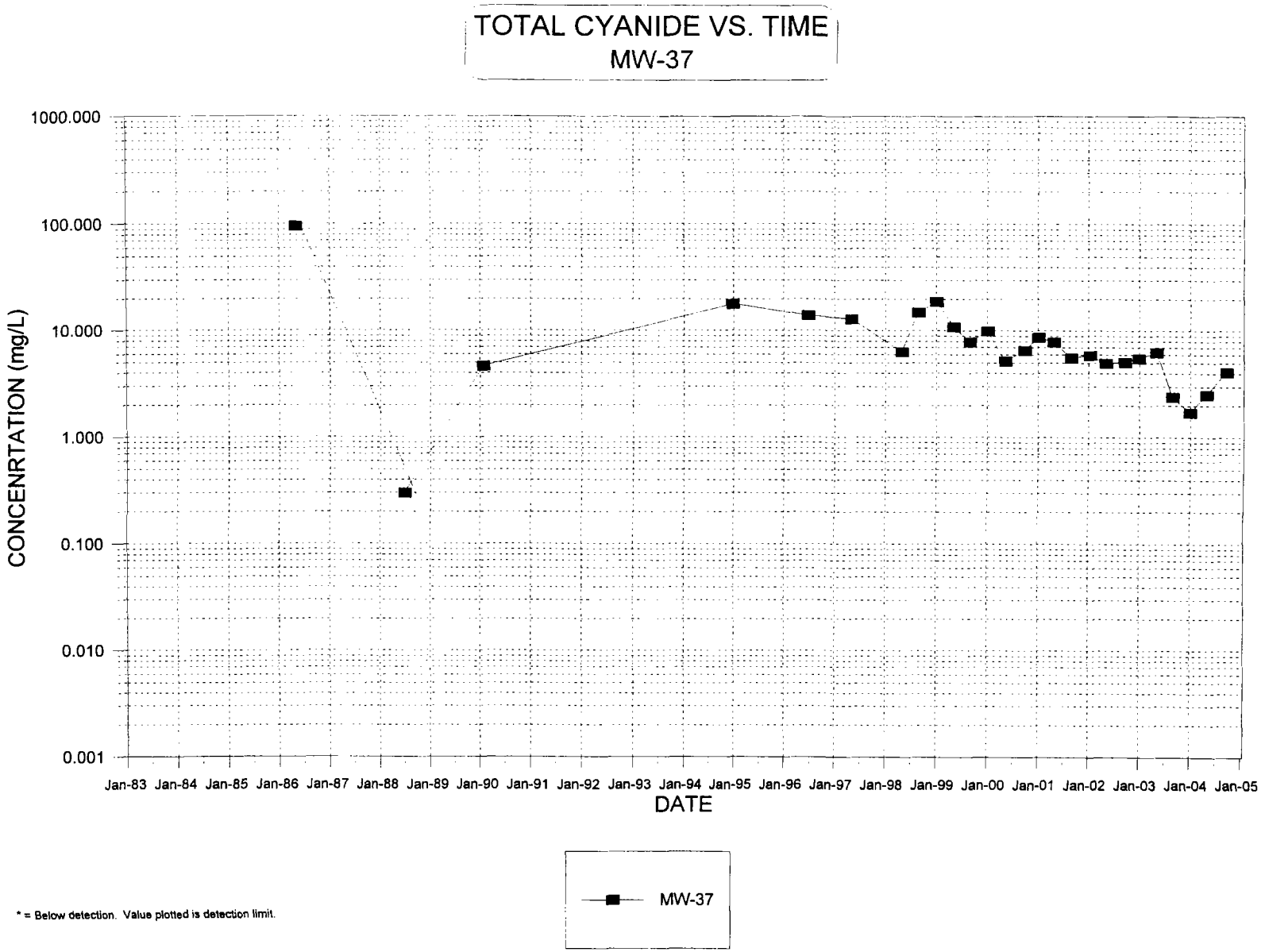
* = Below detection. Value plotted is detection limit.



* = Below detection. Value plotted is detection limit.

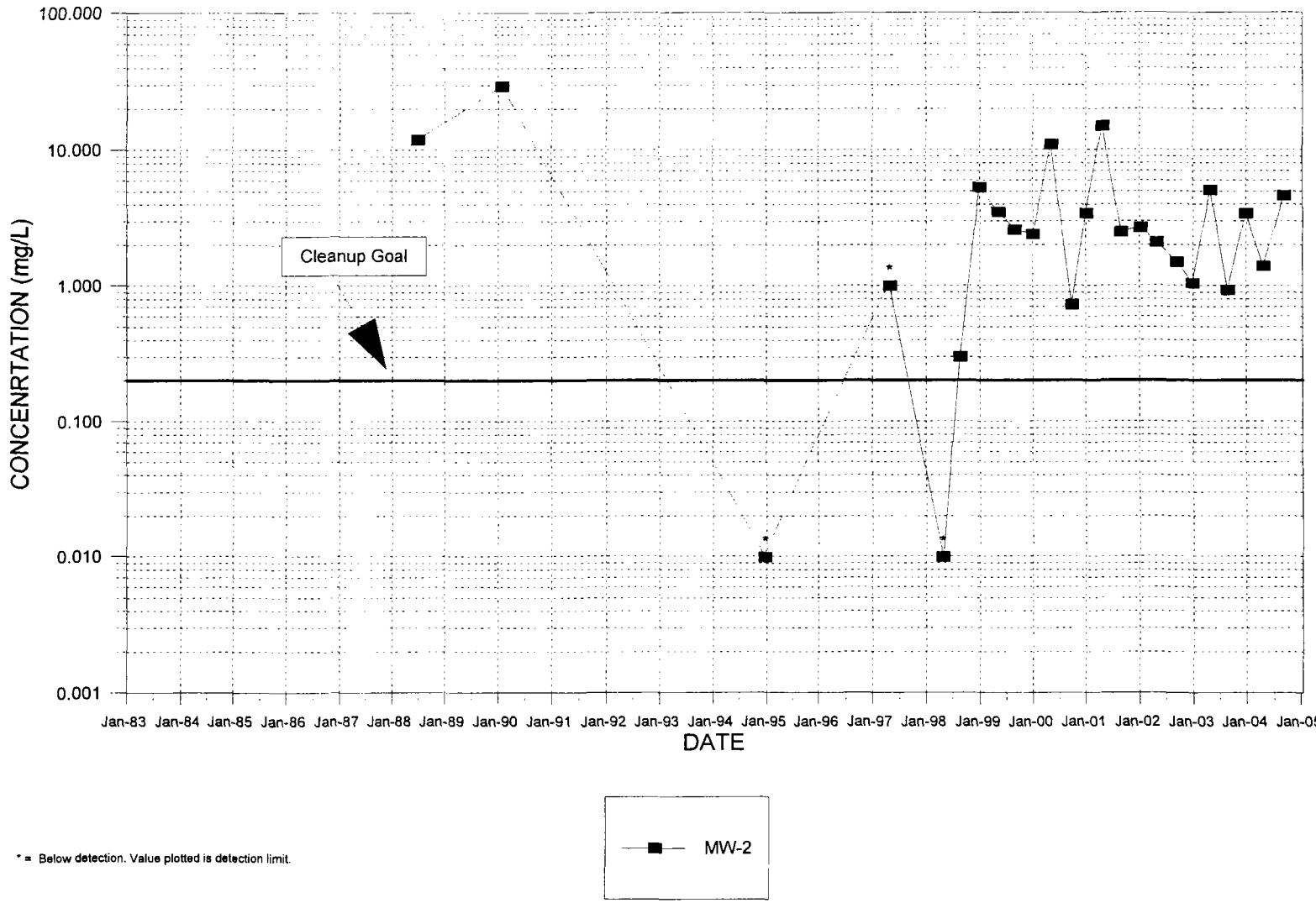


* = Below detection. Value plotted is detection limit.

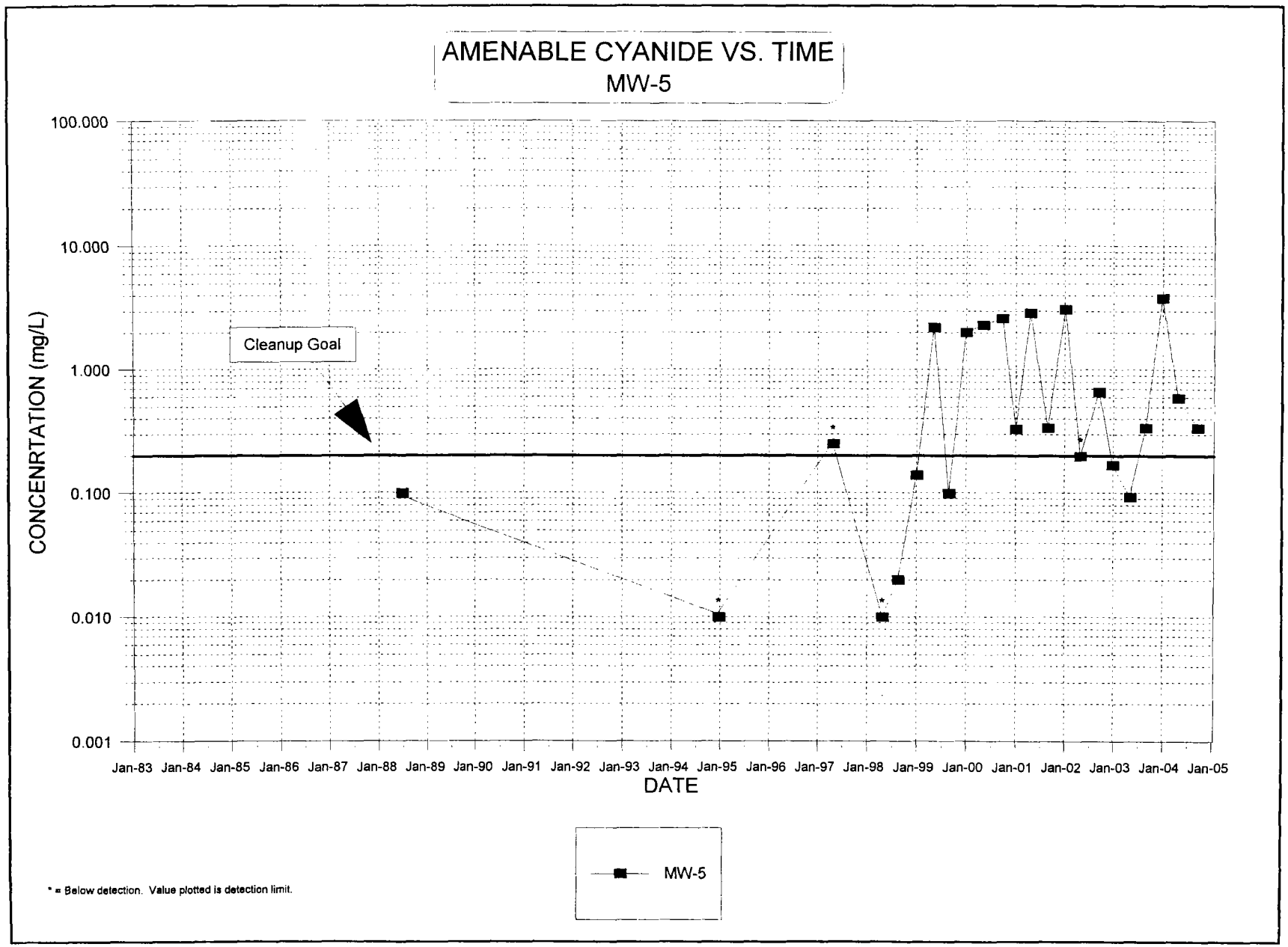

TOTAL CYANIDE VS. TIME
MW-37
CONCENRTATION (mg/L)
1000.000
100.000
10.000
1.000
0.100
0.010
0.001
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-37
* = Below detection. Value plotted is detection limit.

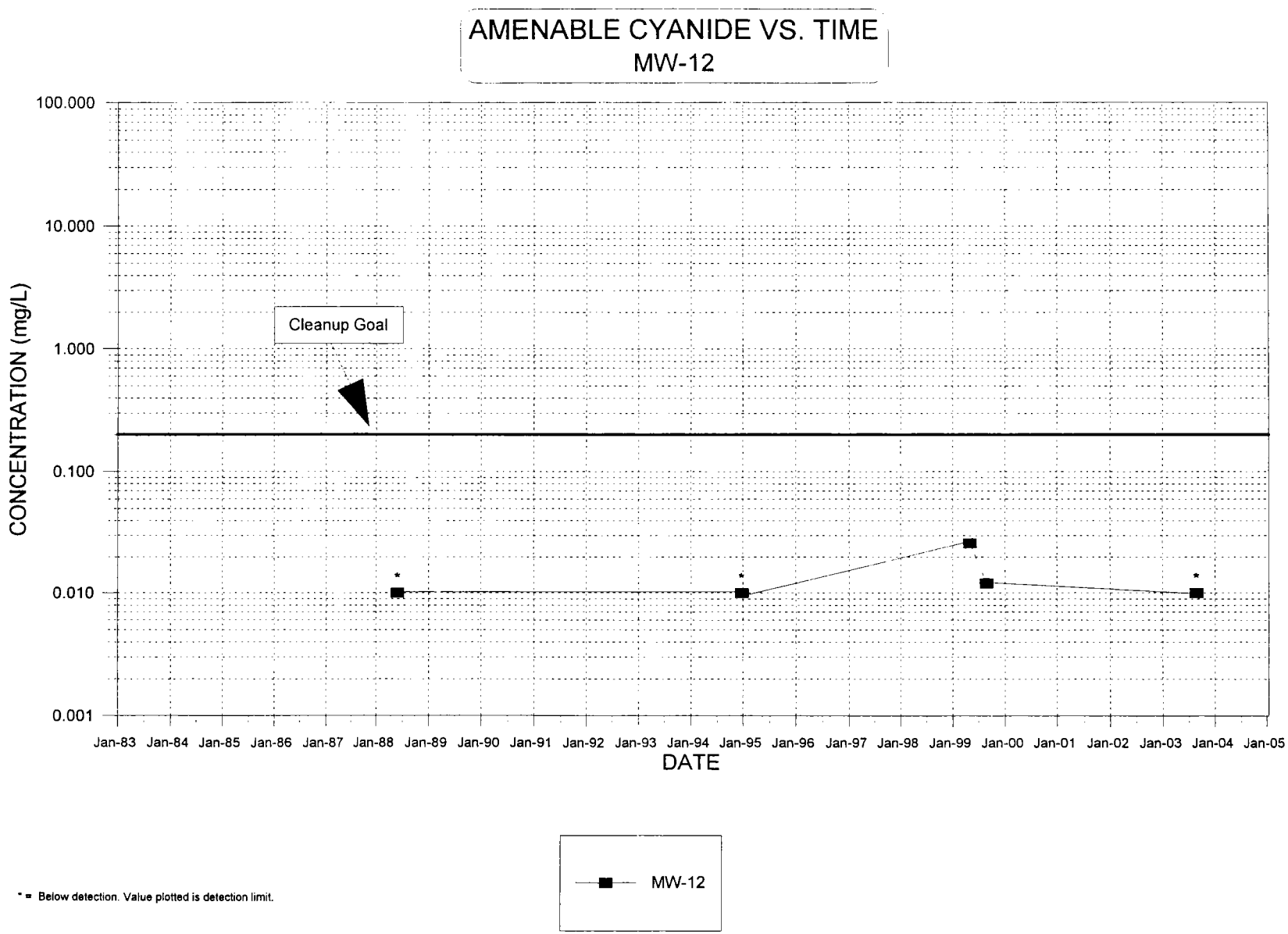
APPENDIX D-2

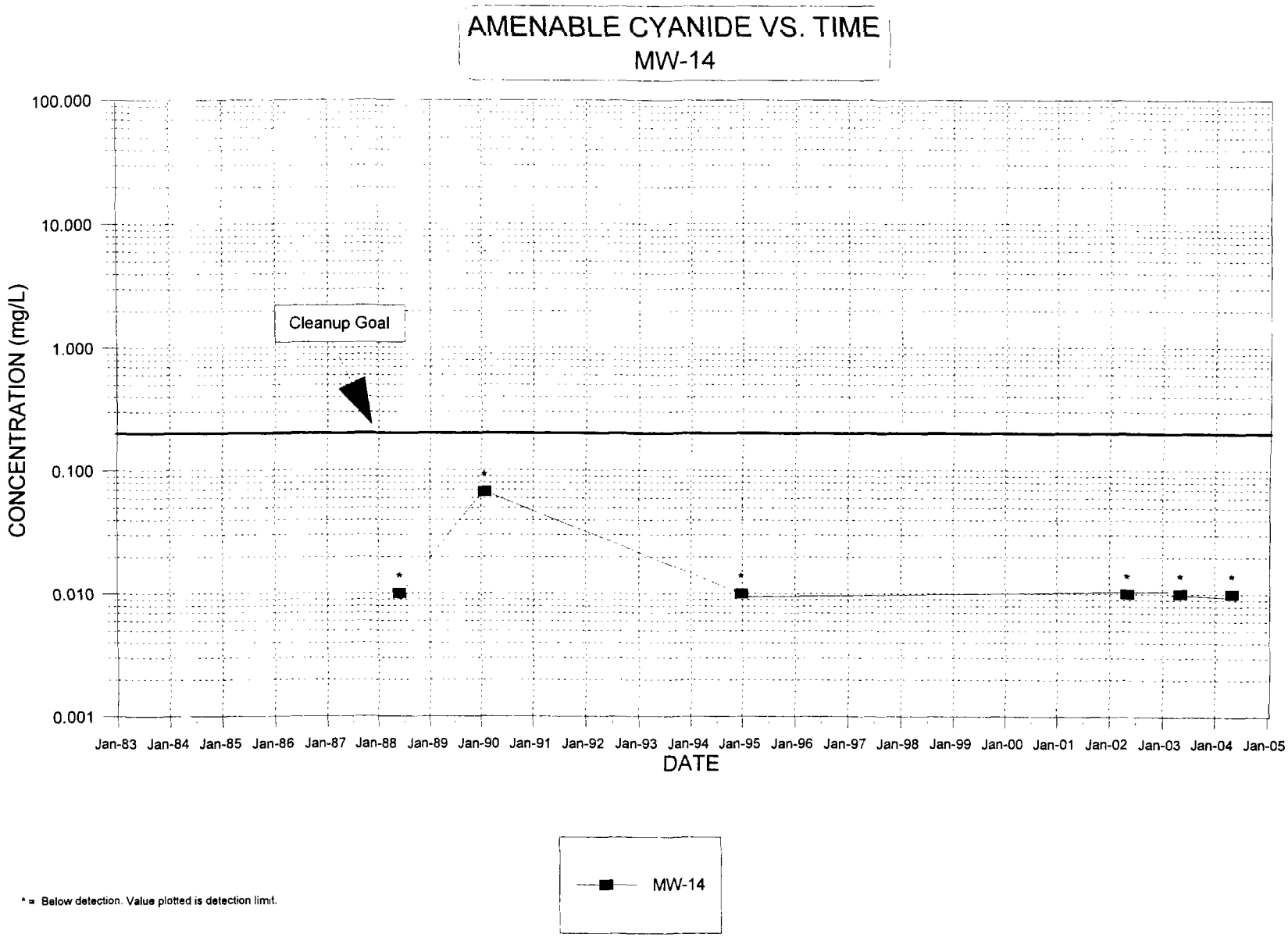
CYANIDE AMENABLE TO CHLORINATION



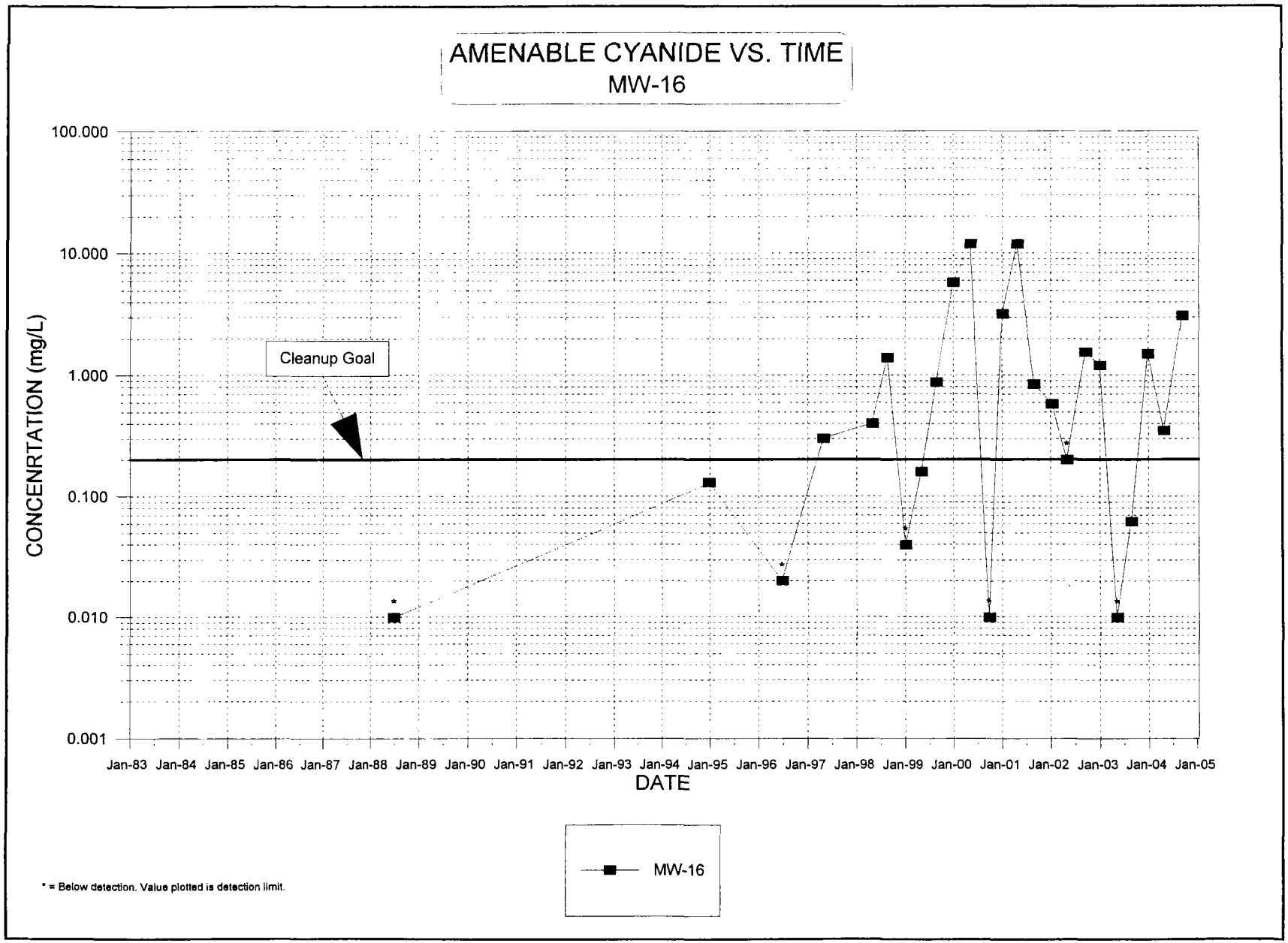
* = Below detection. Value plotted is detection limit.

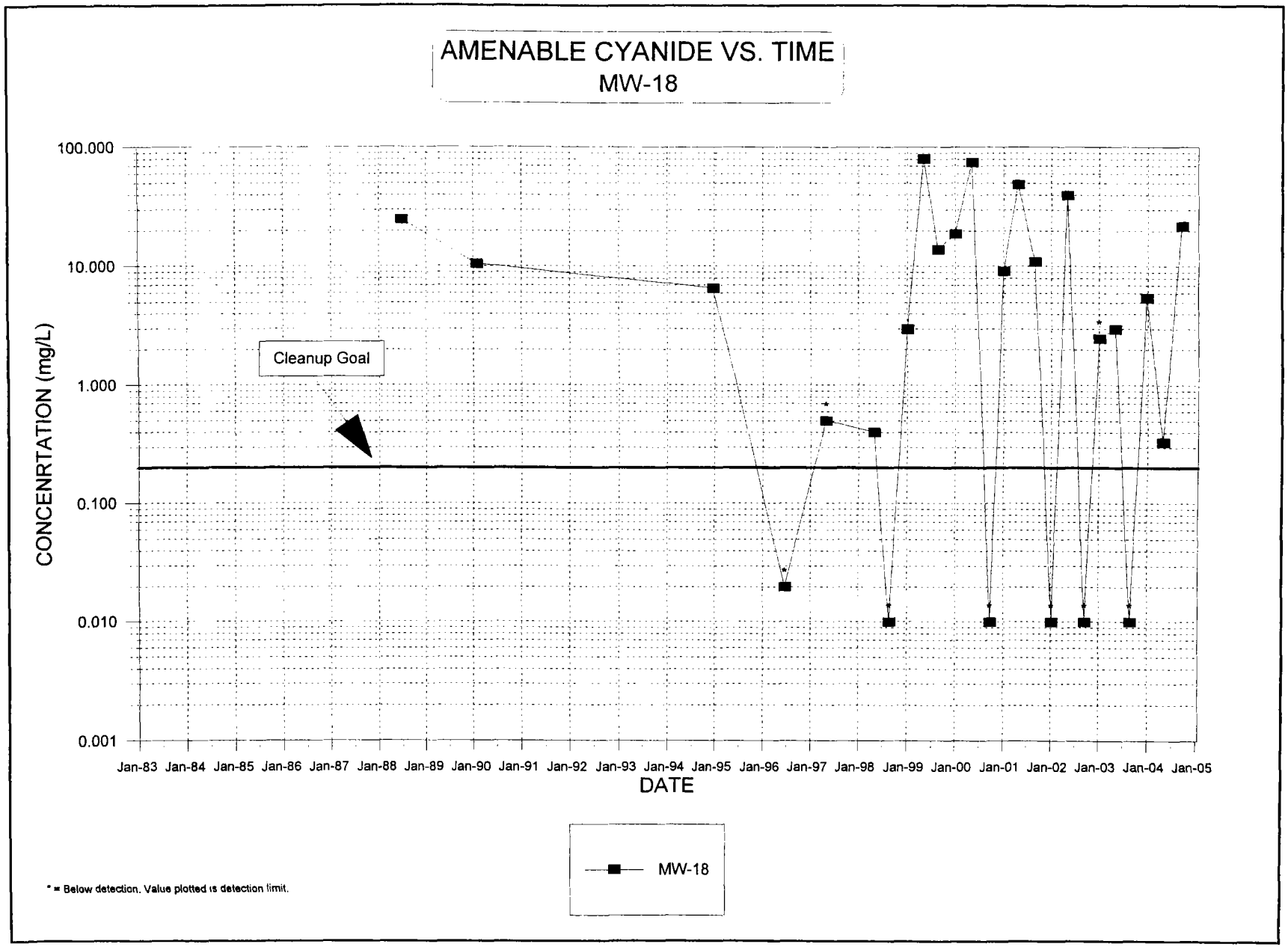

AMENABLE CYANIDE VS. TIME
MW-5
100.000
10.000
1.000
0.100
0.010
0.001
CONCENRTATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-5
* = Below detection. Value plotted is detection limit.

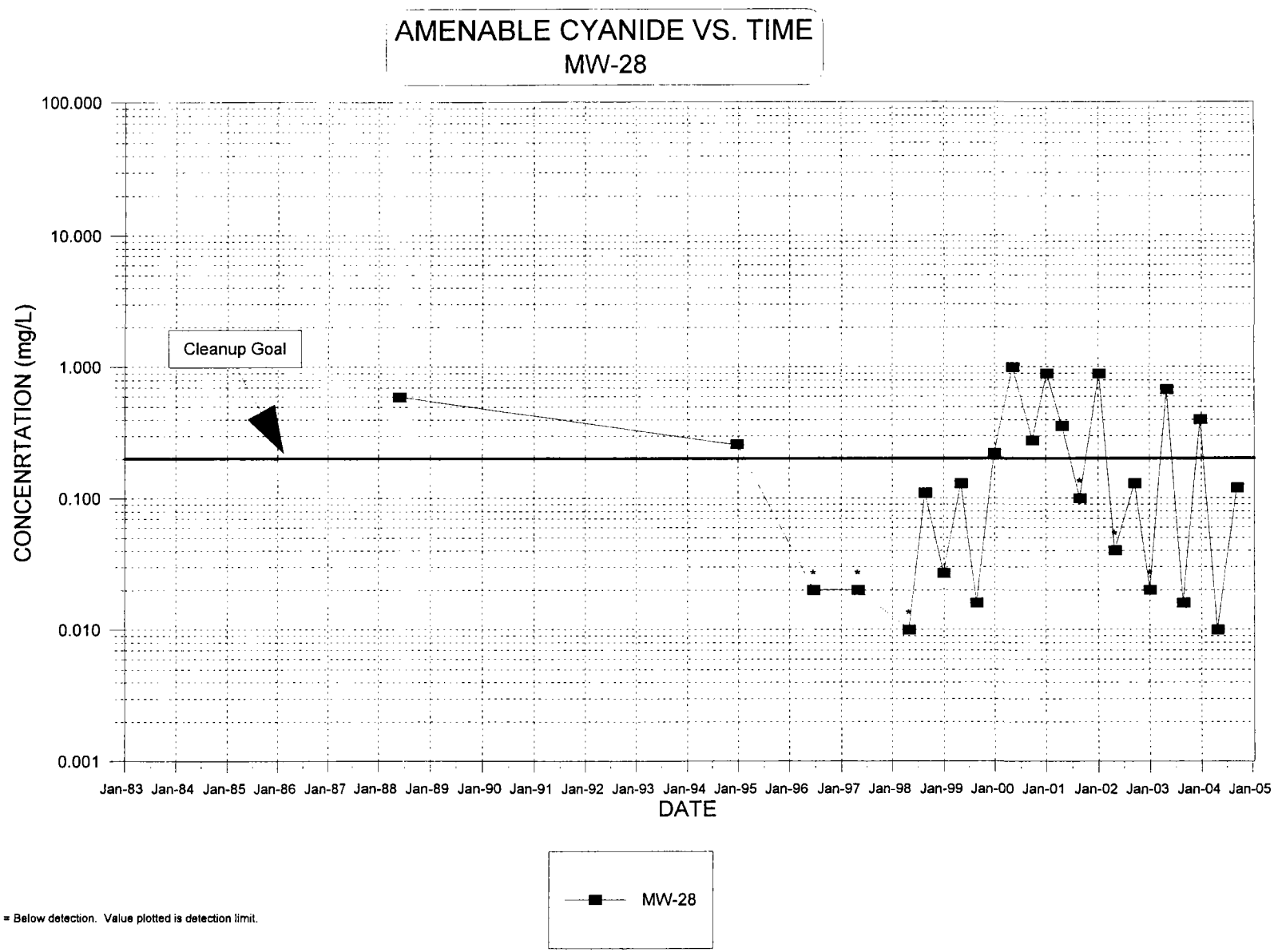

AMENABLE CYANIDE VS. TIME
MW-12
100.000
10.000
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-12
* = Below detection. Value plotted is detection limit.



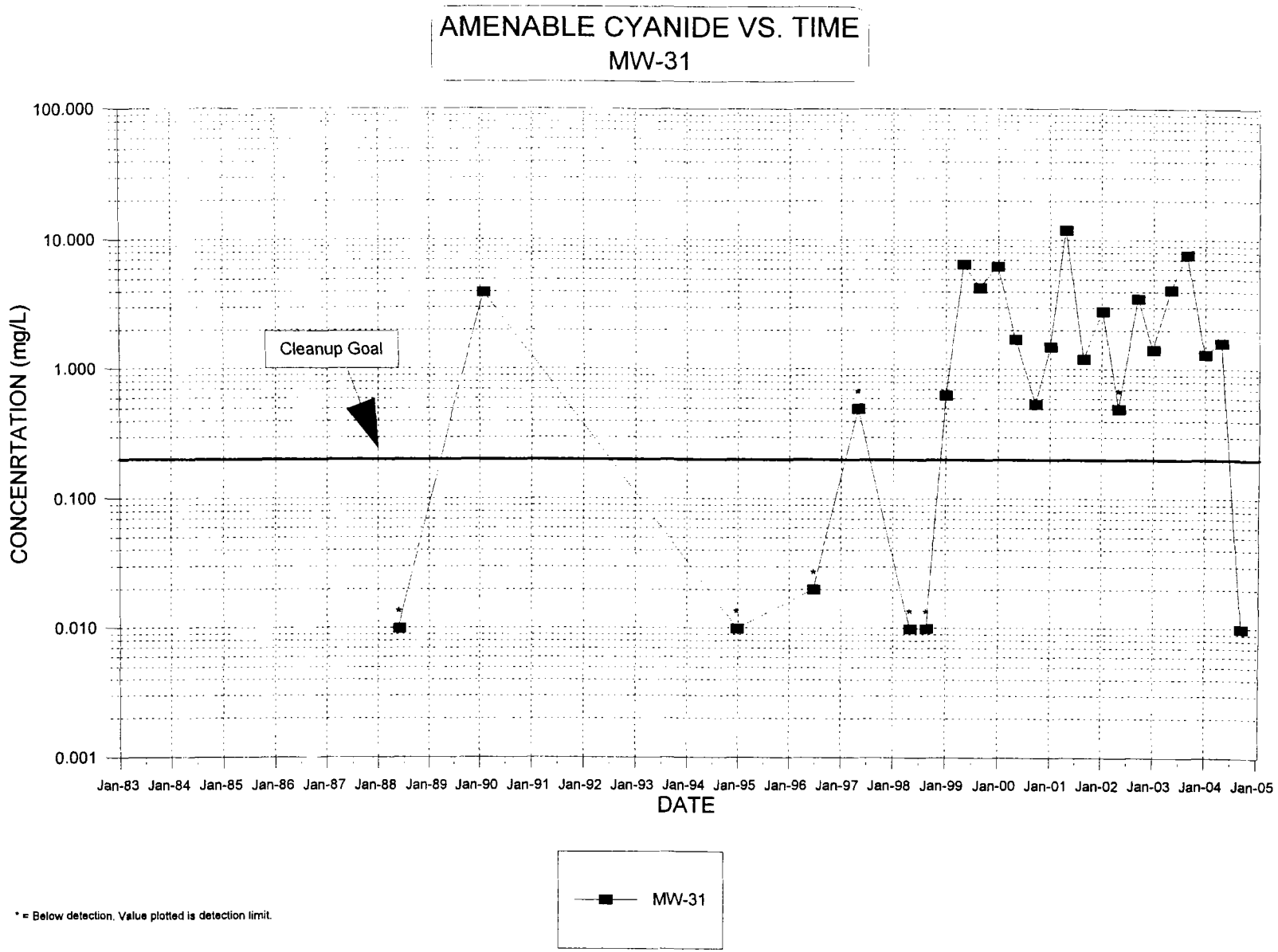
* = Below detection. Value plotted is detection limit.

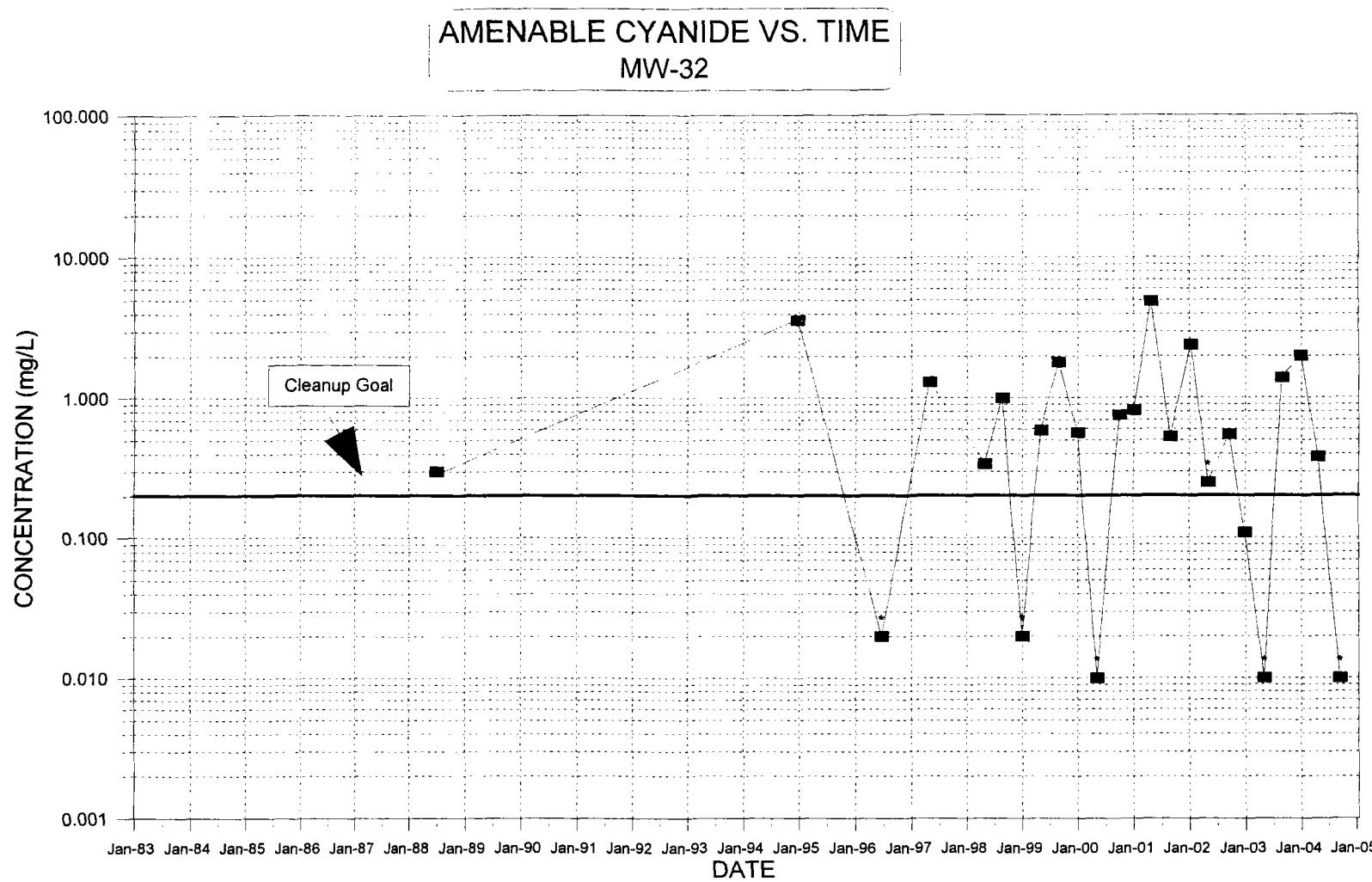

AMENABLE CYANIDE VS. TIME
MW-16
100.000
10.000
1.000
0.100
0.010
0.001
CONCENRTATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-16
* = Below detection. Value 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 Jan-03 Jan-04 Jan-05
DATE
MW-18
* = Below detection. Value plotted is detection limit.

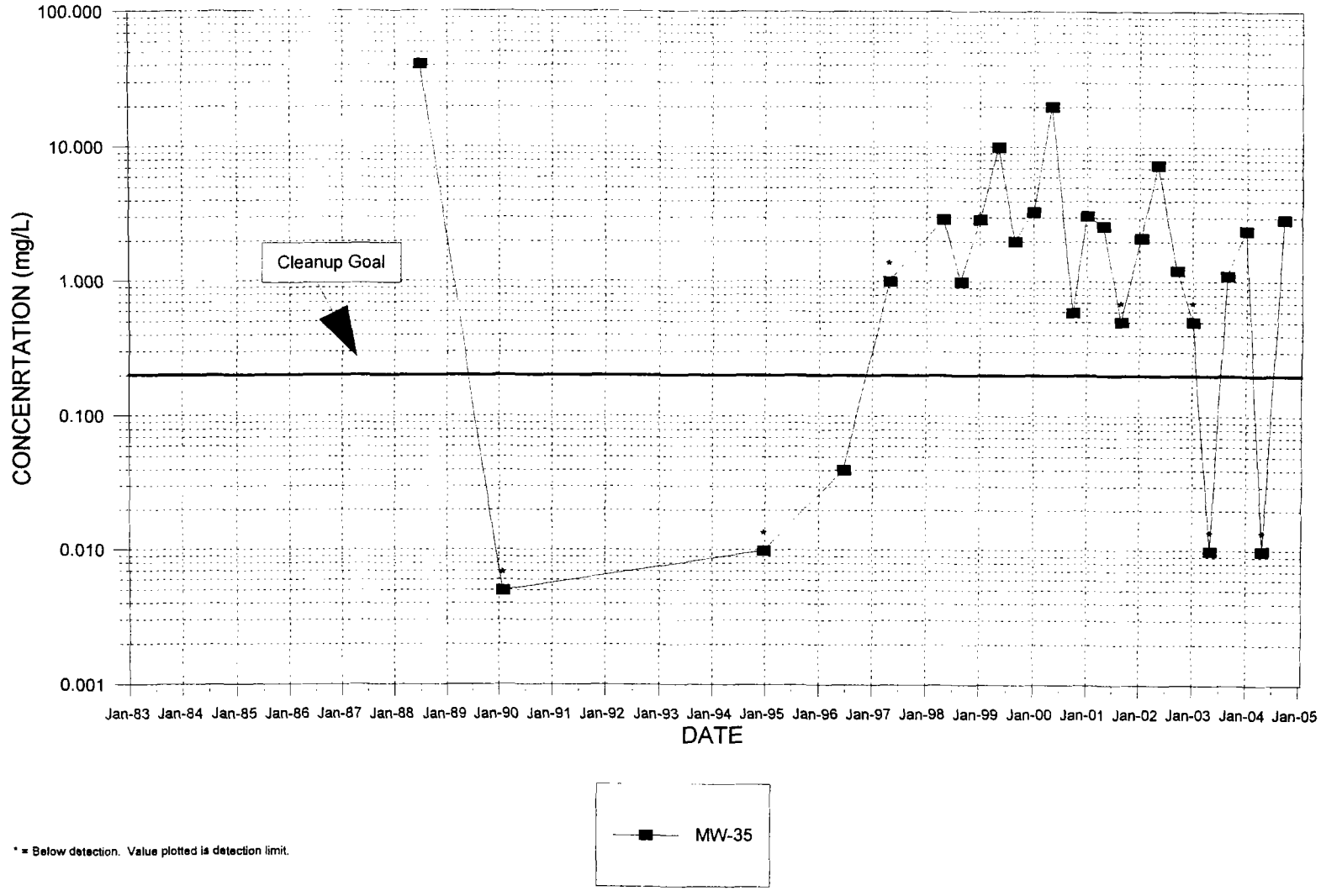


* = Below detection. Value plotted is detection limit.

