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2012 ANNUAL REMEDIAL ACTION GROUNDWATER MONITORING REPORT ORMET CORPORATION SUPERFUND SITE

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Prepared for:

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2012 ANNUAL REMEDIAL ACTION GROUNDWATER MONITORING REPORT ORMET CORPORATION SUPERFUND SITE HANNIBAL, OHIO

BACKGROUND

Under the terms of a Consent Decree entered on December 18, 1995, and modified on March 11, 2009, between the United States Environmental Protection Agency (USEPA) and the Ormet Primary Aluminum Corporation (Ormet), Ormet has undertaken Remedial Action (RA) at their Hannibal, Ohio Superfund site consisting of the following:

- Containment of the plume in the alluvial aquifer by pumping of groundwater at the Reduction Plant;
- 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 along the toe of the former CMSD to collect seeps;
- 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 on Figure 1.

Remedial construction was initiated in April 1997 and was certified complete in August 1998. During the period from August 1998 through October 1998, the FSPSA soil-flushing system was operated on a trial basis, with flushing 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 that occurs over a portion of the

FSPSA, the flushing schedule is modified annually based on storm events. Under the typical schedule, the flushing system is on for two hours and off for one hour for about 12 to 14 hours each day. The flushing system is not operated during winter months when the ground may be frozen and freezing of the lines could occur, typically from November through March.

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

SUMMARY OF GROUNDWATER MONITORING PROGRAM

The current system of groundwater monitoring wells and piezometers at the Ormet site is shown on Figure 1. Under the RA Groundwater Monitoring Plan, monitoring has been conducted three times per year (approximately once every four months) through the end of 2012. During 2012, the first monitoring event was performed on April 3 and 4, the second from July 24 through 26, and the third on November 7 and 8. Beginning in 2013 monitoring will be conducted annually, as approved by the USEPA on January 29, 2013.

Each monitoring event includes measurement of water-level elevations at MW- and TH-series monitoring wells, PPB-series piezometers monitoring the alluvial aquifer, and Ohio River pool measuring points RP-1 and RP-2. Water-level elevation data collected in conjunction with the 2012 monitoring events are provided in Tables 1, 2, and 3, respectively, and a groundwater contour map based on July 2012 data is provided as Figure 2.

During each 2012 monitoring event, groundwater samples were collected from the following wells located within and downgradient of the FSPSA, and immediately downgradient of the CMSD (the latter wells denoted by "*"):

MW - 2	MW - 32
MW - 5	MW - 35
MW - 12*	MW - 36
MW - 16	MW - 37
MW - 18	MW - 39S
MW - 28	MW - 44S*
MW - 31	MW - 44D*

With the exception of MW-39S, these wells were identified in the RA Groundwater Monitoring Plan as Points of Compliance, as required under Section II.6. of the Consent Decree SOW. MW-39S was later added at the request of USEPA.

During the July 2012 monitoring event an expanded list of monitoring wells were sampled, including selected wells not hydraulically downgradient from the potential source areas at the site (i.e., background wells) and additional wells located within and proximate to the plume. 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-39D
MW-14	MW-40S & D
MW-15	MW-42S & D
MW-17	

Water Sampling Log forms for each of the three monitoring events conducted during 2012 are provided in Appendix A.

The primary purpose of the expanded monitoring event is to collect data to prepare plume isopleth maps. The isopleth maps are then used to estimate contaminant mass-in-place and the total area of the aquifer having fluoride concentrations greater than 4.0 mg/L and total cyanide concentrations greater than 0.2 mg/L. These estimates are then compared to previous year's estimates to document changes in groundwater quality during the remediation program. Annual monitoring to begin in 2013 will be for the expanded list of wells.

During 2012, groundwater 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. Samples from MW-12 are also analyzed for PCBs, and samples from wells MW-44S and MW-44D are analyzed for PCBs only. Tetrachloroethene (PCE) is 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).

By the USEPA's approval on January 29, 2013, PCBs, beryllium and vanadium will be deleted from future monitoring events, as past data have shown these parameters to be non-detectable or consistently below cleanup goals. Also, weak acid dissociable (WAD) cyanide replaces cyanide amenable to chlorination (amenable cyanide), as WAD cyanide is regarded to be a more reliable surrogate for free cyanide on which the cleanup goal is based.

Analyses of groundwater samples collected during the 2012 monitoring events were performed by Pace Analytical Services, Inc. of Greensburg, Pennsylvania. The parameters analyzed and their corresponding groundwater clean-up goals are listed below.

Analytical Parameter	Groundwater Clean-Up Goal (mg/L)
Arsenic	0.01*
Beryllium	0.004
Manganese	0.23*
Vanadium	0.26
Cyanide (total)	N/A
Cyanide (WAD)	0.2
Fluoride	4
PCBs	N/A
Tetrachloroethene	0.005
pH	N/A
Specific Conductance	N/A
Sodium	N/A

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 groundwater 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 data reports for the 2012 groundwater analyses are provided in Appendix B, and the analytical results are summarized in Table 4 and Table 6 (PCBs). For comparison, Table 4 also includes historical results for the parameters and wells being monitored. The data validation summary report for the 2012 analyses is provided in Appendix C.

RESULTS OF 2012 REMEDIAL ACTION GROUNDWATER MONITORING

GROUNDWATER FLOW

Water-level elevation data collected during the July 2012 monitoring event (Table 2) were used to construct the groundwater contour map presented as Figure 2. The groundwater elevation contours and associated groundwater flow patterns shown in Figure 2 are consistent with those previously mapped. As shown, the groundwater pumping component of the site remedy is effective in containing the plume in the alluvial aquifer beneath the Ormet Reduction Plant property. Groundwater flow in the alluvial aquifer is generally from northeast to southwest, toward the Ormet Reduction Plant Ranney well. Under the pumping conditions that exist at the Reduction Plant, a primary source of recharge to the alluvial aquifer is by inflow from the Ohio River.

Pumping of the former Ormet Rolling Mill Ranney well (located about 2000 feet west of the Reduction Plant Ranney well) was discontinued in late 2005 and the well was abandoned by Reynolds, Inc. of Middletown, Ohio in June 2009. By this change, the groundwater divide that in previous years existed roughly parallel to and west of the fenceline separating the two plants is no longer present, and groundwater beneath the former Rolling Mill property is now drawn toward the Reduction Plant Ranney well (see Figure 2).

GROUNDWATER QUALITY

Cleanup Goals

The following table compares the cleanup goals specified in the ROD and, in the case of arsenic and manganese, the background values calculated by HMI, with the most recent (i.e., November 2012) concentrations reported for samples collected from the compliance wells.

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

	WAD Cyanide	Arsenic	Beryllium	Manganese	Vanadium	Fluoride
Cleanup Goal/Background (mg/L)	0.2	0.01/ 0.04(1)	0.004	0.23/ 9.8(1)	0.26	4.0
Wells within FSPSA						
MW - 32	*	o	*	o	*	+
MW - 35	*	o	*	o	*	+
MW - 36	*	*	*	*	*	+
MW - 37	*	*	*	*	*	*
Downgradient Edge of FSPSA						
MW - 16	*	o	*	o	*	+
MW - 18	*	x	*	o	*	+
MW - 28	*	*	*	*	*	*
MW - 31	*	o	*	o	*	+
Mid-Plant Area						
MW - 2	*	o	*	o	*	+
MW - 5	*	*	*	o	*	+
Downgradient of CMSD						
MW - 12	*	*	*	o	*	*

* - Latest result at or below ROD cleanup goal.

0 - Latest result is above ROD cleanup goal, but below calculated background (arsenic and manganese only).

+ - Latest result is above ROD cleanup goal.

X – Latest result is above calculated background (arsenic and manganese only).

(1) Background values calculated by HMI (August, 1996). Arsenic background = 0.04 mg/L; manganese background = 9.78 mg/L.

Concentration vs. Time Trends

To evaluate changes in plume concentrations within the alluvial aquifer beneath the Ormet site, recent and historical results are used to prepare concentration versus time graphs 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 Groundwater Monitoring Plan (see Appendix D). Analytical results for sodium are also graphed, because it is an additional indicator of the plume.

Discussions of the concentration versus time trends for each parameter focus mainly on data collected since the pre-remediation monitoring event performed in 1997. In viewing the concentration versus time graphs, it should be noted that the construction and operation of the soil flushing system in the FSPSA altered site water-quality conditions for certain parameters (e.g., cyanide, fluoride) at certain wells. Construction activities (1997 to 1998) involved grading to establish desired surface slopes and trenching to install underground piping to route water to spray birds, both of which loosened the upper soil profile and predictably made constituents present in the soil matrix more available to leaching. Operation of soil flushing (pilot tested in 1998 and fully operational in 1999) was specifically designed to accelerate the rate at which constituents were leached from the soil to the groundwater. The net result observed for certain wells was an initial increase in concentrations roughly corresponding to construction and operation of soil flushing, generally followed by a gradual decrease.

Cyanide

The cleanup goal for cyanide established in the ROD (0.2 mg/L) is the Safe Drinking Water Act Maximum Contaminant Level (MCL) for free cyanide. Cyanide amenable to chlorination, which had been used as a surrogate for free cyanide, is that portion of total cyanide existing as free cyanide, cyanide salts, and weakly bound cyanide complexes apt to contribute to free cyanide. Beginning in November 2010 Ormet initiated routine analyses for weak-acid dissociable cyanide (WAD cyanide), as it also quantifies concentrations of free cyanide, cyanide

salts and weak cyanide complexes apt to contribute to free cyanide, and is regarded to be a more reliable and consistent surrogate for free cyanide. By the USEPA approval on January 29, 2013, WAD cyanide is now used as the surrogate for free cyanide, and analyses for amenable cyanide discontinued. Based on historical sampling results (Table 4), the predominant form of cyanide occurring in the groundwater beneath the Ormet site is the more stable cyanide complexes, as the concentrations of amenable or free cyanide historically reported, and the concentrations of WAD cyanide more recently reported, are typically much lower than the total cyanide concentrations.

Concentration versus time graphs for total cyanide and WAD cyanide are presented in Appendix D-1 and D-2, respectively. Concentrations reported for WAD cyanide during 2012 were typically below the ROD-specified cleanup goal of 0.2 mg/L.

For total cyanide concentration versus time trends (Appendix D-1), following increased concentrations in response to soil flushing, a trend of decreasing concentrations is apparent at compliance wells MW-2, MW-16, MW-18, MW-28, MW-31 and MW-37. At MW-5 a trend of increasing total cyanide concentrations was observed, but appears to have stabilized. At MW-32, MW-35 and MW-36 concentrations show a decreasing trend in recent years. At MW-12 concentrations have typically been below detection limits. Overall, the total cyanide concentration data indicate that soil flushing within the FSPSA, and/or the excavation/rearrangement of shallow soil during installation of the soil-flushing system, caused initial increases in leachate generation and groundwater concentrations, but, at most of the wells exhibiting these effects, there has been a subsequent decline.

Fluoride

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

Fluoride concentrations have consistently been below the cleanup goal of 4 mg/L at compliance wells MW-12 and MW-28. Recently, fluoride concentrations have also typically

been below the cleanup goal at MW-35 and MW-37. Following increases in fluoride concentrations attributed to soil flushing, a general decreasing concentration trend is observed at compliance wells MW-2, MW-16, MW-18, MW-31, MW-32, MW-35, MW-36 and MW-37. At MW-5 increased concentrations of fluoride following soil flushing persisted longer than at other wells, and in recent years have stabilized.

Arsenic

Concentration versus time graphs for arsenic for each of the compliance point wells are provided in Appendix D-4. At wells MW-5, MW-12 and MW-28, concentrations of arsenic reported since 1997 have consistently been below the clean-up goal of 0.01 mg/L listed in the ROD, and at MW-36 and MW-37 concentrations reported since mid 2006 have typically been below the 0.01 mg/L clean-up goal. At MW-35, reported arsenic concentrations, though commonly exceeding the ROD-specified cleanup goal, have typically been below the calculated background value (i.e., $\leq$ 0.04 mg/L) during recent years. Data for wells MW-2, MW-18, MW-31, MW-36 and MW-37 show a general trend of decreasing concentrations, and data for MW-35 exhibit no consistent trend. At MW-16 and MW-32, arsenic concentrations increased relative to historical values, possibly as a result of soil flushing, but in recent years have shown a downward trend.