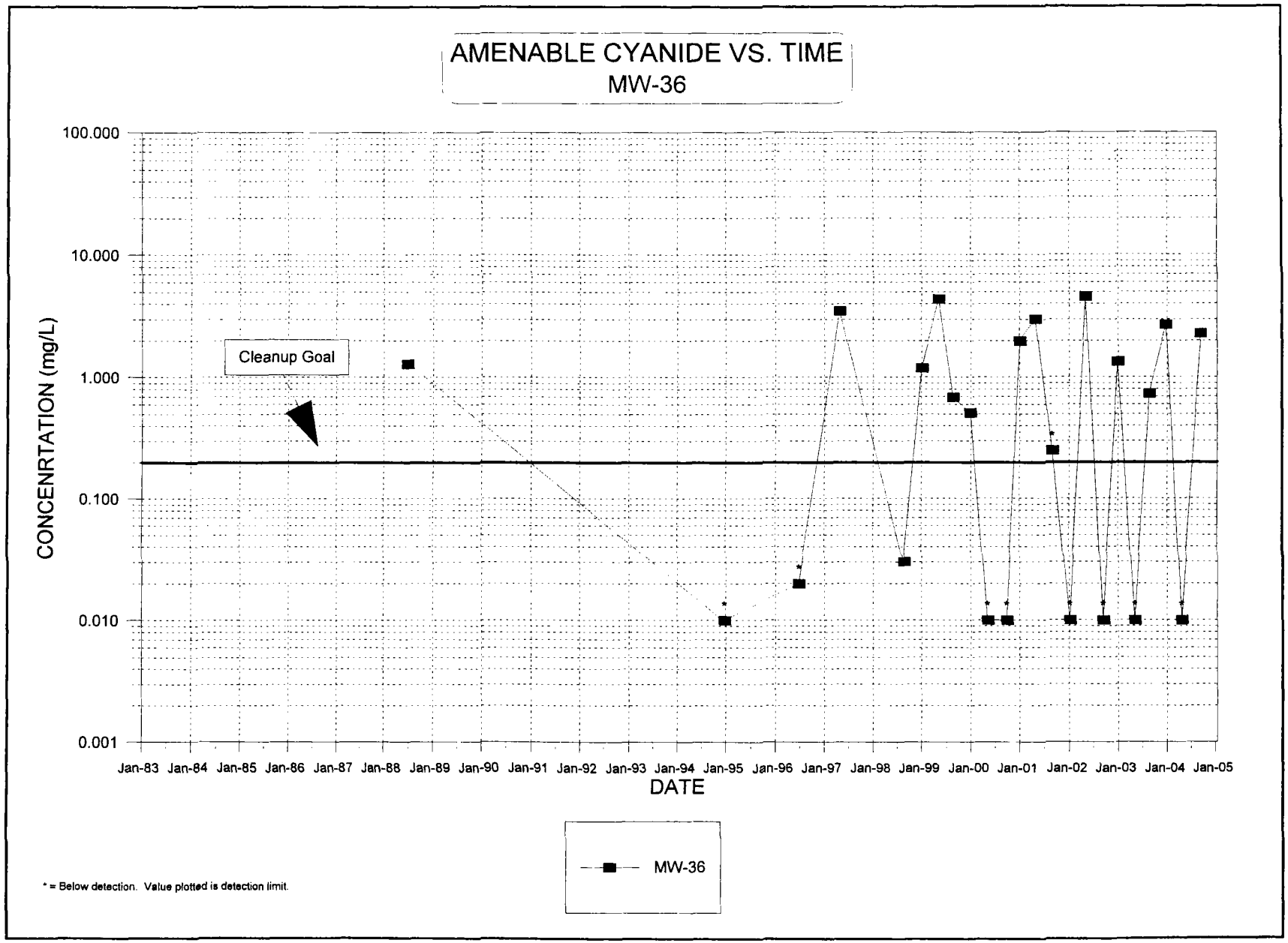

AMENABLE CYANIDE VS. TIME
MW-31
100.000
10.000
1.000
0.100
0.010
0.001
CONCENRTATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-31
* = Below detection. Value plotted is detection limit.

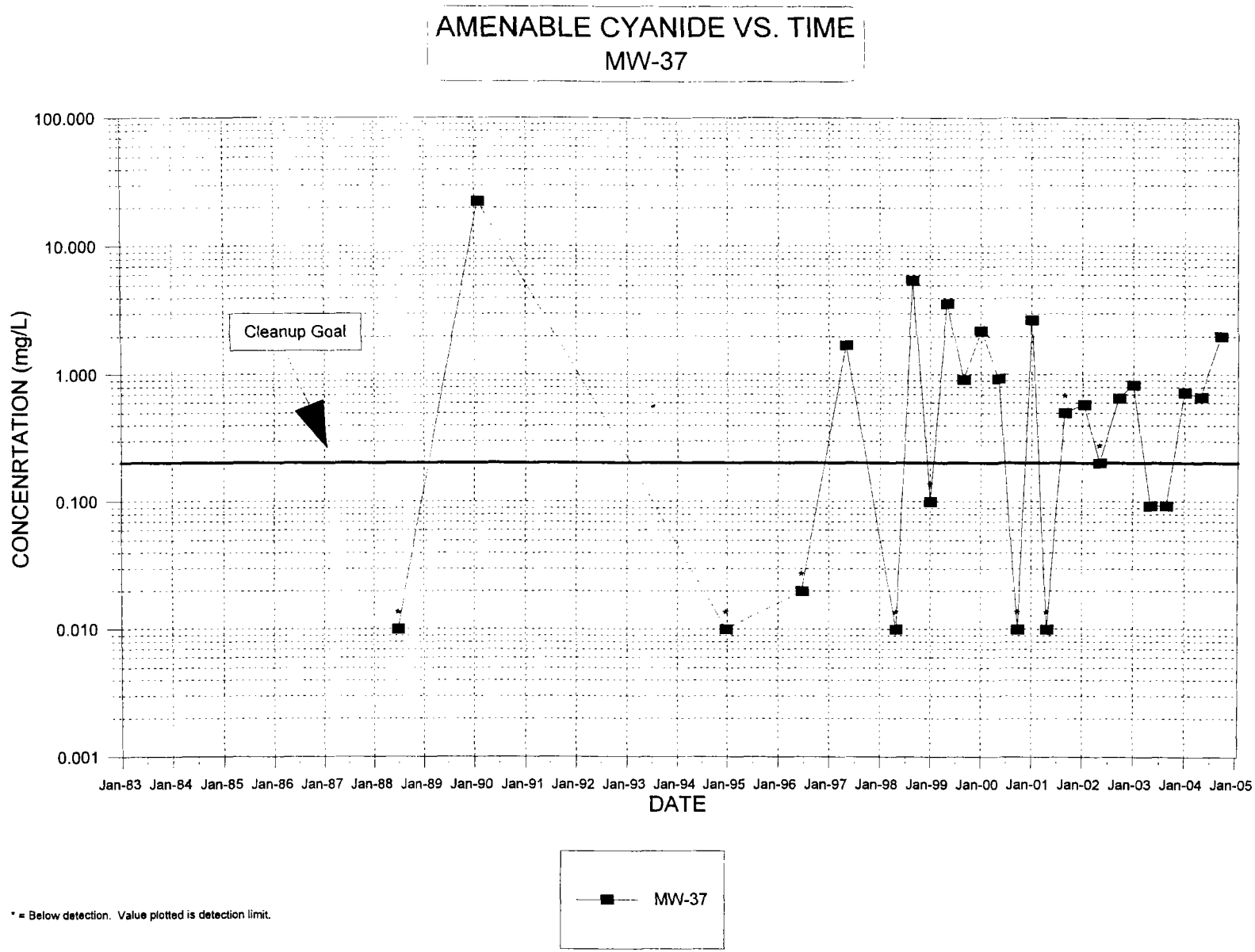


* = Below detection. Value plotted is detection limit.



* = Below detection. Value plotted is detection limit.

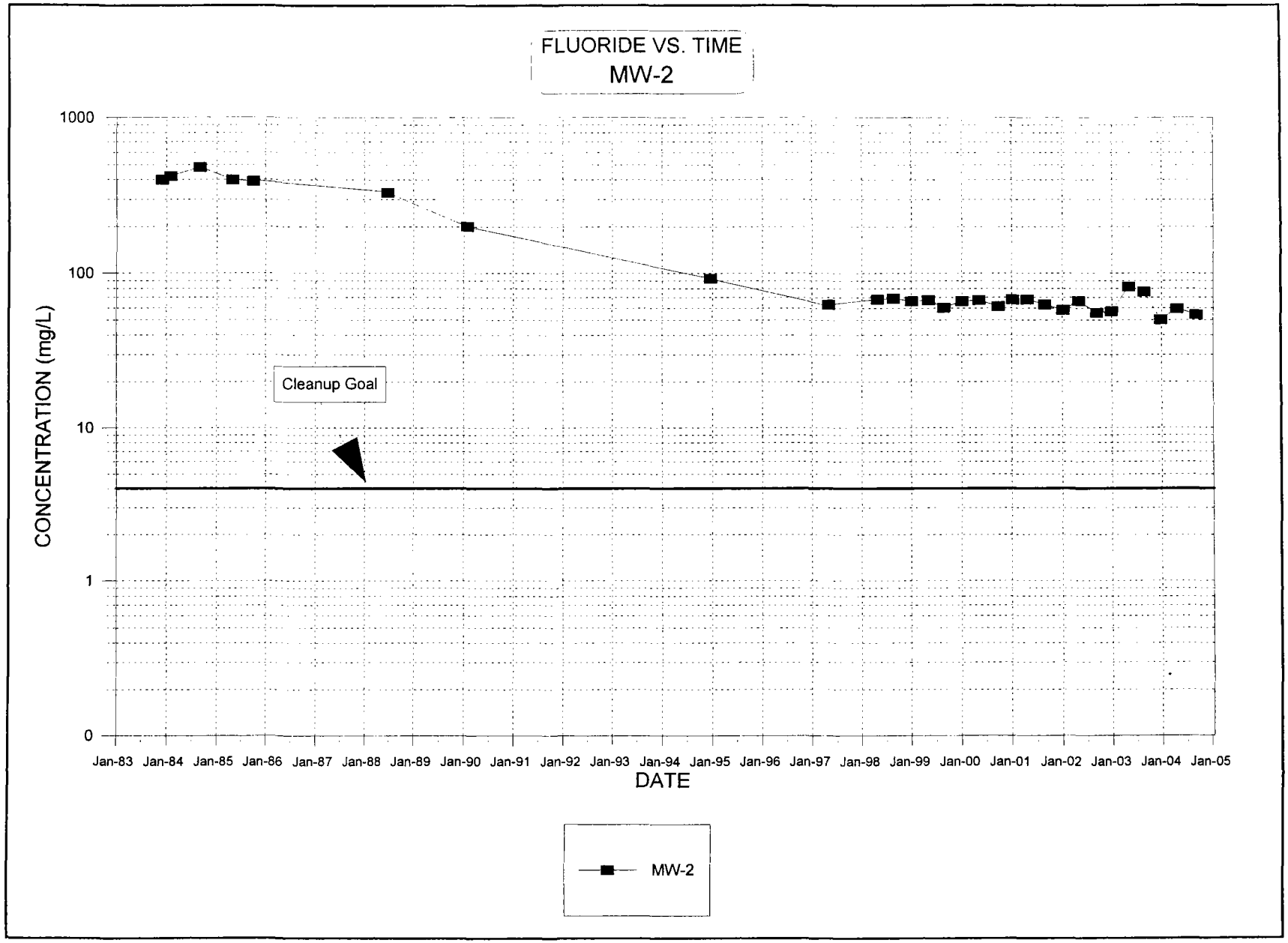

AMENABLE CYANIDE VS. TIME
MW-36
100.000
10.000
1.000
0.100
0.010
0.001
CONCENRTATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-36
* = Below detection. Value plotted is detection limit.

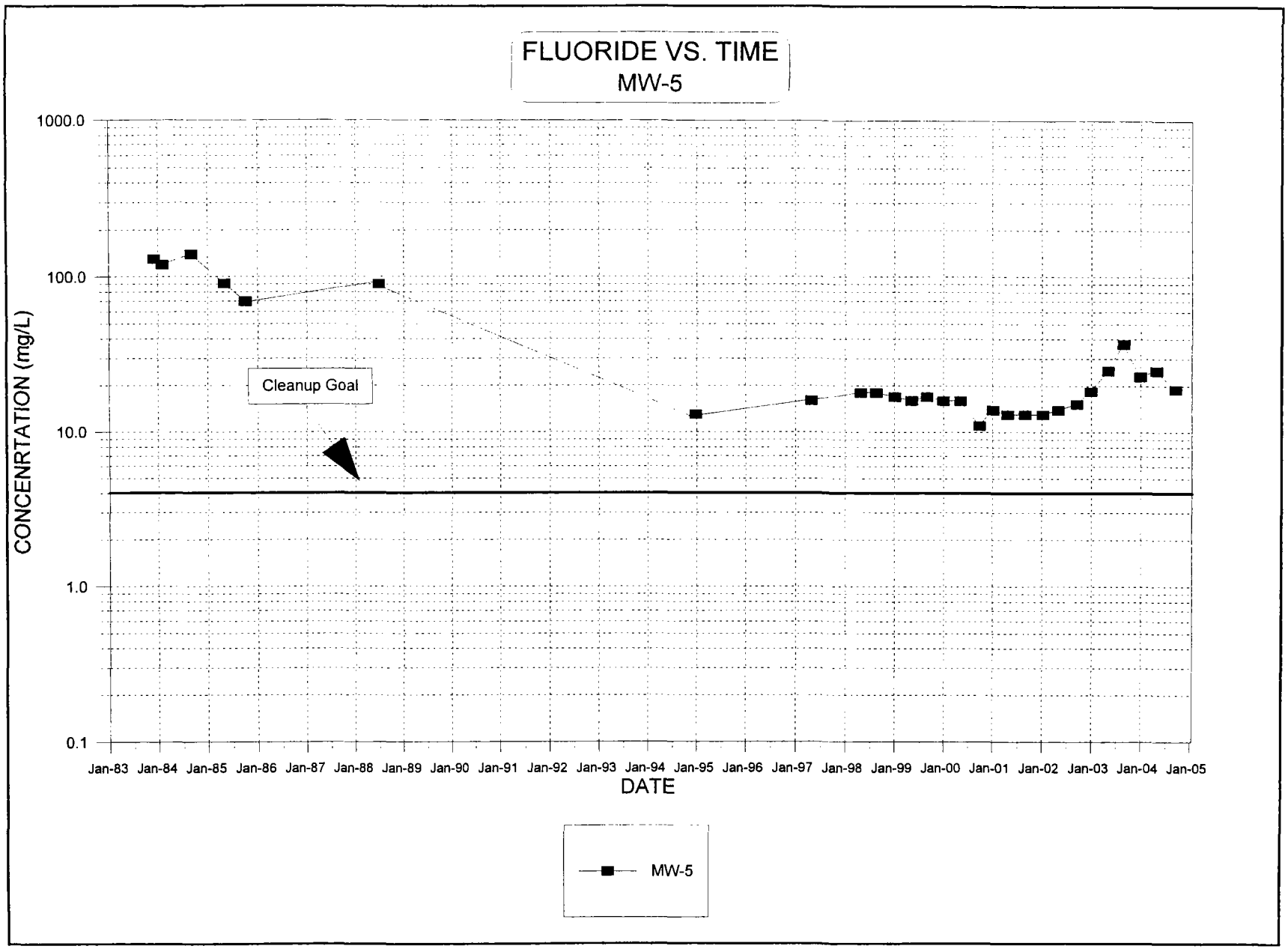


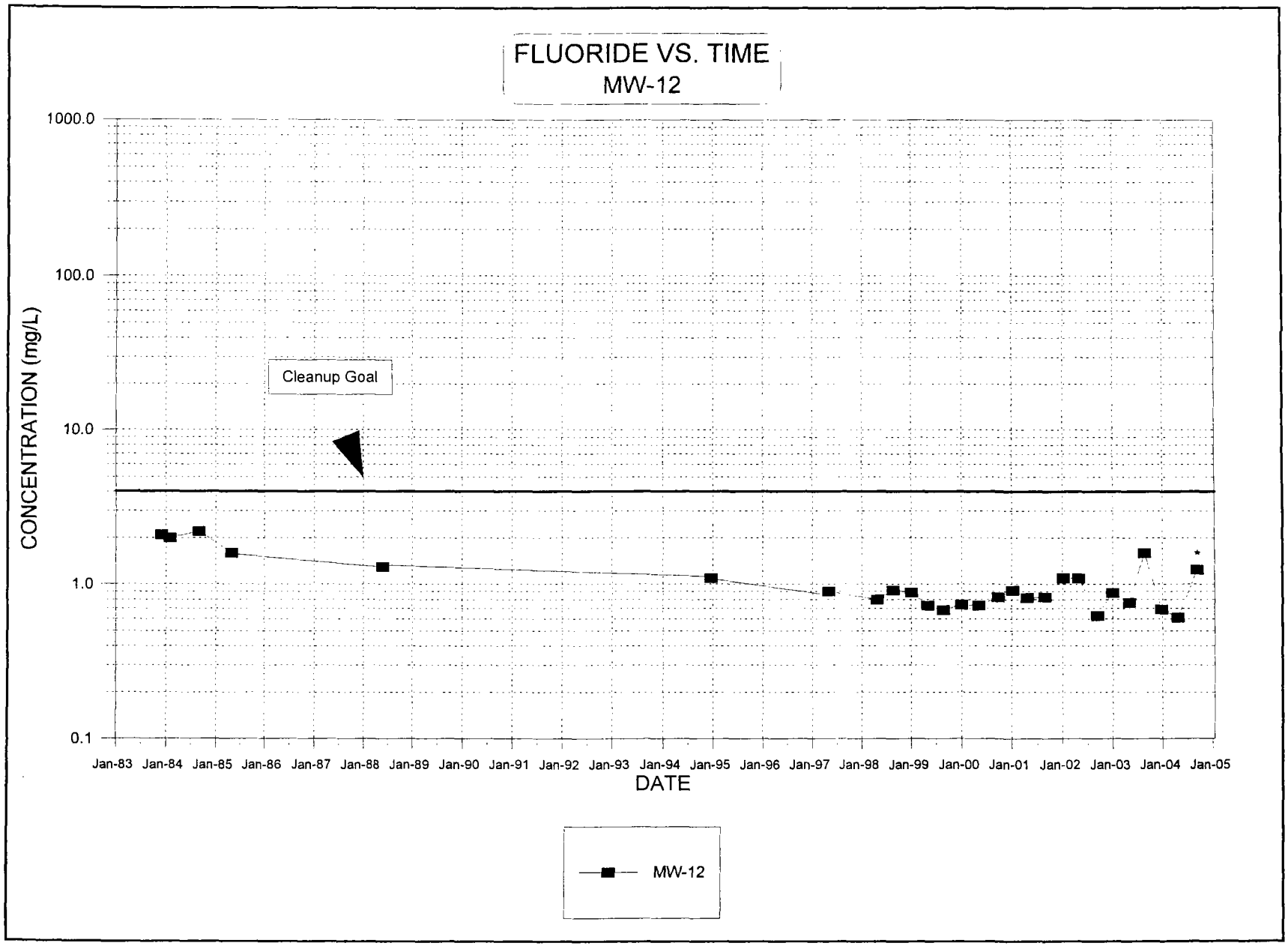
* = Below detection. Value plotted is detection limit.

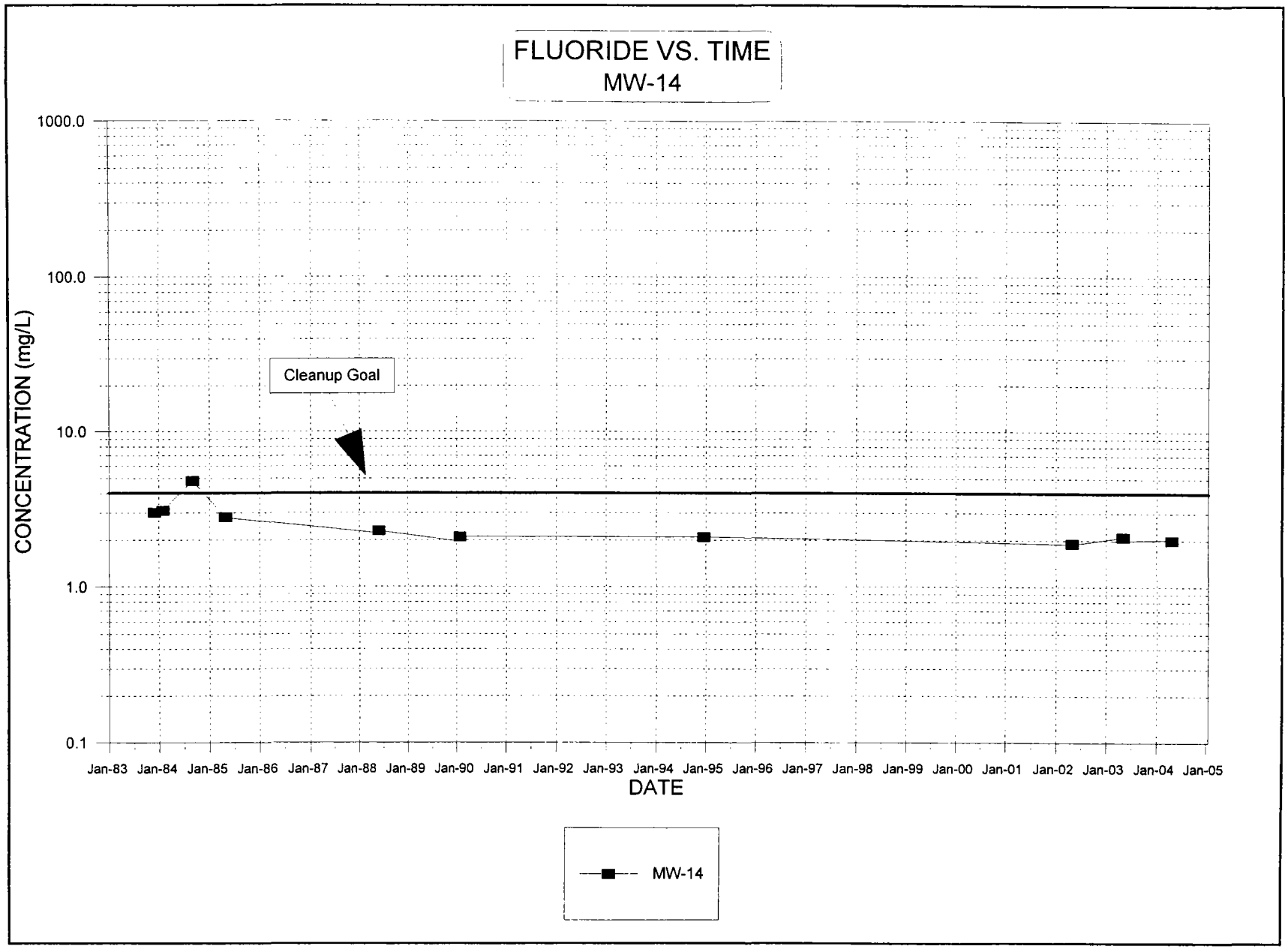
APPENDIX D-3

FLUORIDE


FLUORIDE VS. TIME
MW-2
CONCENTRATION (mg/L)
1000
100
10
1
0
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-2


FLUORIDE VS. TIME
MW-5
1000.0
100.0
10.0
1.0
0.1
CONCENRTATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
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
Jan-03
Jan-04
Jan-05
DATE
MW-12


FLUORIDE VS. TIME
MW-14
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
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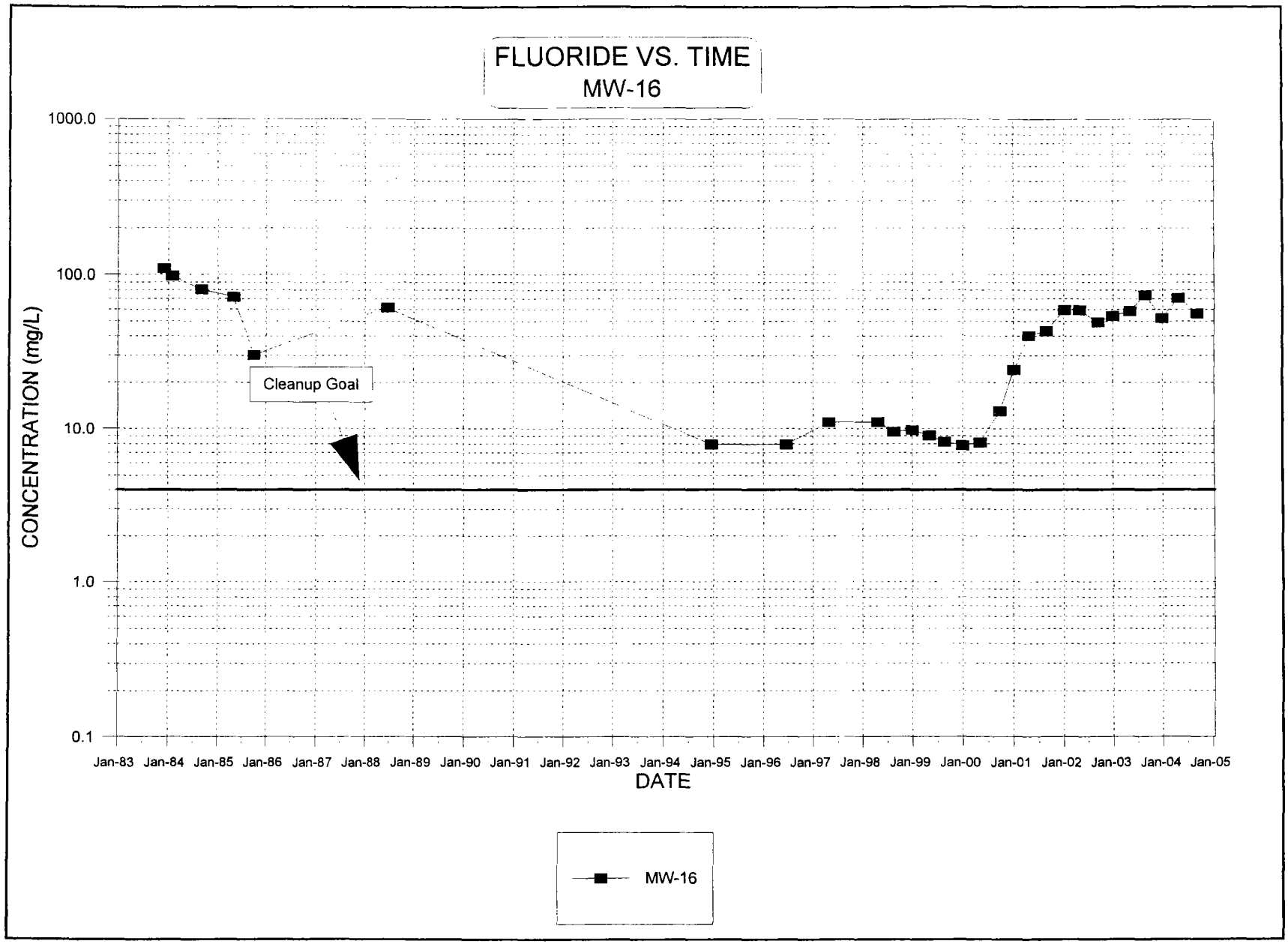
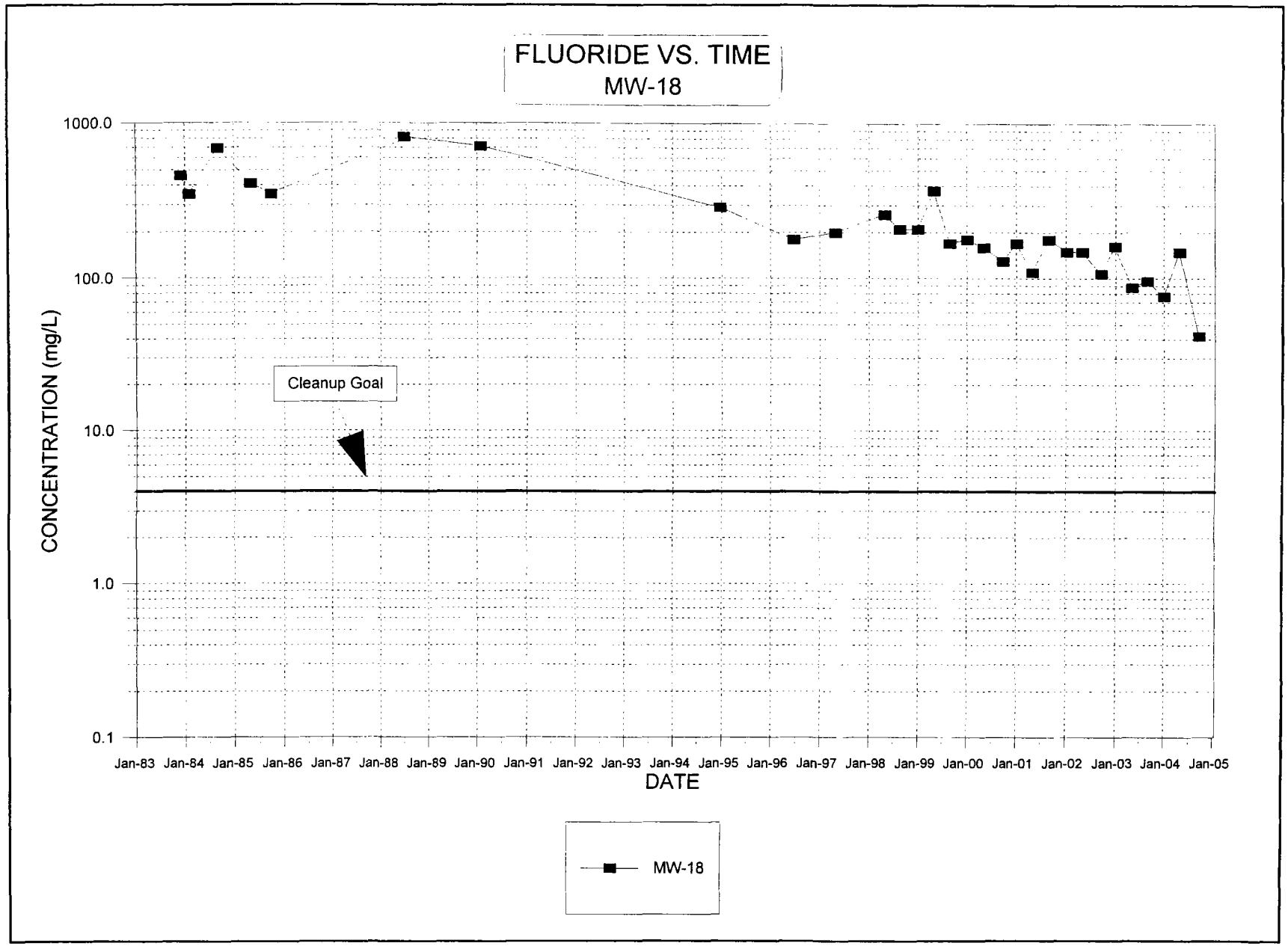
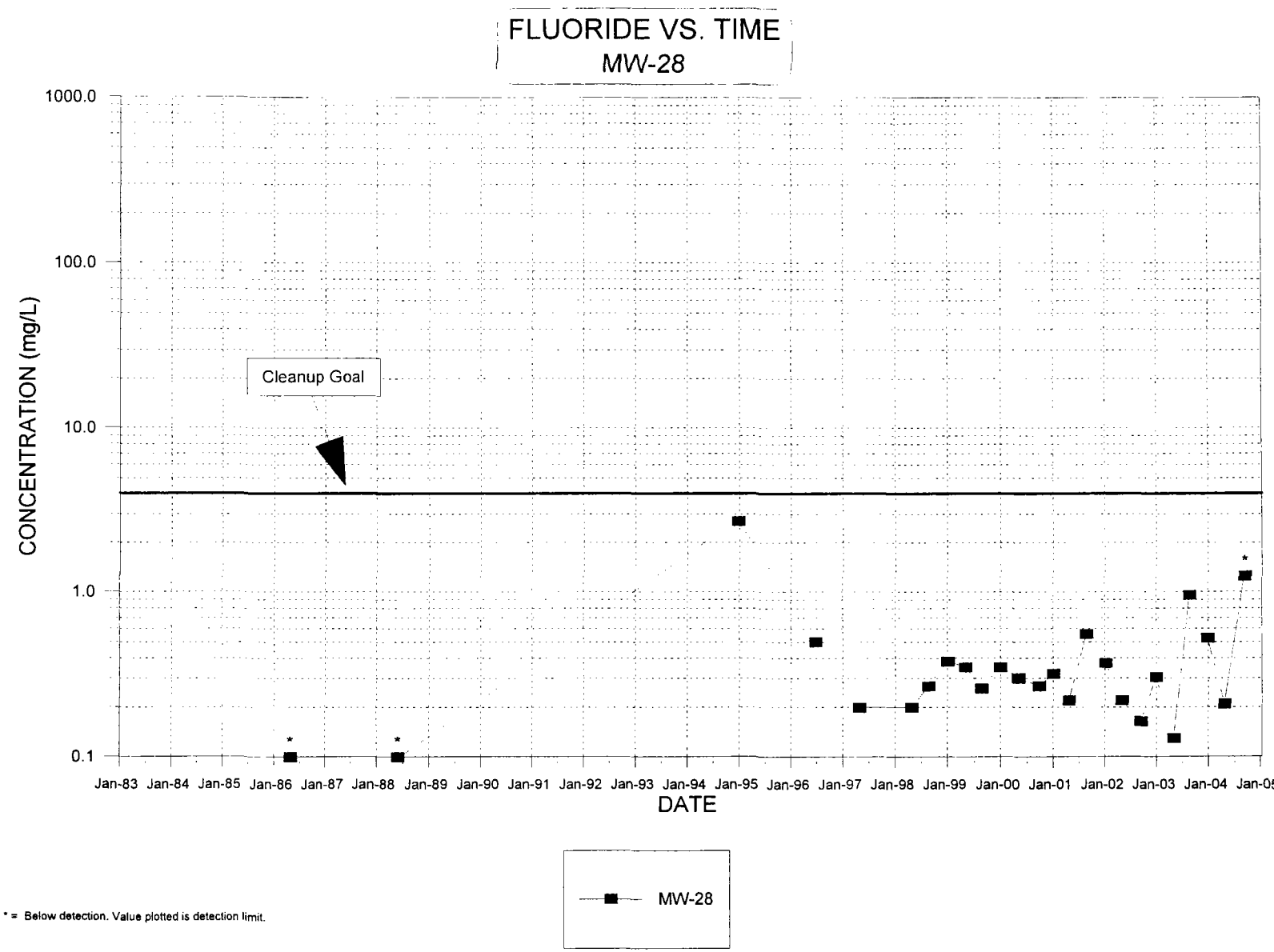
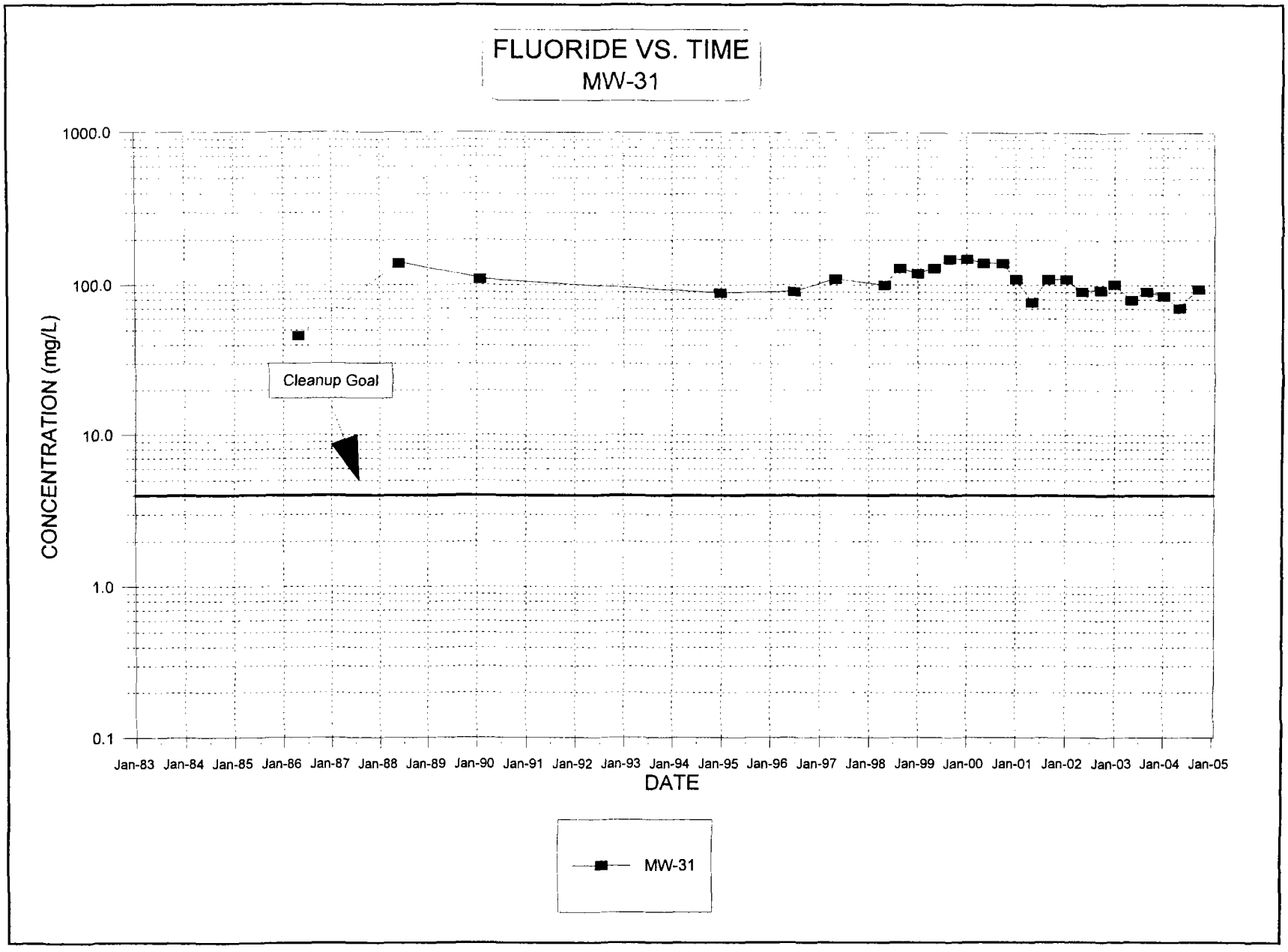
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-14

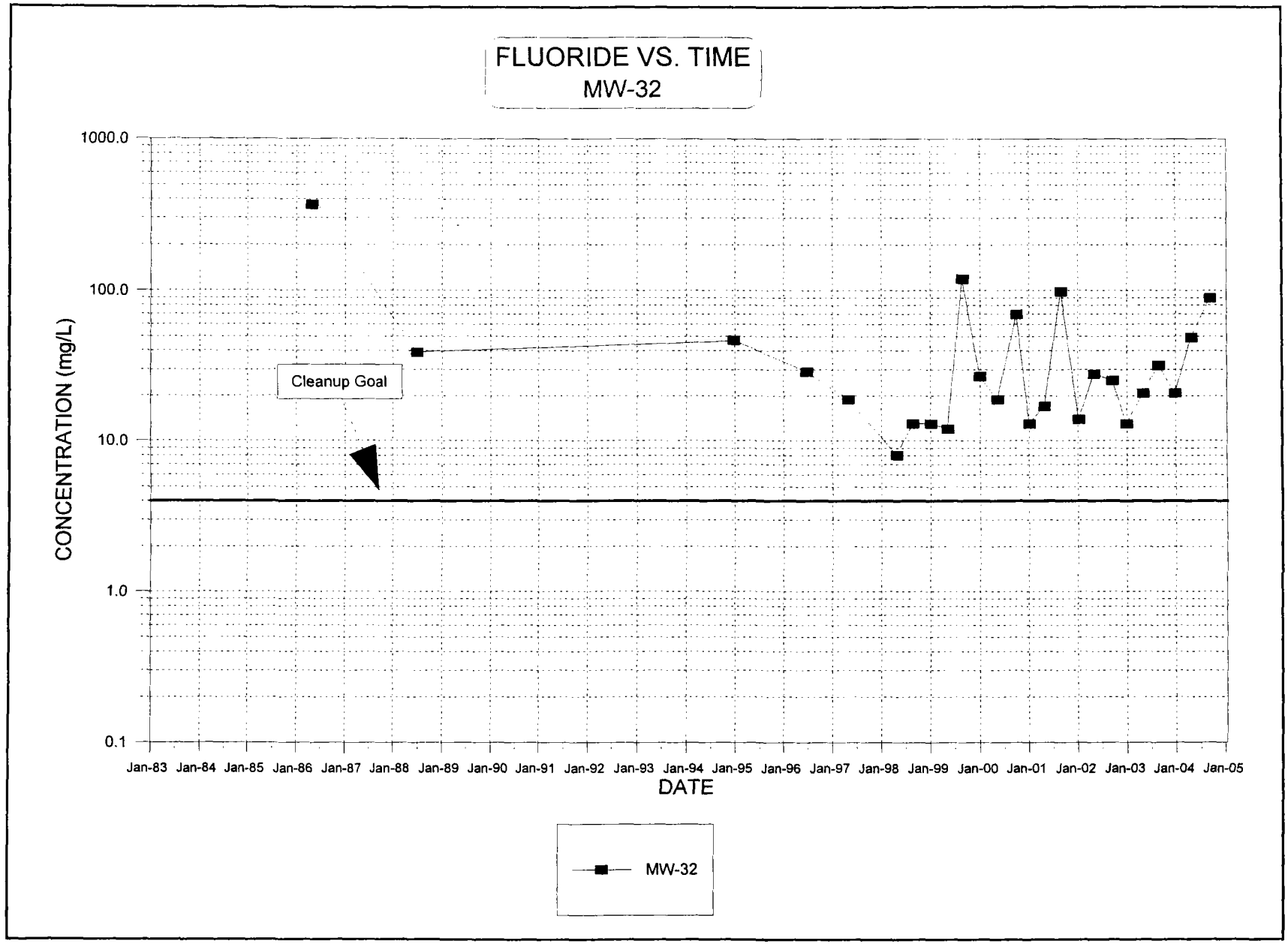

FLUORIDE VS. TIME
MW-16
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-16

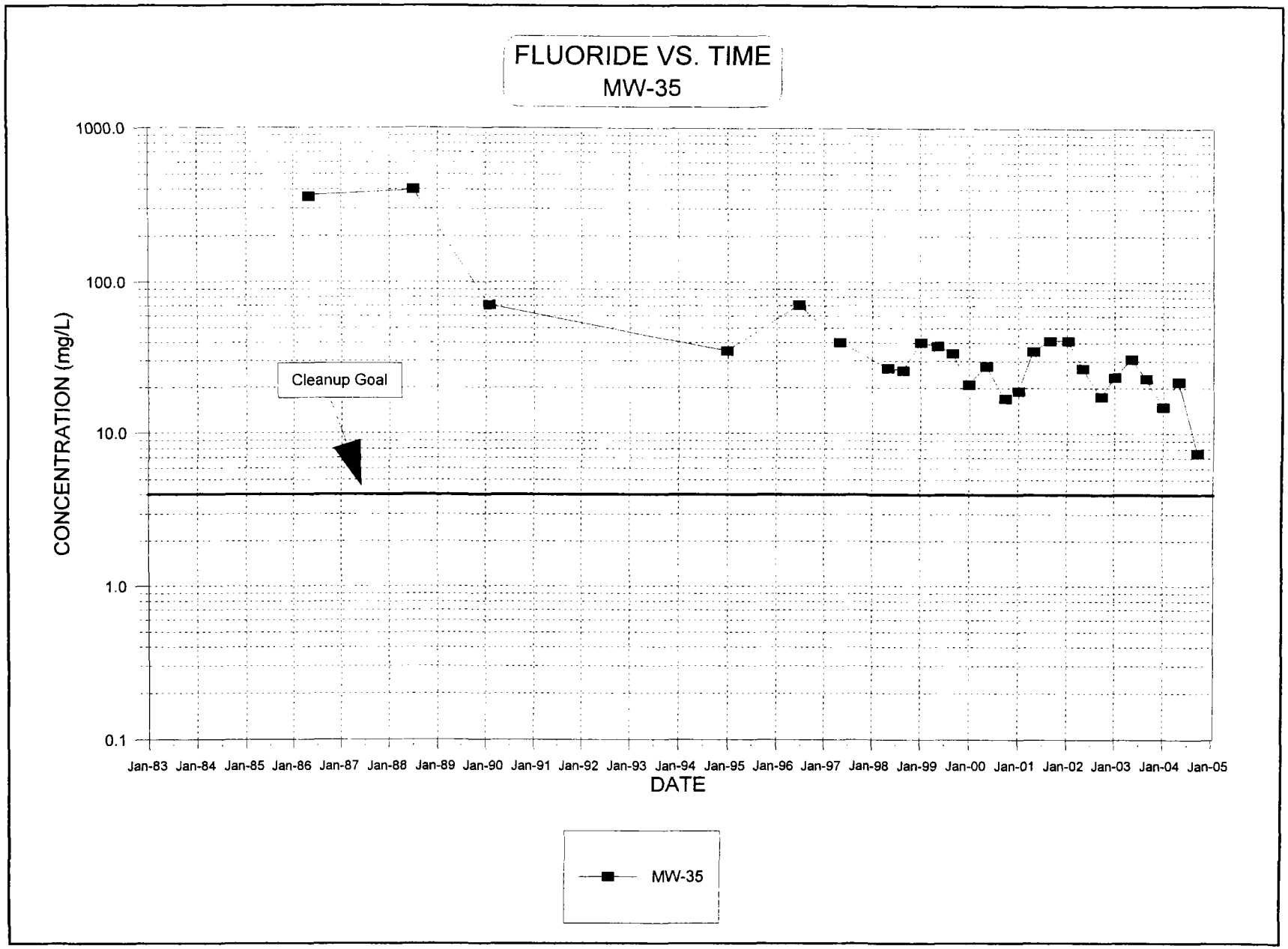

FLUORIDE VS. TIME
MW-18
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-18

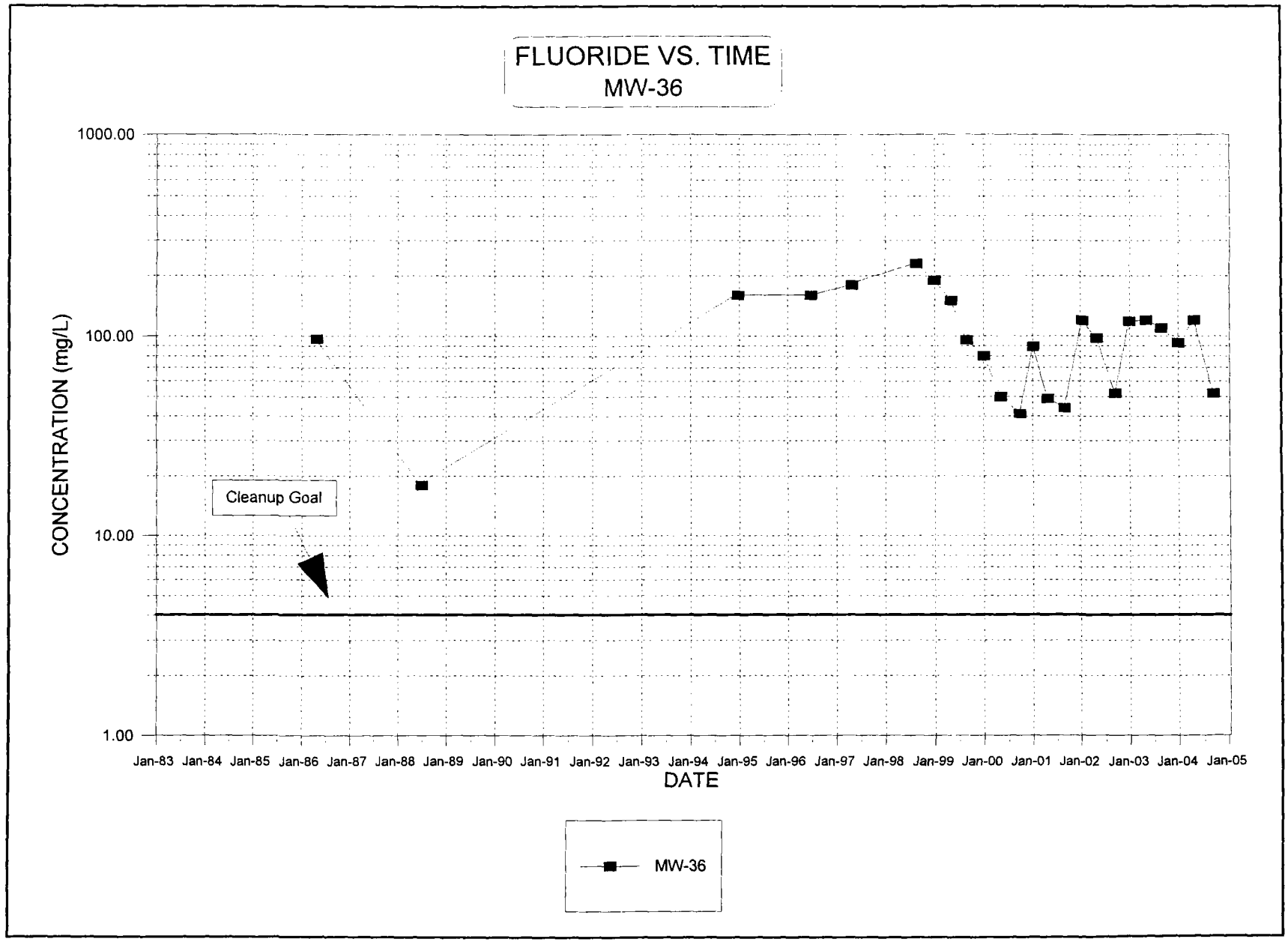


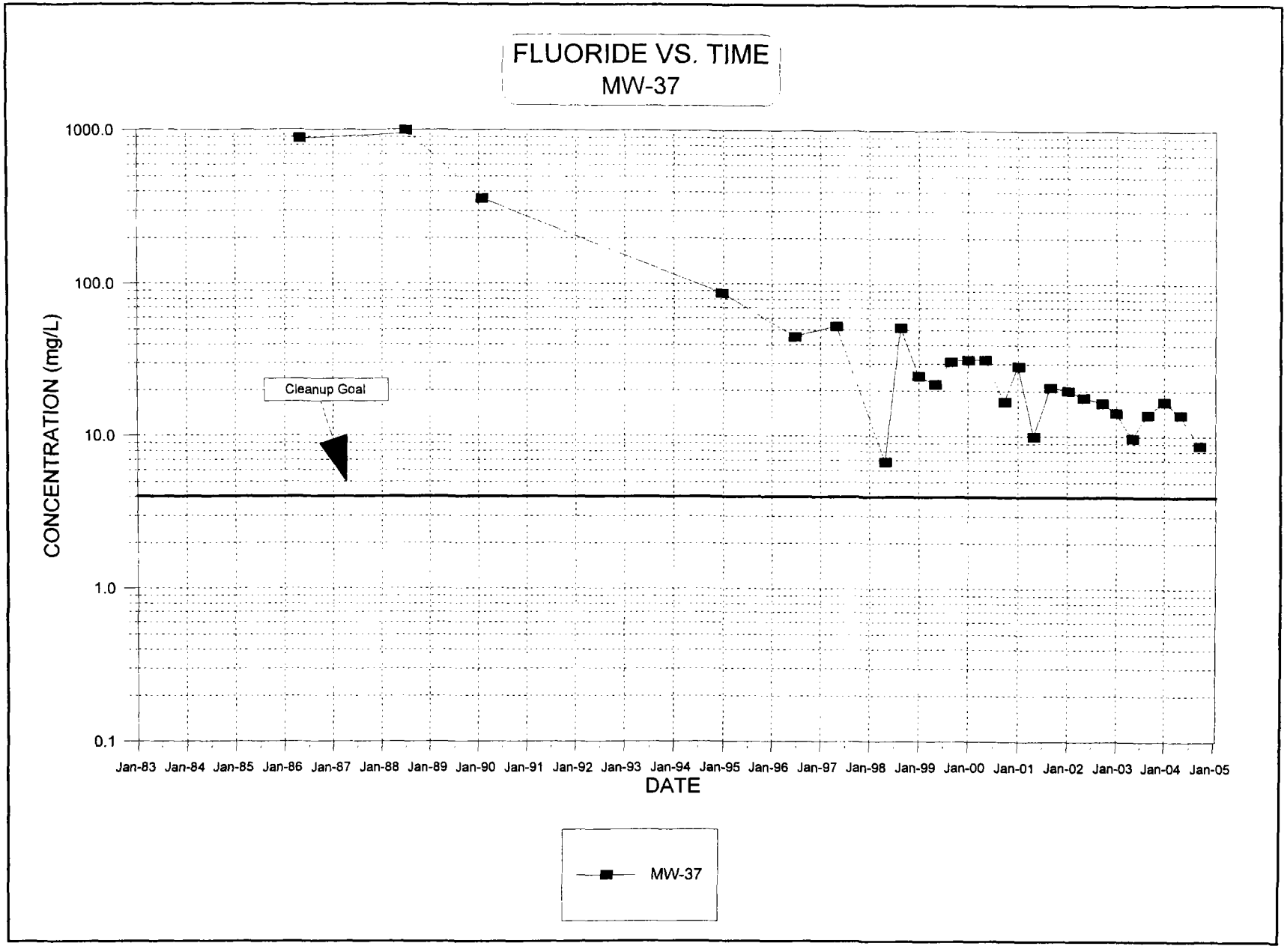
* = Below detection. Value plotted is detection limit.


FLUORIDE VS. TIME
MW-31
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-31


FLUORIDE VS. TIME
MW-32
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-32

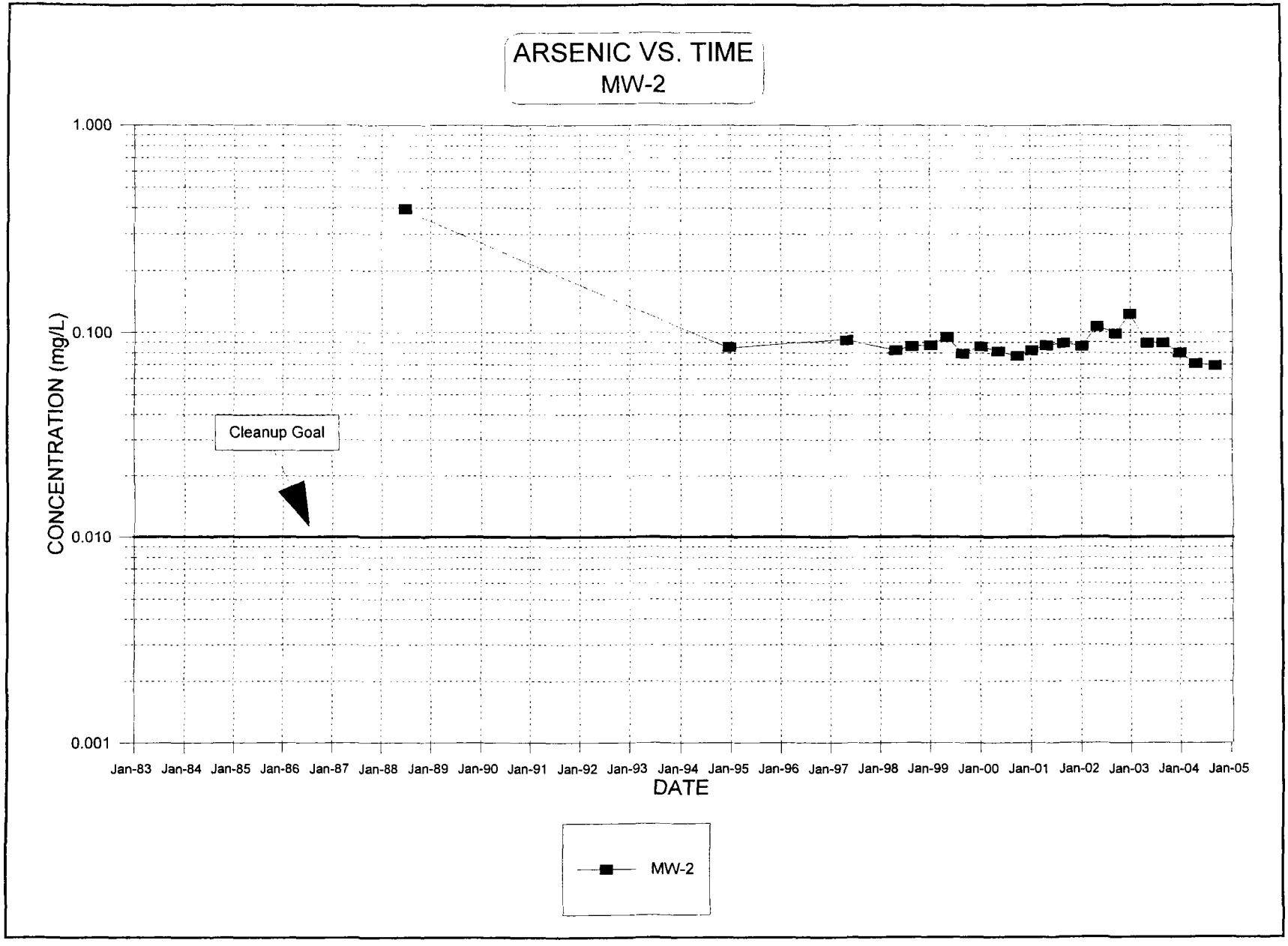

FLUORIDE VS. TIME
MW-35
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-35

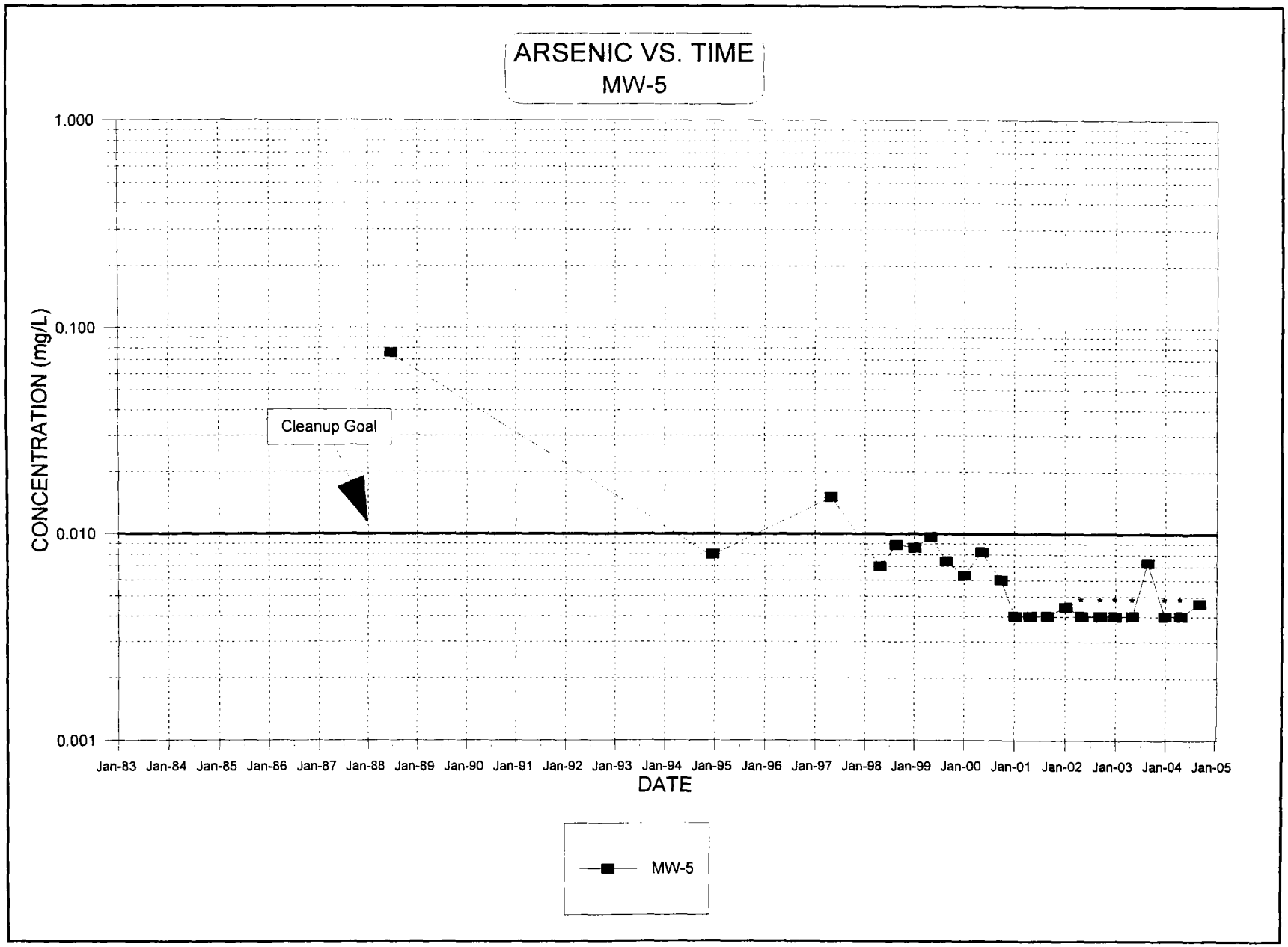

FLUORIDE VS. TIME
MW-36
1000.00
100.00
10.00
1.00
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-36

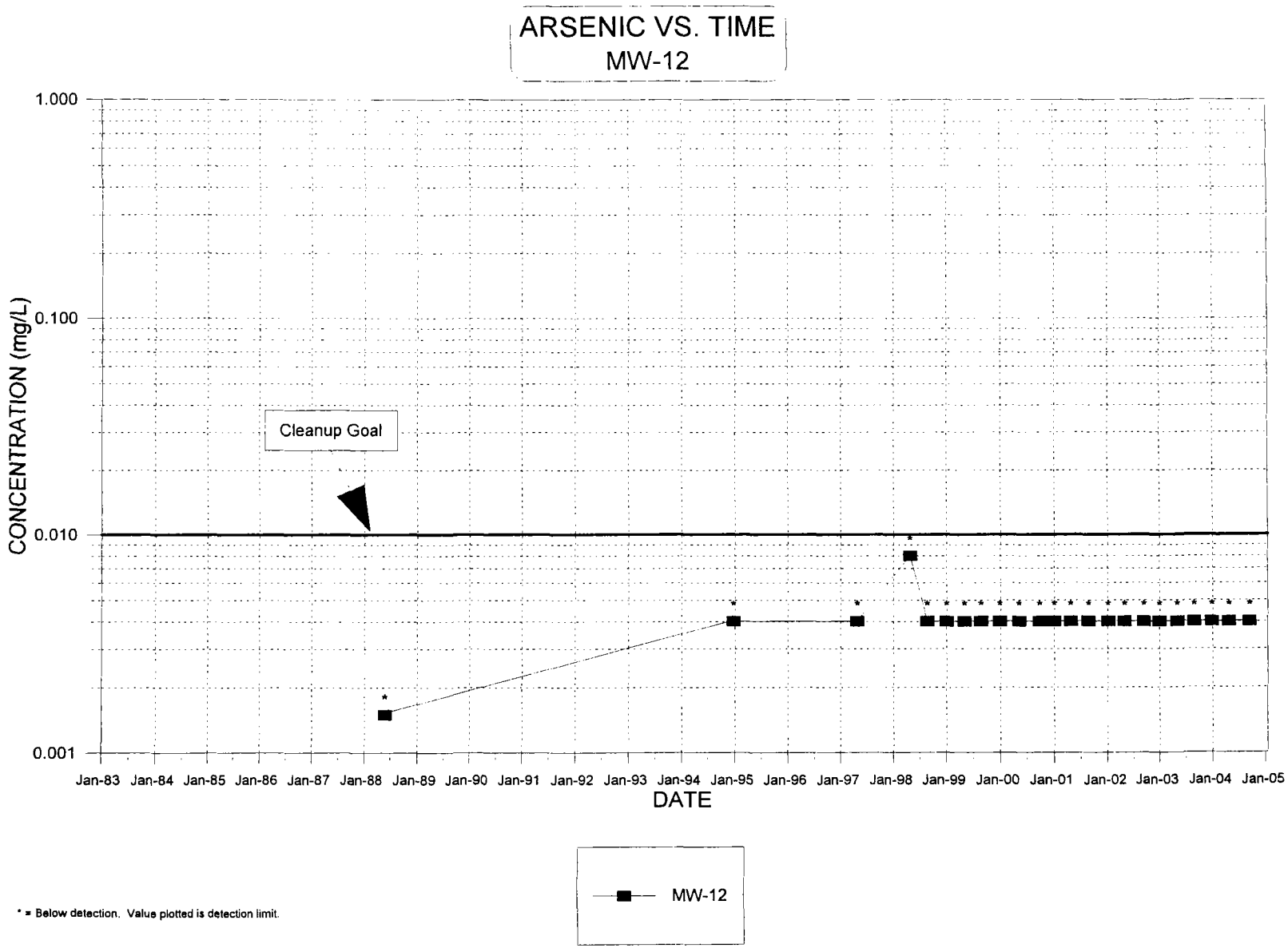

FLUORIDE VS. TIME
MW-37
1000.0
100.0
10.0
1.0
0.1
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-37

APPENDIX D-4

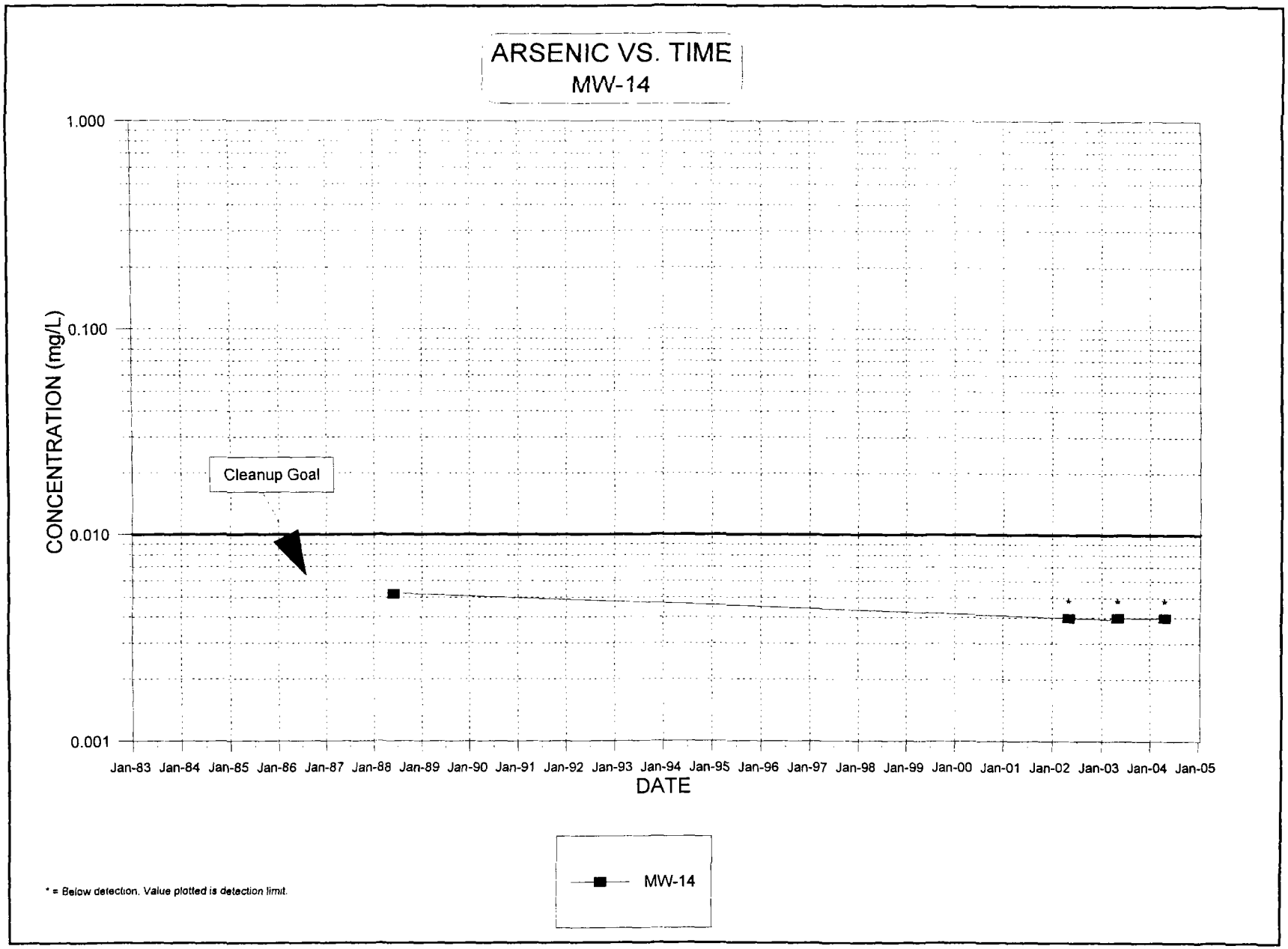
ARSENIC

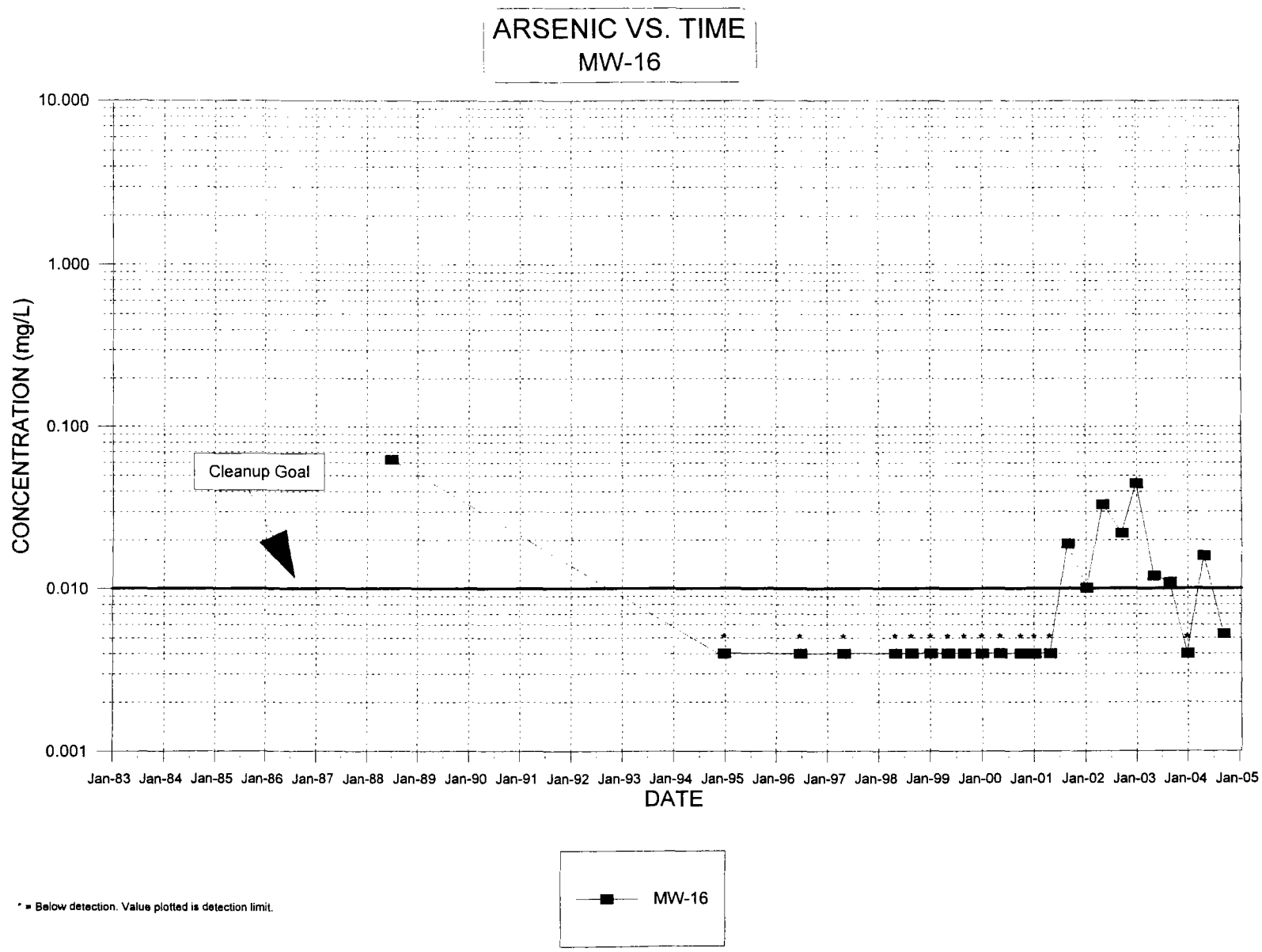

ARSENIC VS. TIME
MW-2
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-2


ARSENIC VS. TIME
MW-5
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-5

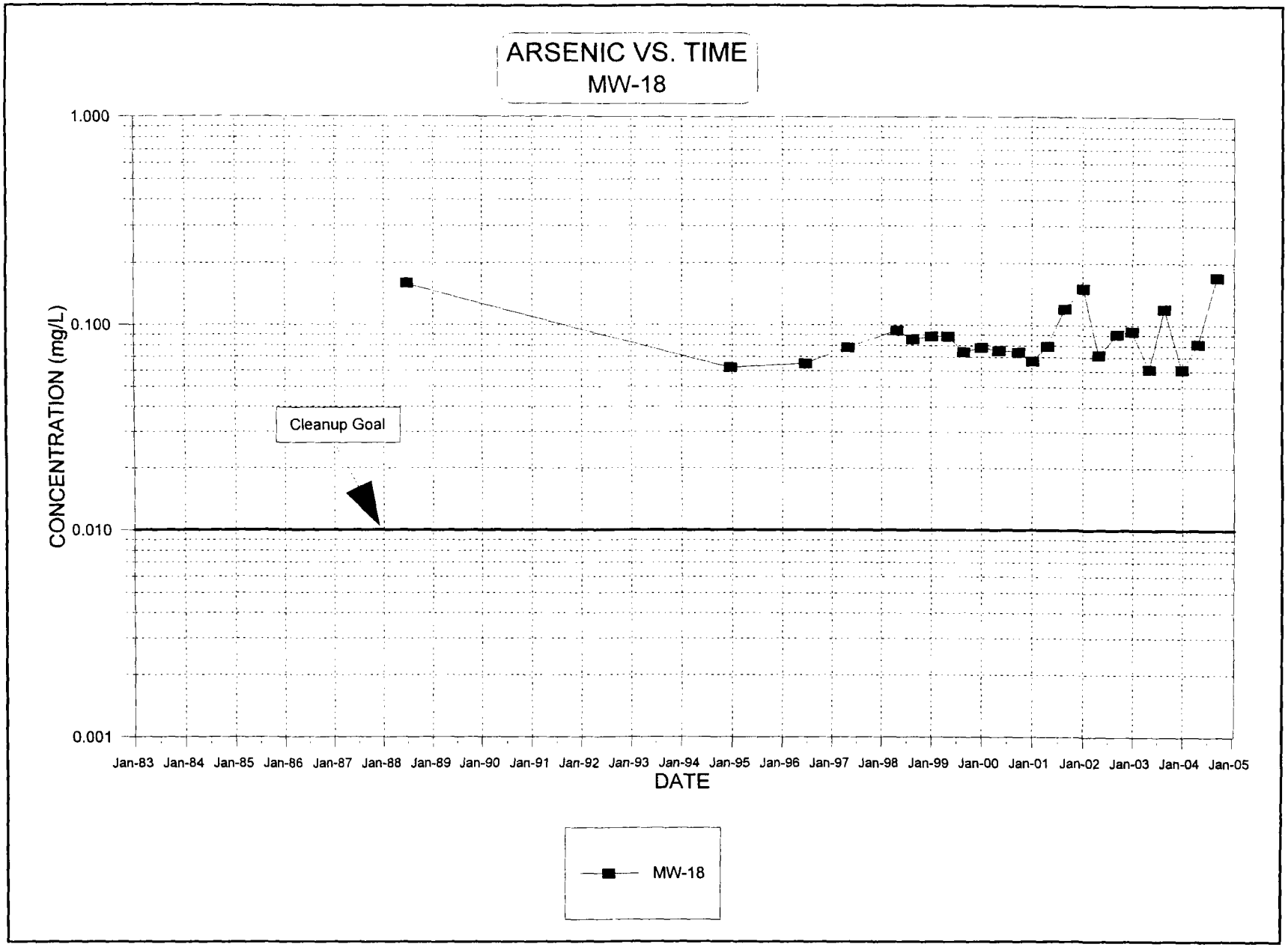


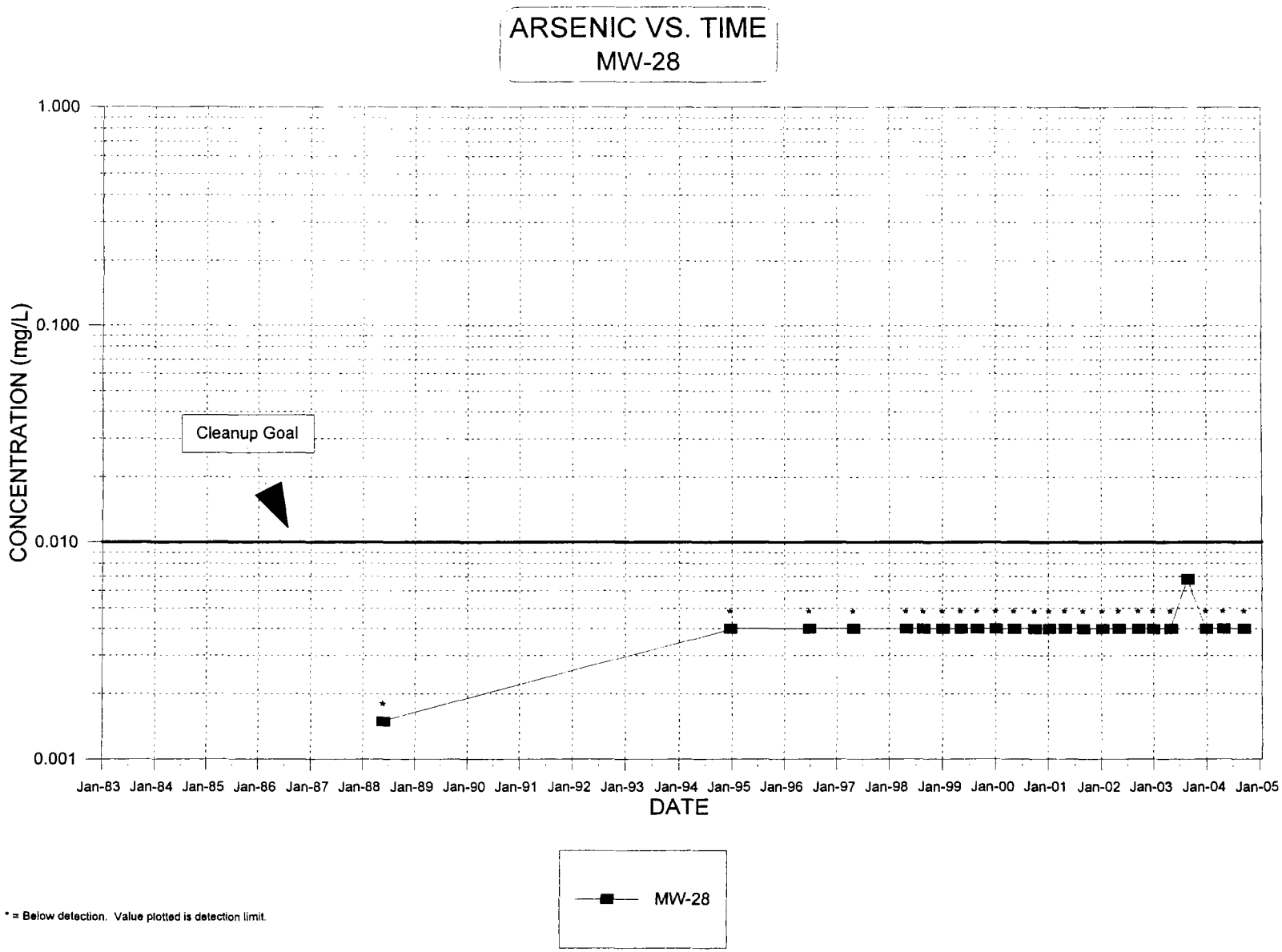
* = Below detection. Value plotted is detection limit.


ARSENIC VS. TIME
MW-14
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-14
* = Below detection. Value plotted is detection limit.

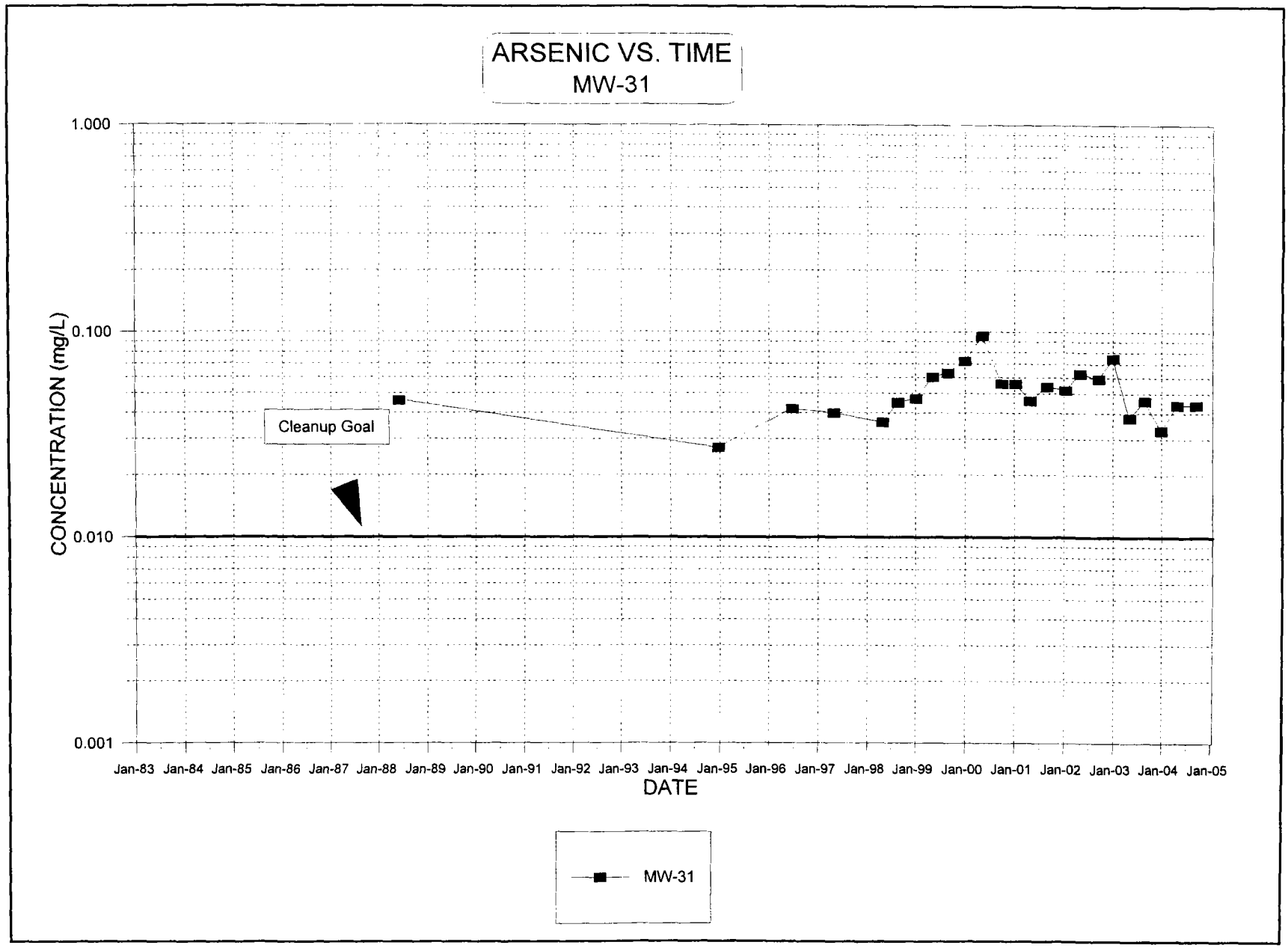


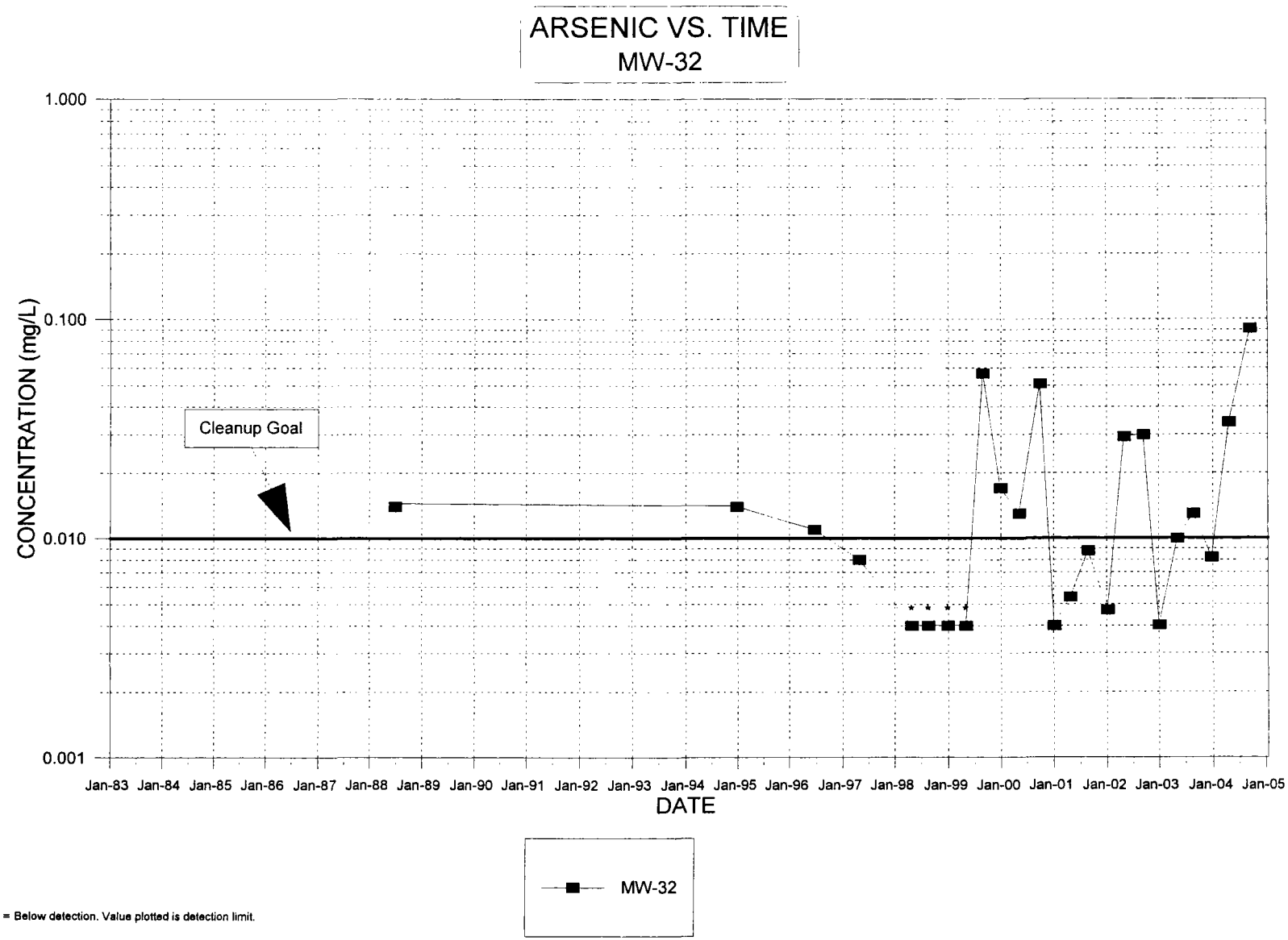
* = Below detection. Value plotted is detection limit.