As discussed earlier, the final cleanup goal for arsenic is pending. In the ROD, the cleanup goal for arsenic was set at 0.01 mg/L. However, because arsenic is a common constituent of groundwater 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 0.04 mg/L for arsenic. At ten of the eleven compliance wells (all except MW-18), the most recent results were

below the 0.04 mg/L background level determined for arsenic, and at six of these wells also below the ROD-specified cleanup goal.

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. In all but three of the compliance wells (MW-18, MW-32, MW-37), there has never been a reported detection of beryllium that exceeded the cleanup goal; in some of the earlier samples, the analytical detection limit was higher than 0.004 mg/L. At MW-18, MW-32, and MW-37, detections of beryllium exceeding the cleanup goal have been few and isolated, giving no indication of groundwater quality impacts by this constituent. Having consistently met the cleanup goal in recent years, analyses for beryllium are to be discontinued beginning in 2013.

Manganese

Concentration versus time graphs for manganese are provided in Appendix D-6. Manganese results for MW-28 have consistently been below the ROD-specified cleanup goal of 0.23 mg/L and, in recent samples, also typically below the cleanup goal at MW-36 and MW-37. At MW-2, MW-5, MW-16, MW-18, MW-31, MW-32, MW-35, MW-36, and MW-37, increased manganese concentrations that roughly coincided with soil flushing activities appear to have peaked and have since shown a general decreasing trend.

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 groundwater 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 9.78 mg/L for manganese. Except for a few isolated detections, manganese concentrations have been below the background level at all of the compliance wells during recent and historical monitoring events.

Vanadium

Concentration versus time graphs for vanadium are provided in Appendix D-7. The cleanup goal for vanadium established in the ROD was 0.26 mg/L. With the exception of MW-18 and MW-37, vanadium concentrations have been below the cleanup goal at all compliance wells during all recent and historical monitoring events. For both MW-18 and MW-37, only two of the historically reported vanadium values exceeded the cleanup goal. These data do not indicate any substantive groundwater quality impacts by vanadium. Having consistently met the cleanup goal in recent years, analyses for vanadium are to be discontinued beginning in 2013.

Tetrachloroethene (PCE)

Under the RA Groundwater Monitoring Plan, analyses for tetrachloroethene (PCE) are performed on samples from four the compliance wells (MW-2, MW-5, MW-18 and MW-31) plus MW-30, at which PCE was detected during the RI. PCE concentration versus time graphs for the four compliance wells are provided in Appendix D-8. Since the Phase I RI, PCE concentrations have typically been below detection and the ROD-specified cleanup goal of 0.005 mg/L at MW-5 and, in recent samples, also at MW-18. PCE concentrations have shown increases at MW-2 and, to a lesser degree, at MW-31. At both of these wells the increases appear to have stabilized.

Sodium

Sodium is not a constituent for which a cleanup goal was specified in the ROD, but has been graphed (Appendix D-9) and is discussed because it is an indicator of changes in the overall condition of the plume. At compliance wells MW-2, MW-18, MW-31, MW-35, MW-36 and MW-37, data collected since 1997 show decreases in sodium concentrations, and at MW-5, MW-12 and MW-28 no clear trend of increasing or decreasing concentrations. At MW-16 and MW-32, sodium concentrations increased in 2001 and 2004, respectively, and have been stable since.

Contaminant Mass-in-Place

In accordance with Section II.3.C. of the Consent Decree SOW, data from the July 2012 expanded monitoring event were used to estimate the masses of fluoride and total cyanide (primary plume indicators) in the alluvial aquifer as a means of documenting changes in overall groundwater quality during 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. 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 presented as Figures 3 and 4, respectively. Data and supporting calculations for the July 2012 mass-in-place estimates are provided in Appendix E. Data and supporting calculations for the previous mass-in-place estimates were submitted to the USEPA in prior annual reports.

Based on the estimates presented in Table 6, the mass of fluoride in the alluvial aquifer calculated for 1999 (about 30,416 pounds), after the start of full-time soil flushing in the

FSPSA, increased by about 6,528 pounds relative to the 1998 value of 23,888 pounds. Between May 1999 and May 2001, the fluoride mass-in-place decreased to about 21,741 pounds, and from May 2001 to May 2004 increased to 38,836 pounds. Since May 2003 the fluoride mass-in-place has been relatively consistent, ranging from 29,510 pounds (2009) to 38,836 pounds (2004); the estimated fluoride mass-in-place for 2012 was 35,324 pounds.

Similar to fluoride, the total cyanide mass-in-place calculated for 1999, following the start of full-time soil flushing, increased by about 2,969 pounds relative to 1998 estimates (i.e., 2,597 pounds in 1998 vs. 5,566 pounds in 1999). Between 1999 and 2003, the cyanide mass-in-place showed an overall decreasing trend, to a low of about 2,773 pounds. From 2004 to 2006 the cyanide mass-in-place increased to a high of 6,615 pounds, then decreased from 2007 to 2011 to a low of about 3,441 pounds. For 2012 the estimated cyanide mass-in-place was 5,393 pounds (Table 6).

To assess the removal of cyanide and fluoride from the alluvial aquifer by pumping of groundwater at the Reduction Plant, the mass removals achieved from January through December 2012 were calculated and compared to changes in the estimated masses in the aquifer over the same period (see Table 7). The masses of cyanide and fluoride removed during 2012 were calculated using analytical data and flow data collected by Ormet from the Ranney well and the interceptor well. (Note: By USEPA approval on March 26, 2012, pumping of the interceptor well was permanently discontinued.)

During the period from January through December 2012, approximately 1,724 pounds of fluoride and approximately 66 pounds of cyanide were removed from the alluvial aquifer by groundwater pumping. The mass removal of fluoride was about 5,510 pounds lower and of cyanide was about 694 pounds lower than mass removals during 2011 (see Figure 8). During 2012, the estimated mass of fluoride in the aquifer increased by approximately 1,552 pounds relative to 2011, and the estimated mass of cyanide increased by approximately 1,894 pounds. Figure 7 shows estimated masses of fluoride and total cyanide in the alluvial aquifer versus time, and Figure 8 shows fluoride and total cyanide mass removal versus time.

Effected Aquifer Areas

As a further check on changes in groundwater quality during the remediation, the approximate areas of the aquifer containing fluoride and total cyanide at concentrations greater than 4.0 mg/L and 0.2 mg/L, respectively, were estimated using analytical results from the July 2012 sampling event. The results are summarized in Table 6. The estimates of aquifer areas are based on the fluoride and total cyanide isopleth maps shown as Figures 3 and 4, respectively. For comparison, Table 6 also includes previous year's estimates of the aquifer areas having fluoride and total cyanide concentrations greater than 4.0 mg/L and 0.2 mg/L, respectively.

As shown in Table 6, the area of the alluvial aquifer containing fluoride concentrations greater than 4.0 mg/L has been relatively consistent, ranging from 36.9 acres to 48.4 acres. For 2012 the aquifer area with fluoride concentrations greater than 4.0 mg/L was about 46.4 acres.

A gradual increase in the area of the aquifer with concentrations of total cyanide greater than 0.2 mg/L has been apparent since 1999, increasing from 27.5 acres in 1999 to 51.5 acres in 2010. Soil flushing in the FSPSA is the probable cause of the progressive increases. For 2011 and 2012 the aquifer area containing total cyanide concentrations greater that 0.2 mg/L was 45.6 acres and 47.9 acres, respectively.

Analytical Results for PCBs

During each of the three 2012 sampling events, groundwater samples from monitoring wells MW-12, MW-44S and MW-44D were analyzed for PCBs. Analytical results for these samples, and all previous samples (i.e., since 2002) reported no detections of PCBs (see Table 5). These data give no indication of groundwater quality impacts by PCBs, and analyses for PCBs are to be discontinued beginning in 2013.

SUMMARY/CONCLUSIONS

- Pumping of groundwater at the Ormet Reduction Plant continues to provide containment of the plume beneath the Ormet property and removes contaminant mass from the alluvial aquifer. Along the river/plant boundary, the flow of groundwater continues to be from the river to the aquifer.

- Pumping of groundwater removed approximately 1,724 pounds of fluoride and approximately 66 pounds of cyanide from the alluvial aquifer during the period from January through December 2012. During the same period, the estimated mass of fluoride in the aquifer increased by about 1,552 pounds relative to 2011, and the estimated mass of cyanide in the aquifer increased by about 1,894 pounds.

- Between 2011 and 2012, the estimated area of the alluvial aquifer with fluoride concentrations greater than 4.0 mg/L decreased by about 2.3% (47.5 acres versus 46.4 acres) and the estimated area of the aquifer with total cyanide concentrations greater than 0.2 mg/L increased by about 5.0 % (45.6 acres versus 47.9 acres).

- Reductions in contaminant mass-in-place were occurring prior to the completion of Remedial Construction and full-time operation of the FSPSA soil-flushing system. These decreases are attributed to the passage of time and natural flushing by infiltrating precipitation and snow melt, and to operations and changes in waste management practices undertaken by Ormet prior to the Superfund project, including pumping of groundwater that removes contaminant mass and discontinued use of the disposal ponds and the spent potliner storage area. Increases in the fluoride and cyanide mass-in-place since initiation of soil flushing are attributed to the flushing itself, and also the excavation/ rearrangement of shallow soil during the installation of the flushing system.

- Analyses of groundwater samples for PCBs during 2012 and previous monitoring events reported no detections of PCBs, and analyses for beryllium and vanadium reported either

no detections or concentrations well below the ROD-specified cleanup goals. Analyses for these parameters are to be discontinued beginning in 2013.

- Analyses of weak-acid dissociable cyanide (WAD cyanide) during the November 2010 through November 2012 monitoring events indicate that WAD cyanide is less subject to analytical variability than analyses for cyanide amenable to chlorination. Therefore, WAD cyanide is now used as the surrogate for free cyanide on which the ROD-specified cleanup goal is based, and analyses for amenable cyanide will be discontinued beginning in 2013.

- Given the substantial groundwater-flow and water-quality data base established for the Ormet site, the USEPA by letter dated January 29, 2013 approved a shift from tri-annual to annual monitoring beginning in 2013. During each annual monitoring event site-wide water-level measurements and sampling of the expanded list of monitoring wells will be performed.

- By USEPA approval on March 26, 2012, operation of the groundwater treatment plant and pumping of the interceptor wells was permanently discontinued. The Ormet Ranney well will continue to be pumped to maintain containment of the plume within the alluvial aquifer.

TABLE 1
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: APRIL 3, 2012

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-1	667.80	47.28	620.52
MW-2	667.52	48.06	619.46
MW-3	645.17	23.39	621.78
MW-4	661.07	43.97	617.10
MW-5	668.16	50.69	617.47
MW-7	667.94	49.50	618.44
MW-8	667.71	52.22	615.49
MW-9	666.59	50.05	616.54
MW-10	667.16	51.43	615.73
MW-11	667.31	50.12	617.19
MW-12	635.82	15.00	620.82
MW-13	661.44	38.02	623.42
MW-14	653.59	31.33	622.26
MW-15	657.31	33.59	623.72
MW-16	662.72	41.00	621.72
MW-17	655.03	32.05	622.98
MW-18	660.91	37.38	623.53
MW-19	662.03	38.10	623.93
MW-20	632.79	9.50	623.29
MW-21s	663.47	47.08	616.39
MW-21d	663.60	46.70	616.90
MW-22s	667.47	50.83	616.64
MW-22d	667.21	50.59	616.62
MW-23s	663.18	46.06	617.12
MW-23d	663.41	46.40	617.01
MW-24s	667.88	51.80	616.08
MW-24d	667.75	51.69	616.06
MW-25	667.30	50.86	616.44
MW-26s	665.54	NM	
MW-26d	665.59	NM	
MW-27	667.31	50.96	616.35
MW-28	663.27	21.12	642.15
MW-29s	653.40	31.90	621.50
MW-29d	653.07	31.60	621.47
MW-30	667.58	44.45	623.13
MW-31	661.59	39.34	622.25
MW-32	656.12	33.78	622.34
MW-34s	655.67	33.10	622.57
MW-34d	654.67	31.19	623.48
MW-35	661.90	35.53	626.37
MW-36	655.14	33.38	621.76
MW-37	661.14	21.94	639.20
MW-38	666.64	19.93	646.71
MW-39s	657.30	34.65	622.65
MW-39d	657.18	34.50	622.68
MW-40s	663.90	44.35	619.55
MW-40d	663.75	44.25	619.50

TABLE 1 (cont.)
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: APRIL 3, 2012

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-41	637.67	NM	
MW-42s	654.37	32.76	621.61
MW-42d	654.34	32.78	621.56
MW-44s	662.01	42.03	619.98
MW-44d	661.76	42.55	619.21
PPB-02d+	662.78	39.44	623.34
PPB-04+	661.57	NM	
PPB-06+	663.04	NM	
PPB-09+	664.30	40.82	623.48
TH-3	667.81	48.36	619.45
TH-10	658.17	34.01	624.16
TH-11	659.08	34.91	624.17
TH-15	663.62	47.43	616.19
TH-16	664.62	47.80	616.82
TH-17	663.93	46.92	617.01
RP-1	643.17	19.73	623.44
RP-2	643.05	19.22	623.83

NOTE:

All MW-series and PPB-series wells are measured from the top of the PVC casing.
All TH-series wells are measured from the top of steel casing.
River-pool measuring point RP-1 is at the upriver barge-docking area and RP-2 is at the downriver barge-docking area

PPB+ - Designates an alluvial aquifer piezometer.
NM = Not measured.

TABLE 2
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: JULY 24, 2012

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-1	667.80	46.44	621.36
MW-2	667.52	47.03	620.49
MW-3	645.17	22.55	622.62
MW-4	661.07	42.45	618.62
MW-5	668.16	49.24	618.92
MW-7	667.94	48.19	619.75
MW-8	667.71	50.58	617.13
MW-9	666.59	48.38	618.21
MW-10	667.16	49.74	617.42
MW-11	667.31	48.65	618.66
MW-12	635.82	14.19	621.63
MW-13	661.44	37.70	623.74
MW-14	653.59	30.69	622.90
MW-15	657.31	33.13	624.18
MW-16	662.72	40.22	622.50
MW-17	655.03	31.53	623.50
MW-18	660.91	36.85	624.06
MW-19	662.03	38.03	624.00
MW-20	632.79	9.39	623.40
MW-21s	663.47	45.44	618.03
MW-21d	663.60	45.05	618.55
MW-22s	667.47	49.19	618.28
MW-22d	667.21	48.94	618.27
MW-23s	663.18	44.46	618.72
MW-23d	663.41	44.75	618.66
MW-24s	667.88	50.12	617.76
MW-24d	667.75	50.03	617.72
MW-25	667.30	49.32	617.98
MW-26s	665.54	NM	
MW-26d	665.59	NM	
MW-27	667.31	49.42	617.89
MW-28	663.27	21.70	641.57
MW-29s	653.40	31.07	622.33
MW-29d	653.07	30.75	622.32
MW-30	667.58	44.00	623.58
MW-31	661.59	38.63	622.96
MW-32	656.12	33.13	622.99
MW-34s	655.67	32.65	623.02
MW-34d	654.67	30.89	623.78
MW-35	661.90	34.85	627.05
MW-36	655.14	32.75	622.39
MW-37	661.14	20.50	640.64
MW-38	666.64	20.38	646.26
MW-39s	657.30	34.09	623.21
MW-39d	657.18	33.97	623.21
MW-40s	663.90	43.32	620.58
MW-40d	663.75	43.20	620.55

TABLE 2 (cont.)
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: JULY 24, 2012

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-41	637.67	NM	
MW-42s	654.37	32.07	622.30
MW-42d	654.34	31.99	622.35
MW-44s	662.01	41.43	620.58
MW-44d	661.76	40.89	620.87
PPB-02d+	662.78	39.24	623.54
PPB-04+	661.57	NM	
PPB-06+	663.04	NM	
PPB-09+	664.30	40.58	623.72
TH-3	667.81	47.19	620.62
TH-10	658.17	33.80	624.37
TH-11	659.08	34.39	624.69
TH-15	663.62	45.72	617.90
TH-16	664.62	46.13	618.49
TH-17	663.93	45.24	618.69
RP-1	643.17	19.25	623.92
RP-2	643.05	19.00	624.05

NOTE:

All MW-series and PPB-series wells are measured from the top of the PVC casing.
All TH-series wells are measured from the top of steel casing.
River-pool measuring point RP-1 is at the upriver barge-docking area and RP-2 is at the downriver barge-docking area

PPB+ - Designates an alluvial aquifer piezometer.
NM = Not measured.

TABLE 3
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: NOVEMBER 7, 2012

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-1	667.80	45.51	622.29
MW-2	667.52	45.86	621.66
MW-3	645.17	21.89	623.28
MW-4	661.07	40.74	620.33
MW-5	668.16	47.54	620.62
MW-7	667.94	46.75	621.19
MW-8	667.71	48.33	619.38
MW-9	666.59	46.63	619.96
MW-10	667.16	47.63	619.53
MW-11	667.31	46.90	620.41
MW-12	635.82	13.30	622.52
MW-13	661.44	37.18	624.26
MW-14	653.59	29.95	623.64
MW-15	657.31	32.44	624.87
MW-16	662.72	39.36	623.36
MW-17	655.03	30.77	624.26
MW-18	660.91	36.13	624.78
MW-19	662.03	37.40	624.63
MW-20	632.79	8.66	624.13
MW-21s	663.47	well being repaired - not measured	
MW-21d	663.60	43.42	620.18
MW-22s	667.47	47.43	620.04
MW-22d	667.21	NM	
MW-23s	663.18	42.85	620.33
MW-23d	663.41	43.14	620.27
MW-24s	667.88	48.14	619.74
MW-24d	667.75	48.03	619.72
MW-25	667.30	NM	
MW-26s	665.54	NM	
MW-26d	665.59	NM	
MW-27	667.31	NM	
MW-28	663.27	21.65	641.62
MW-29s	653.40	30.19	623.21
MW-29d	653.07	29.88	623.19
MW-30	667.58	43.36	624.22
MW-31	661.59	37.80	623.79
MW-32	656.12	32.32	623.80
MW-34s	655.67	31.90	623.77
MW-34d	654.67	30.20	624.47
MW-35	661.90	34.40	627.50
MW-36	655.14	31.96	623.18
MW-37	661.14	21.58	639.56
MW-38	666.64	20.61	646.03
MW-39s	657.30	33.34	623.96
MW-39d	657.18	33.24	623.94
MW-40s	663.90	42.19	621.71
MW-40d	663.75	42.08	621.67

TABLE 3 (cont.)
WATER-LEVEL ELEVATION DATA
ORMET CORPORATION
HANNIBAL, OHIO
DATE: NOVEMBER 7, 2012

WATER-LEVEL MEASURING POINT	MEASURING POINT ELEVATION (ft. MSL)	DEPTH TO WATER (feet)	GROUND-WATER ELEVATION (ft. MSL)
MW-41	637.67	NM (way upriver)	
MW-42s	654.37	31.27	623.10
MW-42d	654.34	31.20	623.14
MW-44s	662.01	39.73	622.28
MW-44d	661.76	40.28	621.48
PPB-02d+	662.78	NM	
PPB-04+	661.57	NM	
PPB-06+	663.04	NM	
PPB-09+	664.30	40.05	624.25
TH-3	667.81	45.95	621.86
TH-10	658.17	32.71	625.46
TH-11	659.08	33.73	625.35
TH-15	663.62	43.79	619.83
TH-16	664.62	44.50	620.12
TH-17	663.93	43.67	620.26
RP-1	643.17	19.15	624.02
RP-2	643.05	19.05	624.00

NOTE:

All MW-series and PPB-series wells are measured from the top of the PVC casing.
All TH-series wells are measured from the top of steel casing.
River-pool measuring point RP-1 is at the upriver barge-docking area and RP-2 is at the downriver barge-docking area

PPB+ - Designates an alluvial aquifer piezometer.
NM = Not measured.

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	6.66	6.46	660	591	<0.01				1.8 J	<0.004	<0.0005		0.40	47	<0.01	
5/06	6.87	6.75	800	650	<0.01				<2.0B	<0.004	<0.0005		0.43	46	<0.01	
5/07	6.61	6.52	660	516	<0.01				1.1	<0.004	<0.0005		0.66	49	<0.01	
6/08	6.29		590	360	<0.01				0.5	<0.004	<0.0005		0.43	40	<0.01	
5/09	6.0	6.16	562	551	0.09		0.087		0.26	<0.0050	<0.0010		0.47	51.2	<0.0050	
7/10	5.94	6.42	603	506	<0.0050		<0.0050		0.116	<0.0005	<0.0005		0.759	38.6	<0.0050	
7/11	5.90	6.60	557	298	0.00595		<0.0050	<0.0050	0.136	<0.0005	<0.0010		0.709	36.7	<0.0050	
7/12	6.10	8.58	651	535	0.0072		<0.0050	<0.0050	0.160	<0.0050	<0.0010		0.961	31.7	<0.0050	

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

J = One or more quality control criteria not met. Value considered estimated.

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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
1/05	9.74	9.74	1,500	1,340	10		4.0		73	0.066	0.0011		1.1	330	0.053	0.023
5/05	6.66	9.64	1,500	1,387	14		7.1		44 J	0.066	0.00081		0.96	360	0.05	0.024
5/05 (Dup.)	9.61	9.64	1,500	1,387	15		2.1		35 J	0.066	0.00093		0.98	370	0.051	0.024
10/05	9.57	9.63	1,500	1,414	16		<0.01		43	0.067	0.00061		0.95	370	0.046	0.026
1/06	9.63	7.62	1,000	1,401	12		0.43		58J	0.064	0.00099		1.1	350	0.052	0.024
5/06	9.70	9.80	1,700	1,390	6.5		<0.01		46J	0.066	0.00084		1.0	370	0.05	0.024

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

J = One or more quality control criteria not met. Value considered estimated.