ARSENIC VS. TIME
MW-18
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-18

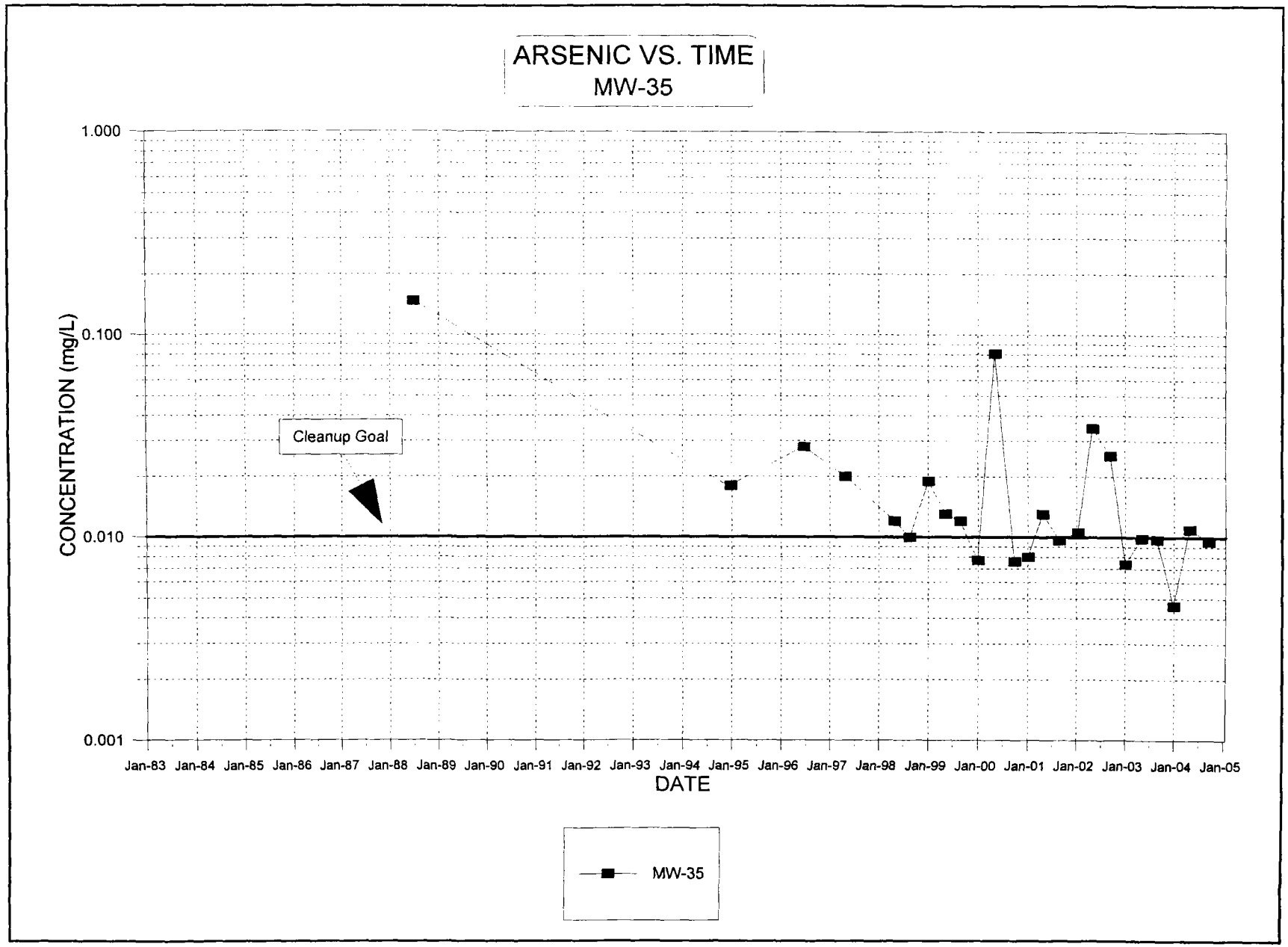


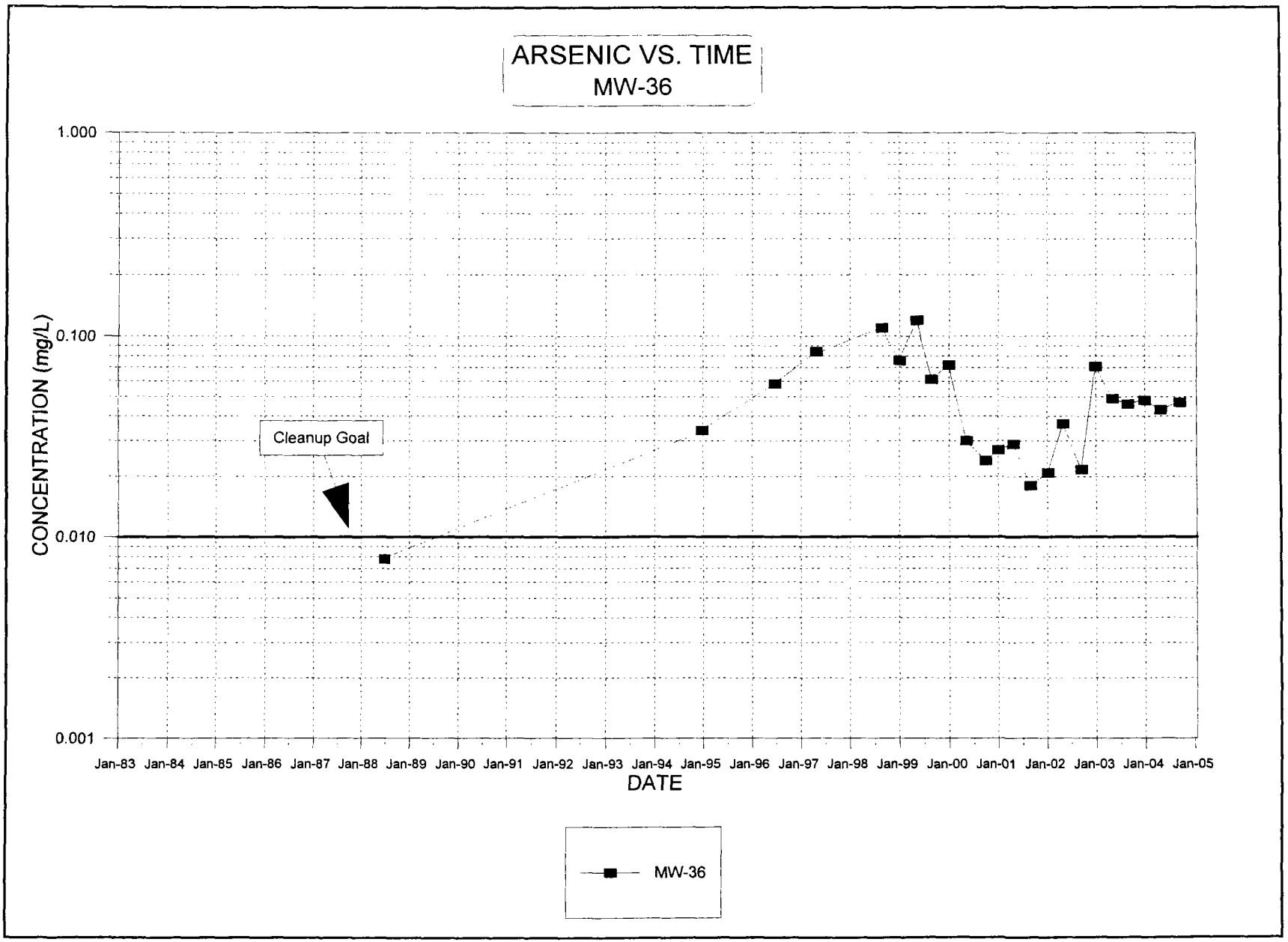
* = Below detection. Value plotted is detection limit.

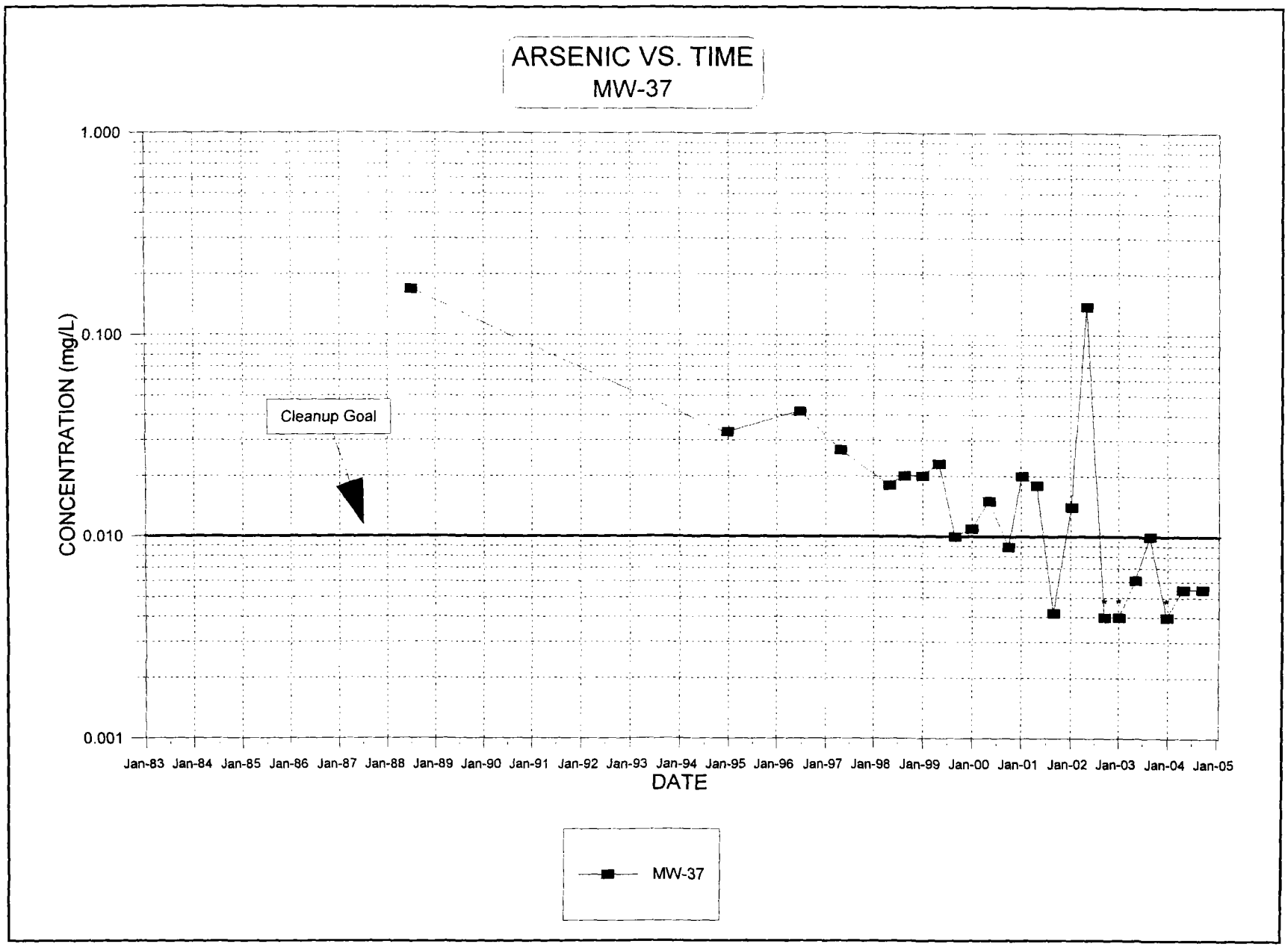

ARSENIC VS. TIME
MW-31
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-31



* = Below detection. Value plotted is detection limit.

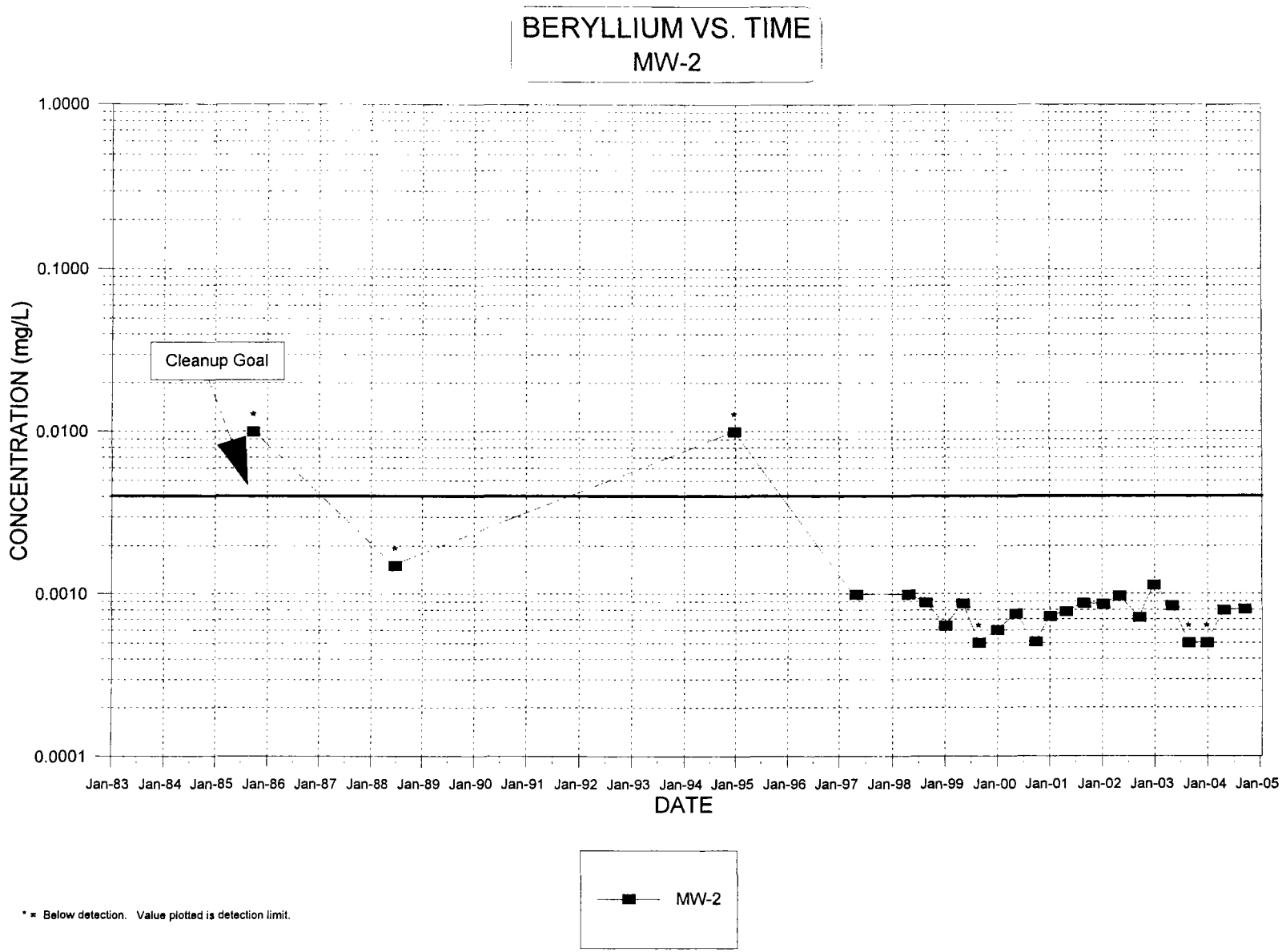

ARSENIC VS. TIME
MW-35
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-35

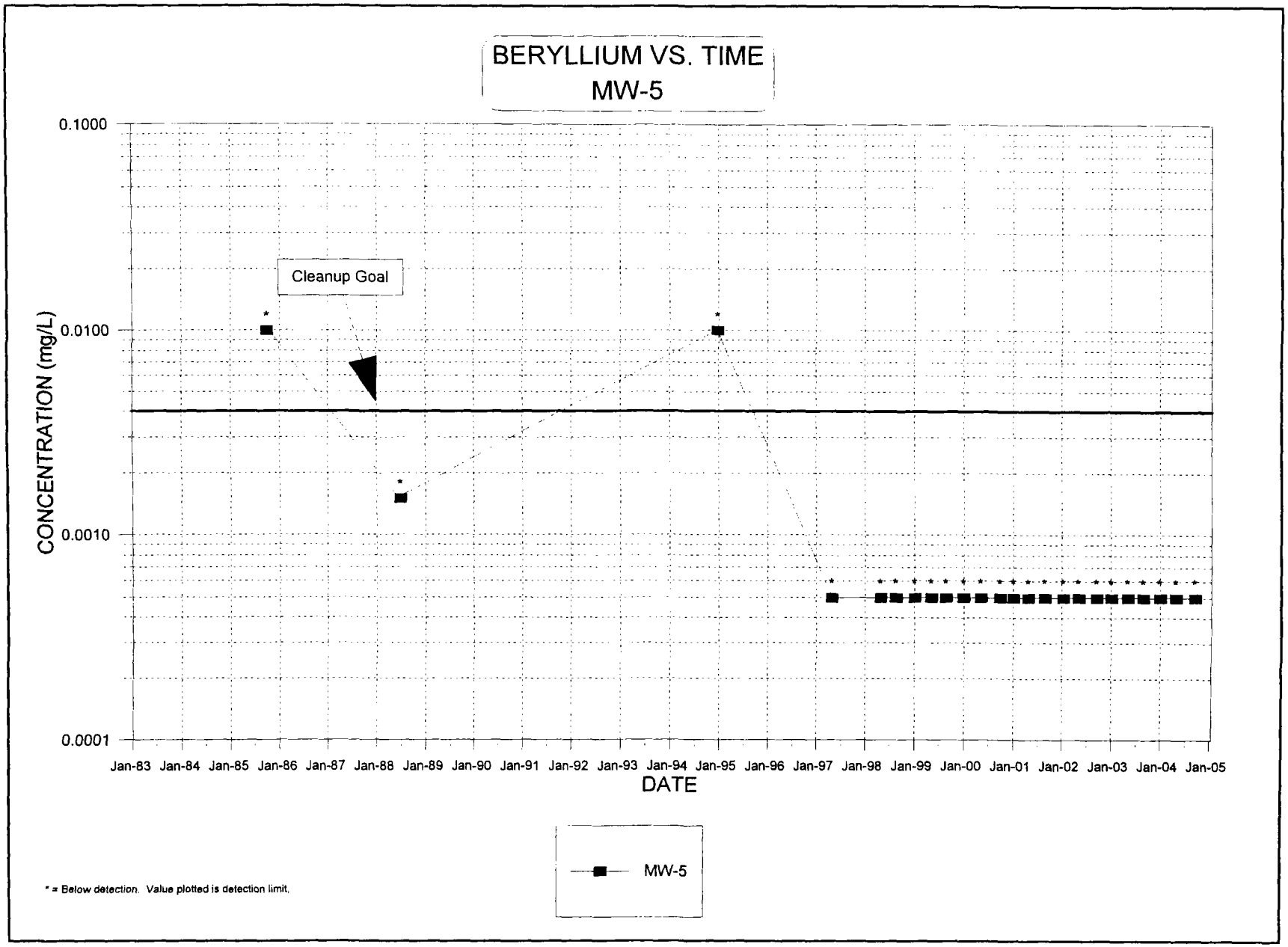

ARSENIC VS. TIME
MW-36
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-36

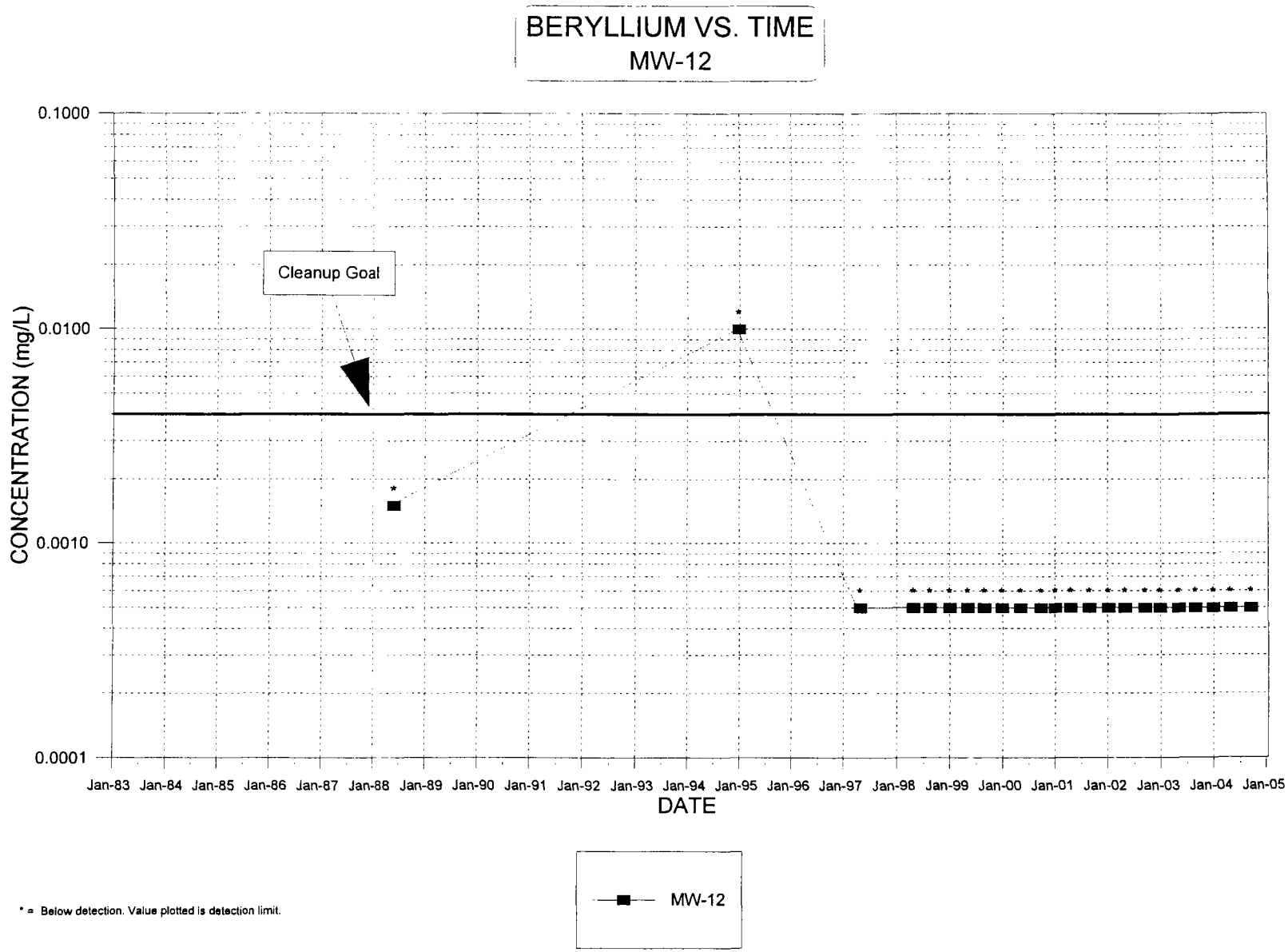

ARSENIC VS. TIME
MW-37
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-37

APPENDIX D-5

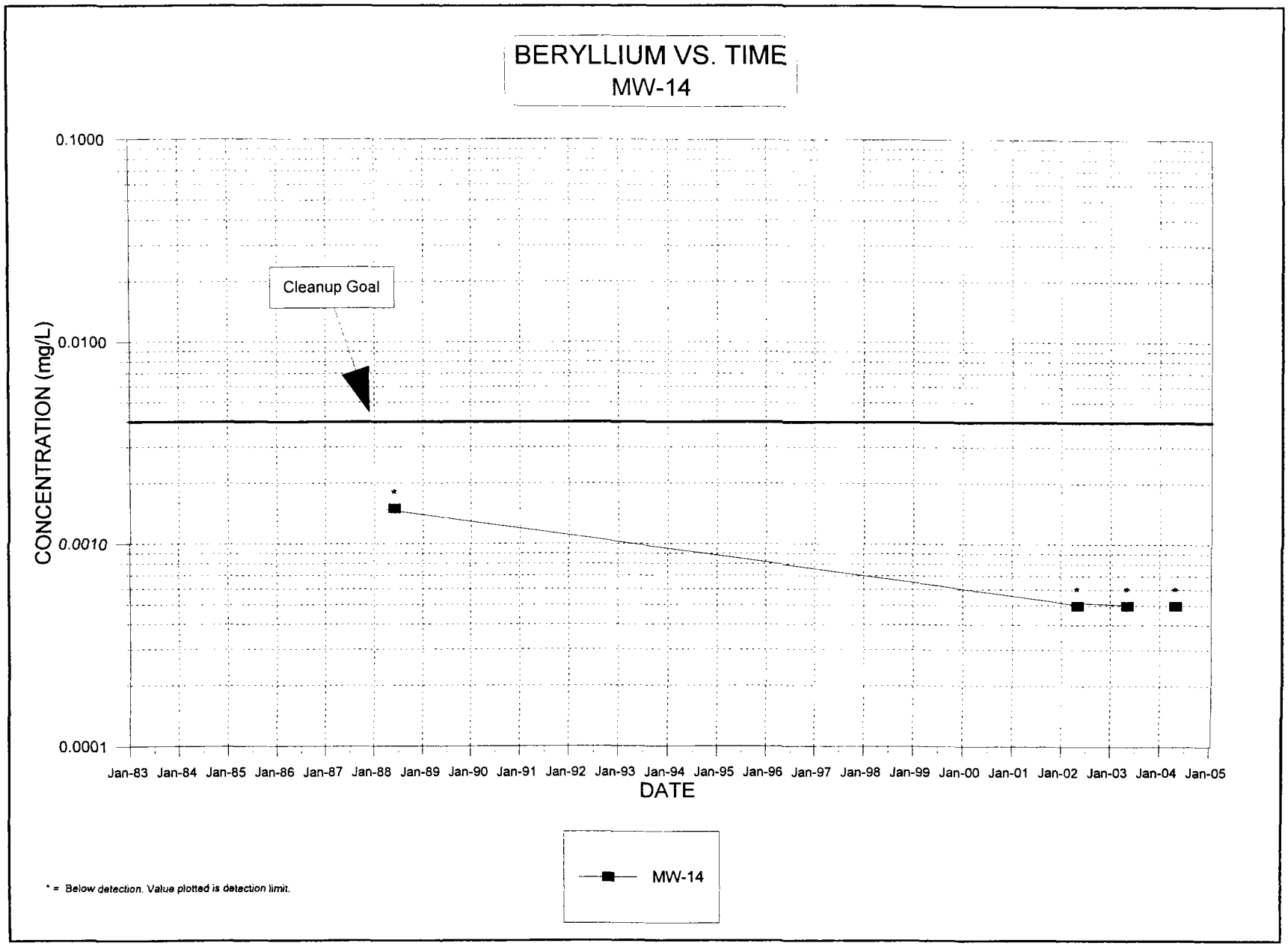
BERYLLIUM

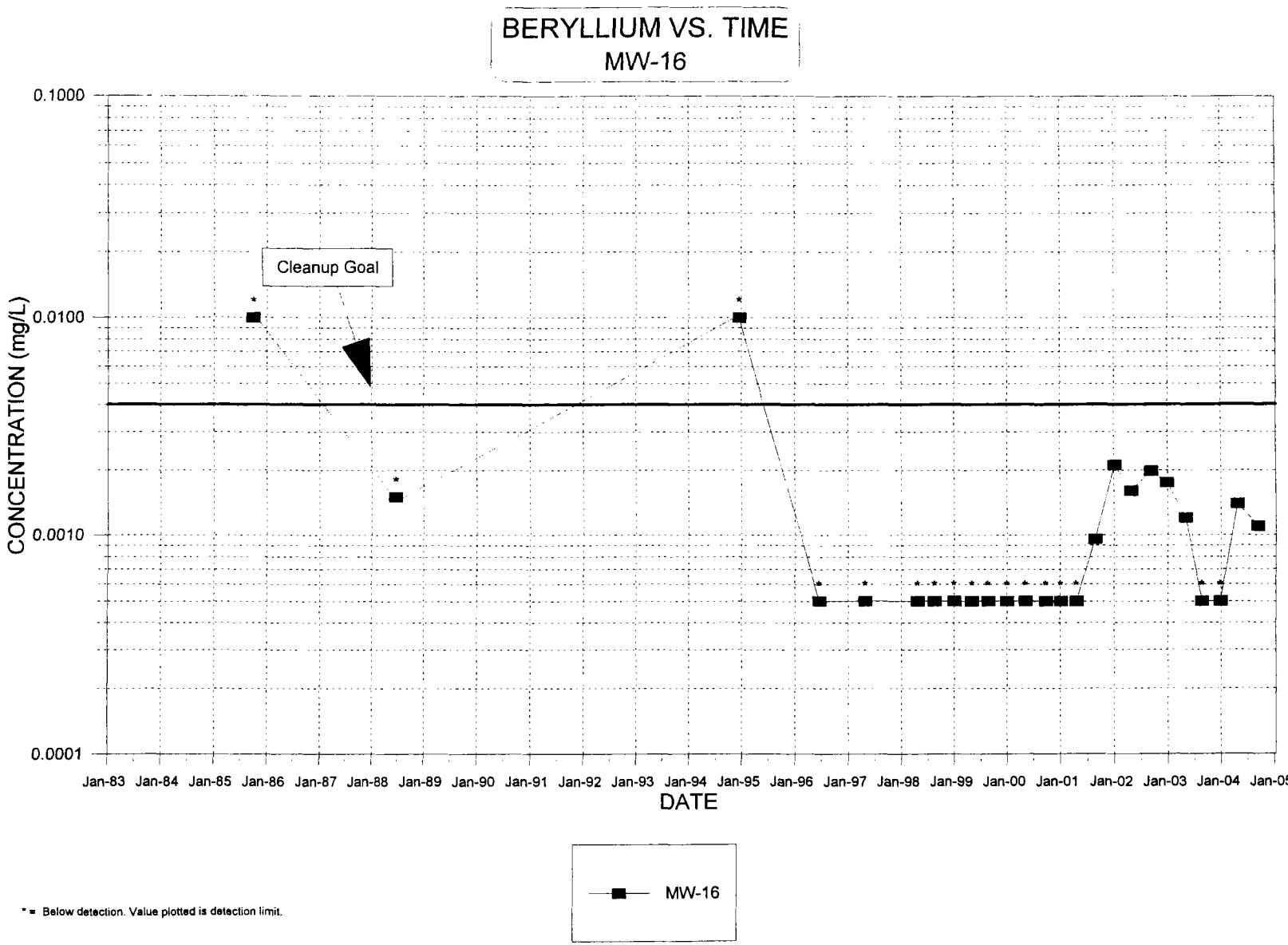

BERYLLIUM VS. TIME
MW-2
1.0000
0.1000
0.0100
0.0010
0.0001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-2
* = Below detection. Value plotted is detection limit.

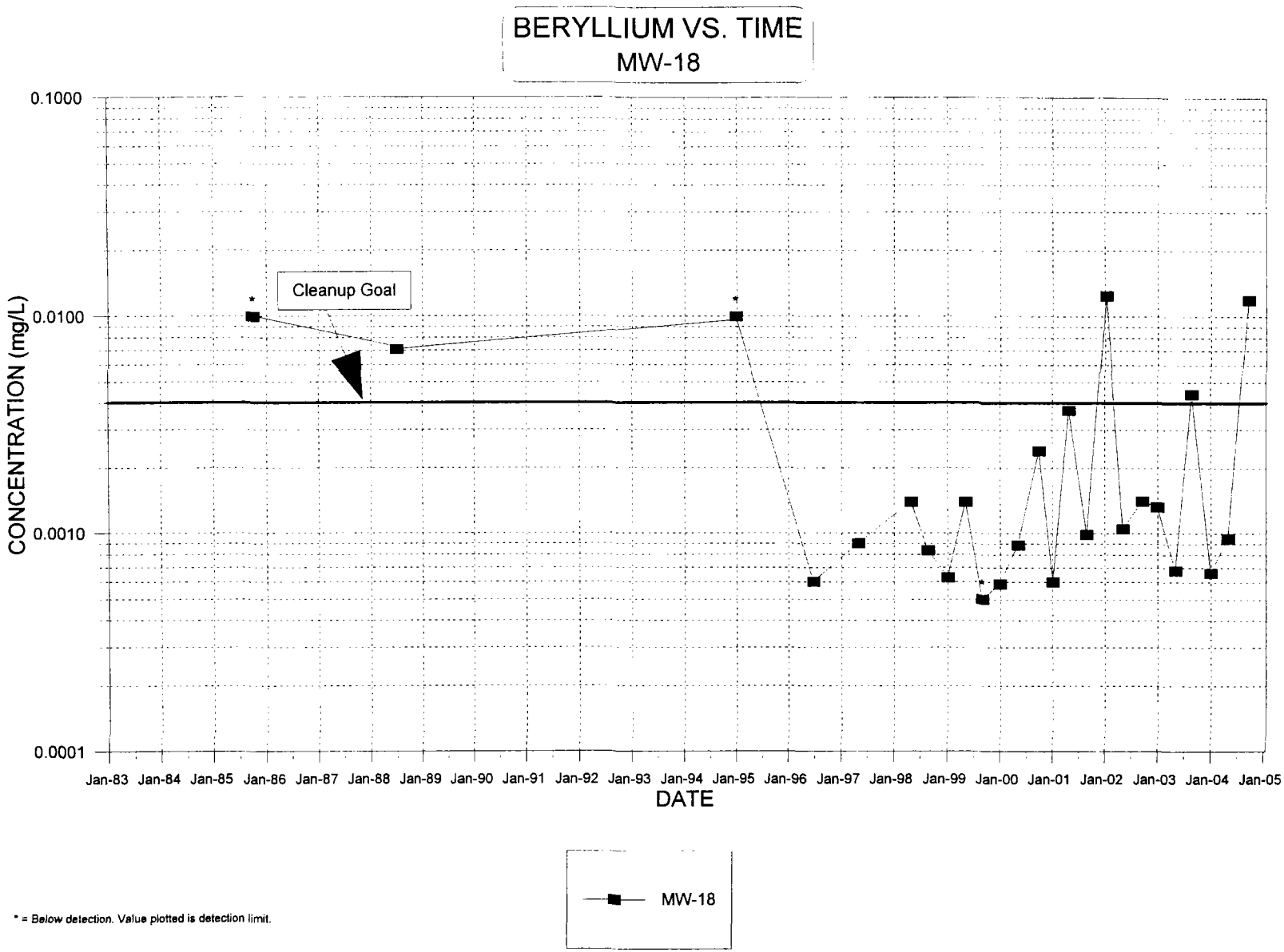

BERYLLIUM VS. TIME
MW-5
0.1000
0.0100
0.0010
0.0001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-5
* = Below detection. Value plotted is detection limit.

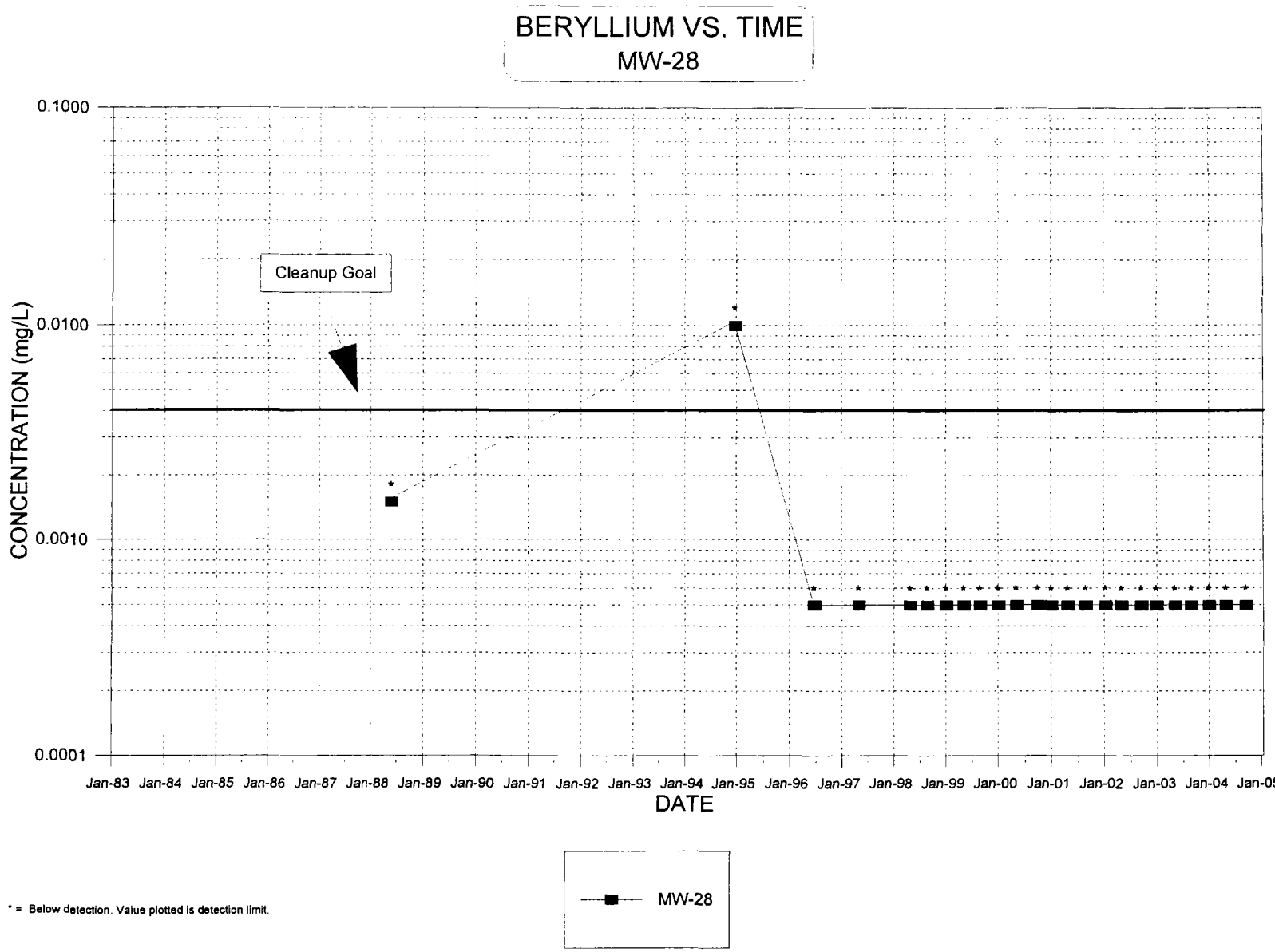


* = Below detection. Value plotted is detection limit.

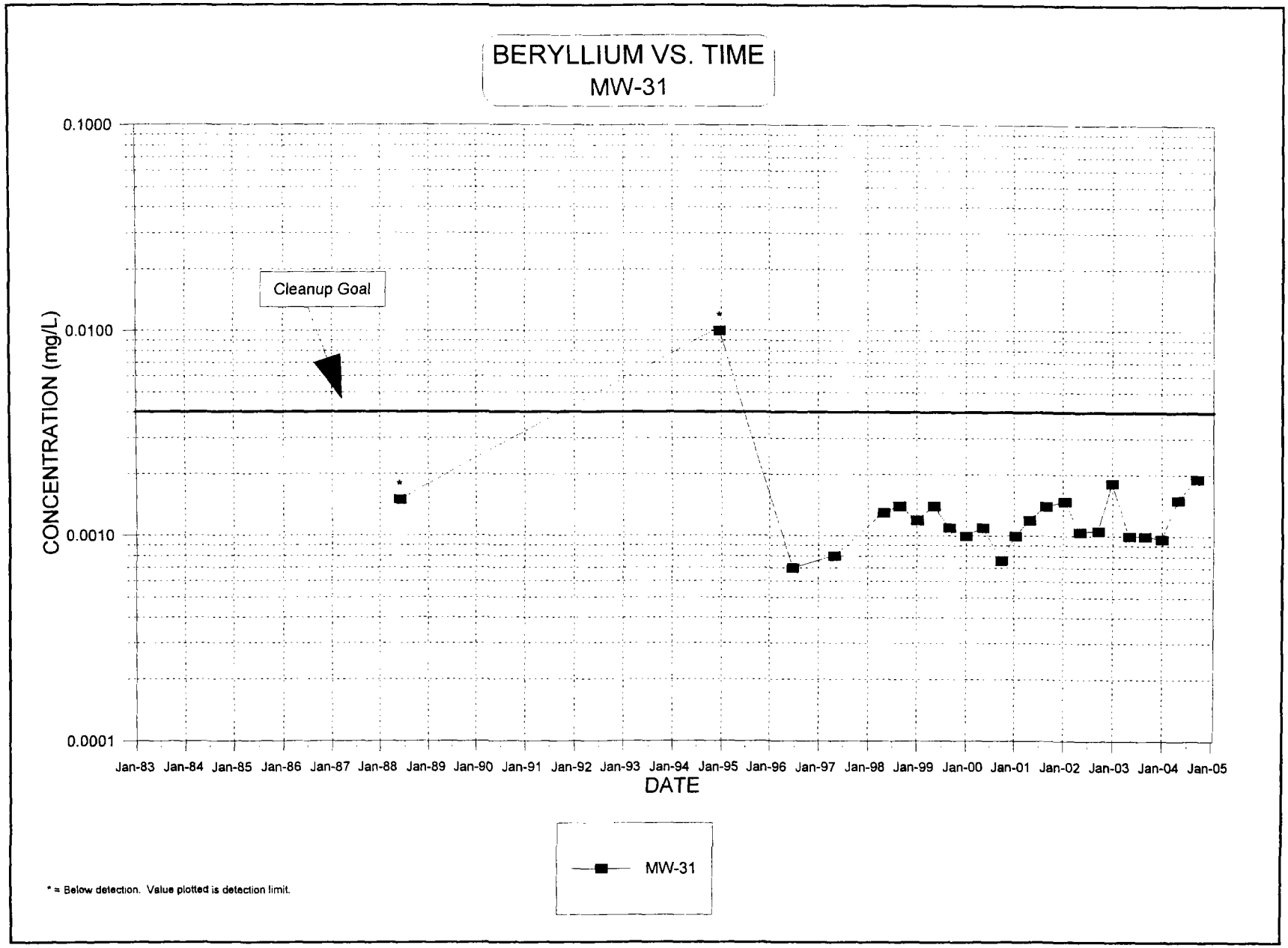

BERYLLIUM VS. TIME
MW-14
0.1000
0.0100
0.0010
0.0001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-14
* = Below detection. Value plotted is detection limit.

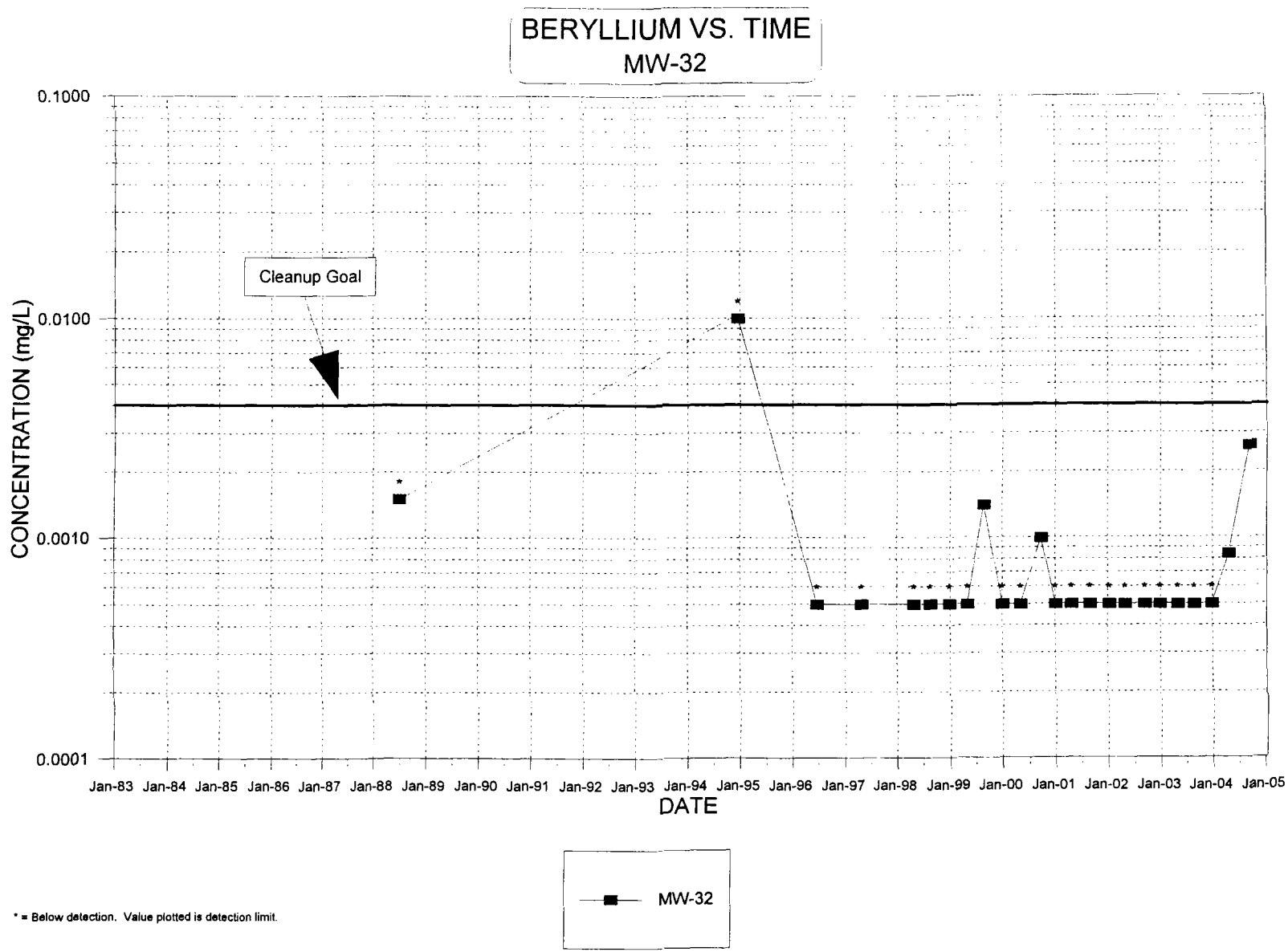

BERYLLIUM VS. TIME
MW-16
0.1000
0.0100
0.0010
0.0001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-16
* = Below detection. Value plotted is detection 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 Jan-03 Jan-04 Jan-05
DATE
MW-18
* = Below detection. Value plotted is detection limit.