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
MW-2 (cont.)																
5/06 (Dup.)	9.69	9.80	1,700	1,390	11		<0.01		52J	0.064	0.00083		1.0	380	0.049	0.024
9/06	9.75	9.81	1,700	1,356	19		5.70		48	0.061	<0.00050		0.63	350	0.032	0.021
2/07	9.54		1,600		15	0.046	2.50		32	0.046	<.0005		0.49	330	0.028	0.037
5/07	9.50	9.55	1,300	1,183	11		<0.01		47	0.050	0.00050		0.56	330	0.032	0.036
9/07	9.49	9.89	1,400	1,103	12		0.56		45	0.049	<0.00050		0.59	310	0.034	0.054
3/08	9.52	9.33	1,400	842	9		<0.01		42	0.046	<0.0005		0.52	310	0.03	0.041
6/08	9.48		1,400	910	12(J)		0.75		37	0.046	0.00063		0.52	280	0.032	0.062
6/08 (Dup.)	9.49		1,400	910	12		0.93		41	0.045	0.00060		0.52	290	0.031	0.065
9/08	9.43	9.58	1,200	1,318	7		<0.01		36	0.044	<0.0005		0.51	290	0.027	0.042
1/09	9.30	9.55	1,270	1,283	9.5		9.50		33.5	0.043	<0.0010		0.39	174	0.022	0.048
5/09	9.20	9.58	1,180	1,212	8.8		<0.0050		33.6	0.038	<0.0010		0.53	359	0.027	0.056
9/09	9.40	9.79	1,310	1,243	11.1		0.40		43.7	0.045	<0.0010		0.59	332	0.026	0.037
1/10	9.50	9.64	1,680	1,088	7.2		<0.0050		35.9	0.033	<0.0010		0.36	277	0.018	0.042
7/10	9.40	9.74	1,230	1,142	6.43		6.43		36.3	0.177	<0.0005		0.370	192	0.02	0.034
11/10	9.13	9.65	1,150	735	7.31		4.25	0.0794	25.5	0.028	<0.0005		0.288	175	0.0122	0.037
4/11	9.44	9.79	1,130	739	2.99		1.33	0.0942	32.5	0.036	<0.001		0.507	253	0.0243	0.0452
7/11	9.34	9.77	1,240	555	6.40		6.40	0.0618	44.3	0.032	<0.001		0.512	220	0.0177	0.0346
11/11	9.39	9.40	1,300	1,280	5.46		1.86	0.0688	38.7	0.036	<0.001		0.391	257	0.0234	0.0318
4/12	9.20	9.46	1,260	1,250	8.80		0.67	0.0640	31.5	0.039	<0.001		0.349	277	0.017	0.0371
7/12	9.20	9.79	1,400	1,200	7.50		1.10	0.0920	32.8	0.030	<0.001		0.499	262	0.0198	0.031
11/12	9.10	[10.82]	1,560	1,160	4.60		0.46	0.0590	30.0	0.030	<0.001		0.517	245	0.017	0.0381
11/12 (Dup.)	9.10		1,530		6.30		<0.0050	0.0130	24.7	0.027	<0.001		0.492	243	0.0166	0.0385

Note: All results in mg/L unless otherwise noted. J = One or more quality control criteria not met. Value considered estimated.

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
MW-5																
12/83	9.7	9.5	3,058	2,825	18.8	0.064			130			17.5	1.61	880		
2/84	9.6	9.6	3,636	2,700	14.5				120			18.0	1.39	1,030		
9/84	9.8	9.3	2,278	3,100	4.94	0.032			140			19.4	1.7	850		
5/85	9.8	9.9	4,800	2,400	25.0	0.037			91			15.8	1.01	710		
10/85	9.8		2,550		22.0	2.0			70		<0.01	13.0	0.93	650		
7/88	9.5	9.6	2,000	2,050	5.5		0.10		90	0.076	<0.0015	7.05	0.514	449	0.025	0.012
1/95	8.6	8.5	1,500	1,250	3.1		<0.01		32	0.008	<0.01	1.3	0.27	270	<0.01	
5/97	9.0	9.2	1,500	1,318	3.5		<0.25		16	0.015	<0.0005		0.4	310	<0.01	<0.005
5/98	8.83	8.84	1,400	1,340	2.1		<0.01		18	0.007	<0.0005		0.17	300	<0.01	<0.005
5/98 (Dup.)	8.83	8.84	1,400	1,340	1.3		<0.01		18	0.007	<0.0005		0.18	300	<0.01	<0.005
9/98	8.92	8.66	1,200	1,219	2.0		0.02		18	0.0089	<0.0005		0.16	240	<0.01	<0.005
1/99	8.95	8.93	1,100	1,175	1.8		0.14		17	0.0086	<0.0005		0.16	240	<0.01	<0.005
5/99	8.97	8.60	1,200	1,260	1.9		<0.01		16	0.0094	<0.0005		0.27	250	<0.01	<0.005
5/99 (Dup.)	8.97	8.60	1,200	1,260	2.2		2.2		16	0.0097	<0.0005		0.25	240	<0.01	<0.005
9/99	8.78	9.10	1,100	1,030	2.4		0.10		17	0.0074	<0.0005		0.23	230	<0.01	<0.005
1/00	8.76	8.30	1,200	1,040	2.0		2.0		15	0.0063	<0.0005		0.24	180	<0.01	<0.005
1/00 (Dup.)	8.77	8.30	1,100	1,040	1.9		1.9		16	0.006	<0.005		0.23	180	<0.01	<0.005
5/00	8.81	8.59	1,100	1,020	2.3		2.3		16	0.0082	<0.0005	1.8	0.37	110	<0.01	<0.005
10/00	8.71	8.59	1,000	817	2.6		2.6		11	0.006	<0.0005		0.35	120	<0.01	<0.005
10/00 (Dup.)	8.71	9	1,000	817	2.5		2.5		11	0.0061	<0.0005		0.35	110	<0.01	<0.005
1/01	8.65	9.27	1,000	863	2.7		0.13		13	<0.004	<0.0005		0.72	190	<0.01	<0.005
1/01 (Dup.)	8.65	9.27	1,000	863	2.8		0.33		14	<0.004	<0.0005		0.58	210	<0.01	<0.005
5/01	8.51	8.99	960	791	2.9		2.9		13	<0.004	<0.0005		0.66	170	<0.01	<0.005
9/01	8.42	8.69	708	970	3.6		0.34		11	<0.004	<0.0005		0.80	160	<0.01	<0.005
9/01 (Dup.)	8.46	8.69	708	950	3.6		0.22		13	<0.004	<0.0005		0.80	170	<0.01	<0.005
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
1/05	8.19	8.13	1,200	1,093	3.6		0.67		16	0.0046	<0.0005		0.82	220	<0.01	<0.005
5/05	7.87	7.79	1,200	1,070	4.7		0.55		20 J	<0.004	<0.0005		0.57	250	<0.01	<0.005
10/05	7.83	7.79	1,400	1,211	6.4		0.51		17	<0.004	<0.0005		0.61	250	<0.01	<0.005
1/06	8.10	7.28	1,400	1,206	1.3		<0.01		17J	0.0048	<0.0005		0.80	250	<0.01	<0.005
5/06	8.05	8.04	1,400	1,150	5.2		0.38		16J	<0.004	<0.0005		0.70	250	<0.01	<0.005
9/06	7.97	7.98	1,400	1,075	5.4		1.60		17	<0.004	<0.0005		0.44	240	,0.010	<0.005
2/07	8.27		1,400		6.2		0.90		21	<.004	<.0005		0.36	230	<.01	<0.005
5/07	8.00	7.92	1,200	857	5.9		<0.010		23	<0.004	<0.0005		0.40	230	<0.010	<0.005
5/07 (Dup.)	7.87	7.92	1,200	857	6.2		<0.01		23	<0.004	<0.0005		0.38	230	<0.01	<0.005
9/07	8.03	8.50	1,300	856	5.8		0.15		26	0.0046	<0.0005		0.45	240	<0.010	<0.0050
3/08	8.08	7.90	1,300	618	4.5		4.50		27	<0.0040	<0.0005		0.39	250	<0.010	<0.005
6/08	8.06		1,300	730	4.9(J)		0.40		27	0.0054	<0.0005		0.48	230	<0.01	<0.005
9/08	8.11	8.17	1,100	1,178	4.7		0.74		24	<0.004	<0.0005		0.44	240	<0.01	<0.005
1/09	7.90	8.13	1,230	1,210	4.3		4.30		30.2	<0.0050	<0.0010		0.40	153	<0.0050	<0.0050
5/09	7.90	8.22	1,170	1,220	6.0		<0.0050		26.2	<0.0050	<0.0010		0.52	332	<0.0050	<0.0050
9/09	8.00	8.26	1,340	1,153	4.6		0.51		23.7	0.0076	<0.0010		0.46	307	<0.0050	<0.0050

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
MW-5 (cont.)																
1/10	8.20	8.43	1,270	1,134	3.5		<0.0050		25.4	<0.0050	<0.0010		0.44	309	<0.0050	<0.0050
7/10	7.89	8.36	1,130	834	1.38		1.38		18.2	0.00281	<0.0005		0.368	218	<0.0050	0.00135
11/10	7.71	8.24	1,200	701	2.86		2.86	0.0412	23.7	0.00257	<0.0005		0.264	240	<0.0050	0.00179
4/11	8.22	8.61	1,140	633	3.60		1.78	0.0893	31.2	0.00328	<0.001		0.505	267	<0.0050	0.00196
7/11	8.00	8.66	1,240	499	3.38		3.37	0.0605	34.2	0.00371	<0.001		0.478	268	<0.0050	0.00160
11/11	7.93	8.2	1,230	1,230	3.58		1.91	0.0469	26.8	0.00299	<0.001		0.382	267	0.00785	0.00105
4/12	7.90	8.13	1,270	1,230	4.90		0.19	0.0910	27.5	<0.0050	<0.001		0.41	281	<0.0050	<0.0050
7/12	8.10	9.47	1,430	1,250	4.80		1.4	0.1100	27.4	0.0061	<0.0010		0.41	266	<0.0050	<0.0050
11/12	8.00	9.34	1,660	1,220	5.10		2.8	0.0340	29.8	0.0064	<0.0010		0.38	255	<0.0050	<0.0050

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	0.0250	<0.0005		2.3	64	<0.01	
5/04	6.12	5.81	840	631	<0.01				2.7	0.0410	<0.0005		2.3	120	<0.01	
5/05	5.87	5.64	770	718	<0.01				1.6 J	0.0510	<0.0005		2.4	86	<0.01	
5/06	5.99	5.86	790	672	0.019		0.019		<2.0B	0.0440	<0.0005		2.1	79	<0.01	
5/07	6.04	5.68	660	509	<0.010				0.1100	0.0380	<0.0005		2.4	69	<0.010	
6/08	6.1	6.8	640	403	0.011		<0.01		0.1700	0.0310	<0.0005		2.3	63	<0.01	
5/09	5.70	6.01	728	614	<0.0050		<0.0050		0.1000	0.0300	<0.0010		2.2	82.4	<0.0050	
7/10	5.96	6.39	586	489	0.00693		0.00693		0.1000	0.0259	<0.0005		2.28	63.1	<0.0050	
7/11	5.79	6.60	575	317	<0.0050		<0.0050	<0.0050	0.0961	0.0262	<0.0010		2.30	59.6	<0.0050	
7/12	6.10	7.04	652	597	0.006		<0.0050	0.01400	0.1800	0.0200	<0.0010					

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	7.40	7.28	680	607	0.034		<0.01		2.5 J	<0.004	<0.0005		0.16	61	<0.01	
5/06	7.80	7.71	1000	856	0.094		<0.01		<2.0B	<0.004	<0.0005		0.57	140	<0.01	
5/07	7.56	7.51	890	622	0.59		<0.01		3.1	<0.004	<0.0005		0.19	120	<0.01	
6/08	7.53		1000	546	0.73		0.64		6.1	<0.004	<0.0005		0.19	140	<0.01	
5/09	7.40	7.67	1100	1035	0.83		<0.0050		7.0	<0.0050	<0.0010		0.16	198	<0.0050	
7/10	7.42	7.87	918	668	0.173		0.173		5.77	0.000762	<0.0005		0.151	143	<0.0050	
7/11	7.35	7.82	1030	469	0.210		0.207	0.0246	6.22	0.000715	<0.0010		0.129	160	<0.0050	
7/12	7.60	8.60	1040	902	0.640		<0.0050	0.0680	6.50	<0.0050	<0.0010		0.0498	135	<0.0050	
7/12 (Dup.)	7.40		918		0.720		<0.0050	0.0550	6.90	<0.0050	<0.0010		0.0461	130	<0.0050	

Note: All results in mg/L unless otherwise noted. J = One or more quality control criteria not met. Value considered estimated.

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GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	7.27	7.28	520	607	<0.01				0.51 J	<0.004	<0.0005		0.011	24	<0.01	
5/06	7.36	7.21	820	669	<0.01				<2.0B	<0.004	<0.0005		<0.01	27	<0.01	
5/07	7.17	7.18	750	521	<0.01				0.2	<0.004	<0.0005		<0.01	20	<0.01	
6/08	7.19		740	400	<0.01				0.4	<0.004	<0.0005		<0.01	23	<0.01	
5/09	7.00	7.29	721	696	<0.0050		<0.0050		0.23	<0.0050	<0.0010		<0.0050	19.7	<0.0050	
7/10	7.03	7.54	731	514	<0.0050		<0.0050		0.205	<0.0005	<0.0005		<0.0050	19.6	<0.0050	
7/11	7.05	7.67	657	330	<0.0050		<0.0050	<0.0050	0.232	<0.0005	<0.0010		<0.0050	17.7	<0.0050	
7/12	7.20	8.41	803	672	0.0093		<0.0050	0.0350	0.230	<0.0050	<0.0010		<0.0050	17.9	<0.0050	

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	7.79	7.64	480	439	<0.01				1.7 J	<0.004	<0.0005		0.52	36	<0.01	
5/06	7.85	7.84	620	518	0.013		<0.01		<2.0B	<0.004	<0.0005		0.59	29	<0.01	
5/07	7.8	7.8	700	527	0.066		<0.010		1.0	<0.004	<0.0005		0.62	69	<0.01	
6/08	7.84		900	509	0.19(J)		<0.01		1.1	0.0042	<0.0005		0.63	100	<0.01	
5/09	7.6	7.8	1130	1168	0.74		<0.0050		0.99	<0.0050	<0.0010		0.83	238	<0.0050	
7/10	7.67	8.12	1180	845	0.365		0.365		2.68	0.00118	<0.0005		0.592	205	<0.0050	
7/11	7.75	8.36	989	444	0.540		0.532		5.55	0.00106	<0.0010		0.542	180	<0.0050	
7/12	NS	NS	NS	NS	NS		NS		NS	NS	NS		NS	NS	NS	

Note: All results in mg/L unless otherwise noted. J = One or more quality control criteria not met. Value considered estimated.

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	7.98	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	
1/05	7.67	7.40	520	466	<0.01				0.51	0.0042	<0.0005		1.9	29	<0.01	
1/05 (Dup.)	7.60	7.40	520	466	<0.01				0.50	<0.004	<0.0005		2.0	29	<0.01	
5/05	7.71	7.30	520	443	<0.01				0.87 J	<0.004	<0.0005		2.0	32	<0.01	
10/05	7.55	7.49	520	491	<0.01				2.3	<0.004	<0.0005		1.9	27	<0.01	
10/05 (Dup.)	7.59	7.49	540	491	<0.01				1.4	<0.004	<0.0005		1.9	27	<0.01	
1/06	7.67	7.14	550	480	<0.01				0.61J	<0.004	<0.0005		1.8	25	<0.01	
1/06 (Dup.)	7.65	7.14	550	480	<0.01				0.48J	<0.004	<0.0005		1.8	25	<0.01	
5/06	7.55	7.57	510	473	<0.01				<2.0B	<0.004	<0.0005		1.9	23	<0.01	
9/06	7.61	7.57	610	508	<0.01				0.57	<0.004	<0.0005		2.2	26	<0.01	
9/06 (Dup.)	7.60		610		<0.01				0.62	<0.004	<0.0005		2.2	26	<0.01	
2/07	7.88		620		<.01				0.63	<.004	<.0005		2.0	25	<.01	
5/07	7.61	7.50	560	413	<0.01				1.40	<0.004	<0.0005		2.1	26	<0.01	
3/08	7.52	7.25	540	356	<0.01				0.74	<0.004	<0.0005		2.0	29	<0.01	
6/08	7.76		480	369	<0.01				0.58	<0.004	0.0019		2.0	28	<0.01	
9/08	7.63	7.67	470	545	<0.01				0.60	0.004	<0.0005		1.9	27	<0.01	
1/09	7.40	7.54	558	567	<0.0050				0.68	<0.0050	<0.0010		2.2	29.8	<0.0050	
5/09	7.40	7.61	579	559	[7.1]		[0.052]		0.57	<0.0050	<0.0010		2.2	27.5	<0.0050	
7/09		7.73		541	<0.005		<0.005									
7/09 (Dup.)					<0.005		<0.005									
9/09	7.50	7.66	590	531	<0.0050		<0.0050		0.71	0.0051	<0.0010		2.1	26.2	<0.0050	
1/10	7.50	7.56	539	485	<0.0050		<0.0050		0.62	<0.0050	<0.0010		2.1	27.1	<0.0050	
7/10	7.38	7.89	565	437	0.0107		0.0107		0.616	<0.0005	<0.0005		2.24	32	<0.0050	
11/10	7.46	7.79	550	372	0.0192		0.0192	0.0101	0.816	<0.0050	<0.0005		1.87	34.6	<0.0050	
4/11	7.72	8.07	494	334	0.0294		0.0201	0.0191	0.709	<0.0005	<0.0010		2.21	28.7	<0.0050	
7/11	7.38	7.99	539	115	<0.0050		<0.0050	<0.0050	0.628	<0.0005	<0.0010		2.03	28.0	<0.0050	
11/11	7.36	7.60	549	520	0.00527		<0.0050	<0.0050	0.769	<0.0005	<0.0010		2.00	28.4	<0.0050	
4/12	7.40	7.40	589	543	0.013		<0.0050	<0.0050	1.200	<0.0050	<0.0010		2.12	32.2	<0.0050	
7/12	7.60	9.04	635	526	0.0056		<0.0050	0.0280	0.740	<0.0050	<0.0010		1.97	30.0	<0.0050	
11/12	7.70	8.71	737	535	<0.0050		<0.0050	0.0120	0.940	<0.0050	<0.0010		2.01	30.4	<0.0050	

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	7.75	7.50	520	469	0.025		<0.01		2.5	<0.004	<0.0005		1.2	44	<0.01	
5/06	7.80	7.70	530	503	0.014		<0.01		2.2J	<0.004	<0.0005		1.2	38	<0.01	
5/07	7.55	7.33	520	423	0.031		<0.01		2.5	<0.004	<0.0005		1.1	44	<0.01	
6/08	7.60		520	365	0.029		<0.01		2.5	<0.004	<0.0005		1.1	39	<0.01	
5/09	7.40	7.59	581	559	5.6		0.087		2.3	<0.0050	<0.0010		1.2	56.3	<0.0050	
7/09		7.89		544	0.025		<0.005									
7/09 (Dup.)					0.026		<0.005									
7/10	7.60	8.07	556	436	0.0157		0.0157		3.73	<0.0005	<0.0005		0.953	49.7	<0.0050	
7/11	7.61	8.09	513	134	0.0204		0.0147	0.0165	3.00	0.000509	<0.0010		0.887	46.3	<0.0050	
7/12	7.80	9.02	606	487	0.021		<0.005	0.0460	3.20	<0.0050	<0.0010		0.823	46	<0.0050	

Note: All results in mg/L unless otherwise noted. J = One or more quality control criteria not met. Value considered estimated.

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	8.17	8.01	1,200	1,105	8.2		6.6		49 J	0.023	0.0024		0.69	290	0.074	
5/06	8.22	8.34	1,300	1,100	16.0		5.9		35J	0.020	0.0024		0.75	280	0.069	
5/07	8.07	7.91	930	727	6.7		0.8		23	0.007	<0.0005		0.14	210	0.014	
5/07 (Dup.)	8.04	7.91	930	727	6.5		0.8		23	0.009	<0.0005		0.14	210	0.015	
6/08	7.91		790		7.2		1.4(J)		20	0.0046	<0.0005		0.1	180	<0.01	
6/08 (Dup.)	7.93		790	554	8.1		0.79(J)		20	<0.004	<0.0005		0.096	170	<0.01	
5/09	7.7	7.91	946	918	5.6		0.012		17.1	<0.0050	<0.0010		0.072	232	<0.0050	
7/10	7.97	8.24	1060	767	3.39		2.14		22.2	0.1	<0.0005		0.182	155	0.0143	
7/10 Dup.)	7.97	8.24	1060	767	2.54		1.46		24.2	0.132	<0.0005		0.177	158	0.0141	
7/11	7.61	8.21	943	197	2.24		2.23	0.0281	15.8	0.00293	<0.0010		0.148	196	<0.0050	
7/12	7.8	9.16	1060	906	4.2		1.2	0.0930	19.7	<0.0050	<0.0010		0.208	175	<0.0050	

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

J = One or more quality control criteria not met. Value considered estimated.

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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		3.1		56	0.0053	0.0011		1.2	270	0.027	
1/05	8.46	8.38	1,200	1,048	5.2		0.67		65	0.0085	0.00089		0.86	250	0.021	
5/05	8.46	8.57	1,200	998	6.7		0.14		64 J	0.023	0.0018		1.7	260	0.061	
5/05 (Dup.)	8.61	8.57	1,200	998	7.3		0.14		55 J	0.025	0.0018		1.7	280	0.064	
10/05	9.05	9.18	1,200	1,095	12		0.88		29	0.057	0.0029		2.7	280	0.12	
1/06	9.17	7.51	1,100	972	2.8		<0.01		62J	0.067	0.0021J		2.1	220	0.10	
5/06	9.34	9.45	1,200	963	4.9		<0.01		49J	0.082	0.0019		1.4	250	0.12	
5/06 (Dup.)	9.35	9.45	1,200	963	5.9		<0.01		44J	0.078	0.0019		1.5	250	0.12	
9/06	9.39	9.44	1,200	1002	6.6		2.4		41	0.058	<0.0005		0.48	240	0.051	

Note: All results in mg/L unless otherwise noted. J = One or more quality control criteria not met. Value considered estimated.

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
MW-16 (cont.)																
2/07	9.3		1,300		7.4		<.01		38	0.045	<.0005		0.62	240	0.045	
5/07	9.19	9.22	1,100	854	59		<0.01		59	0.042	0.00083		1	240	0.056	
9/07	9.24	9.62	1,100	816	8.4		0.83		52	0.047	0.00076		1.3	240	0.058	
3/08	9.05	8.97	1,100	633	3.4		0.098		39	0.037	0.00056		1	220	0.046	
6/08	9.14		1,000	613	3.3		0.13		33	0.039	0.00071		0.89	200	0.041	
9/08	9.14	9.22	880	991	3.5		<0.01		26	0.033	<0.0005		0.79	210	0.038	
1/09	8.8	9.07	921	908	3.7		3.7		107	0.02	<0.0010		0.54	118	0.02	
5/09	9.0	9.28	1,040	986	<0.0050		<0.0050		35.8	0.045	<0.0010		0.85	266	0.049	
5/09 (Dup.)	9.0	9.28	1,040	986	1.2		0.077		35.7	0.048	<0.0010		0.85	268	0.049	
9/09	9.0	9.35	1,040	899	5.0		0.38		31.9	0.028	<0.0010		0.67	232	0.028	
1/10	9.1	9.24	883	836	3.2		<0.0050		32.1	0.023	<0.0010		0.69	219	0.025	
1/10 (Dup.)	9.1		972		3.4		<0.0050		33.6	0.025	<0.0005		0.65	219	0.026	
7/10	9.07	9.39	971	733	1.87		1.87		37.6	0.127	<0.0005		0.578	155	0.0293	
11/10	9.13	9.48	1,020	680	4.61		3.03	0.0698	30.7	0.0236	<0.0005		0.458	149	0.0193	
4/11	9.28	9.54	910	583	2.70		1.46	0.0711	37.1	0.0364	<0.0010		0.709	198	0.041	
7/11	9.20	9.66	952	432	0.978		0.975	0.0352	30.5	0.0393	<0.0010		0.740	188	0.0402	
11/11	9.16	9.17	965	944	3.130		1.08	0.0373	29.7	0.0288	<0.0010		0.473	203	0.0344	
11/11 (Dup.)	9.16		955		3.560		1.37	0.0355	29.0	0.0284	<0.0010		0.520	196	0.0355	
4/12	9.00	9.27	1,030	1020	3.400		0.064	0.0500	38.7	0.0296	<0.0010		0.477	236	0.0266	
4/12 (Dup.)	9.00		1,050		3.300		0.081	0.0330	40.4	0.0336	<0.0010		0.330	238	0.0262	
7/12	9.10	9.42	1,090	930	4.200		0.48	<0.0050	33.0	0.0325	<0.0010		0.716	209	0.0352	
11/12	9.00	[10.56]	1,240	911	4.400		0.72	0.0290	29.4	0.0306	<0.0010		0.722	199	0.0295	

Note: All results in mg/L unless otherwise noted. J = One or more quality control criteria not met. Value considered estimated.