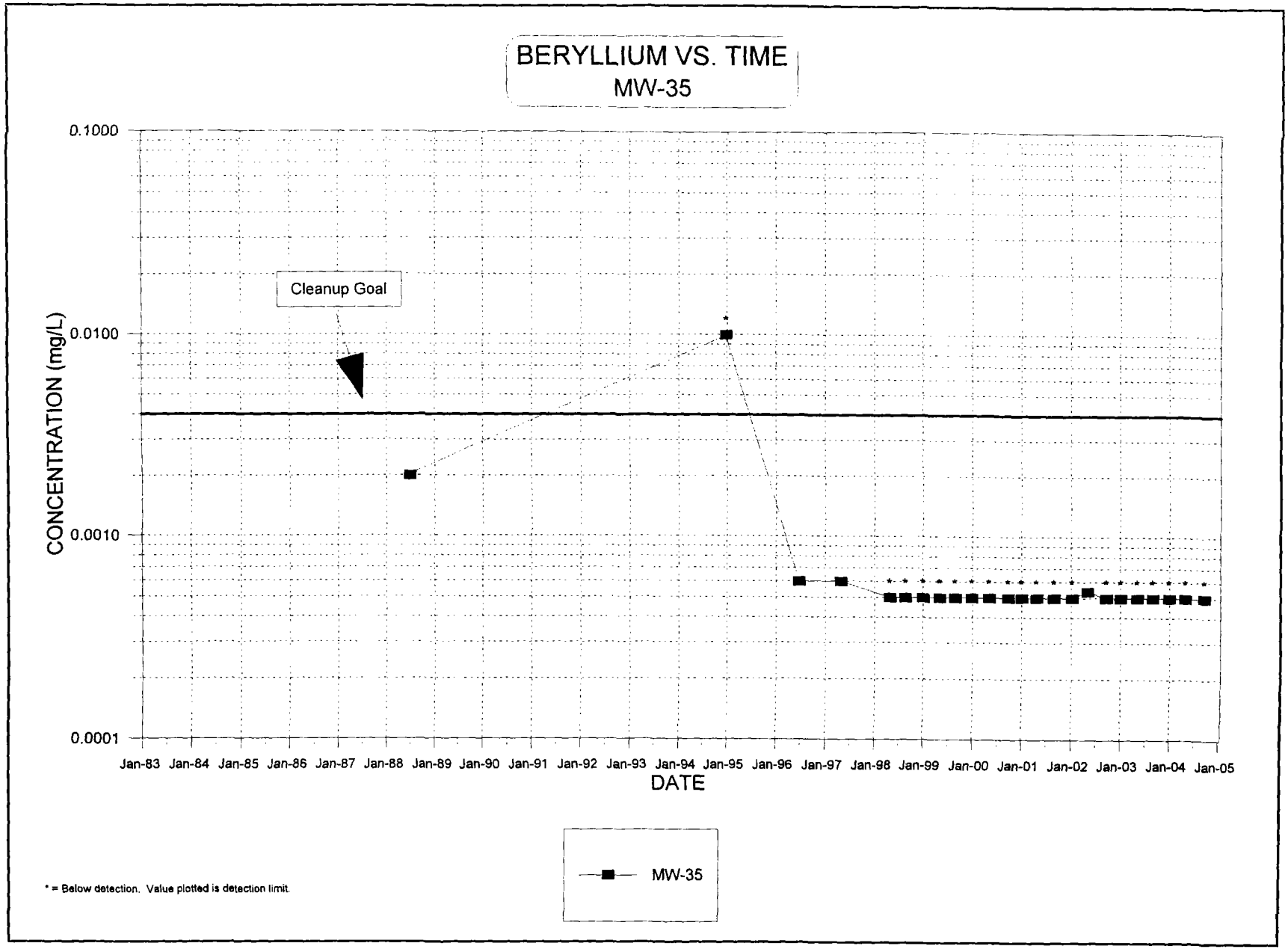


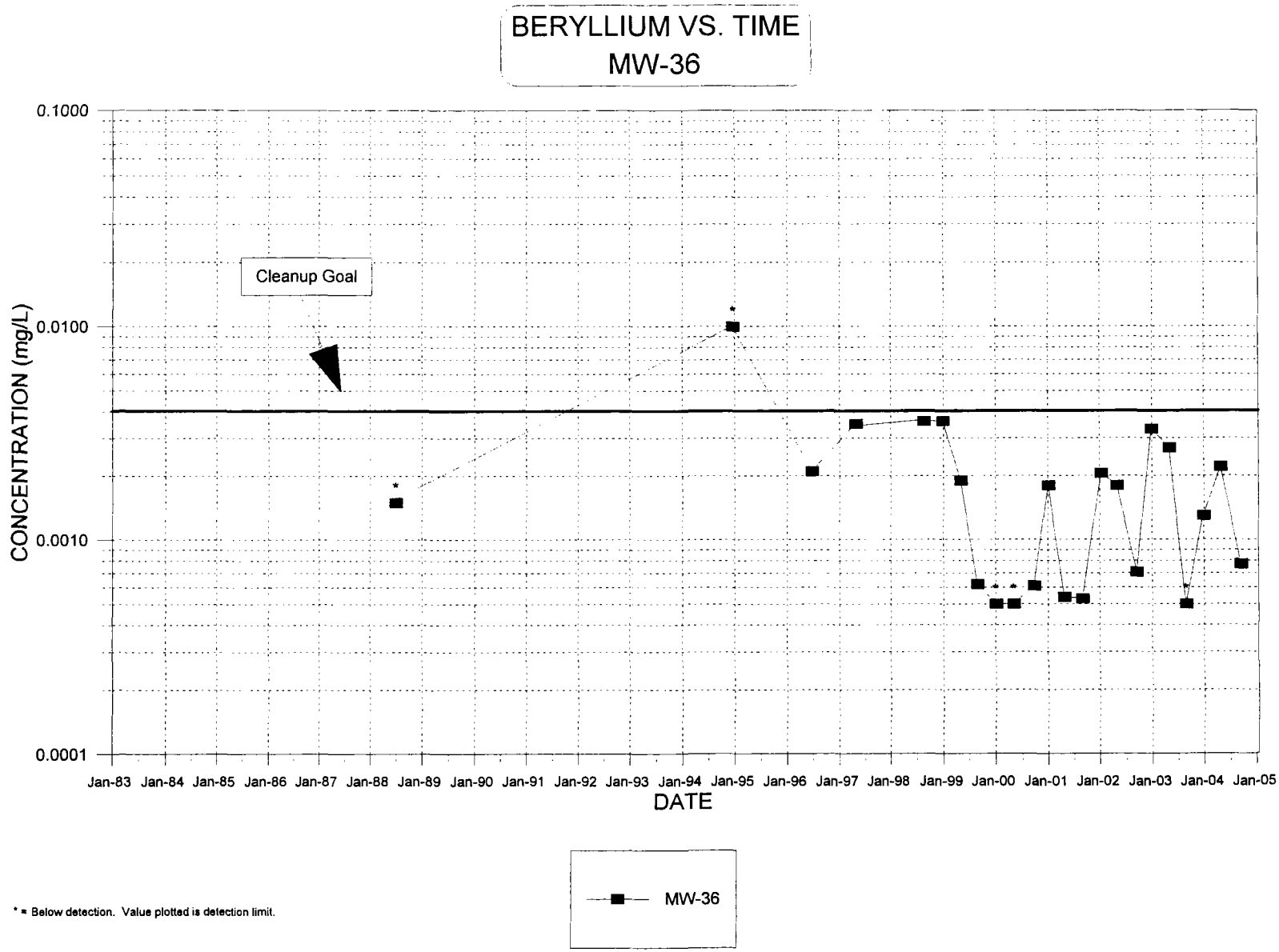
* = Below detection. Value plotted is detection limit.


BERYLLIUM VS. TIME
MW-31
0.1000
0.0100
0.0010
0.0001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-31
* = Below detection. Value plotted is detection limit.

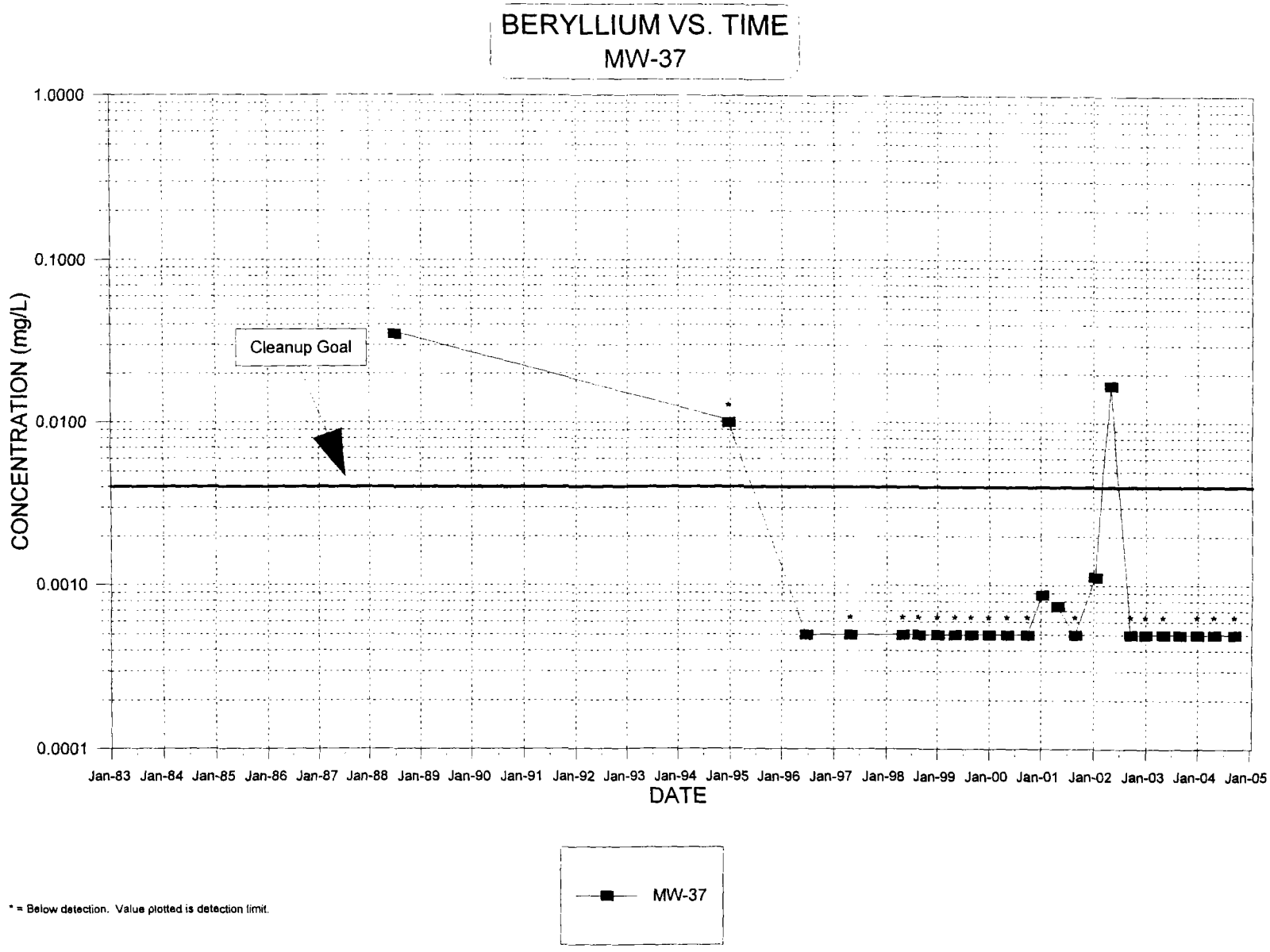


* = Below detection. Value plotted is detection limit.


BERYLLIUM VS. TIME
MW-35
0.1000
0.0100
0.0010
0.0001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-35
* = Below detection. Value plotted is detection limit.



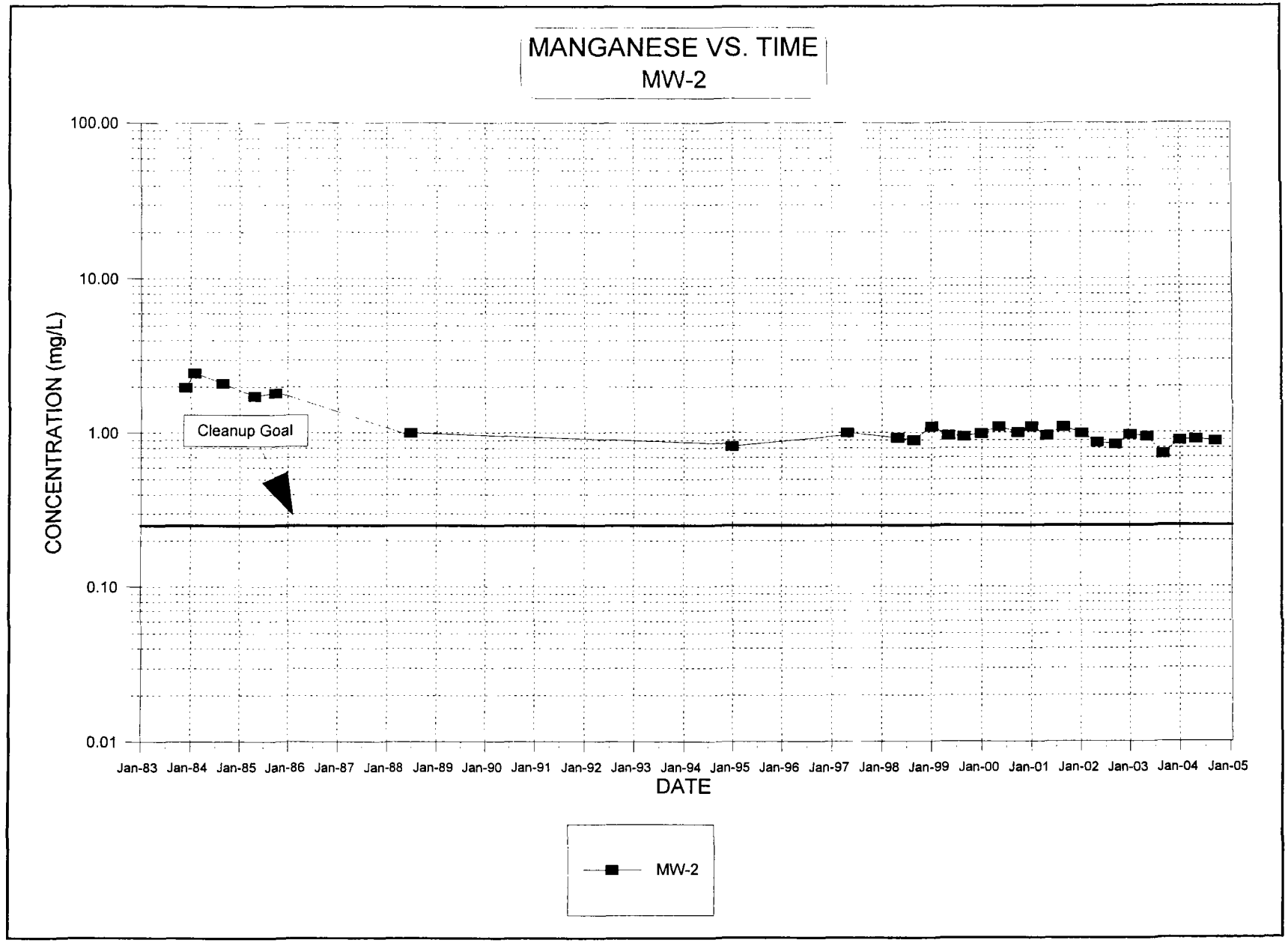
* = Below detection. Value plotted is detection limit.

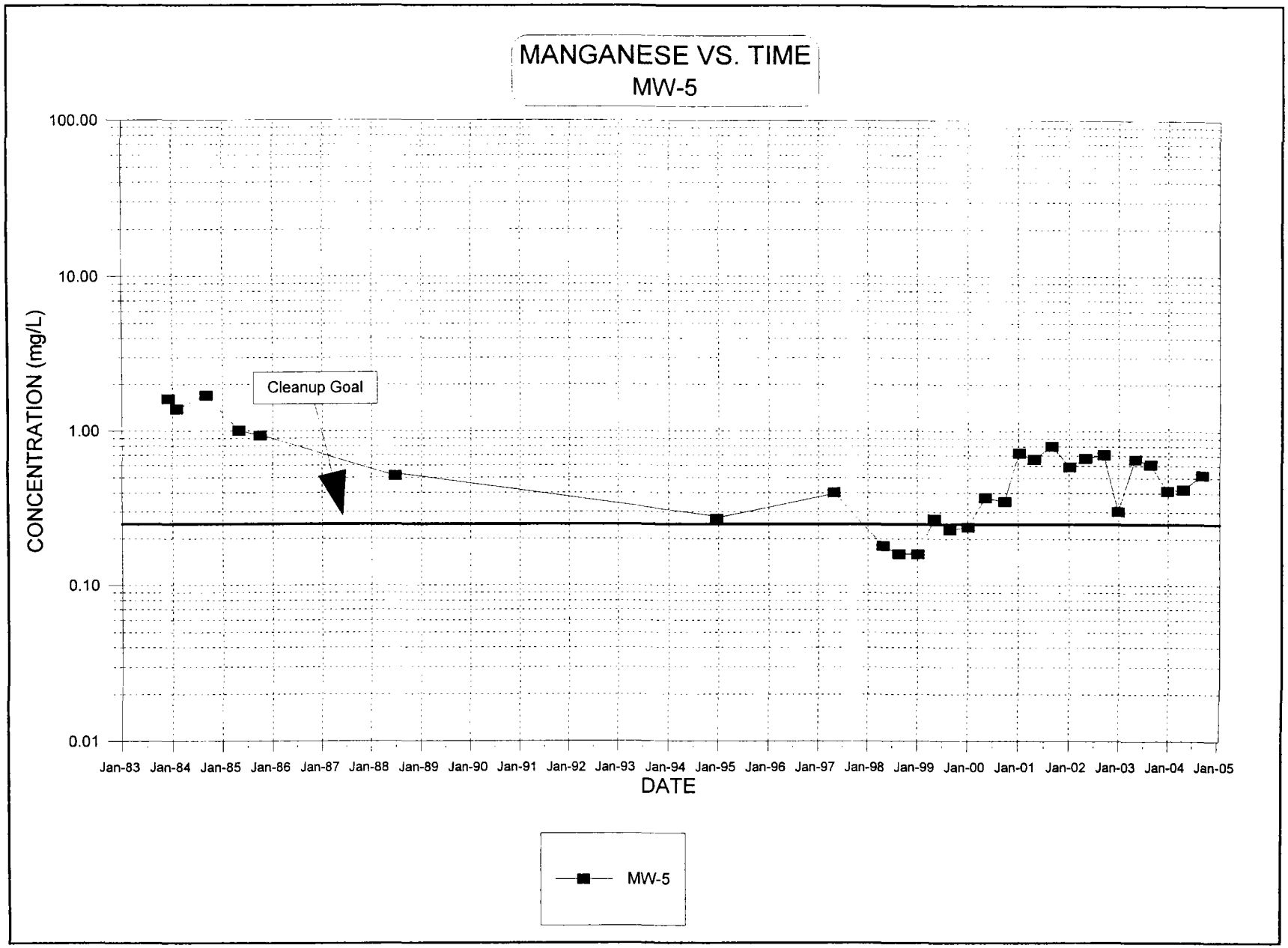


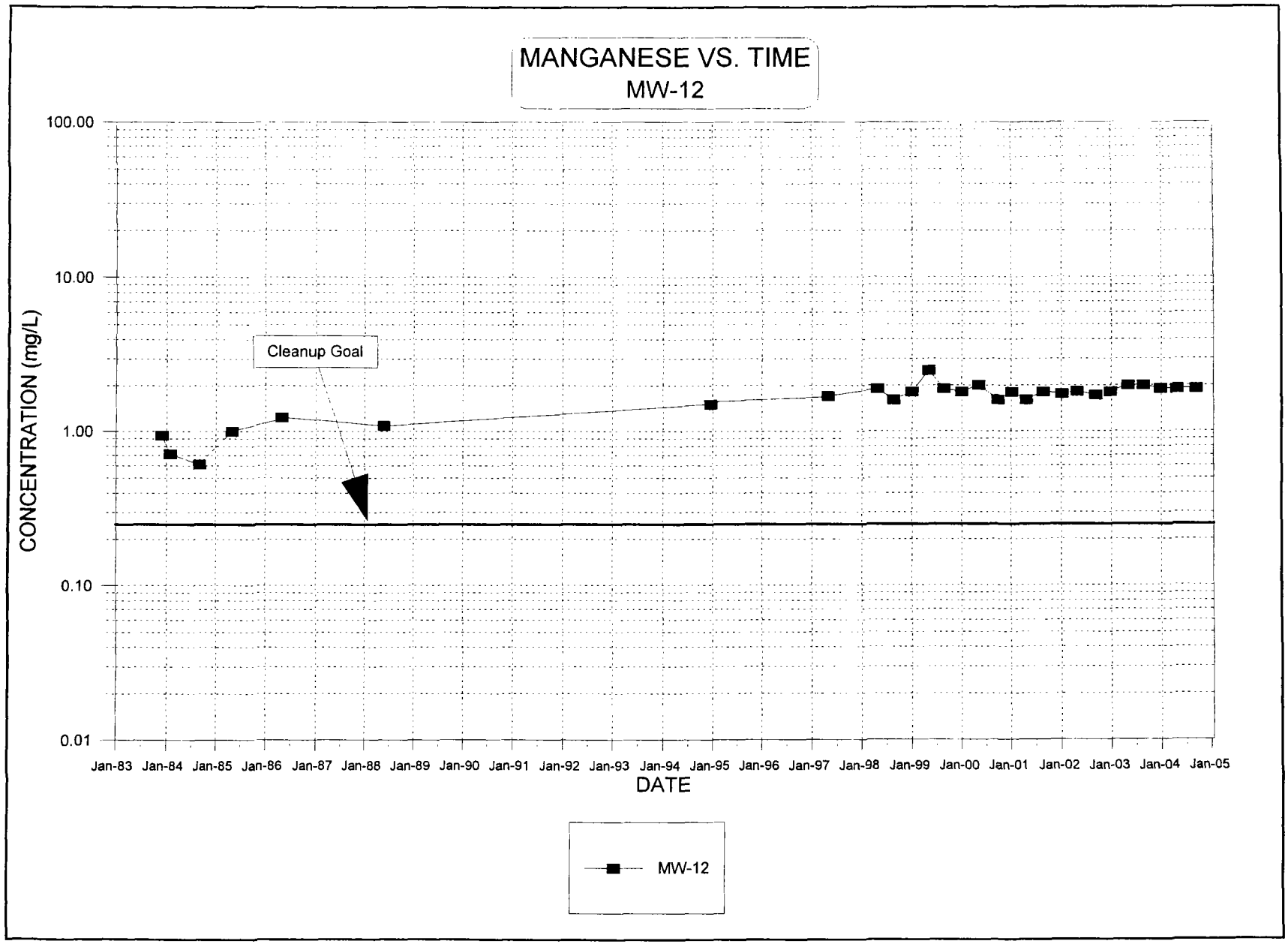
* = Below detection. Value plotted is detection limit.

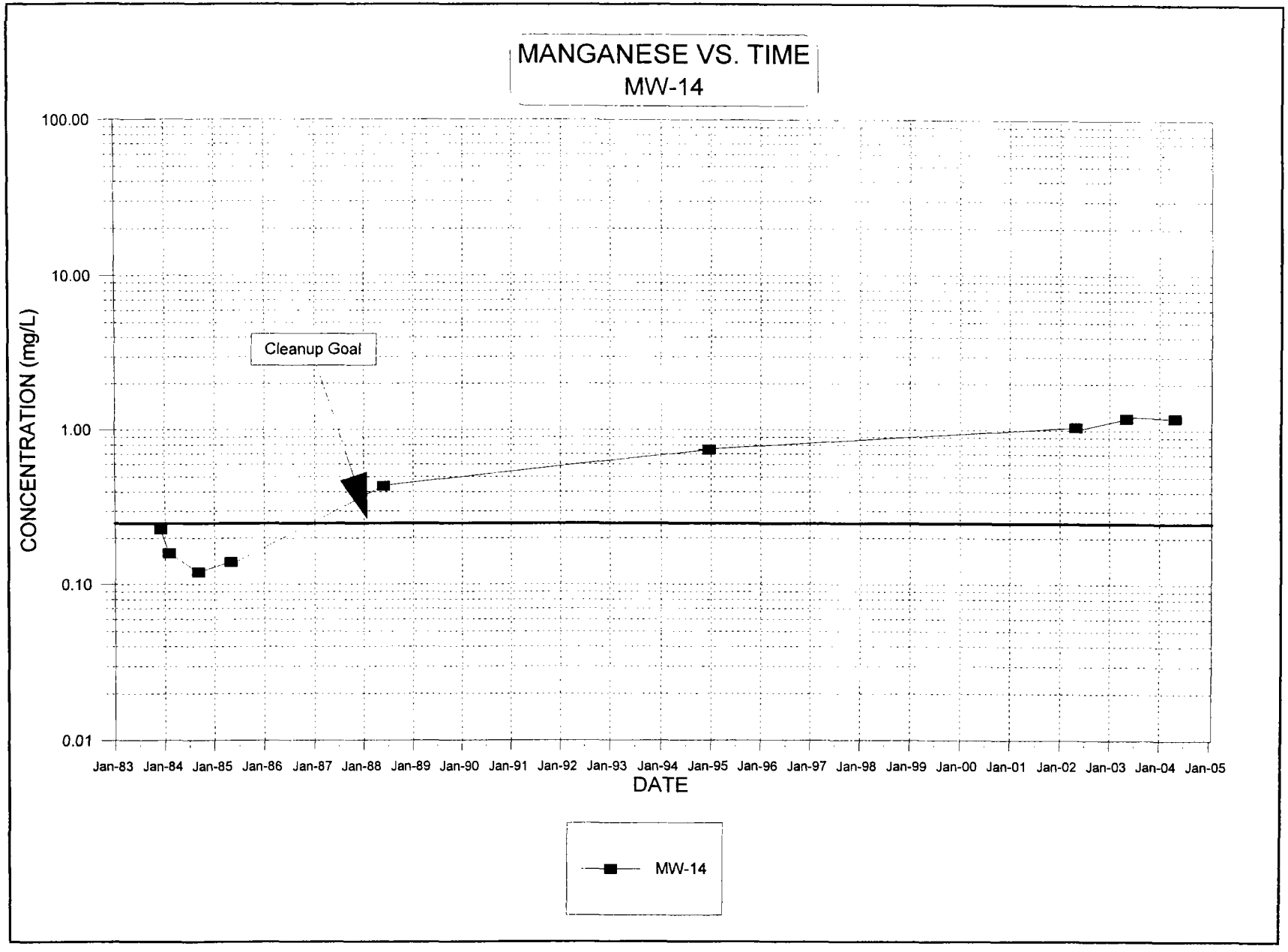
APPENDIX D-6

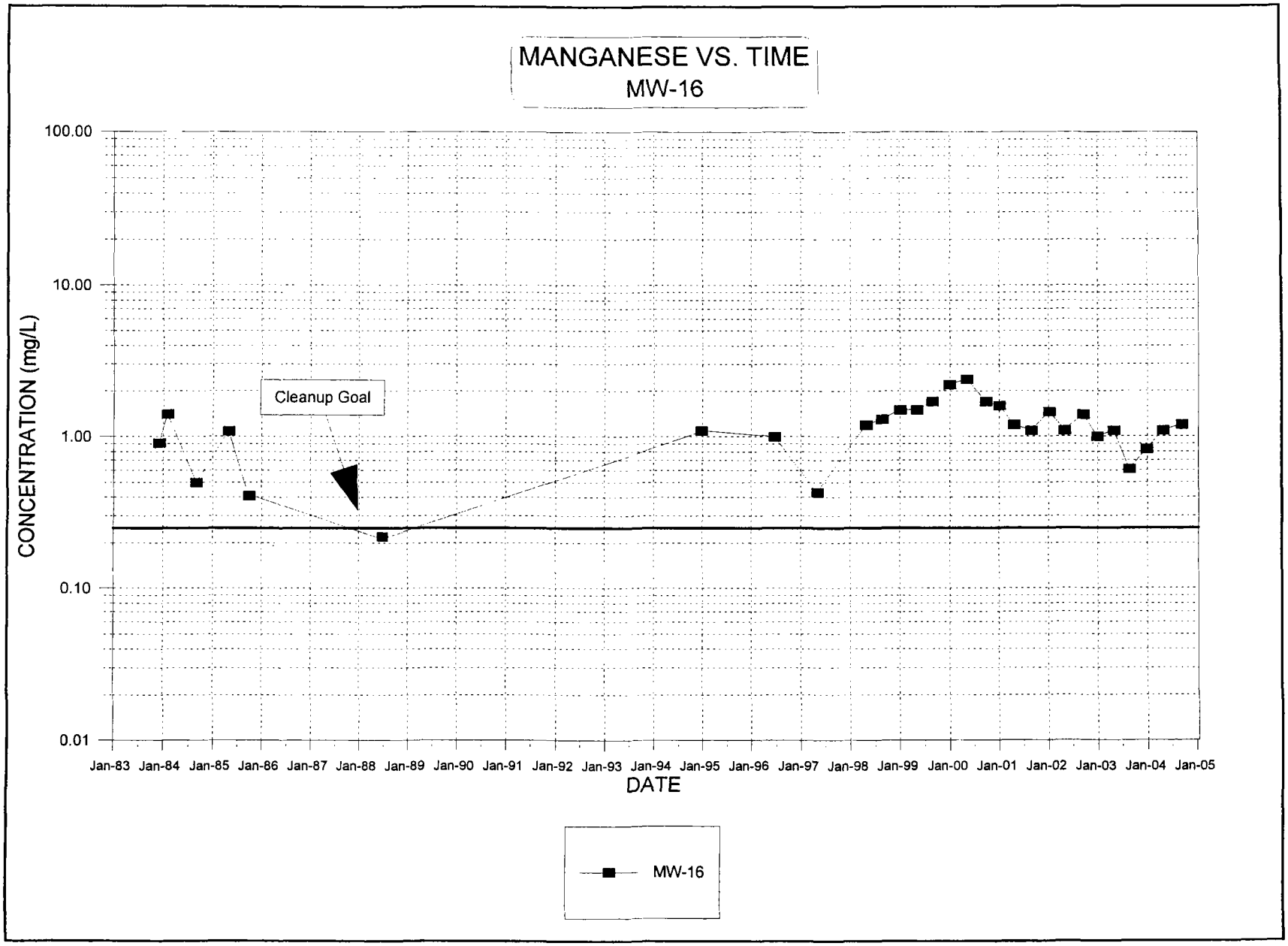
MANGANESE

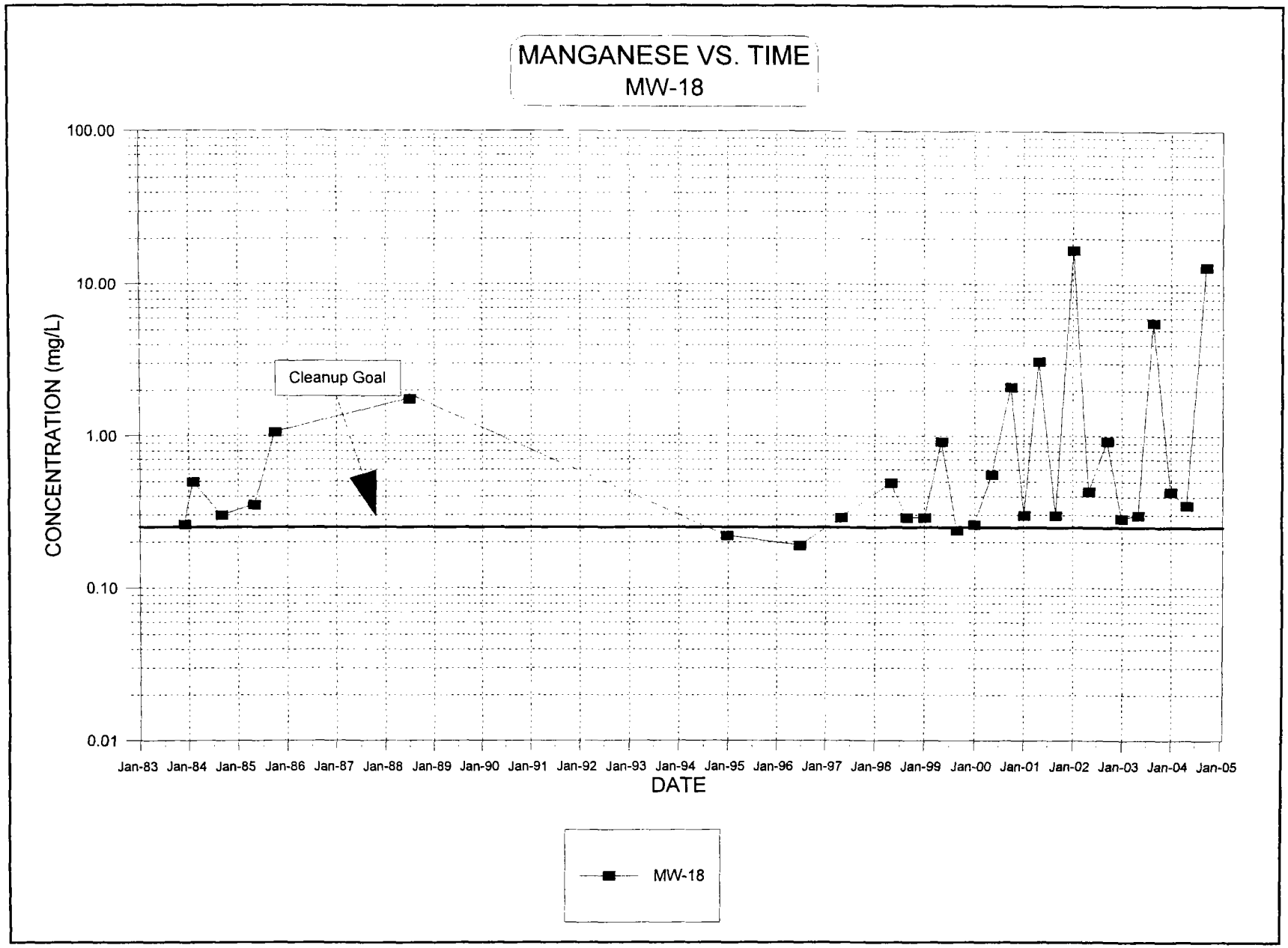

MANGANESE VS. TIME
MW-2
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-2

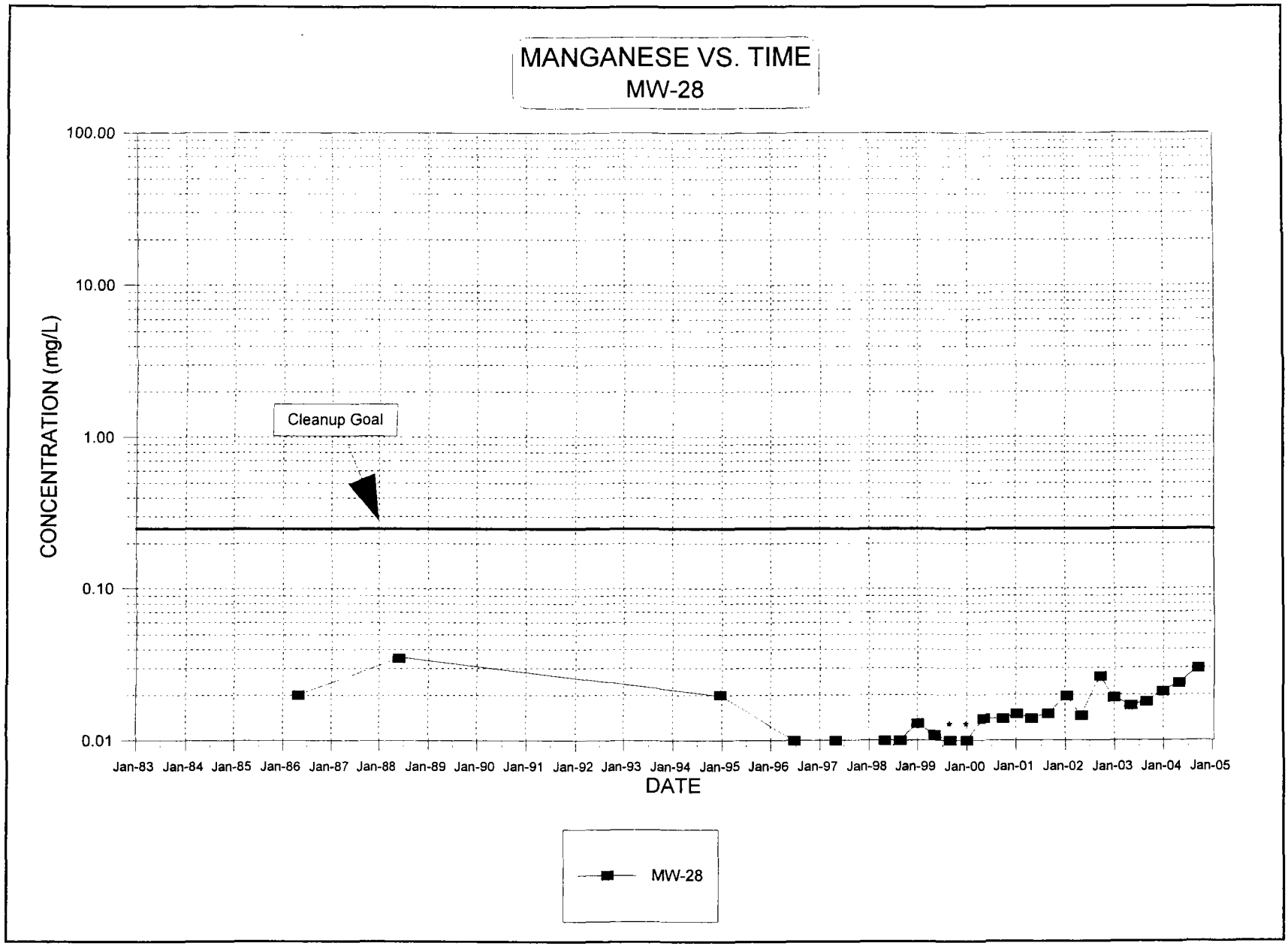

MANGANESE VS. TIME
MW-5
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-5

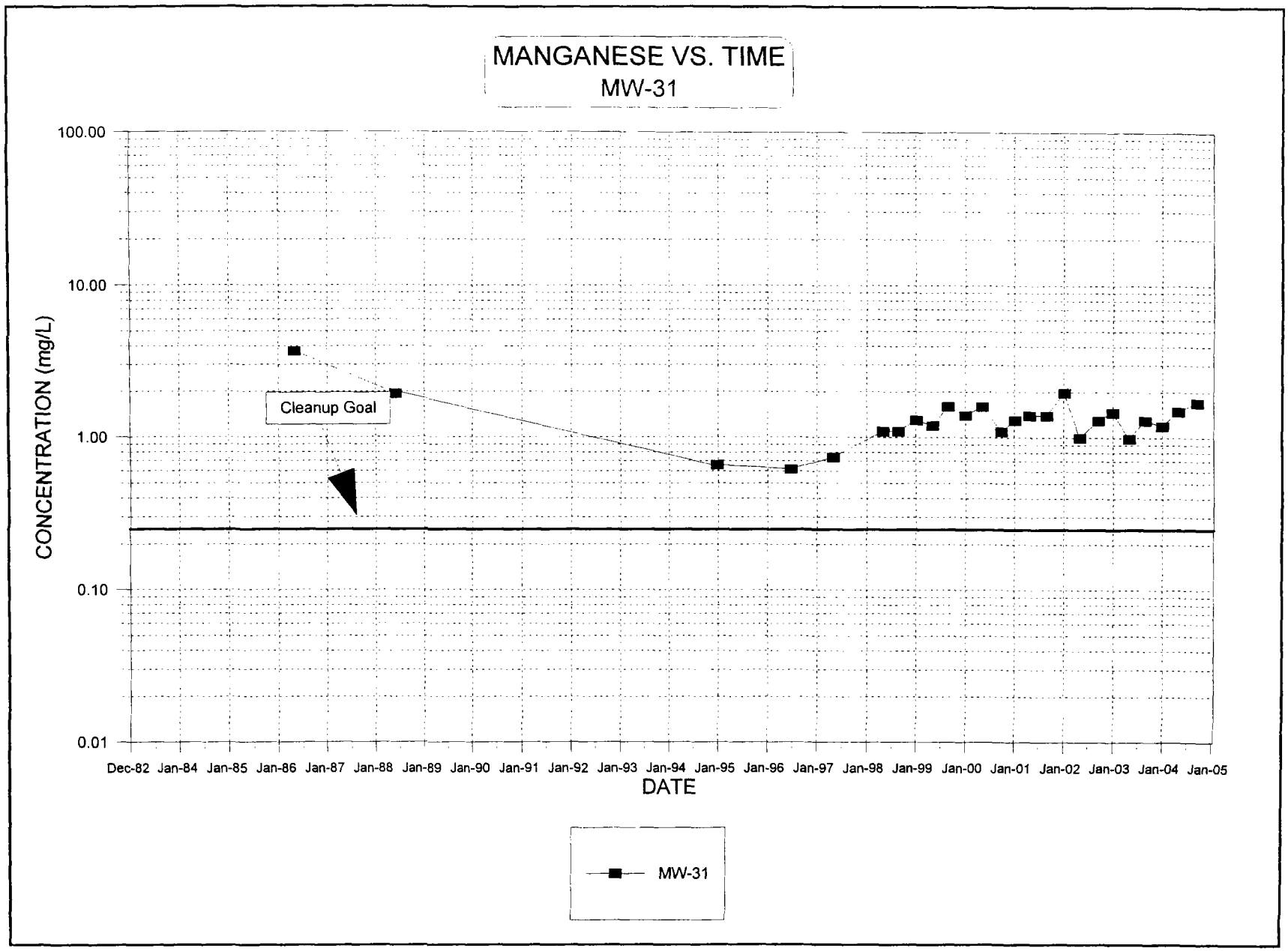

MANGANESE VS. TIME
MW-12
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-12

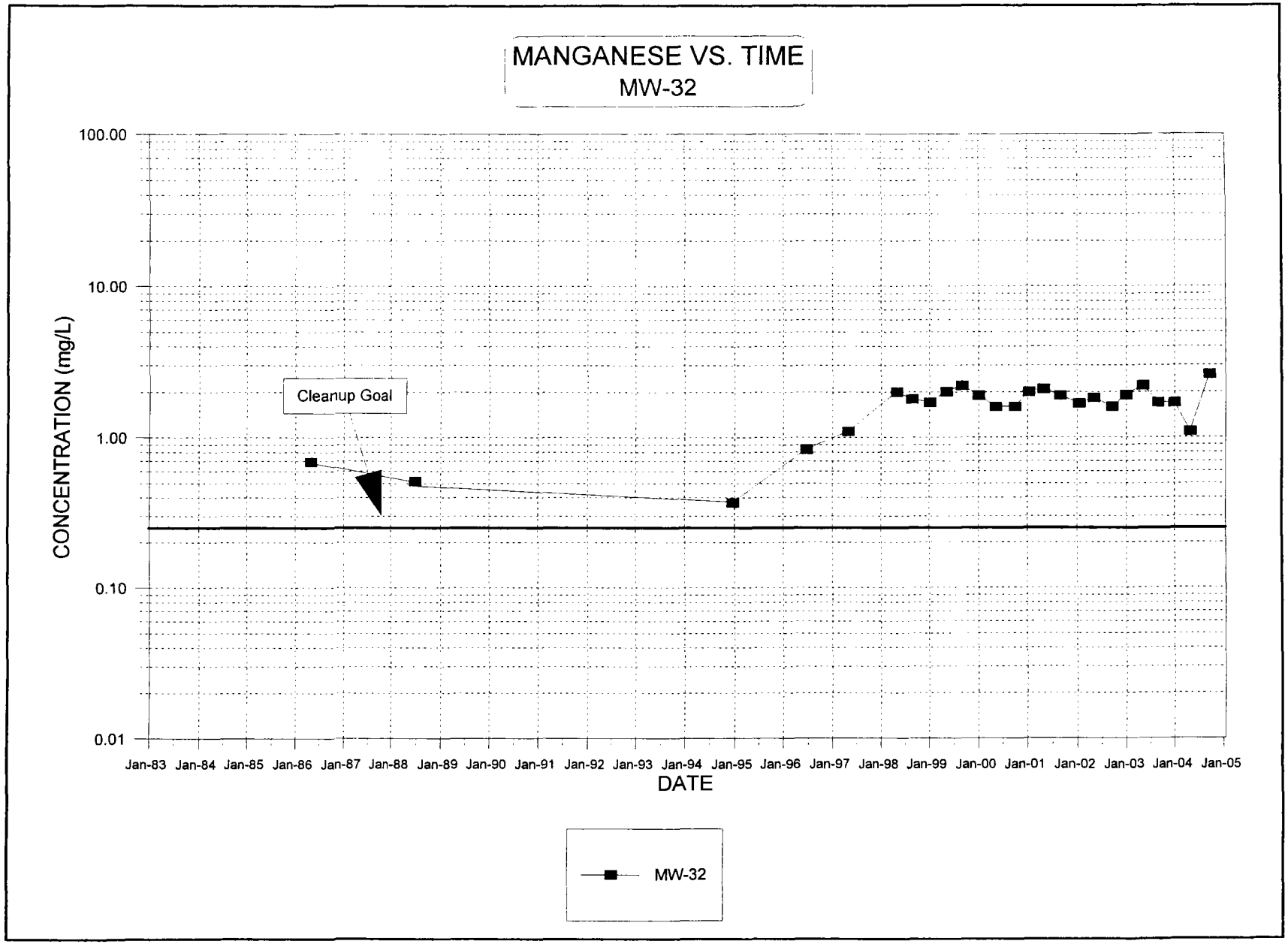

MANGANESE VS. TIME
MW-14
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-14

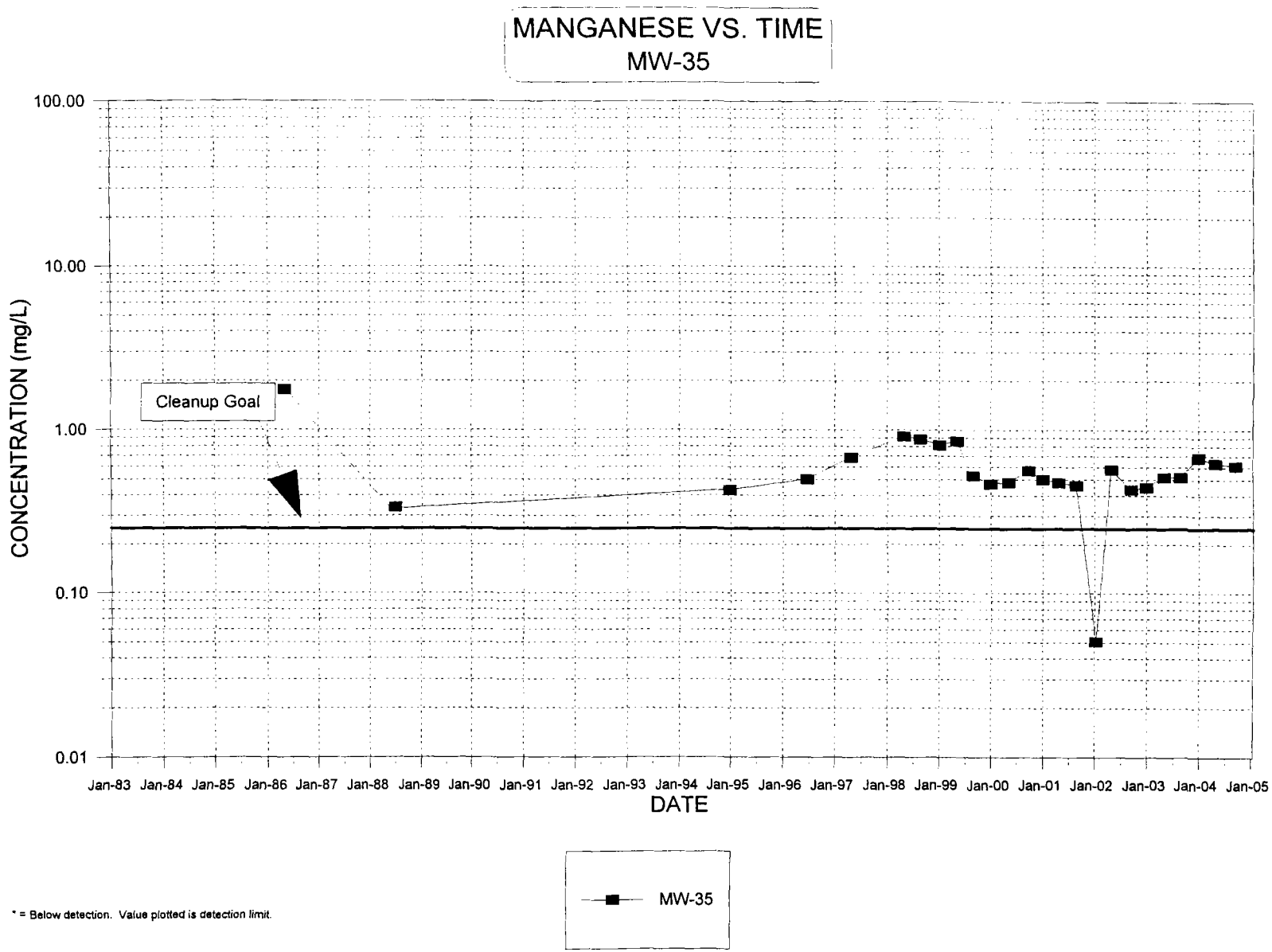

MANGANESE VS. TIME
MW-16
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-16


MANGANESE VS. TIME
MW-18
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-18

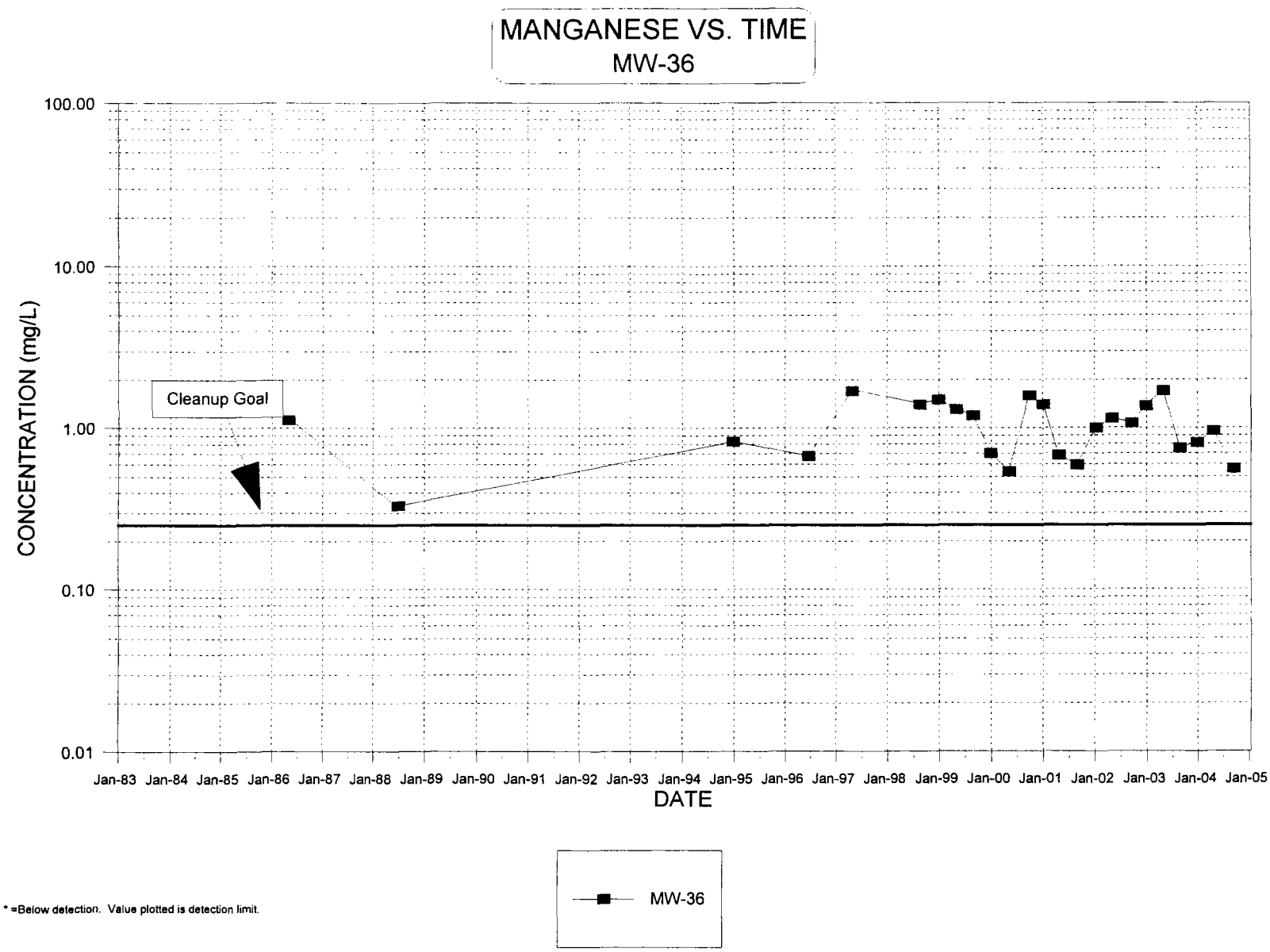

MANGANESE VS. TIME
MW-28
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-28


MANGANESE VS. TIME
MW-31
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Dec-82
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-31

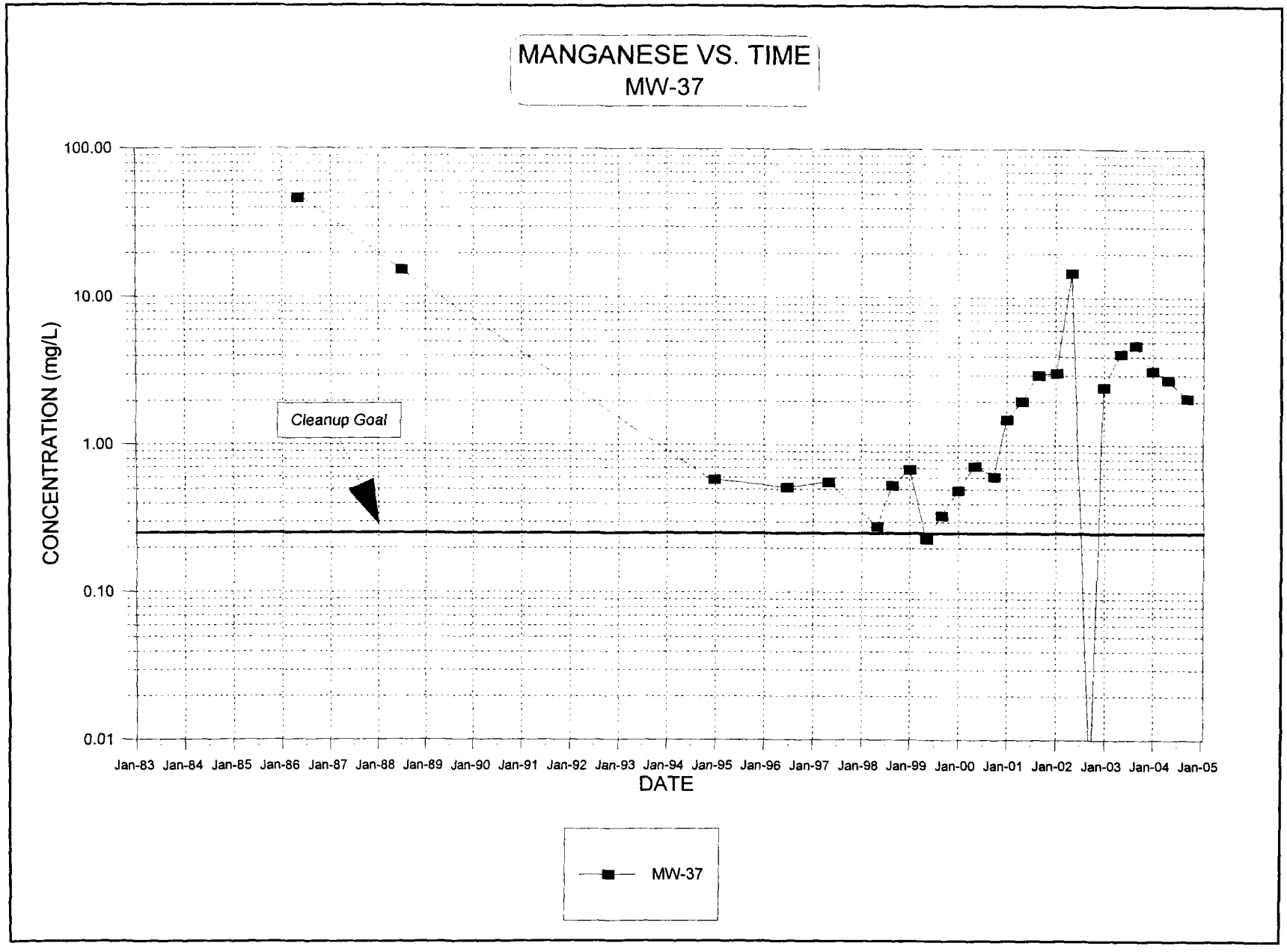

MANGANESE VS. TIME
MW-32
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-32



* = Below detection. Value plotted is detection limit.

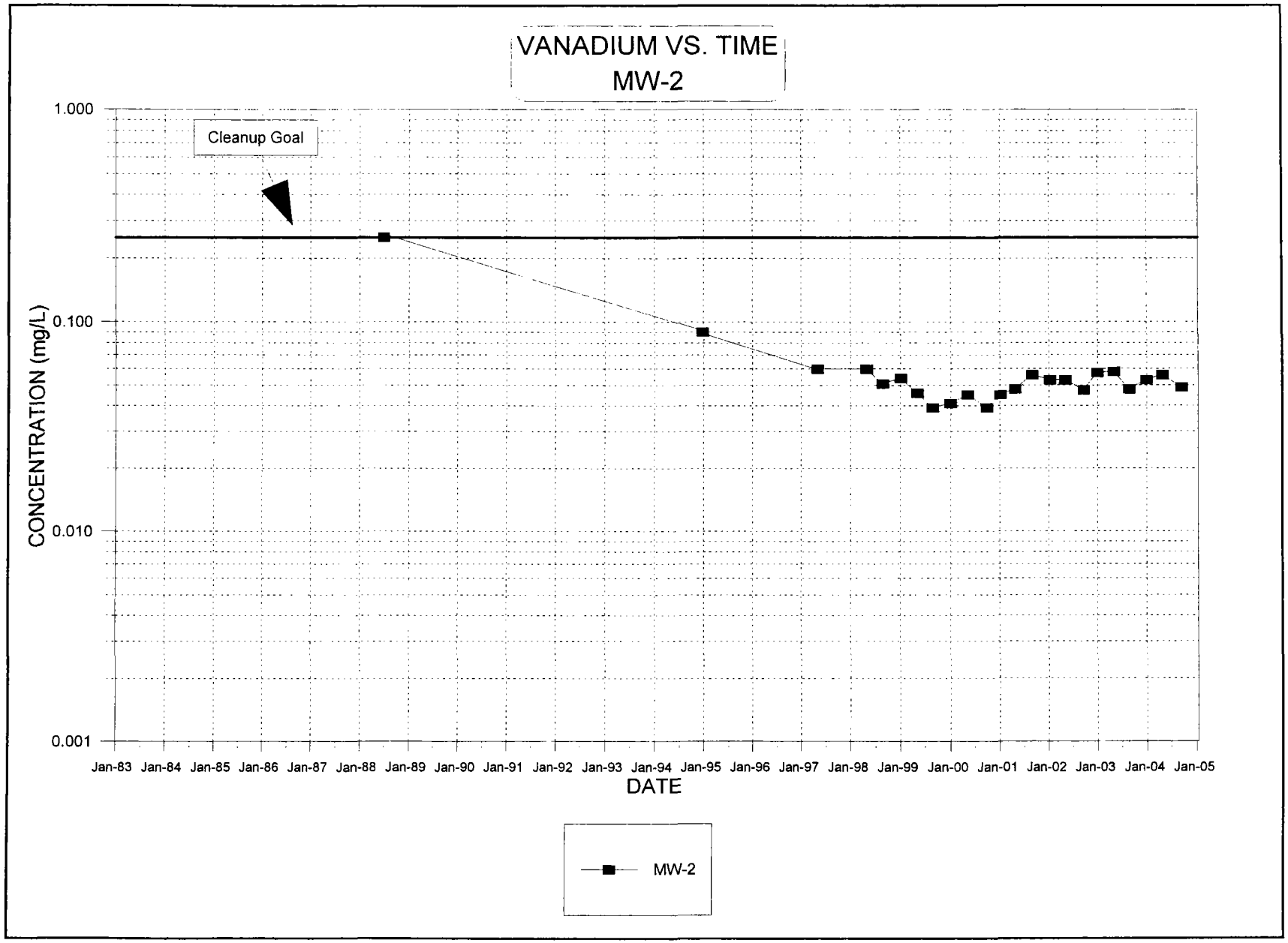


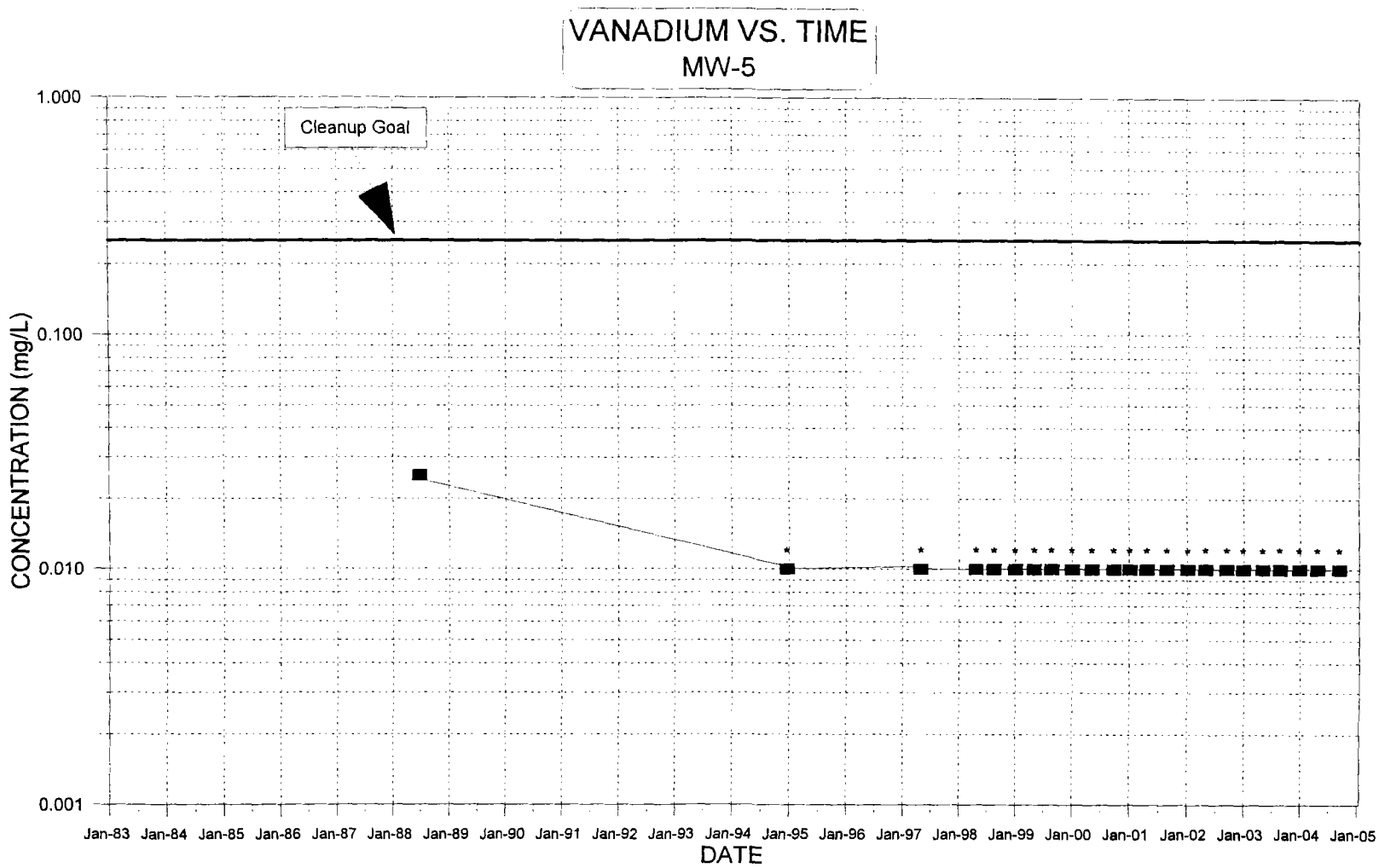
* =Below detection. Value plotted is detection limit.


MANGANESE VS. TIME
MW-37
100.00
10.00
1.00
0.10
0.01
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-37

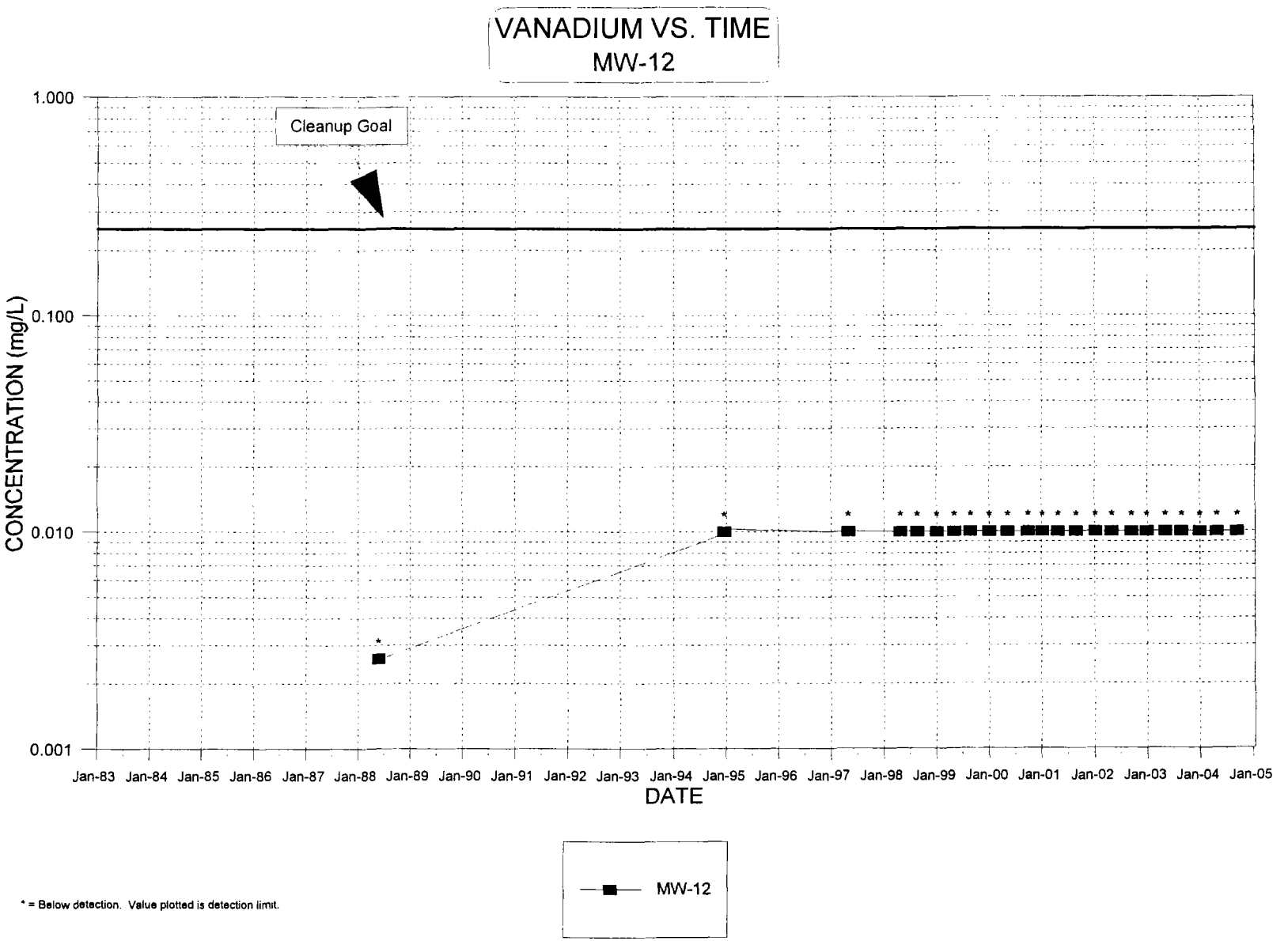
APPENDIX D-7

VANADIUM

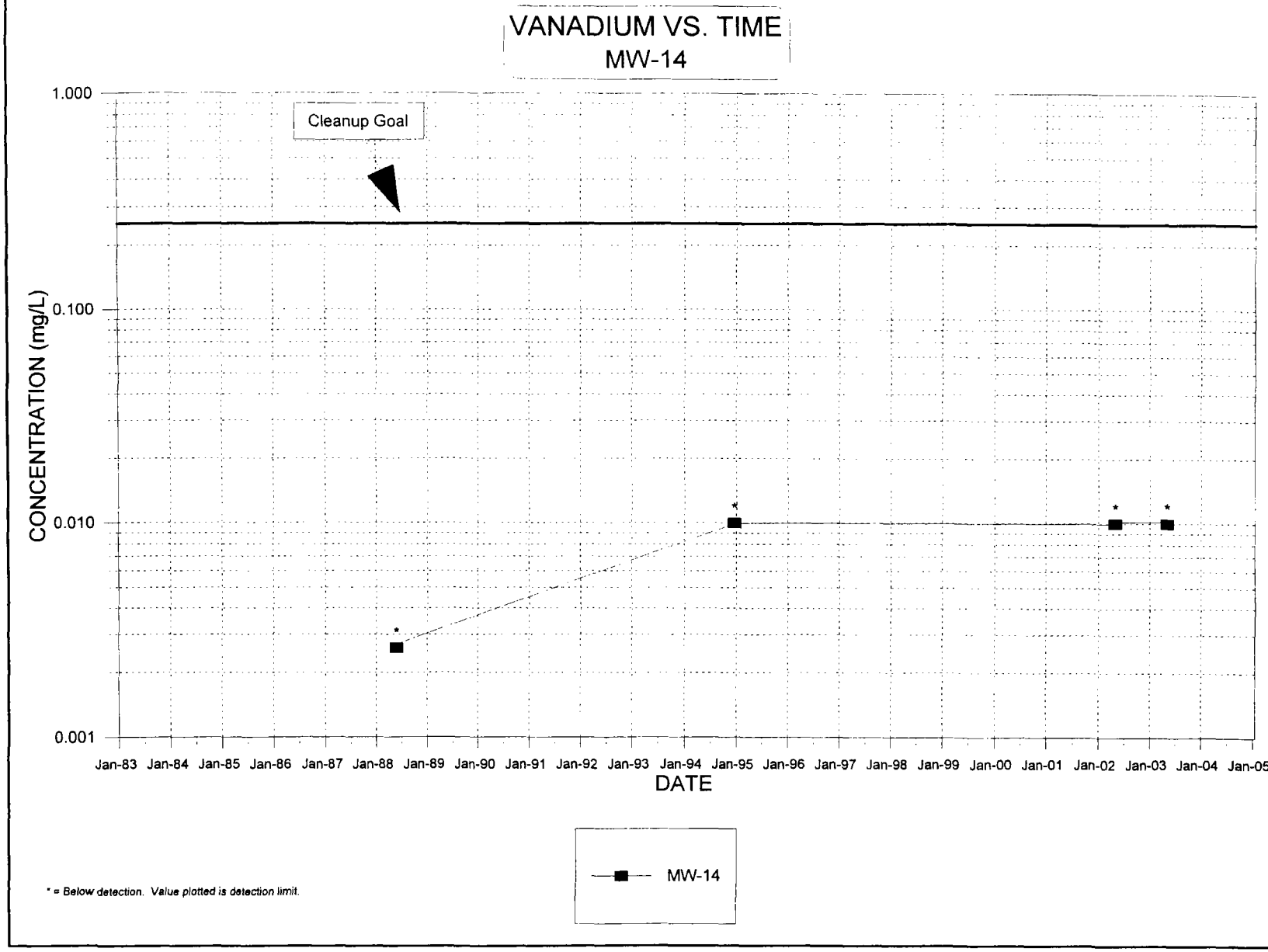

VANADIUM VS. TIME
MW-2
Cleanup Goal
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-2



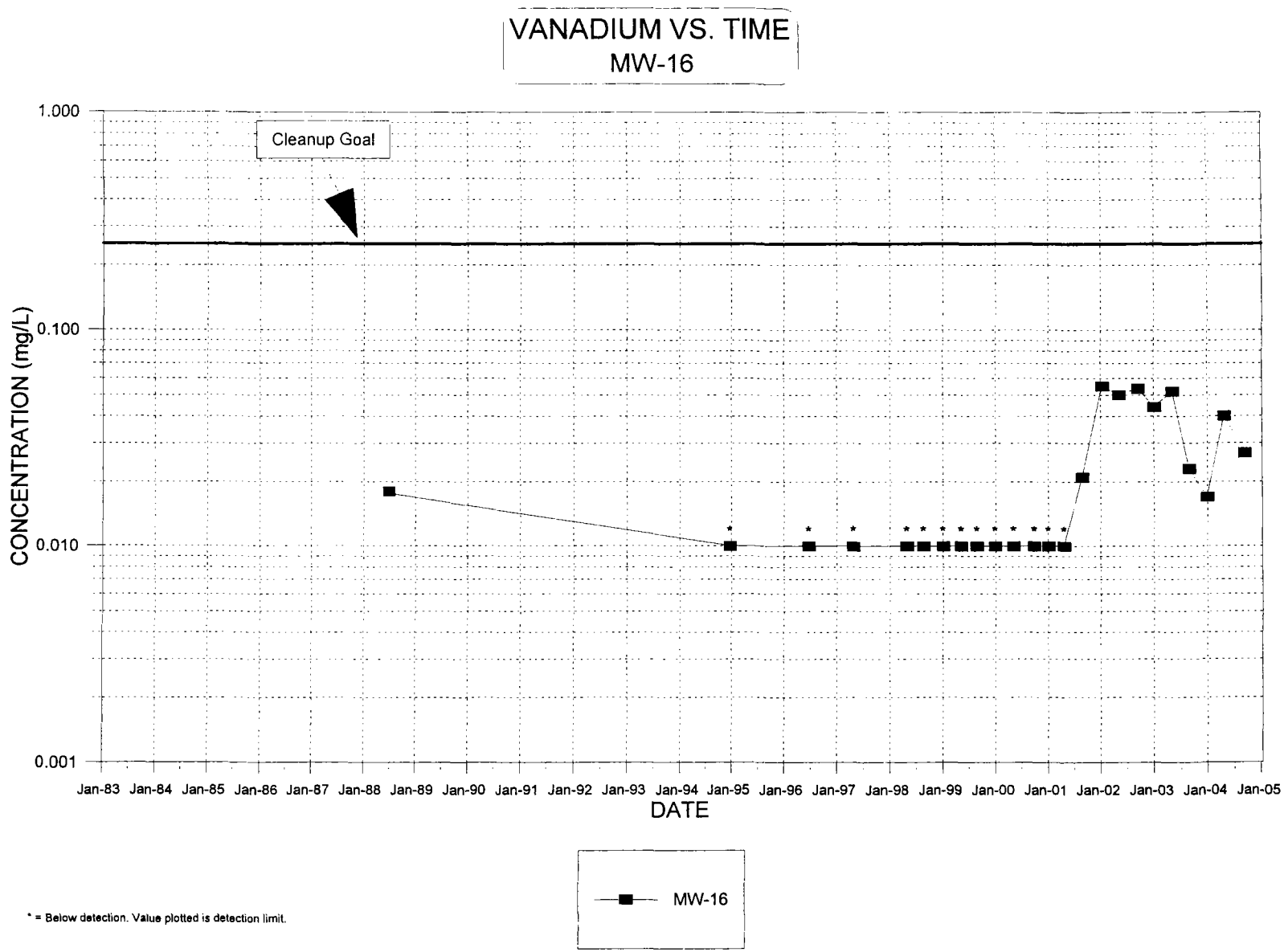
* = Below detection. Value plotted is detection limit.



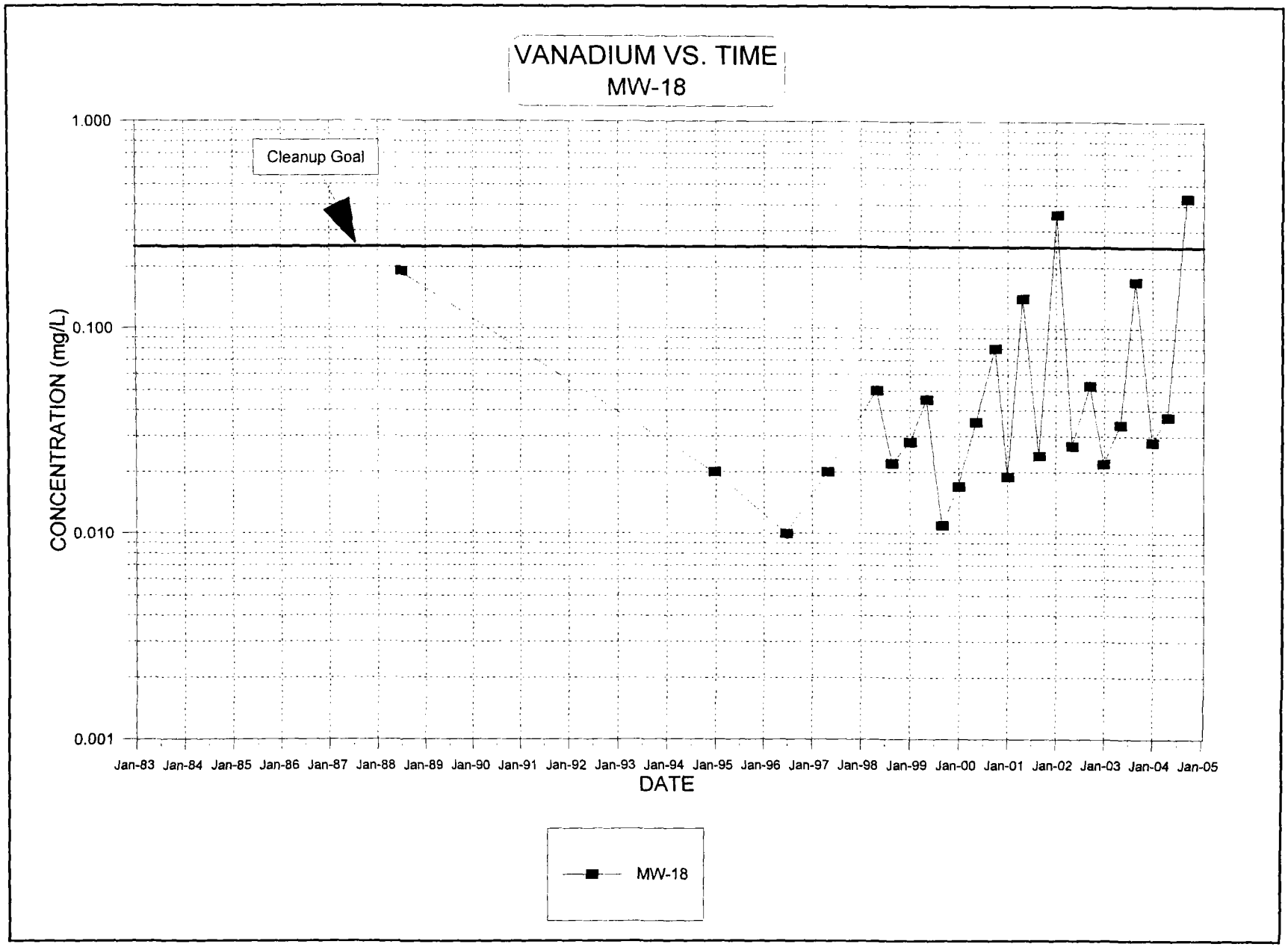
* = Below detection. Value plotted is detection limit.

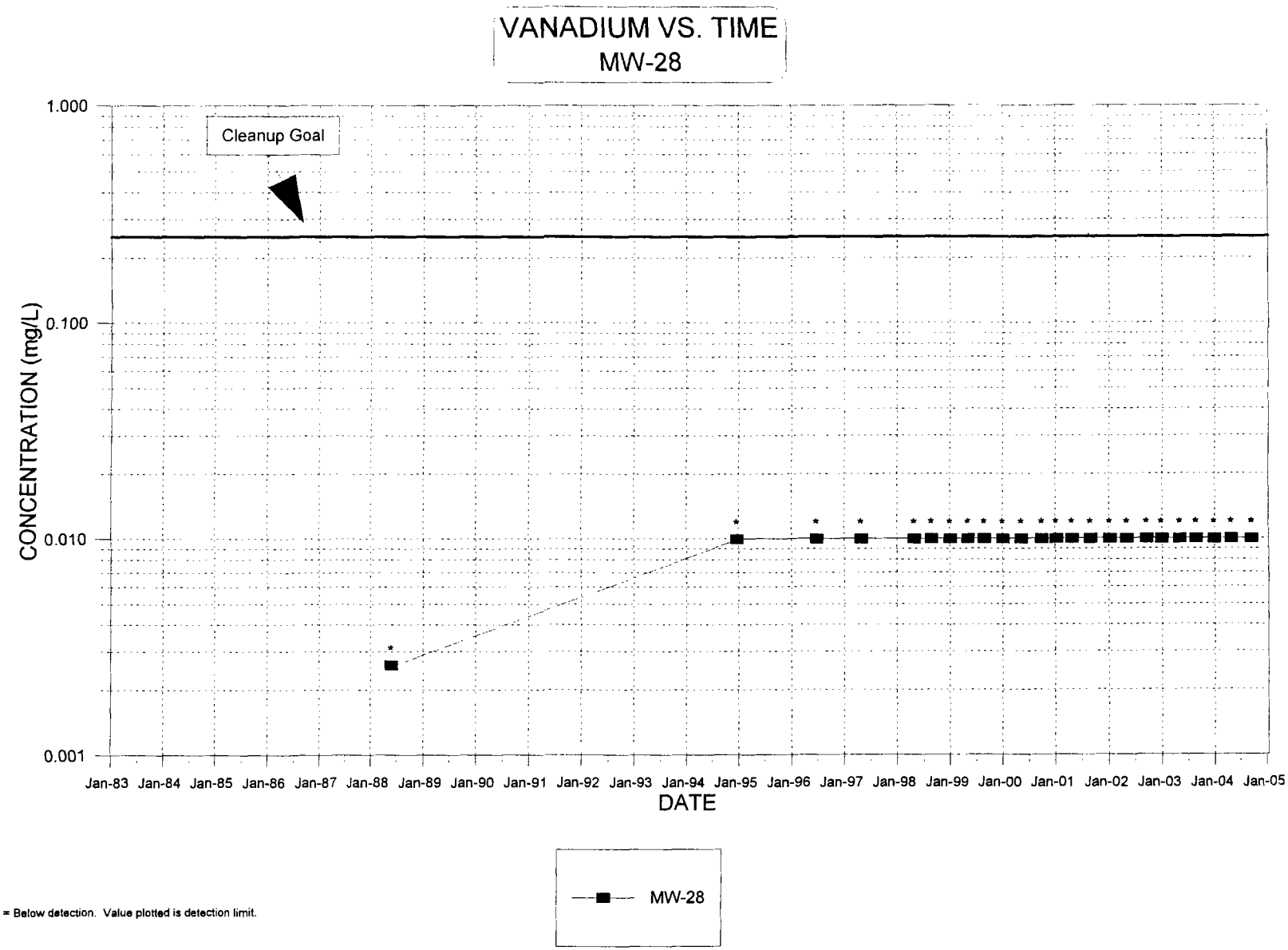


* = Below detection. Value plotted is detection limit.

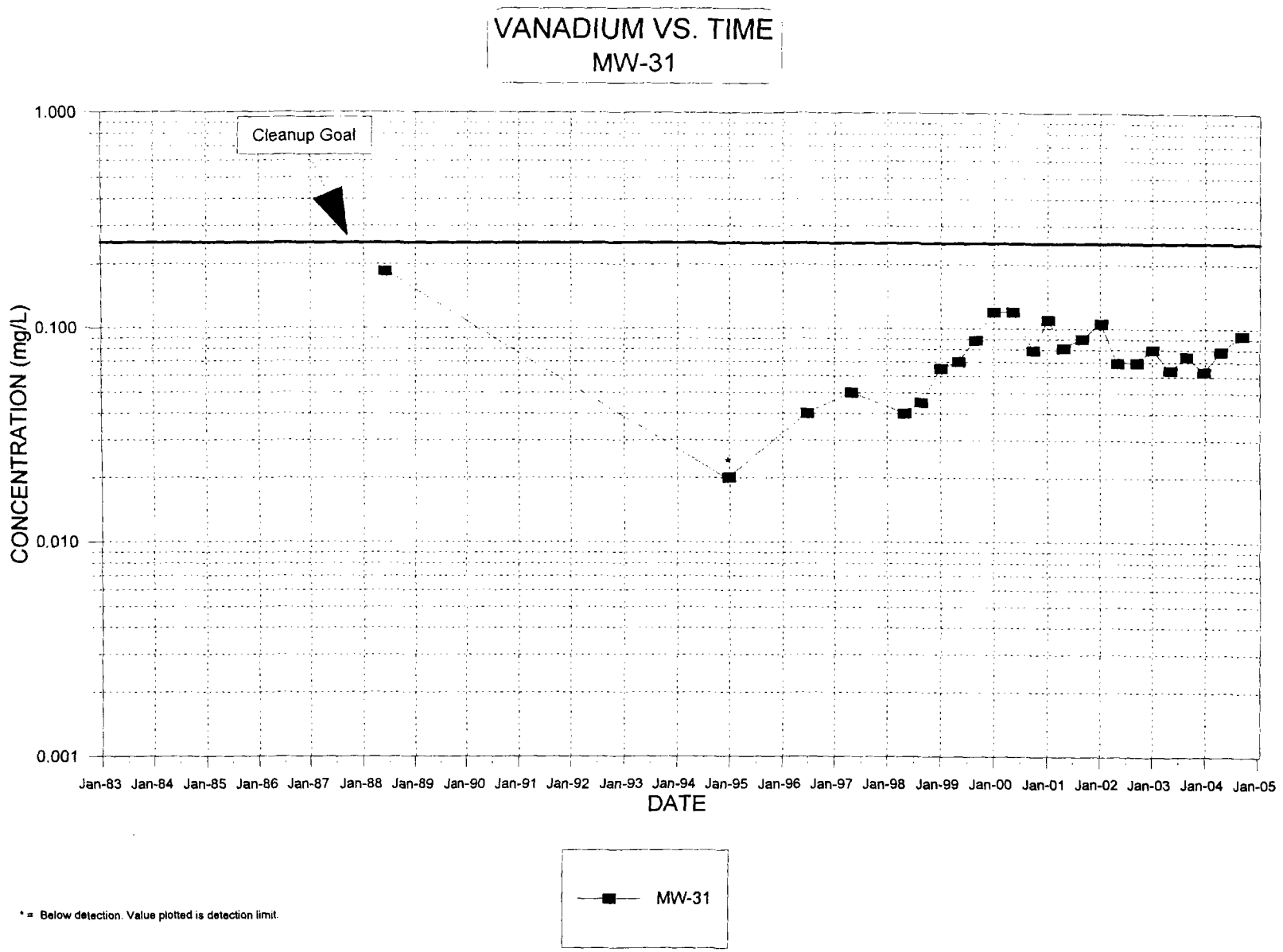


* = Below detection. Value plotted is detection limit.