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	7.38	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	
5/05	7.66	7.55	910	819	6.2		3.1		17 J	0.0044	<0.0005		1.1	170	<0.01	
5/06	7.73	7.76	910	759	4.2		2.1		13J	<0.004	<0.0005		1.4	130	<0.01	
5/06 (Dup.)	7.85	7.76	910	759	3.5		0.64		22J	<0.004	<0.0005		1.4	130	<0.01	
5/07	7.58	7.56	740	544	2.2		<0.01		11	<0.004	<0.0005		1.6	87	<0.01	
6/08	7.72		770	505	2.9		0.32		17	<0.004	<0.0005		1.4	120	<0.01	
5/09	7.5	7.71	712	679	2.0		0.19		6.4	<0.0050	<0.0010		1.6	93.2	<0.0050	
5/09 (Dup.)	7.4		650		2.0		0.19		6.2	<0.0050	<0.0010		1.6	92.9	<0.0050	
7/10	7.89	8.10	849	626	2.69		1.89		18.4	0.101	<0.0005		0.752	107	0.00796	
7/10 (Dup.)	7.89	8.10	850	626	3.01		2.40		16.2	0.0975	<0.0005		0.85	117	0.00899	
7/11	7.63	8.13	736	144	2.98		1.11	0.0257	11.2	0.00194	<0.0010		1.40	101	<0.0050	
7/11 (Dup.)	7.54		710		3.25		7.42	0.0290	11.6	0.00173	<0.0010		1.38	110	<0.0050	
7/12	7.8	9.18	836	710	2.40		0.14	0.1300	10.9	<0.0050	<0.0010		1.50	91.7	0.0051	
7/12 (Dup.)	7.6		739		2.10		<0.0050	0.0940	11.2	<0.0050	<0.0010		1.58	94.8	<0.0050	

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
MW-18																
12/83	9.9	10.0	10,526	8,750	110.0	0.45			460			58.7	0.26	3,150		
2/84	9.8	9.8	9,615	7,500	52.0				350			61	0.50	2,750		
9/84	10.1	9.5	9,111	10,000	194	0.19			690			103	0.3	4,130		
5/85	9.8	9.9		7,000	35.2	0.091			410			64.2	0.35	2,540		
10/85	9.9		6,300		120	12			350		<0.01	71.4	1.06	1,940		
7/88	10.0	10.1	9,700	10,000	29		25		820	0.159	0.0071	144	1.75	2,640	0.191	0.022
2/90	10.0	10.1	8,000	11,400	67.0		10.5		710			110		3,500		
1/95	9.6	11.1	5,900	>2,000	15		6.6		290	0.062	<0.01	56	0.22	1,500	0.02	
7/96	9.1	8.67	4,300	4,200	7.2	<0.020			180	0.065	0.0006	56	0.19	1,500	0.01	0.006
5/97	9.7	9.58	4,000	4,110	8.7		<0.50		200	0.078	0.0009		0.29	1,100	0.02	
5/98	9.76	10.06	4200	4,300	9.8		0.40		260	0.094	0.0014		0.49	1100	0.05	0.024
9/98	9.70	9.88	3,600	3,590	5.9		<0.01		210	0.085	0.00084		0.29	800	0.022	0.014
1/99	9.67	10.04	3,600	3,450	79		3.0		210	0.088	0.00063		0.29	830	0.028	0.0219
5/99	9.72	9.80	3,000	3,000	95		81		370	0.088	0.0014		0.92	850	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
1/05	9.40	9.45	3,000	2,920	81		4.7		130	0.056	0.0014		0.55	570	0.021	0.0071
5/05	9.44	9.45	1,700	1,056	13		0.34		97 J	0.07	0.0014		0.78	430	0.049	0.0057
5/05 (Dup.)	9.49	9.45	1,600	1,056	8.2		0.14		94 J	0.073	0.0012		0.75	440	0.037	0.0056
10/05	9.35	9.47	2,300	1,937	6.6		0.24		52	0.05	0.0015		0.68	510	0.033	0.0071
1/06	9.55	7.60	2,900	2,990	4.6		<0.01		210J	0.049	0.0022J		0.78	650	0.034	0.0088
5/06	9.77	10.07	3,400	2,830	7.7		<0.01		380J	0.13	0.0013		0.54	700	0.043	0.0078
9/06	9.61	9.79	1,900	1,720	36.0		36		100	0.11	0.0026		1.80	380	0.099	<0.005
2/07	9.47		2,000		2.2		<.01		84	0.058	0.0012		1.20	300	0.056	<.005
5/07	9.39	9.45	1,700	1,471	3.0		<0.01		140	0.065	0.00091		0.43	350	0.039	<0.005
9/07	9.53	9.83	1,300	1,087	9.0		<0.010		75	0.067	0.00067		0.32	300	0.037	<0.0050
3/08	9.42	9.35	1,700	981	12.0		<0.01		92	0.069	<0.0005		0.24	370	0.021	<0.005
6/08	9.43		1,500	1,118	3.9		<0.01		88	0.066	0.00088		0.40	310	0.038	<0.005
9/08	9.40	9.48	1,100	1,260	5.4		<0.01		59	0.049	<0.0005		0.18	270	0.017	<0.005
1/09	9.30	9.47	1,710	1,704	36.7		36.6		117	0.05	0.0014		0.78	242	0.034	<0.0050
5/09	9.50	9.76	3,580	2,580	[0.88]		0.033		206	0.06	0.0014		0.56	805	0.021	<0.0050
7/09		9.94		1,750	7.40		<0.005									
9/09	9.60	9.90	1,480	1,439	26.5		10.7		98.8	0.065	<0.0010		0.13	384	0.016	<0.0050

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
MW-18 (cont.)																
1/10	9.60	9.74	1,460	1,451	18.9		<0.005		83.7	0.05	<0.0010		0.51	434	0.026	<0.0050
7/10	9.67	9.94	1,480	1,307	4.35		4.35		110	0.187	<0.0005		0.122	272	0.014	0.00167
7/10 (Dup.)	9.67	9.94	1,600	1,307	3.96		3.96		125	0.168	<0.0005		0.112	259	0.013	0.00167
11/10	9.58	9.93	1,320	1,099	8.20		<0.25	0.1180	76	0.0451	<0.0005		0.133	211	0.007	0.00146
4/11	9.81	10.08	2,040	1,209	8.53		1.99	0.2870	178	0.102	<0.0010		0.354	419	0.029	0.00303
4/11 (Dup.)	9.83		2,050		8.07		2.02	0.3530	152	0.114	<0.0010		0.335	447	0.028	0.00333
7/11	9.66	10.10	1,440	743	30.60		30.6	0.0751	80	0.0845	<0.0010		0.194	296	0.0245	0.00205
11/11	9.65	9.62	1,110	1,110	9.98		3.78	0.0606	49.6	0.0647	<0.0010		0.653	250	0.0372	0.00285
4/12	9.40	9.64	1,590	1,540	15.70		<0.005	0.0580	91.3	0.0702	0.0013		0.865	324	0.0411	<0.0050
7/12	9.40	9.62	1,810	1,280	10.60		<0.005	0.1400	104	0.0545	0.0012		0.420	277	0.0364	<0.0050
11/12	9.30	[10.83]	1,710	1,180	4.70		<0.005	0.0390	66.5	0.0527	<0.0010		0.367	249	0.0287	<0.0050

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GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	7.27	7.10	780	700	0.012		<0.01		2.8 J	<0.004	<0.0005		<0.01	38	<0.01	
5/06	7.48	7.46	590	541	<0.01				3.5J	<0.004	<0.0005		0.014	15	<0.01	
5/07	7.33	7.03	810	583	<0.01				1.1	0.0042	<0.0005		<0.01	49	<0.01	
6/08	7.27		680	432	<0.01				1.1	<0.004	<0.0005		<0.01	28	<0.01	
6/08 (Dup.)	7.28		680	432	<0.01				1.1	<0.004	<0.0005		<0.01	30	<0.01	
5/09	7.1	7.32	695	602	<0.0050		<0.0050		1.4	<0.0050	<0.0010		<0.0050	13.4	<0.0050	
7/10	7.39	7.57	827	605	<0.0050		<0.0050		0.671	<0.0050	<0.0005		<0.0050	46.5	<0.0050	
7/11	7.08	7.84	792	150	<0.0050		<0.0050	0.0091	0.681	<0.0005	<0.0010		<0.0050	32.2	<0.0050	
7/11 (Dup.)	7.01		810		<0.0050		<0.0050	<0.0050	0.651	<0.0005	<0.0010		<0.0050	32.6	<0.0050	
7/12	7.3	9.18	951	807	<0.0050		<0.0050	<0.0050	0.84	<0.0050	<0.0010		<0.0050	37.1	<0.0050	

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TABLE 4
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GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	0.80		<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	
1/05	6.23	5.47	360	293	0.29		0.01		0.19	<0.004	<0.0005		0.018	51	<0.01	
5/05	6.06	5.54	380	336	0.15		0.14		0.27 J	<0.004	<0.0005		0.023	56	<0.01	
10/05	6.08	5.58	380	289	0.54		0.017		2.1	<0.004	<0.0005		0.024	47	<0.01	
1/06	6.03	5.69	420	372	0.38		<0.01		1.5J	<0.004	<0.0005		<0.10B	72	<0.01	
5/06	6.12	5.70	380	316	0.48		<0.01		<2.0B	<0.004	<0.0005		0.032	51	<0.01	
9/06	6.06	5.77	380	345	0.23		0.230		<0.55B	<0.004	<0.0005		<0.01	52	<0.01	
2/07	6.24		470		0.47		0.020		0.78	<.004	<.0005		<.01	65	<.01	
5/07	6.04	5.68	380	341	0.26		<0.01		0.14	<0.004	<0.0005		0.018	61	<0.01	
5/07 (Dup.)	6.13	5.68	380	341	0.26		<0.01		<0.1	0.0044	<0.0005		0.010	61	<0.01	
9/07	6.69	6.59	360	295	0.26		<0.010		0.17	<0.0040	<0.00050		0.120	59	<0.010	
3/08	6.01	5.67	360	275	0.20		<0.01		0.15	<0.004	<0.0005		<0.010	56	<0.010	
6/08	6.07		380	276	0.24		<0.01		0.27	<0.004	<0.0005		0.069	63	<0.01	
9/08	6.39	6.23	310	354	0.17		<0.01		0.16	<0.004	<0.0005		<0.01	58	<0.01	
1/09	6.00	6.21	339	348	<0.0050				0.15	<0.0050	<0.0010		0.090	53	<0.0050	
5/09	5.90	6.17	383	385	4.10		0.062		0.15	<0.0050	<0.0010		0.018	74.0	<0.0050	
9/09	6.30	6.33	400	372	0.14		0.021		0.24	<0.0050	<0.0010		0.0079	74.9	<0.0050	
9/09 (Dup)	6.20		448		0.13		<0.0050		0.21	<0.0050	<0.0010		0.020	76.0	<0.0050	
1/10	6.10	6.24	333	341	0.013		<0.0050		0.20	<0.0050	<0.0010		0.061	64.1	<0.0050	
7/10	5.97	6.43	404	359	0.0933		0.0933		0.321	0.112	<0.0005		0.0534	48.5	0.00746	
11/10	6.25	6.28	375	313	0.2480		0.2480	0.0088	0.248	<0.0025	<0.0005		<0.005	61.1	<0.0050	
11/10 (Dup.)	5.90		367		0.0997		0.0997	0.0118	0.236	<0.0025	<0.0005		0.0073	61.1	<0.0050	
4/11	6.58	6.53	289	247	0.3760		0.0400	0.0159	0.389	<0.0005	<0.0010		0.0248	46.2	<0.0050	
7/11	5.84	6.56	377	153	0.0384		0.0360	0.0121	0.387	<0.0005	<0.0010		0.0127	57.3	<0.0050	
11/11	5.83	6.29	375	366	0.0708		0.0640	0.0114	0.366	<0.0005	<0.0010		<0.005	55.6	<0.0050	
4/12	6.00	5.82	395	381	0.0720		0.0140	0.0069	0.490	<0.0050	<0.0010		<0.005	61.3	<0.0050	
7/12	6.20	8.35	529	437	<0.1000		0.0500	0.3400	0.340	<0.0050	<0.0010		0.0594	57.1	0.0069	
11/12	6.20	6..84	531	393	0.0940		<0.0050	0.0055	0.450	<0.0050	<0.0010		0.0761	62.0	0.0052	