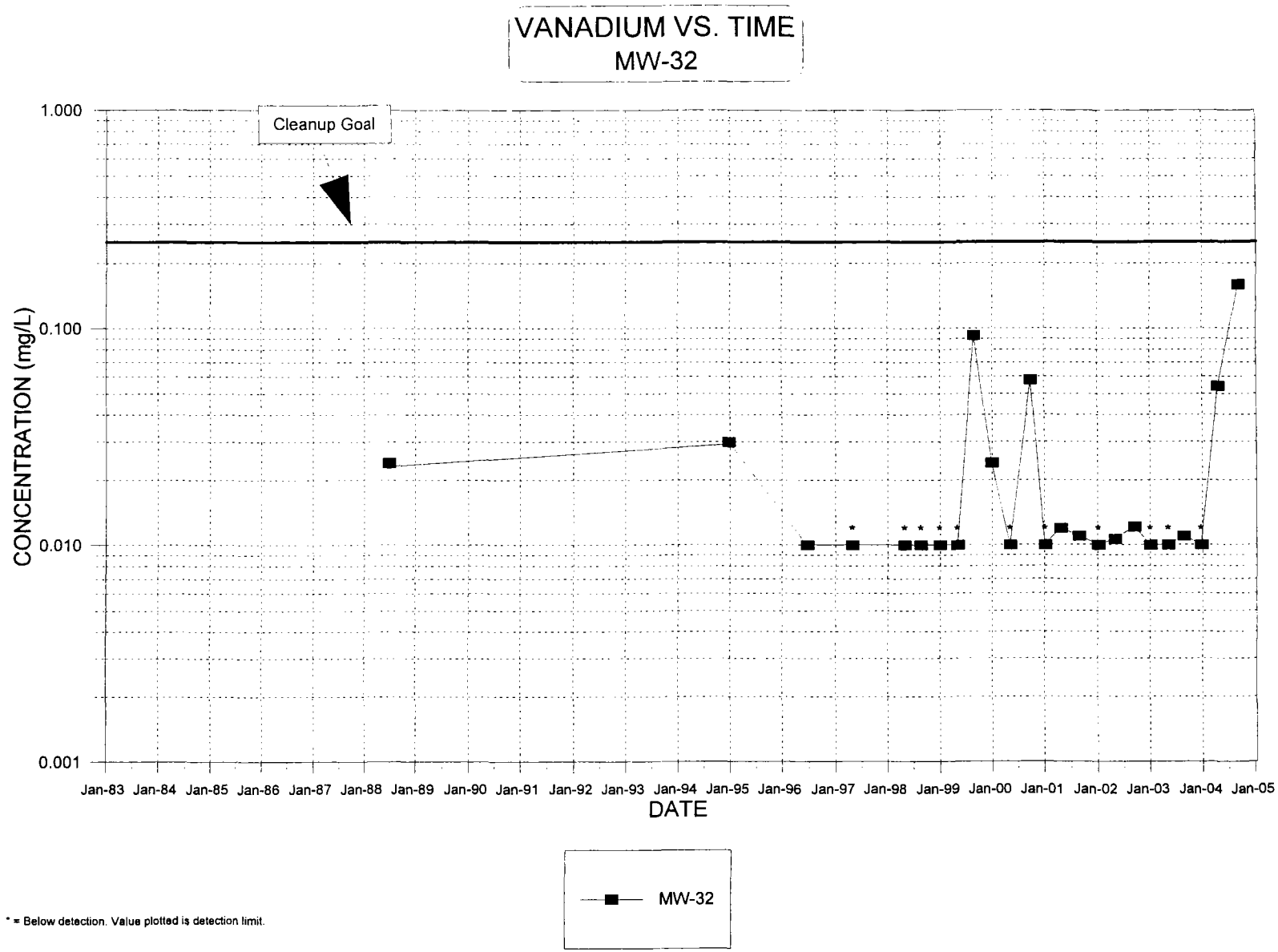

VANADIUM VS. TIME
MW-18
Cleanup Goal
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-18



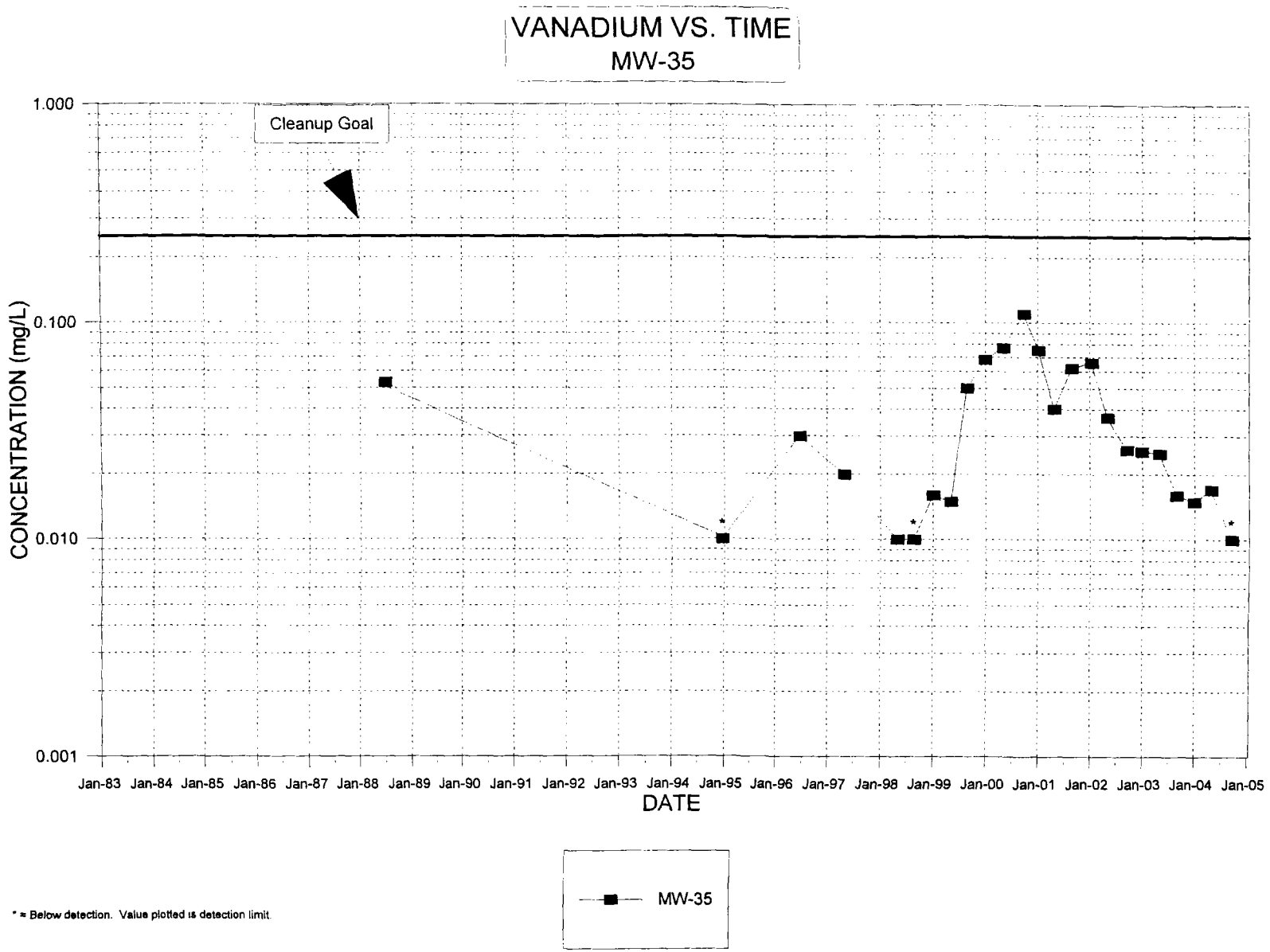
* = Below detection. Value plotted is detection limit.



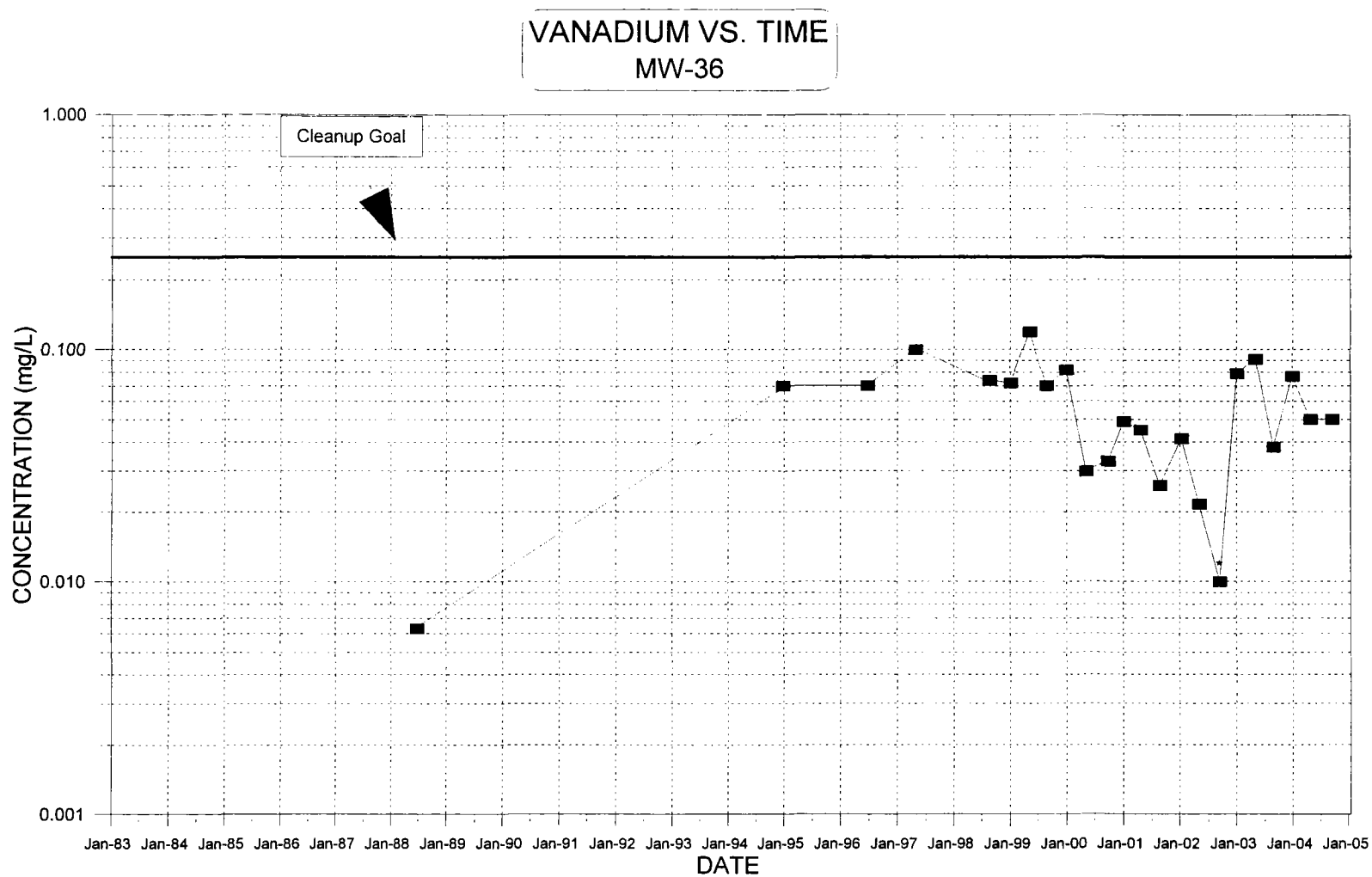
* = Below detection. Value plotted is detection limit.



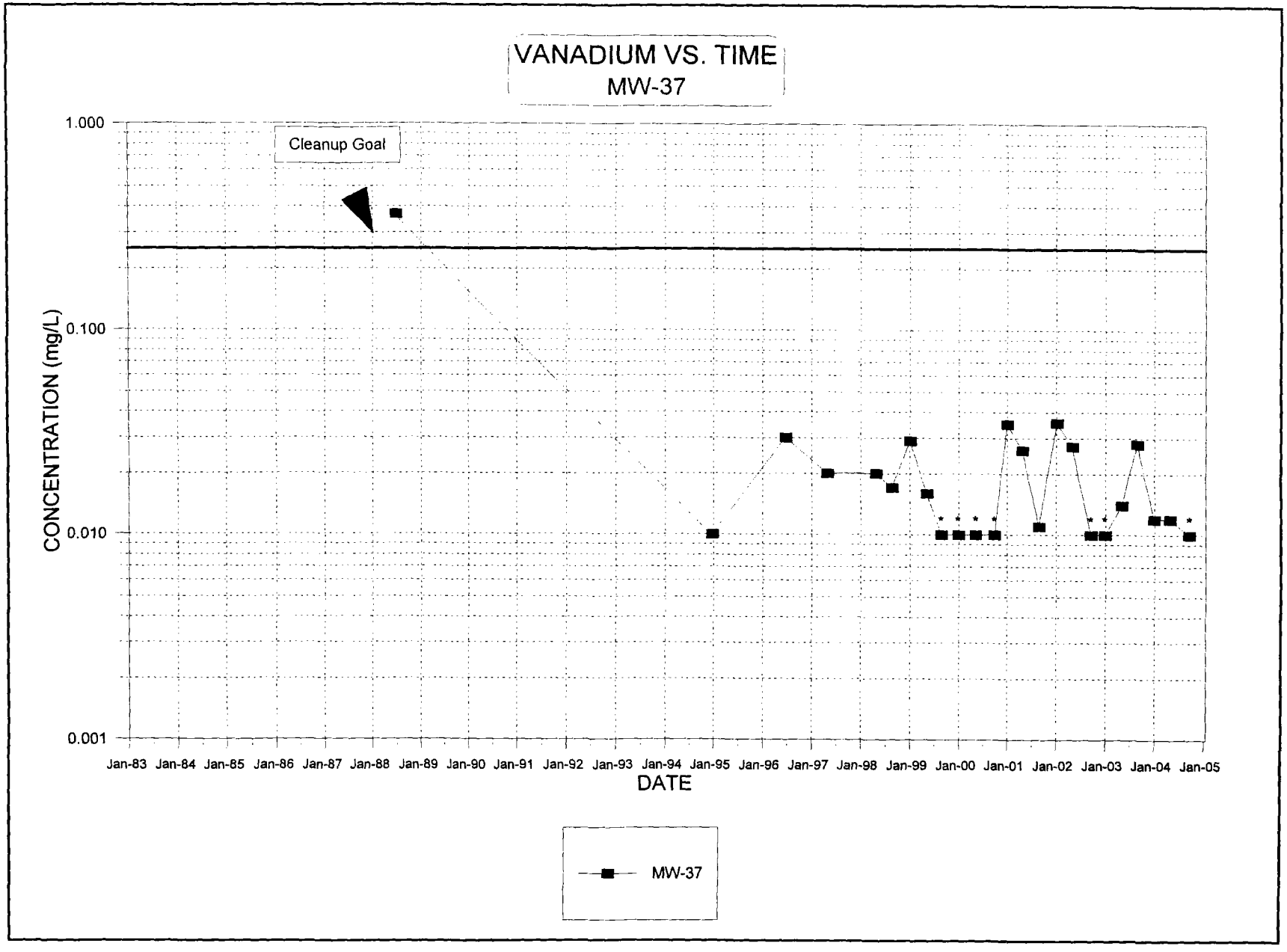
* = Below detection. Value plotted is detection limit.



* = Below detection. Value plotted is detection limit.

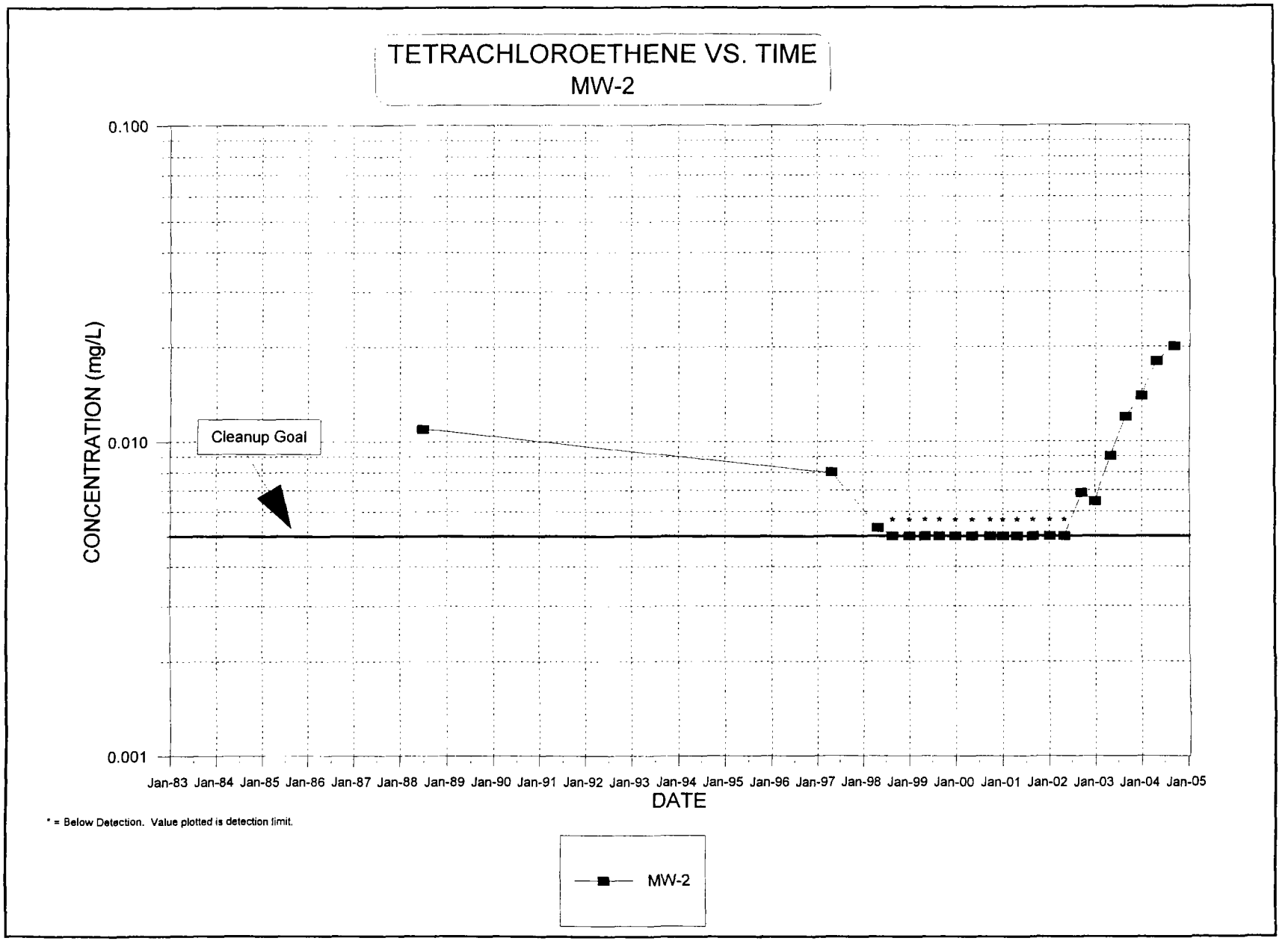


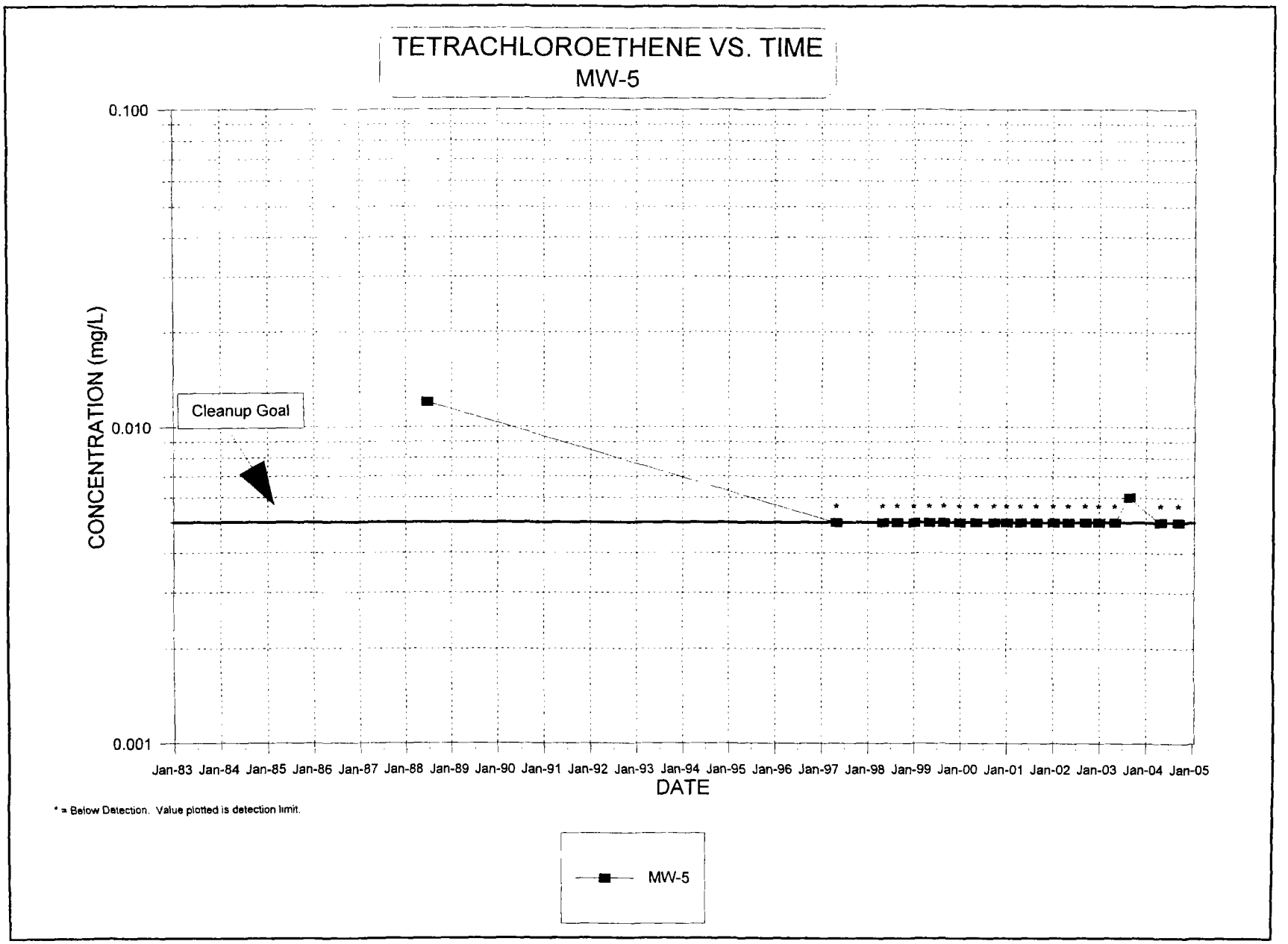
* = Below detection. Value plotted is detection limit.

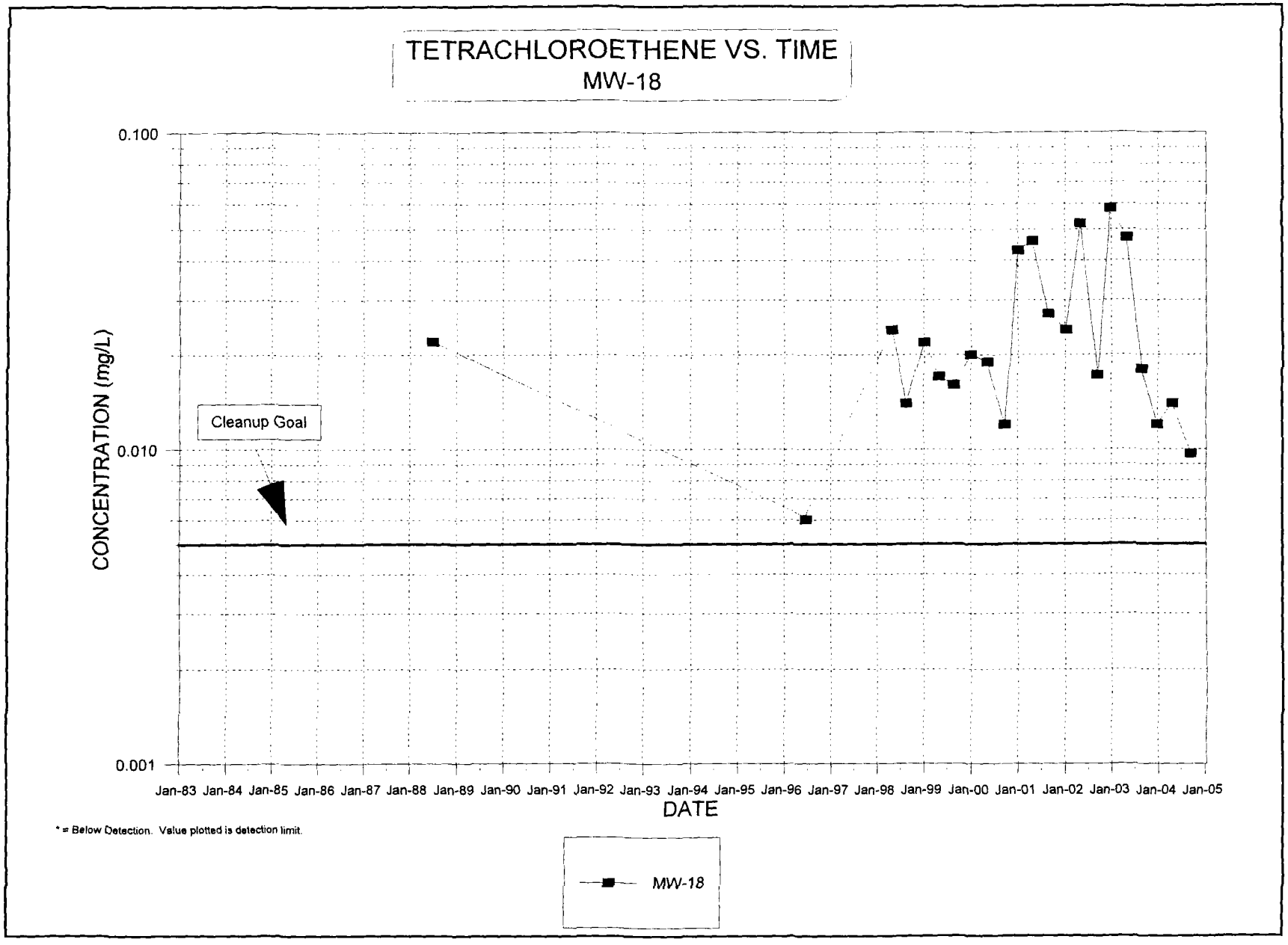

VANADIUM VS. TIME
MW-37
Cleanup Goal
1.000
0.100
0.010
0.001
CONCENTRATION (mg/L)
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-37

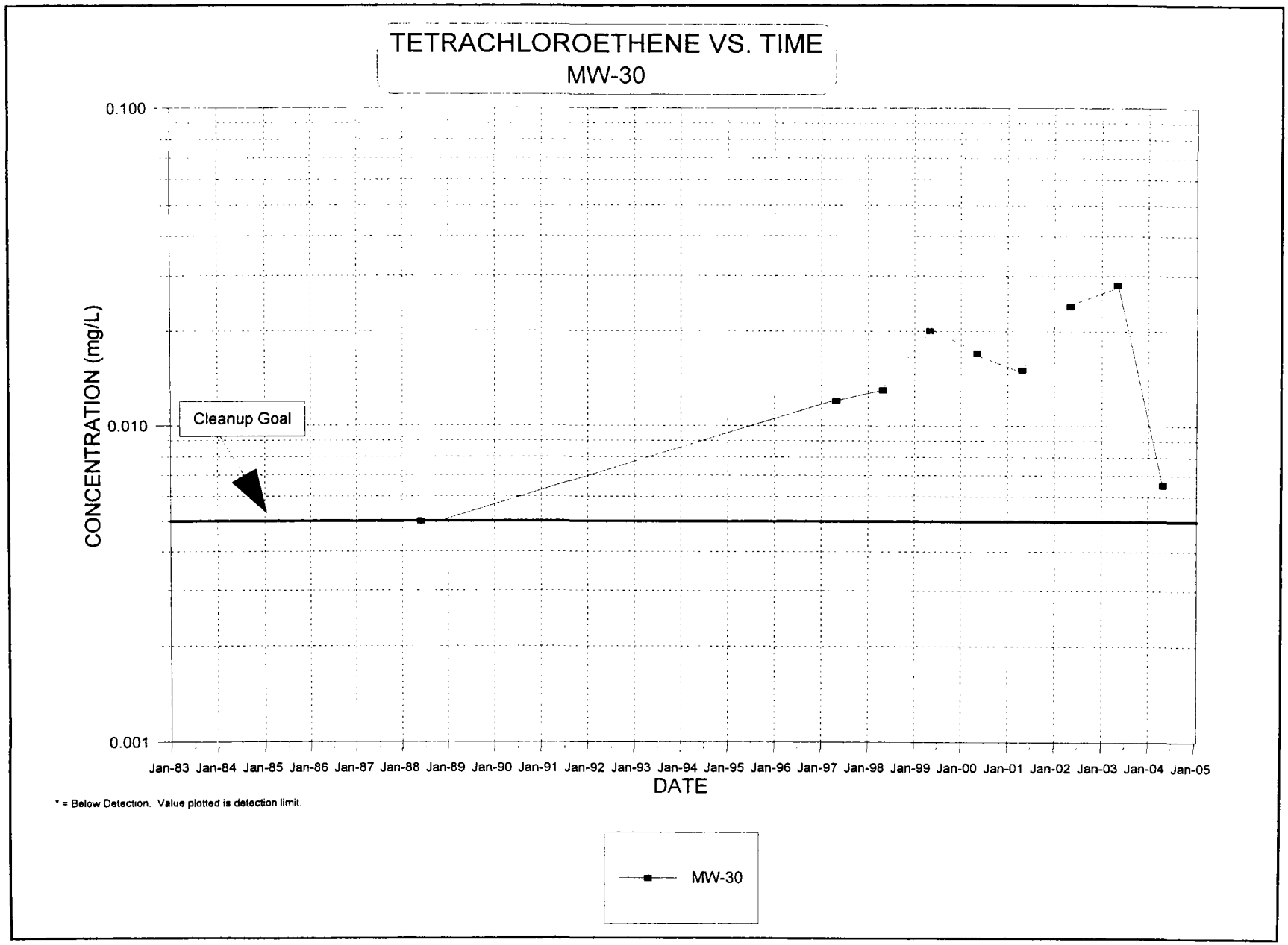
APPENDIX D-8

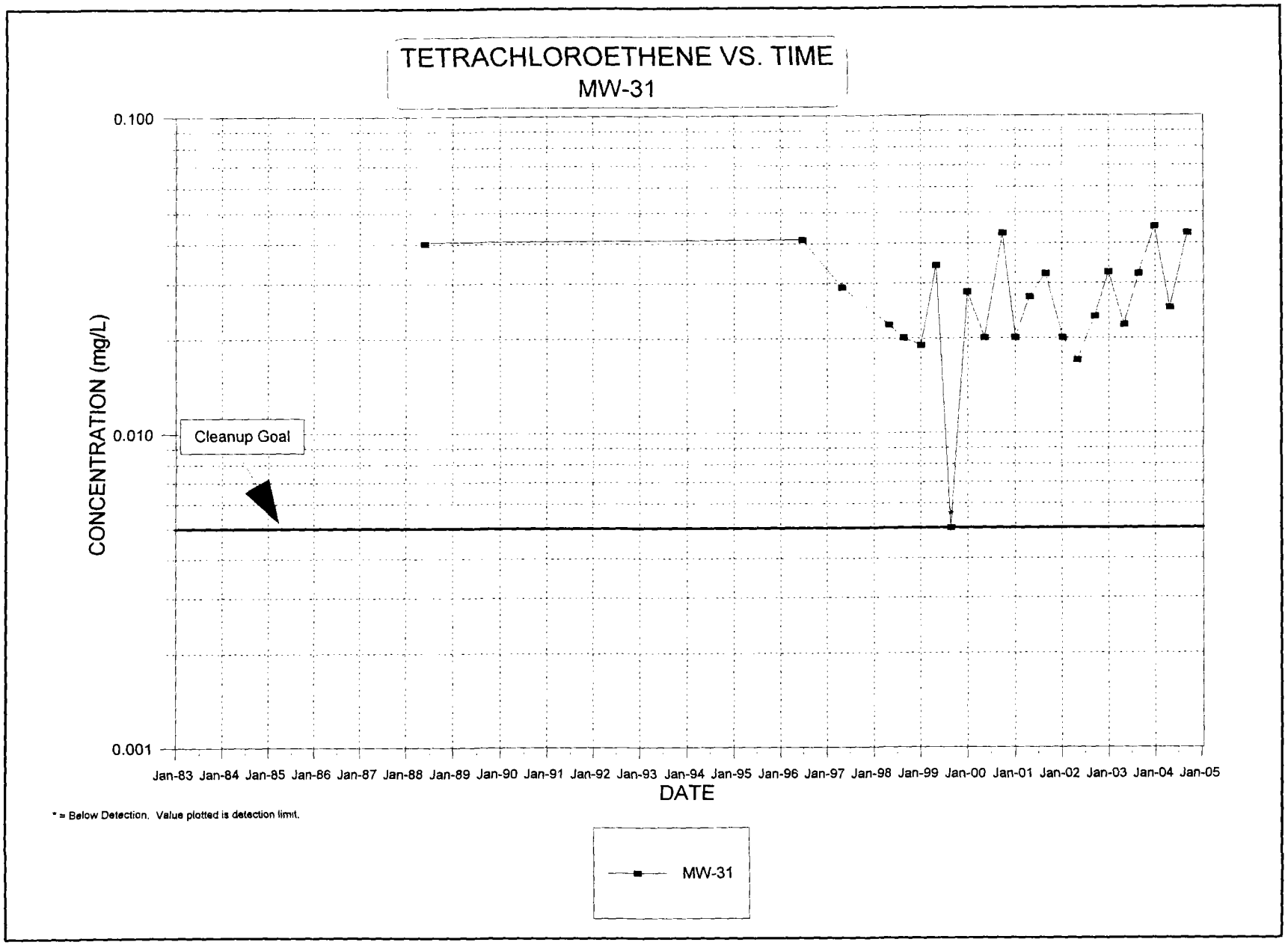
TETRACHLOROETHENE


TETRACHLOROETHENE VS. TIME
MW-2
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
* = Below Detection. Value plotted is detection limit.
MW-2


TETRACHLOROETHENE VS. TIME
MW-5
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
* = Below Detection. Value plotted is detection limit.
MW-5

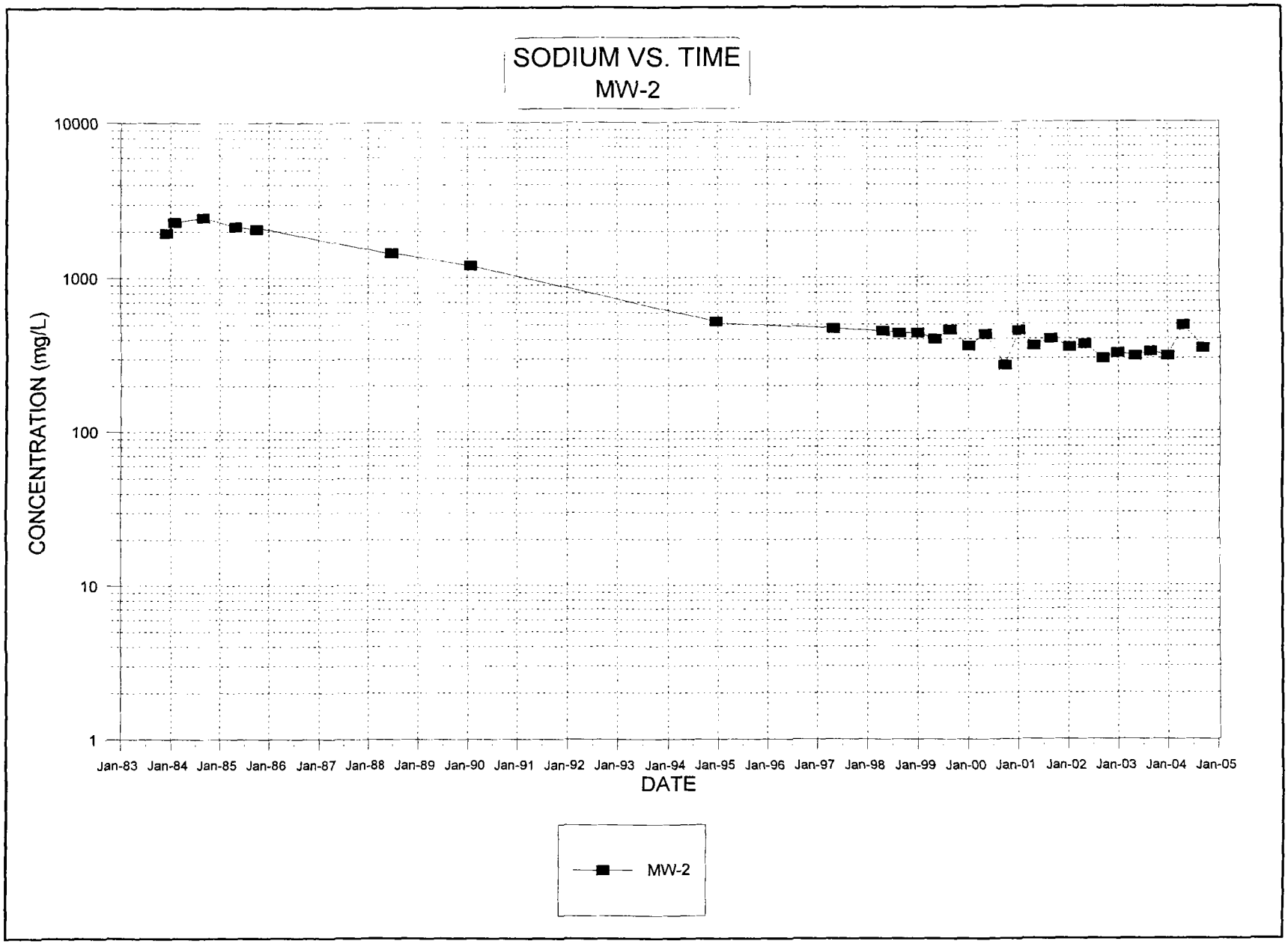

TETRACHLOROETHENE VS. TIME
MW-18
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
* = Below Detection. Value plotted is detection limit.
MW-18

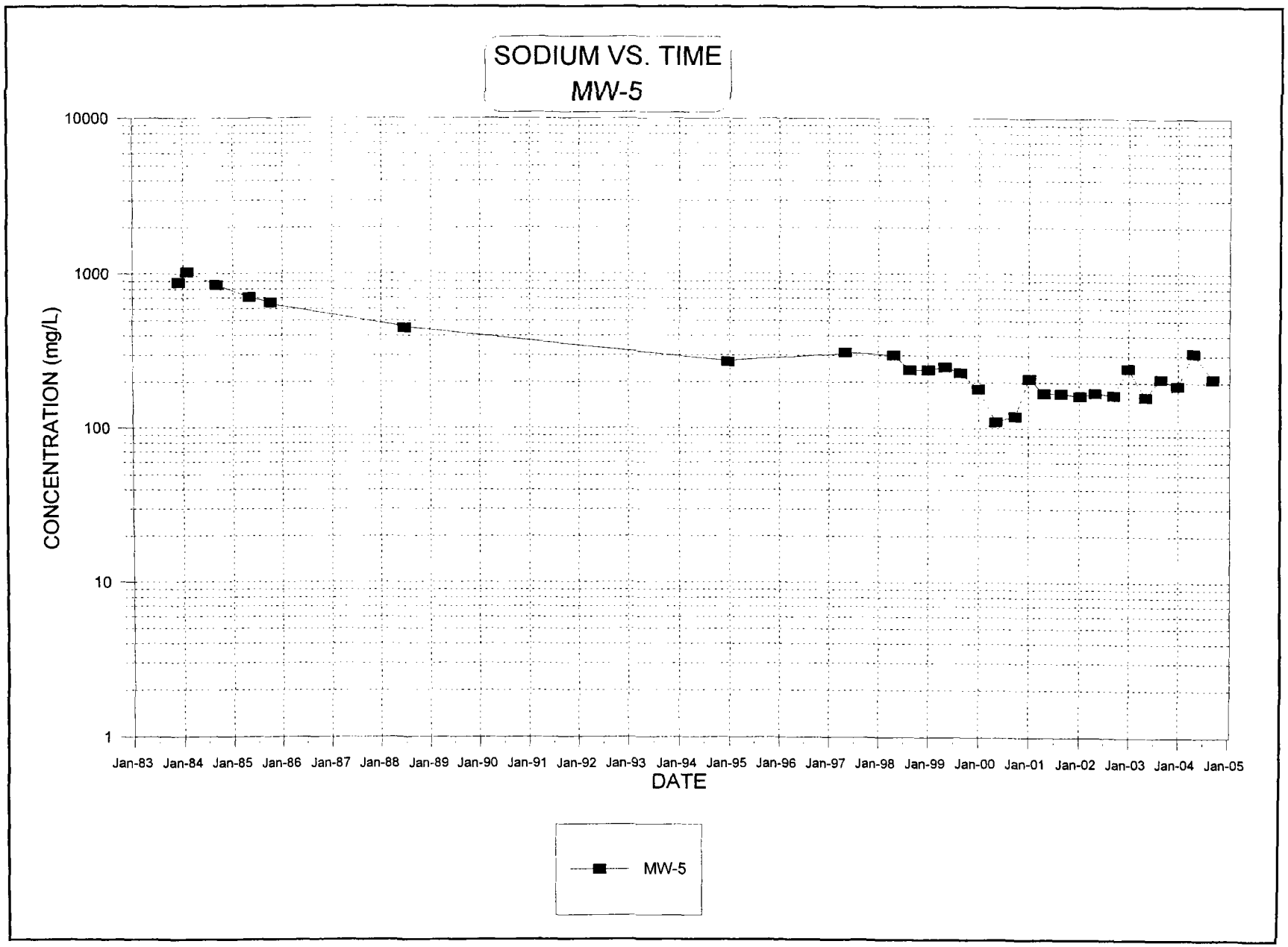

TETRACHLOROETHENE VS. TIME
MW-30
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
* = Below Detection. Value plotted is detection limit.
MW-30

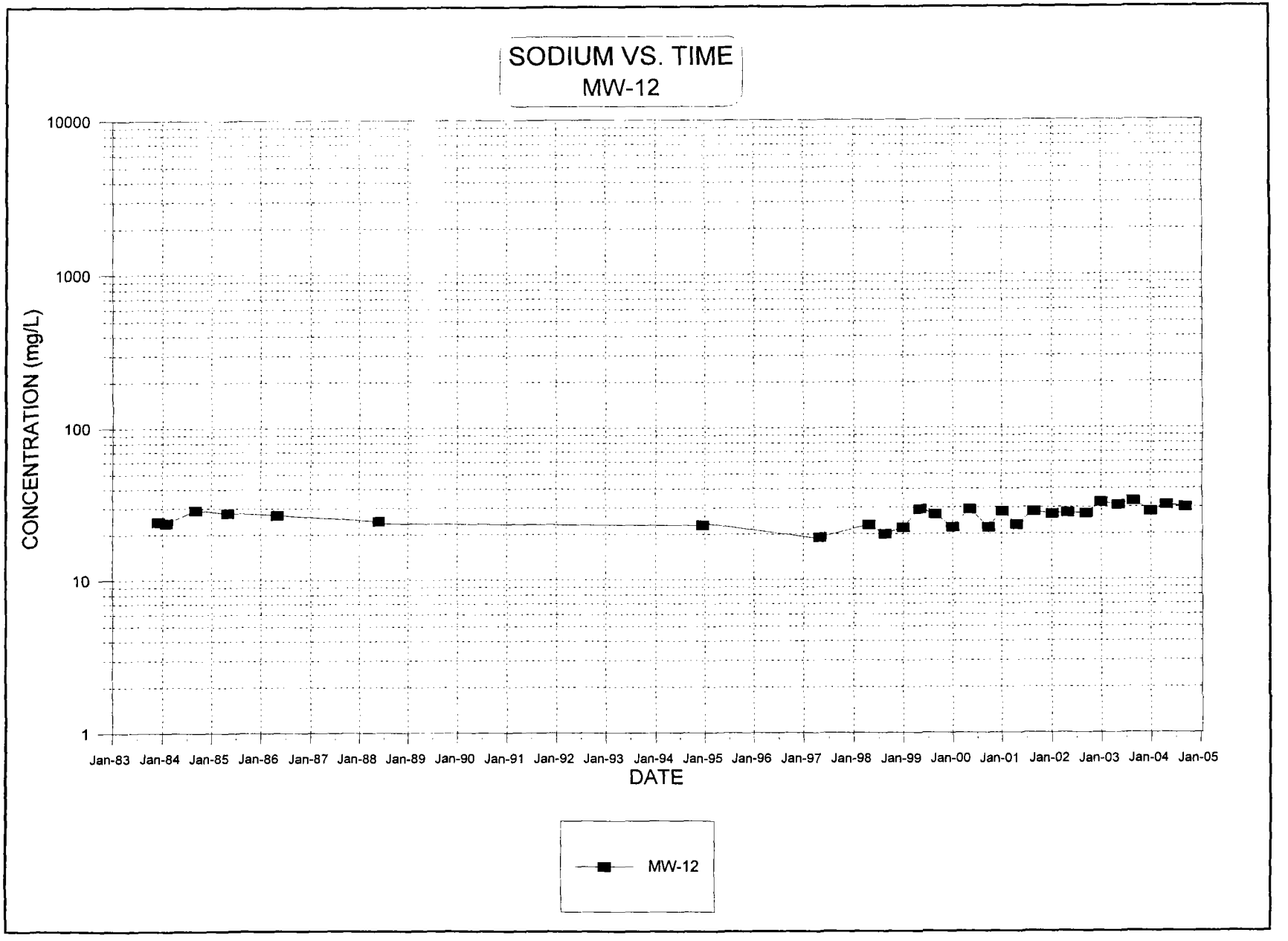

TETRACHLOROETHENE VS. TIME
MW-31
0.100
0.010
0.001
CONCENTRATION (mg/L)
Cleanup Goal
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
* = Below Detection. Value plotted is detection limit.
MW-31

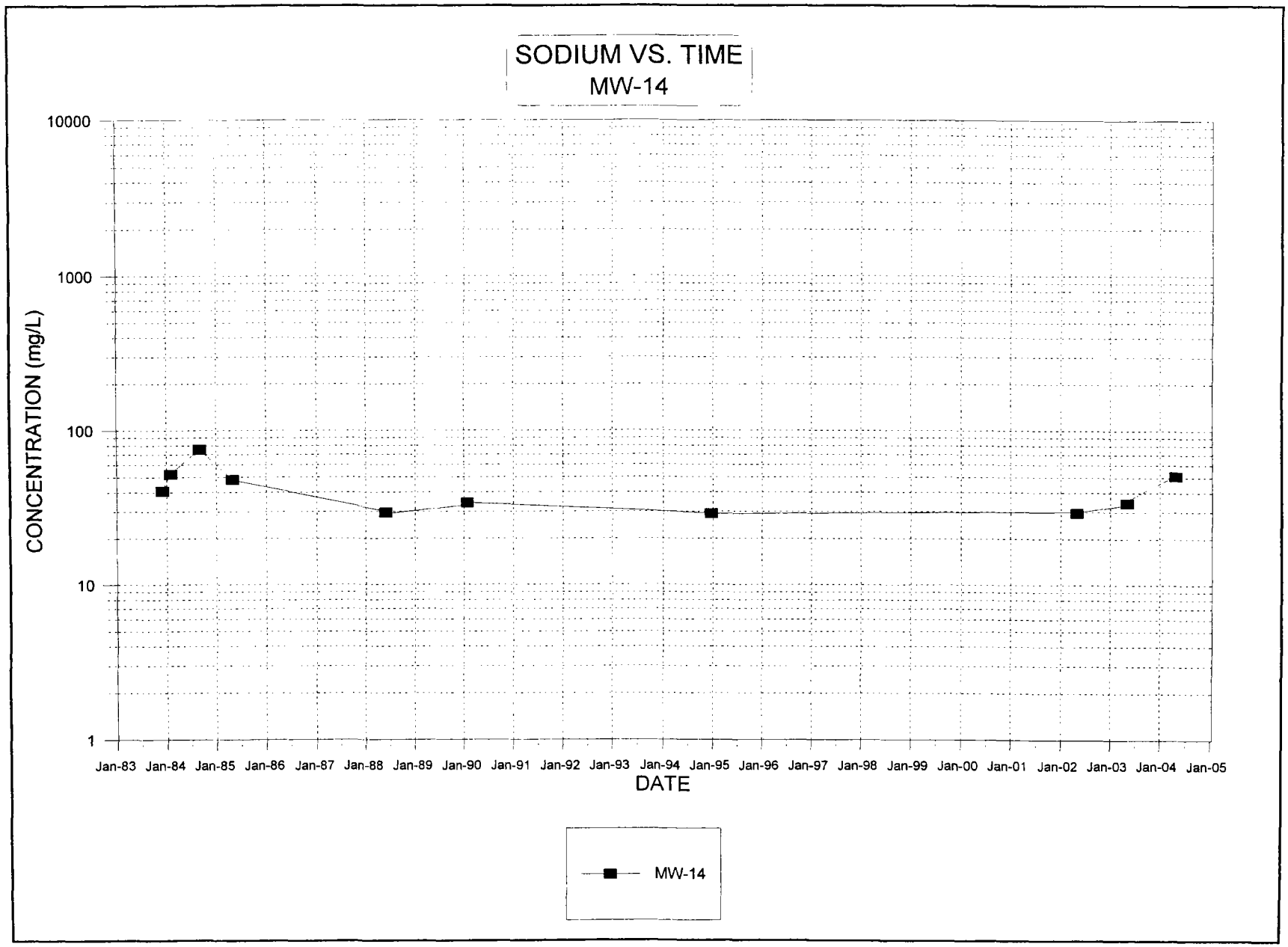
APPENDIX D-9

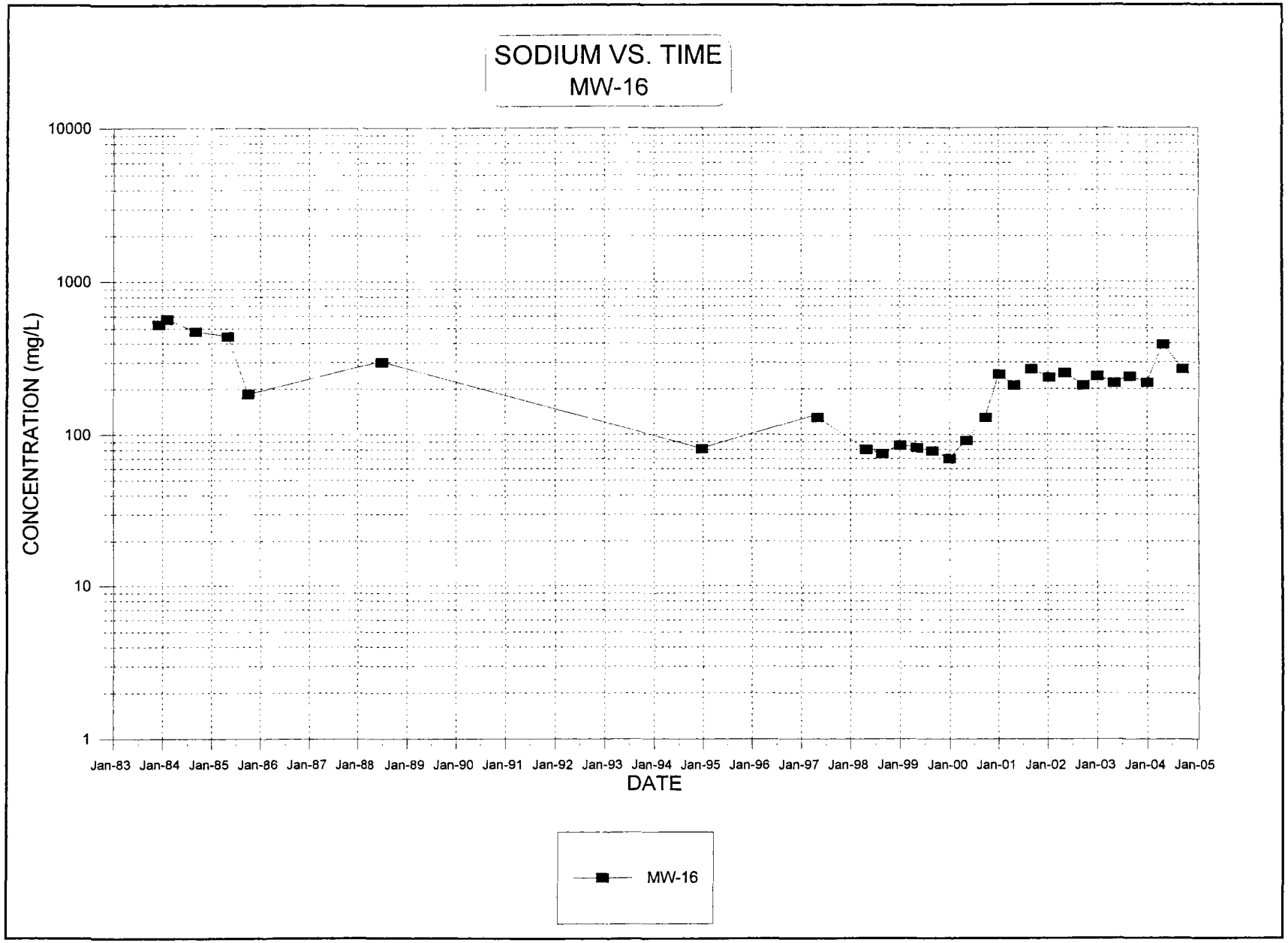
SODIUM

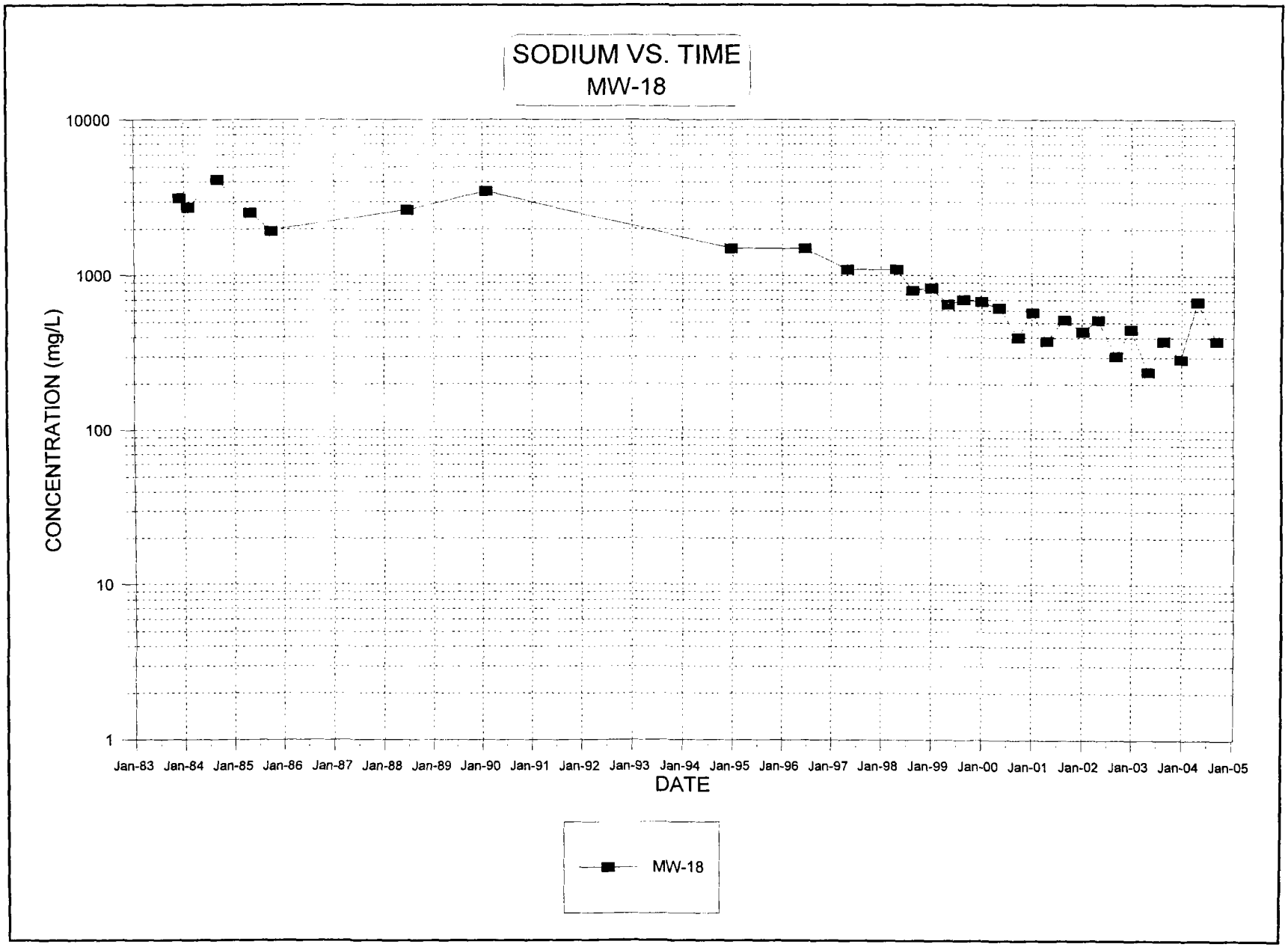

SODIUM VS. TIME
MW-2
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-2

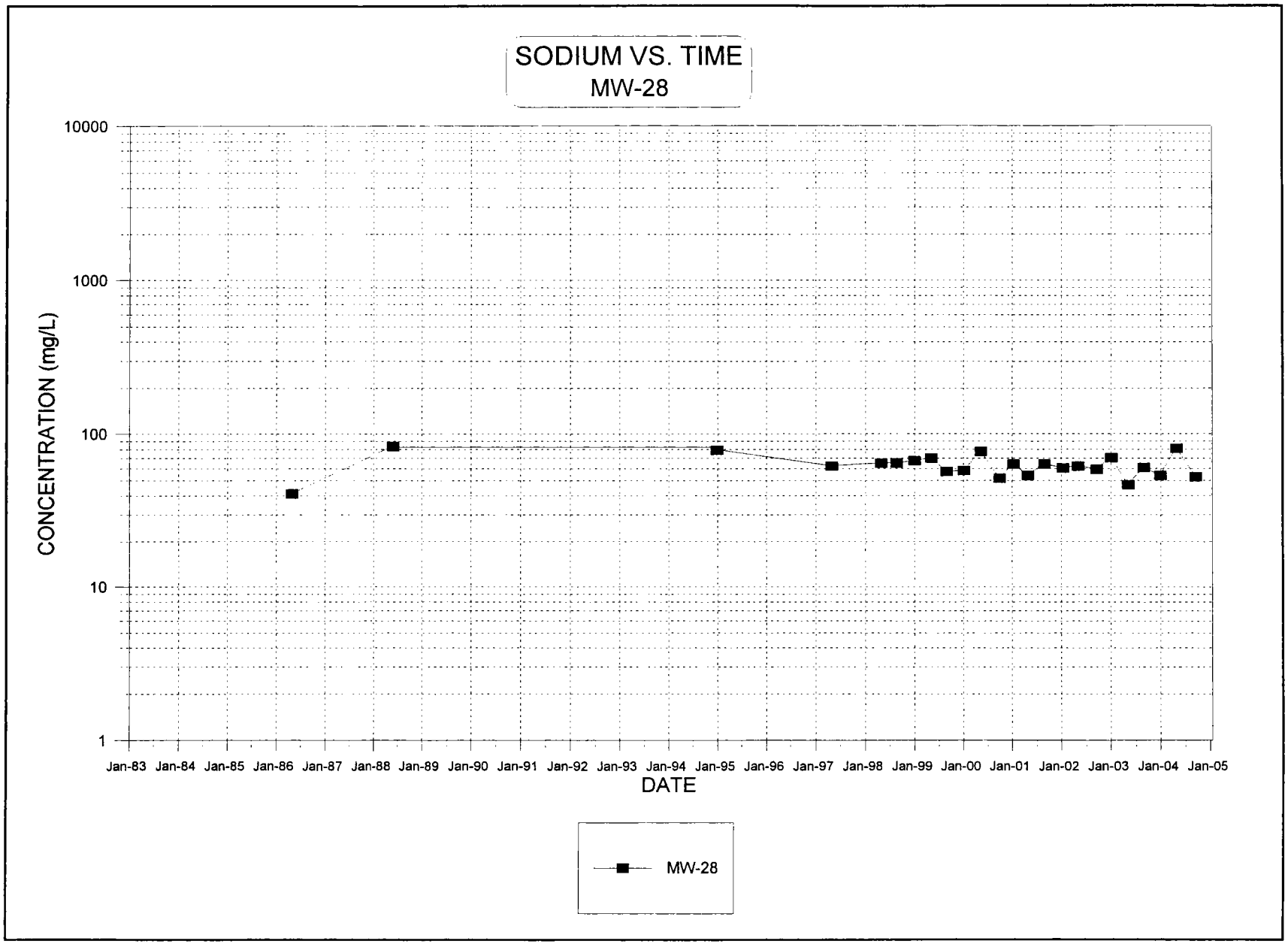

SODIUM VS. TIME
MW-5
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-5

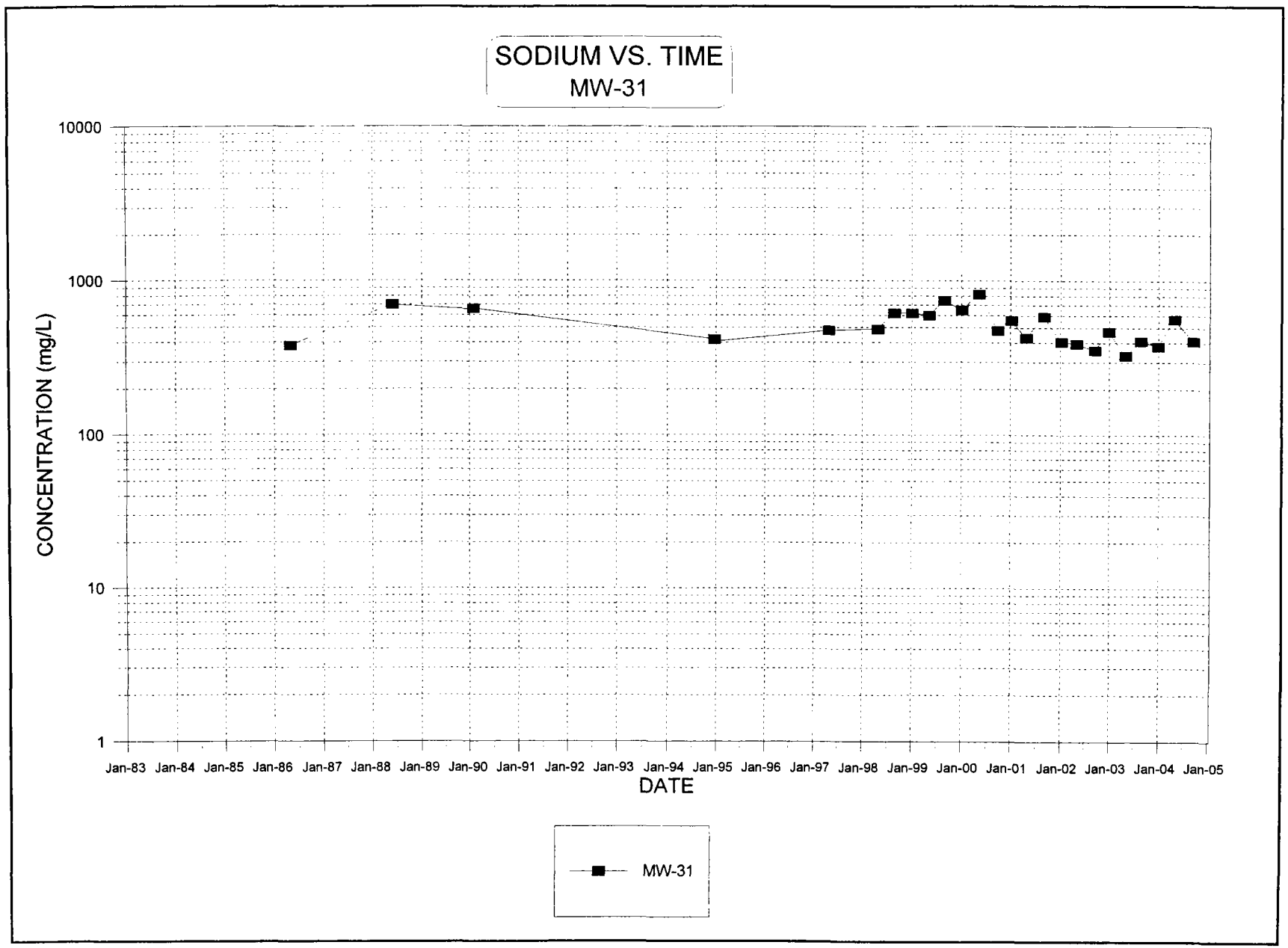

SODIUM VS. TIME
MW-12
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-12

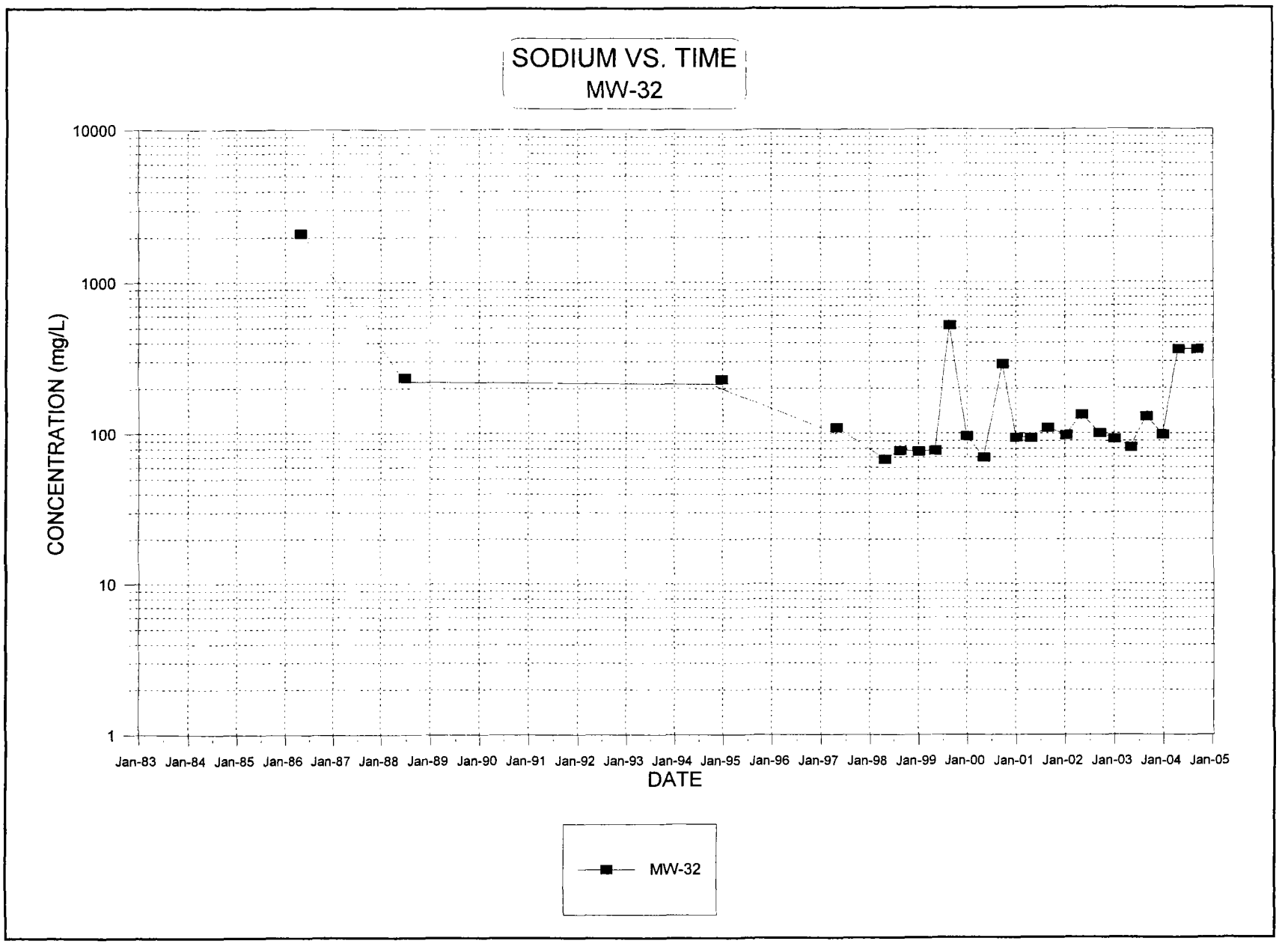

SODIUM VS. TIME
MW-14
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-14

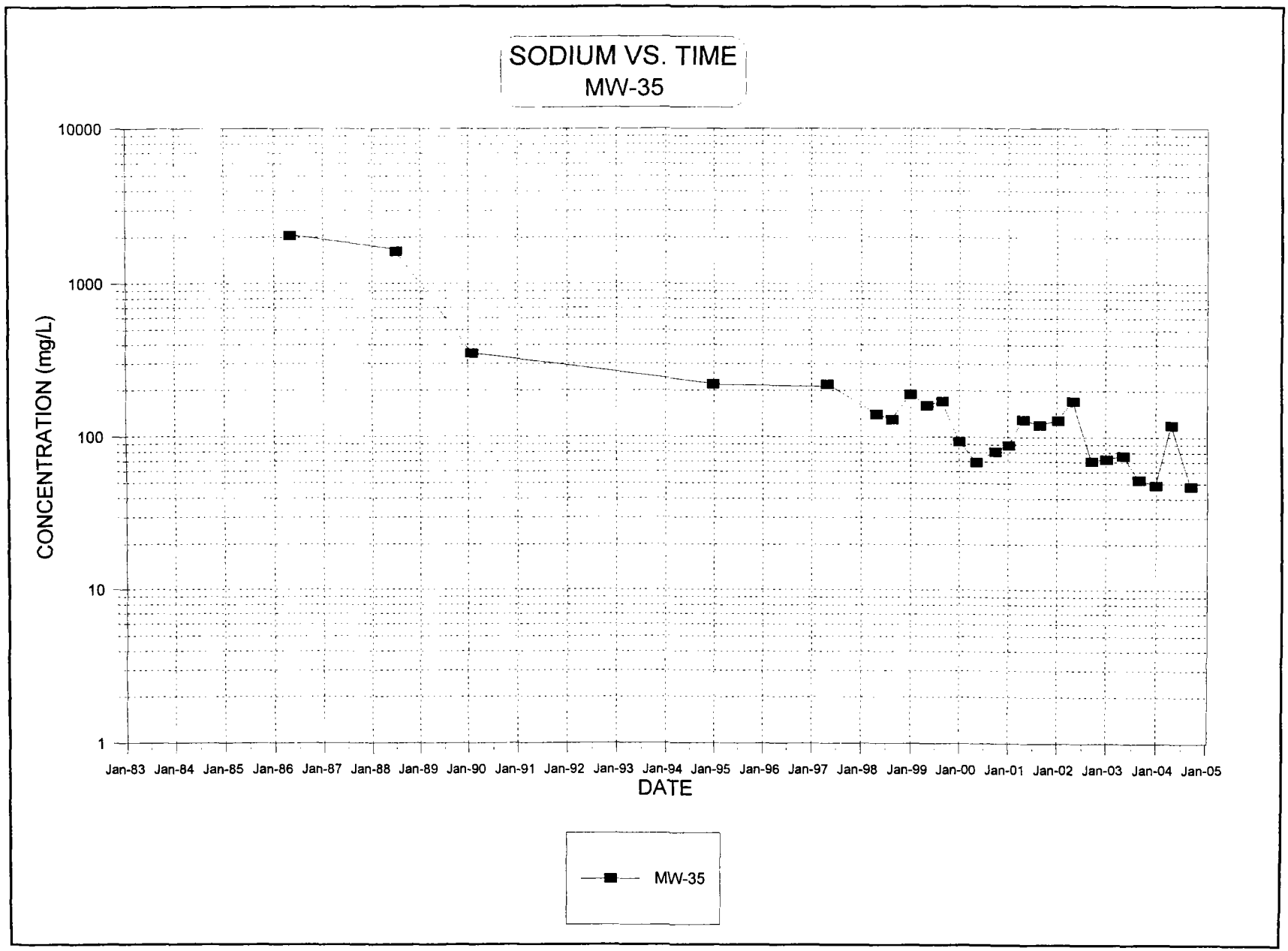

SODIUM VS. TIME
MW-16
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-16

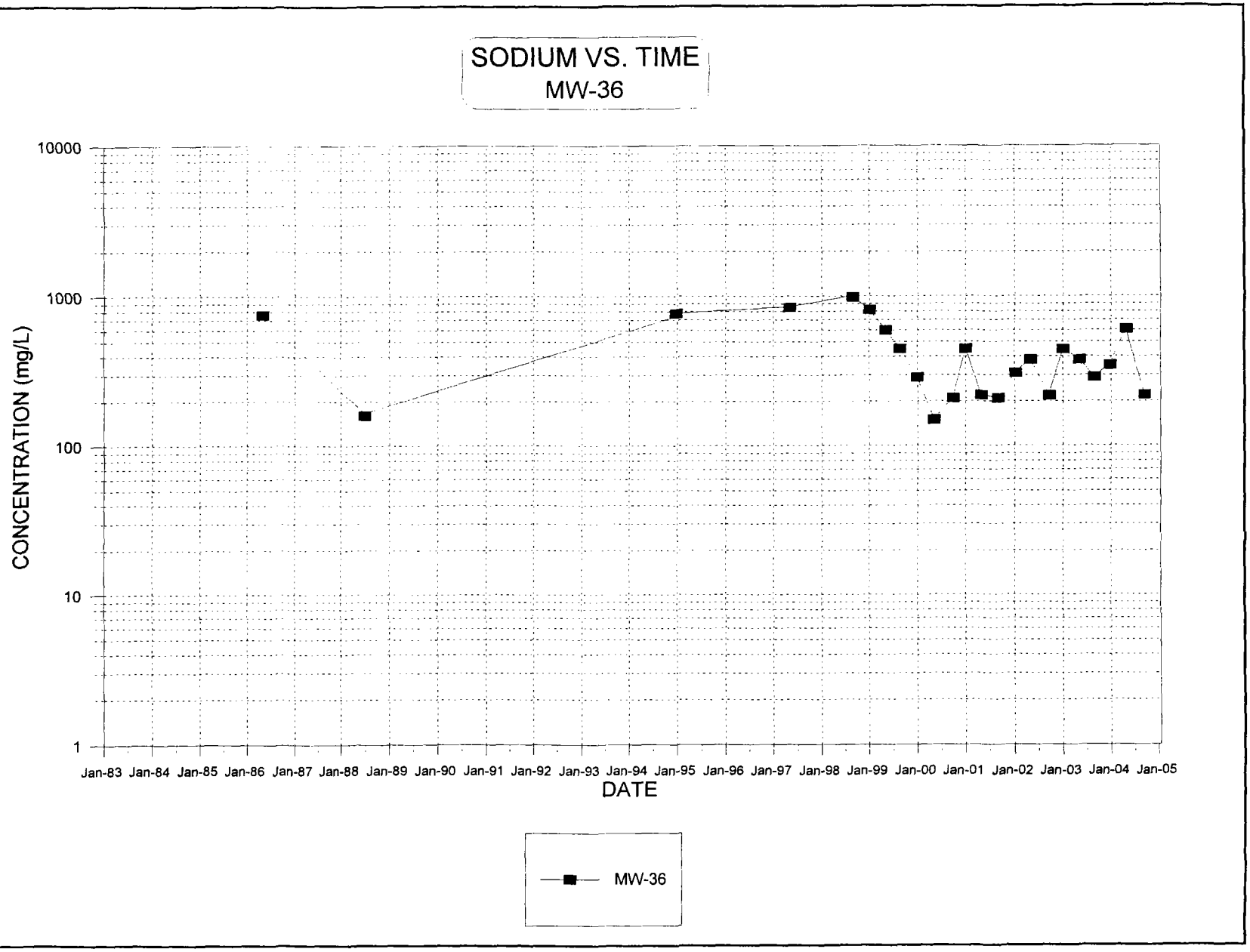

SODIUM VS. TIME
MW-18
10000
1000
100
10
1
CONCENTRATION (mg/L)
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-18

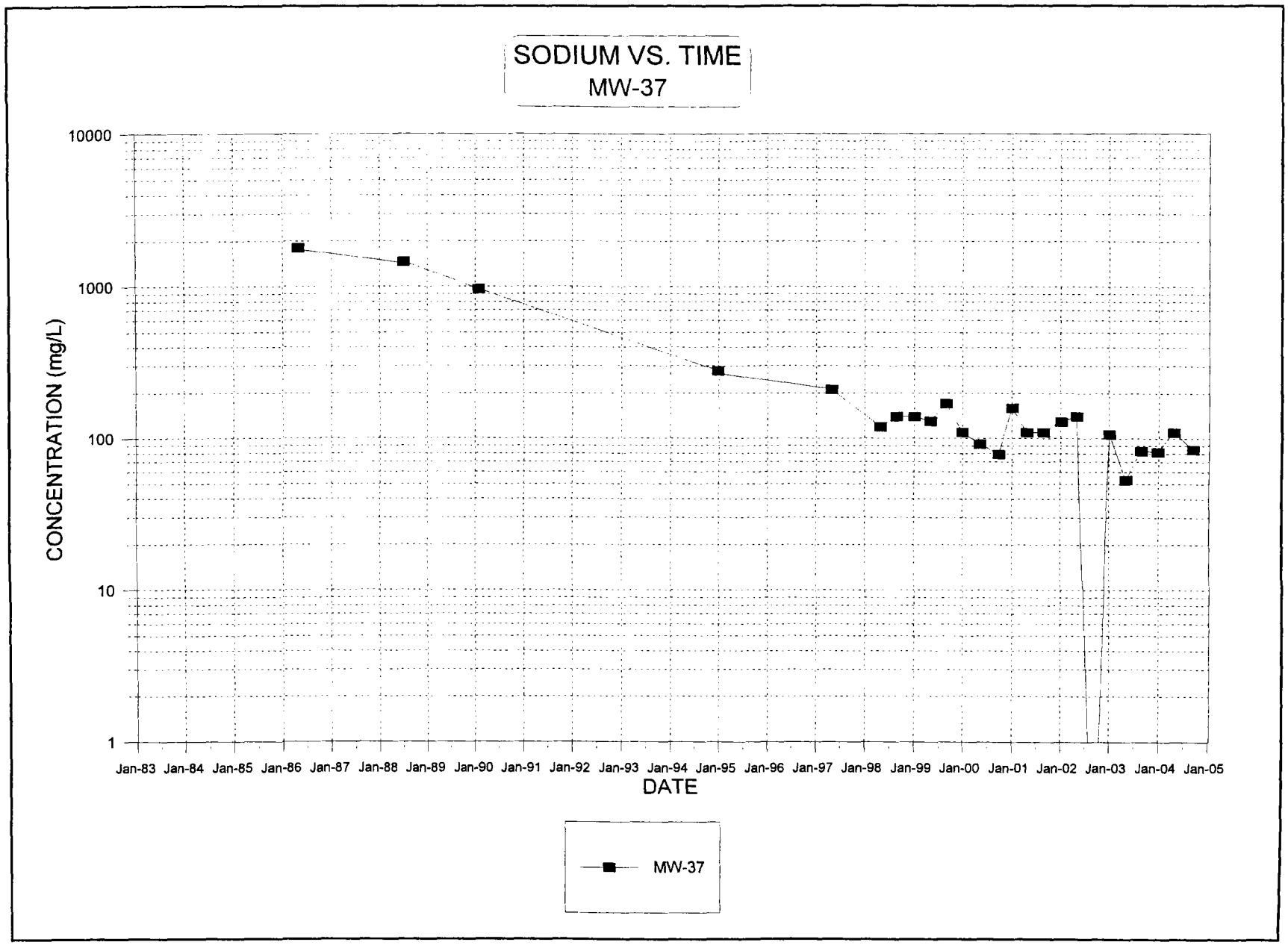

SODIUM VS. TIME
MW-28
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-28


SODIUM VS. TIME
MW-31
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
DATE
MW-31


SODIUM VS. TIME
MW-32
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
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
Jan-03
Jan-04
Jan-05
DATE
MW-35


SODIUM VS. TIME
MW-36
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-36


SODIUM VS. TIME
MW-37
CONCENTRATION (mg/L)
10000
1000
100
10
1
Jan-83 Jan-84 Jan-85 Jan-86 Jan-87 Jan-88 Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05
DATE
MW-37

APPENDIX E

CONTAMINANT MASS-IN-PLACE ESTIMATION SUPPORTING DATA

MAY 2003 MONITORING EVENT

APPENDIX E-1
ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES
COLLECTED MAY 2004

ORMET CORPORATION
HANNIBAL, OHIO

SAMPLE I.D.:	MW-1	MW-2	MW-5	MW-7	MW-8	MW-10	MW-11	MW-12	MW-14	MW-15	MW-16	MW-17
Cyanide, Total	<0.01	14/12	3.6	<0.01	0.068	<0.01	<0.01	<0.01	0.022	4.6	5.3/5.9	0.41
Fluoride	2.1	47/59	25	2.7	3.2	0.46	1.9	0.61	2.0	13	71/71	23

SAMPLE I.D.:	MW-18	MW-19	MW-28	MW-29S	MW-29D	MW-30	MW-31	MW-32	MW-34S	MW-34D	MW-35	MW-36
Cyanide, Total	1.8/2	<0.01	0.15	0.93	0.16	<0.01	15	5.2	0.38	0.45	6.6	13
Fluoride	150/140	3.6	0.21	8.7	2.4	2.1	71	49	41	6.0	22	120

SAMPLE I.D.:	MW-37	MW-39S	MW-39D	MW-40S	MW-40D	MW-41	MW-42S	MW-42D
Cyanide, Total	2.5	8.5	0.024	0.61	0.11	<0.01	3.1	0.65
Fluoride	14	150	4.2	9.2	11	0.45	74	9.6

NOTE: All results in mg/L.

APPENDIX E-1 (CONT.)
PLUME CONTOUR AREA CALCULATIONS
FOR TOTAL CYANIDE AND FLUORIDE
BASED ON RESULTS OF SAMPLING CONDUCTED MAY 2004

ORMET CORPORATION
HANNIBAL, OHIO

TOTAL CYANIDE	CONTOUR INTERVAL (from Figure 6)	CONTOUR AREA in sqare feet (estimated using CAD* software)
	>10 mg/L	155,562
	1-10 mg/L	820,303
	>1 mg/L	41,147
	0.2-1 mg/L	640,909

TOTAL FLUORIDE	CONTOUR INTERVAL (from Figure 5)	CONTOUR AREA in sqare feet (estimated using CAD* software)
	>100 (top left) mg/L	17,334
	>100 (top right) mg/L	15,105
	>100 (bottom) mg/L	21,255
	50-100 mg/L	503,523
	10-50 mg/L	937,917
	4-10 mg/L	304,808

* CAD - Computer Aided Drafting

APPENDIX E-1 (CONT.)
AVERAGE AQUIFER THICKNESS CALCULATIONS
WITHIN EACH PLUME CONTOUR INTERVAL
BASED ON RESULTS OF SAMPLING CONDUCTED MAY 2004

ORMET CORPORATION
HANNIBAL, OHIO

TOTAL CYANIDE

CONTOUR INTERVAL (from Figure 6)	MONITORING WELL ID	AQUIFER THICKNESS (in feet)	AVERAGE AQUIFER THICKNESS (b, in feet)
>10 mg/L	MW-2	33	29
	MW-31	25	
1-10 mg/L	MW-5	35	23
	MW-15	23	
	MW-16	39	
	MW-18	22	
	MW-32	20	
	MW-35	11	
	MW-36	17	
	MW-37	16	
>1 mg/L	MW-39D	45	47
	MW-42D	49	
0.2-1 mg/L	MW-15	23	33
	MW-17	44	
	MW-28	26	
	MW-29D	46	
	MW-34D	35	
	MW-40D	44	

APPENDIX E-1 (CONT.)
AVERAGE AQUIFER THICKNESS CALCULATIONS
WITHIN EACH PLUME CONTOUR INTERVAL
BASED ON RESULTS OF SAMPLING CONDUCTED MAY 2004

ORMET CORPORATION
HANNIBAL, OHIO

FLUORIDE

CONTOUR INTERVAL (from Figure 5)	MONITORING WELL ID	AQUIFER THICKNESS (in feet)	AVERAGE AQUIFER THICKNESS (b, in feet)
>100 (top left) mg/L	MW-18	22	22
>100 (top right) mg/L	MW-36	17	17
>100 (bottom) mg/L	MW-39D	45	45
50-100 mg/L	MW-2 MW-16 MW-31 MW-42D	33 39 25 49	37
10-50 mg/L	MW-5 MW-15 MW-17 MW-32 MW-34D MW-35 MW-37 MW-40D	35 23 44 20 35 11 16 44	29
4-10 mg/L	MW-8 MW-28 MW-29D	40 26 46	37

APPENDIX E-1 (CONT.)
TOTAL CYANIDE AND FLUORIDE MASS-IN-PLACE
CALCULATION WORKSHEET
BASED ON RESULTS OF SAMPLING CONDUCTED MAY 2004

ORMET CORPORATION
HANNIBAL, OHIO

	Contour Interval (from Figure 6)	Contour Interval Area (in square feet) A	Average Aquifer Thickness (in feet) b	1. Aquifer Volume (in cubic feet) VA	Aquifer Porosity n	2. Volume of Ground Water (in cubic feet) Vgw	3. Volume of Ground Water (in Liters) Vgw	Average Concentration (mg/L) Cwi	4. Mass-in-Place for each interval (in mg) Mi	5. Mass-in-Place for each interval (in lbs) Mi
TOTAL CYANIDE	>10 mg/L	155,562	29	4,511,298	0.25	1,127,825	31,940,004	13	415,220,052	916
	1-10 mg/L	820,303	23	18,866,969	0.25	4,716,742	133,578,133	6	801,468,798	1,767
	>1 mg/L	41,147	47	1,933,909	0.25	483,477	13,692,069	6	82,152,414	181
	0.2-1 mg/L	640,909	33	21,149,997	0.25	5,287,499	149,741,972	0.6	89,845,183	198
									Total Cyanide Mw:	3,062
FLUORIDE	>100 (top left) mg/L	17,334	22	381,348	0.25	95,337	2,699,944	125	337,493,000	744
	>100 (top right) mg/L	15,105	17	256,785	0.25	64,196	1,818,031	110	199,983,410	441
	>100 (bottom) mg/L	21,255	45	956,475	0.25	239,119	6,771,850	125	846,481,250	1,867
	50-100 mg/L	503,523	37	18,630,351	0.25	4,657,588	131,902,892	75	9,892,716,900	21,813
	10-50 mg/L	937,917	29	27,199,593	0.25	6,799,898	192,573,111	30	5,777,193,330	12,739
	4-10 mg/L	304,808	37	11,277,896	0.25	2,819,474	79,847,504	7	558,932,528	1,232
									Total Fluoride Mw:	38,836

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