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GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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				26	<0.004	<0.0005		0.09	370	<0.01	
5/99	8.35	8.37	1,300	1,090	0.22				16	<0.004	<0.0005		0.30	230	<0.01	
5/00	8.11	8.11	1,200	1,023	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				16	<0.004	<0.0005		0.42	160	<0.01	
5/02	7.73	7.71	700	408	0.08				10	<0.004	<0.0005		0.563	79.6	<0.01	
5/03	7.68	7.81	1,000	759	0.21				9.1	<0.004	<0.0005		0.78	110	<0.01	
5/04	7.48	7.56	1,700	1,760	0.93				8.7	<0.004	<0.0005		1.2	380	<0.01	
5/05	7.82	7.37	1,200	950	1.3				9.7 J	<0.004	<0.0005		0.78	170	<0.01	
5/06	7.47	7.32	2,000	1,510	1.7				15J	<0.004	<0.0005		1.7	300	<0.01	
5/07	7.56	7.63	1,000	769	6.2				20	<0.004	<0.0005		0.5	180	<0.01	
6/08	7.73		1,100	621	4.8(J)				31	<0.004	<0.0005		0.4	200	<0.01	
5/09	7.6	7.73	1,230	1,188	<0.0050				22.8	<0.0050	<0.0010		0.50	300	<0.0050	
7/10	7.58	7.93	1,120	818	1.12		1.12		29.0	0.164	<0.0005		0.287	165	0.0121	
7/11	7.10	8.07	1,120	396	1.58		1.58	0.0273	30.6	<0.0025	<0.0010		0.106	218	<0.0050	
7/12	8.00	9.13	1,160	909	2.9		<0.0050	<0.0050	33.8	<0.0050	<0.0010		0.253	205	0.02	

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ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
MW-29D																
5/86	8.6		648		0.31	0.01			9.7			0.18	0.26	139		
6/88	8.1	8.0	590	570	0.25		<0.01		4.2	0.002	<0.0015	0.082	1.16	60.4	<0.0026	<0.005
1/95	7.5	8.9	650	770	0.22		0.03		3.7	<0.004	<0.01	0.09	2.0	33	<0.01	
5/97	7.7	7.9	600	479	0.18		<0.02		3.3	<0.004	<0.0005		2	31	<0.01	
5/98	7.65	7.53	550	560	0.17		<0.01		3.5	<0.004	<0.0005		1.8	28	<0.01	
5/99	7.82	7.60	550	465	0.19		0.19		3.4	<0.004	<0.0005		1.8	28	<0.01	
5/00	7.75	7.68	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	
5/05	7.77	7.47	600	530	0.15		0.14		3.9 J	<0.004	<0.0005		2.1	38	<0.01	
5/06	7.78	7.55	680	560	0.23		<0.01		2.4J	<0.004	<0.0005		2.1	39	<0.01	
5/07	7.54	7.58	660	509	0.23		<0.01		3.1	<0.004	<0.0005		2.0	45	<0.01	
6/08	7.56		670	393	0.3		0.086		3.9	<0.004	<0.0005		1.8	51	<0.01	
5/09	7.7	7.51	1010	970	0.21		<0.0050		3.9	<0.0050	<0.0010		2.4	153	<0.0050	
7/10	7.64	8.01	738	553	1.63		1.63		11.4	<0.0005	<0.0005		1.08	123	<0.0050	
7/11	7.47	8.20	647	167	0.483		0.475	0.0282	4.13	<0.0005	<0.0010		1.90	54	<0.0050	
7/12	7.8	9.12	694	572	0.32		<0.0050	0.0360	4.0	<0.0050	<0.0010		1.69	46.5	<0.0050	

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

J = One or more quality control criteria not met. Value considered estimated.

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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
5/05	7.16	6.16	470	427	4.5		0.96		3.1 J	<0.004	<0.0005		0.90	37	<0.01	0.012
5/06	6.66	6.13	500	428	<0.01				<2.0B	<0.004	<0.0005		0.51	26	<0.01	0.009
5/07	6.56	6.22	540	435	2.7		<0.01		7.6	0.0057	<0.0005		0.74	53	<0.01	0.016
6/08	6.49		600	339	6.8		1.8		11.0	0.0061	<0.0005		0.76	61	<0.01	0.017
5/09	6.4	6.49	593	518	4.2		<0.0050		12.6	<0.0050	<0.0010		0.62	81.9	<0.0050	0.0096
7/10	6.48	6.97	560	447	1.62		1.62		18.0	0.131	<0.0005		0.332	65.2	0.00758	0.0697
7/11	6.35	7.00	511	146	2.36		2.36	0.0184	7.72	0.00314	<0.0010		0.847	50.8	<0.0050	0.0627
7/11 (Dup.)	6.32		497		1.30		1.29	0.0146	8.87	0.00313	<0.0010		0.904	46.4	<0.0050	0.0584
7/12	6.6	9.19	547	481	3.20		<0.0050	0.3600	6.80	<0.0050	<0.0010		0.437	58.9	<0.0050	0.0356
7/12 (Dup.)	6.4		511		4.70		0.31	0.3400	12.30	<0.0050	<0.0010		0.460	57.7	<0.0050	0.0312

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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
1/05	9.73	9.79	1,600	1,383	12		1.7		88	0.054	0.0018		1.8	350	0.099	0.034
1/05 (Dup.)	9.76	9.79	1,600	1,383	13		1.8		82	0.054	0.0017		1.8	340	0.096	0.029
5/05	9.65	9.68	1,700	1,519	16		0.21		86 J	0.057	0.0024		2.3	430	0.12	0.036
10/05	9.68	9.78	2,100	1,674	22		3.9		86	0.07	0.0031		3.1	440	0.16	0.038
10/05 (Dup.)	9.68	9.78	1,900	1,674	23		8.6		90	0.066	0.003		3.0	440	0.16	0.039
1/06	9.77	7.64	1,700	1,427	8.3		1.2		70J	0.06	0.0022J		2.3	370	0.12	0.030
1/06 (Dup.)	9.81	7.64	1,700	1,427	7.8		2.5		66J	0.061	0.0038J		2.2	360	0.12	0.028
5/06	9.82	9.98	1,600	1,291	9.7		<0.01		84J	0.05	0.0018		2.2	350	0.1	0.025
9/06	9.82	9.91	1,700	1,417	12		3.4		63	0.045	0.0006		0.6	360	0.048	0.026

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
MW-31 (cont.)																
9/06 (Dup.)	9.82	9.91	1,700	1,417	12		12		55	0.05	0.0013		1	390	0.071	0.027
2/07	9.72		1,600		8.8		1.5		42	0.034	<.0005		0.59	330	0.036	0.046
5/07	9.59	9.56	1,400	1,120	11		0.066		81	0.049	0.0016		1.5	320	0.082	0.083
9/07	9.62	9.93	1,300	1,104	8.6		0.16		62	0.043	0.00089		1.2	310	0.063	0.090
9/07 (Dup.)	9.62		1,400		8.1		<0.010		61	0.044	0.00086		1.2	310	0.064	0.089
3/08	9.52	9.26	1,500	1,022	6.9		<0.010		63	0.047	0.0014		1.6	330	0.077	0.036
6/08	9.61		1,400	999	8.4		<0.01		62	0.05	0.0013		1.8	310	0.082	0.067
9/08	9.57	9.68	1,100	1,299	4.4		<0.01		52	0.041	0.0012		1.2	300	0.069	0.042
1/09	9.5	9.64	1,350	1,341	7.4		7.3		63.4	0.039	<0.0010		0.74	195	0.043	0.038
5/09	9.5	9.74	1,350	1,314	5.1		0.016		50	0.045	<0.0010		1.4	406	0.065	0.030
5/09 (Dup.)	9.5	9.74	1,360	1,314	0.13		<0.0050		49.7	0.043	<0.0010		1.4	407	0.065	0.029
9/09	9.6	9.93	1,430	1,335	7.4		0.10		56.5	0.039	0.0013		0.89	393	0.056	0.040
9/09 (Dup)	9.6		1,480		7.6		0.65		53.6	0.038	0.0013		0.92	409	0.058	0.047
1/10	9.7	9.74	1,280	1,305	5.9		<0.0050		56.3	0.031	<0.0010		1.1	386	0.049	0.032
7/10	9.54	9.83	1,400	1,230	5.8		5.8		48.5	0.147	0.000718		0.909	203	0.0437	0.021
11/10	9.51	9.84	1,340	917	2.08		0.967	0.0609	41.9	0.0256	<0.0005		0.427	187	0.0222	0.025
11/10 (Dup.)	9.49		1,350		4.82		4.82	0.0668	39.7	0.0222	<0.0005		0.465	215	0.0246	0.026
4/11	9.64	10.06	1,110	924	3.46		1.99	0.0675	45.9	0.0428	<0.0010		1.23	263	0.0580	0.041
7/11	9.61	10.03	1,330	578	4.36		4.36	0.0343	47.5	0.0378	<0.0010		1.01	274	0.0509	0.020
11/11	9.54	9.34	1,330	1,290	3.86		1.46	0.0511	41.4	0.0283	<0.0010		0.359	290	0.0337	0.036
11/11 (Dup.)	9.53		1,170		2.77		0.715	0.0428	41.6	0.0277	<0.0010		0.387	297	0.0354	0.029
4/12	9.4	9.60	1,330	1,890	6.3		<0.0050	0.0440	54.4	0.0368	<0.0010		0.729	315	0.0302	0.047
4/12 (Dup.)	9.4		1,320		6		0.0058	0.0330	55.9	0.0344	<0.0010		0.764	312	0.0350	0.049
7/12	9.4	9.54	1,400	1,200	5.6		<0.0050	0.0480	55	0.036	<0.0010		0.970	299	0.0478	0.022
11/12	9.3	[10.82]	1,680	1,240	3.3		<0.0050	0.0450	43.5	0.033	<0.0010		0.668	293	0.0372	0.037
11/12 (Dup.)	9.4		1,680		5.3		0.49	0.0400	43.7	0.035	<0.0010		0.665	288	0.0382	

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
1/05	9.96	9.96	1,600	1,372	17		2.1		70	0.1	0.0028		3.8	330	0.17	
5/05	9.98	9.76	1,600	1,474	15		1.0		95 J	0.11	0.0027		4.3	370	0.19	
10/05	9.99	10.05	1,600	1,444	14		1.1		83	0.1	0.0042		4.9	380	0.24	
1/06	9.97	7.68	1,600	1,332	9.4		1.1		52J	0.065	0.003J		3.2	330	0.14	
5/06	9.93	10.16	1,500	1,300	16		1.4		50J	0.049	0.0021		3.3	350	0.11	
9/06	10.03	10.08	1,700	1,395	12		12.0		60	0.059	0.0012		1.5	350	0.1	
2/07	10.03		1,700		9.7		0.3		69	0.059	0.00078		1.8	340	0.095	
5/07	9.93	9.96	1,400	1,211	11		11.0		69	0.063	0.0018		3.1	340	0.12	
9/07	10.00		1,500		6.5		0.0		64	0.060	0.00096		1.9	341	0.1	
9/07 (Dup.)	10.01		1,500		7		0.3		63	0.053	0.00095		1.8	330	0.1	
3/08	9.88	9.75	1,500	973	6.1		<0.01		60	0.054	0.0012		2.4	330	0.1	
3/08 (Dup)	9.88		1,500	1,041	7.3		0.7		55	0.058	0.0013		2.4	330	0.11	
6/08	9.90		1,400	1,041	12		1.6		55	0.047	0.0016		2.6	340	0.097	
9/08	9.86	9.97	1,400	1,514	9.2		<0.01		65	0.048	0.001		1.7	350	0.085	
1/09	9.80	9.94	1,380	1,392	5.9		5.9		70	0.051	0.001		1.7	198	0.085	
5/09	9.70	9.97	1,330	1,305	5.8		0.16		43.6	0.047	<0.0010		1.5	398	0.075	
9/09	9.80	10.15	1,600	1,433	8.0		0.28		66.2	0.045	0.0016		1.7	443	0.085	
1/10	10.00	9.97	1,230	1,290	4.7		<0.0050		61.4	0.037	<0.0010		1.4	358	0.07	
1/10 (Dup.)	9.90		1,420		6.1		<0.0050		62.8	0.036	<0.0005		1.3	360	0.062	
7/10	9.83	10.14	1,260	1,174	6.31		6.31		30.7	0.131	0.000919		1.12	216	0.0561	
11/10	9.90	10.17	1,400	945	3.76		3.24	0.0728	51.8	0.035	0.000837		1.18	212	0.0533	
4/11	9.91	10.26	1,100	849	3.16		1.34	0.0826	40.6	0.033	<0.001		1.11	244	0.0564	
7/11	9.88	10.26	1,210	593	2.74		2.73	0.0841	44.5	0.032	0.00108		1.40	252	0.0599	
11/11	9.88	9.78	1,330	1,310	4.00		1.73	0.0545	49.9	0.028	<0.001		1.30	276	0.0642	
4/12	9.70	9.97	1,220	1,210	4.80		0.41	0.0680	43.6	0.033	<0.001		1.16	288	0.0524	
7/12	9.70	9.77	1,360	1,170	6.00		1.50	<0.0050	48.6	0.028	0.0011		1.28	289	0.0575	
11/12	9.70	[10.81]	1,720	1,320	4.60		<0.0050	0.0380	53.9	0.037	<0.001		1.34	298	0.0574	

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	8.63	8.51	1,700	1,673	9.1		0.21		130 J	0.028	0.0038		0.8	520	0.074	
5/06	8.59	8.75	1,600	1,358	6.4		0.47		68J	0.012	0.0021		0.51	380	0.036	
5/07	8.26	8.14	1,100	831	5.8		0.37		32	0.011	0.0007		0.38	250	0.02	
6/08	8.62		1,200	824	2.2		0.18		42	0.012	0.00091		0.24	300	0.018	
5/09	8.00	8.25	982	911	3.1		0.12		21.1	0.011	<0.0010		0.29	269	0.014	
7/10	7.95	8.94	1,390	1,070	3.47		2.19		45.2	0.150	0.00148		0.422	211	0.0185	
7/11	8.24	8.77	943	423	2.10		2.09	0.0611	23.9	0.0112	<0.0010		0.409	198	0.0189	
7/12	8.30	9.27	975	818	4.60		<0.0050	0.0490	23.5	0.0072	<0.0010		0.286	190	0.014	

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	7.83	7.36	1000	853	10		0.14		24 J	<0.004	<0.0005		0.12	190	<0.01	
5/06	7.80	7.77	910	760	7.5		1.8		23J	<0.004	<0.0005		0.26	170	<0.01	
5/07	8.10	7.95	1,000	799	2.6		<0.01		31	0.0066	0.00055		0.34	230	0.018	
6/08	8.13		800	572	4.8		0.64		26	0.012	0.0013		0.52	190	0.038	
5/09	7.70	7.99	829	767	1.4		0.29		17.0	0.0056	<0.0010		0.20	198	<0.0050	
7/10	8.67	8.59	832	656	2.26		1.29		39.9	0.141	0.000829		0.316	123	0.0219	
7/11	8.06	8.61	833	417	9.30		9.30	0.0802	20.4	0.00715	<0.0010		0.336	172	0.0145	
7/12	8.00	9.21	965	814	4.20		<0.0050	0.0802	19.1	<0.0050	<0.0010		0.227	173	0.0065	

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
MW-35																
5/86	10.2		6,430		240	38			358			125	1.76	2,070		
7/88	10.2	10.4	6,100	6,150	43		41		400	0.147	0.002	56.5	0.337	1,630	0.053	<0.005
2/90	9.6	9.7	1,500	1,540	8.0		<0.005		71			20		350		
1/95	9.5	9.7	1,200	562	16		<0.01		35	0.018	<0.01	11	0.43	220	<0.01	
7/96	9.5	9.5	1,700	1,851	6.0	0.040			71	0.028	0.0006		0.5		0.03	
5/97	9.4	9.47	1,000	900	16		<1.0		40	0.02	0.0006		0.68	220	0.02	
5/98	8.93	9.10	710	766	15		2.9		27	0.012	<0.0005		0.92	140	0.01	
9/98	8.97	8.90	550	778	16		0.99		26	0.01	<0.0005		0.88	130	<0.01	
1/99	9.28	9.15	820	925	23		2.9		40	0.019	<0.0005		0.81	190	0.016	
5/99	9.35	9.70	830	870	28		10		38	0.013	<0.0005		0.86	160	0.015	
9/99	9.18	9.60	790	930	18		2.0		34	0.012	<0.0005		0.53	170	0.05	
1/00	8.91	8.15	610	500	13		3.3		21	0.0077	<0.0005		0.47	94	0.068	
5/00	9.07	9.24	690	693	27		20		28	0.081	<0.0005	5.2	0.48	69	0.077	
10/00	8.76	8.84	520	470	7.3		0.59		17	0.0076	<0.0005		0.57	81	0.11	
1/01	8.86	9.59	530	549	10		3.1		19	0.008	<0.0005		0.50	89	0.075	
5/01	9.17	9.43	800	790	17		2.6		35	0.013	<0.0005		0.48	130	0.04	
9/01	9.26	9.03	820	749	15		<0.5		41	0.0097	<0.0005		0.46	120	0.062	
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	
1/05	8.66	8.65	540	529	12		2.3		18	0.011	<0.0005		0.72	76	0.011	
5/05	8.45	8.08	480	467	7.9		4.1		15 J	0.012	<0.0005		0.86	75	0.014	
10/05	8.54	8.62	610	514	15		2.4		33	0.011	<0.0005		0.88	81	0.015	
1/06	8.18	7.25	530	453	7.9		1.6		12J	0.0096	<0.0005		0.92	62	0.01	
5/06	9.51	9.78	1,300	1,222	16		<0.01		90J	0.028	0.0008		0.71	230	0.028	
9/06	9.16	8.78	860	568	32		32.00		27	0.013	<0.0005		0.82	100	0.015	
2/07	9.49		1,200		22		<.01		45	0.014	<.0005		0.61	120	<.01	
5/07	8.81	7.79	700	369	22		0.86		22	0.027	0.00059		0.74	180	0.023	
9/07	9.18	9.39	800	592	14		<0.010		32	0.016	<0.00050		0.79	150	<0.010	
3/08	8.97	8.74	760	485	21		0.56		23	0.017	<0.0005		1.10	130	0.021	
6/08	8.37		540	381	15		0.45		15	0.013	0.00061		1.20	86	0.013	
9/08	8.54	8.56	530	589	17		1.50		15	0.013	<0.0005		0.86	92	<0.01	
1/09	8.70	8.76	635	615	19.3		19.30		24	0.016	<0.0010		1.10	72.1	0.012	
5/09	7.80	7.89	520	481	12.25		<0.0050		10.7	0.011	<0.0010		1.10	88.4	0.0076	
9/09	7.60	7.67	402	354	3.9		0.13		3.3	0.0092	<0.0010		0.93	52.0	0.0052	
1/10	7.70	7.68	409	392	5.6		<0.0050		7.0	0.012	<0.0010		0.99	79.5	0.0097	
7/10	7.55	7.36	368	276	2.12		1.34		2.95	0.108	<0.0005		0.70	26.8	0.00866	
11/10	7.33	7.84	372	286	2.56		2.56	0.0108	3.45	0.0114	<0.0005		0.56	36.2	<0.005	
4/11	7.86	8.46	420	350	4.89		3.04	0.0923	8.65	0.0073	<0.001		0.84	58.9	0.00581	
7/11	7.27	7.90	317	129	0.908		0.904	0.0100	1.14	0.00417	<0.0010		0.79	21.0	<0.0050	
11/11	7.39	7.60	382	340	3.16		1.070	0.0123	3.83	0.00492	<0.0010		0.87	37.8	0.00634	
4/12	7.60	7.55	470	463	6.9		0.720	0.2700	7.90	0.0141	<0.0010		0.74	73.9	<0.005	
7/12	7.50	9.08	441	411	2.2		0.640	0.2600	4.60	<0.0050	<0.0010		0.79	51.3	0.0089	
11/12	7.60	8.52	479	356	2.7		<0.0050	0.0700	4.90	0.0109	<0.0010		0.80	40.6	<0.005	

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SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	0.0083	<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	
1/05	9.69	9.61	860	750	3.4		0.69		33	0.026	0.00066		0.44	170	0.03	
5/05	9.66	9.44	800	774	1.8		0.53		30 J	0.02	0.0007		0.41	180	0.029	
10/05	9.44	9.50	1,000	764	12		2.3		28	0.02	<0.0005		0.28	180	0.02	
1/06	9.32	7.52	1,100	970	12		4.4		36J	0.02	0.0018		0.81	230	0.058	
5/06	9.17	9.31	1,000	878	3.8		0.15		38J	0.0068	<0.0005		0.41	220	0.016	
9/06	9.32	9.25	870	737	9.7		9.6		22	0.0059	<0.0005		0.026	170	<0.010	
2/07	9.07		940		12		<.01		22	<.004	<.0005		0.082	180	<.01	
5/07	8.9	8.8	790	666	10		0.86		32	0.0071	<0.0005		0.18	180	<0.01	
9/07	9.07		560		0.55		<0.010		20	0.0085	<0.00050		0.16	120	0.013	
3/08	8.63	8.4	850	543	7.8		<0.01		18	<0.004	<0.0005		0.2	170	<0.01	
6/08	8.56		710	516	2.1		<0.01		33	0.0057	<0.0005		0.22	160	<0.01	
9/08	8.69		640		4.6		0.14(J)		17	0.0044	<0.0005		0.094	120	<0.01	
9/08 (Dup.)	8.58	8.68	640	724	4.4		2.1(J)		19	0.0072	<0.0005		0.1	150	<0.01	
1/09	8.4		625		3.3		3.3		19	0.0059	<0.0010		0.16	75.8	<0.0050	
1/09 (Dup.)	8.4	8.44	629	622	<0.0050				20.4	0.0053	<0.0010		0.15	75.5	<0.0050	
5/09	8.3	8.57	699	677	13.5		0.10		26.2	<0.0050	<0.0010		0.20	163	<0.0050	
9/09	8.6	8.81	908	792	1.2		0.021		21.8	0.0057	<0.0010		0.18	199	0.0064	
1/10	8.5	8.69	877	761	10.8		1.6		28.9	0.0064	<0.0010		0.21	181	<0.0050	
7/10	8.75	8.98	597	487	1.04		0.486		17	0.107	<0.0005		0.0962	92.4	0.0085	
7/10 (Dup.)	8.77	8.98	600	487	1.05		0.434		19	0.114	<0.0005		0.0900	88.6	0.00737	
11/10	8.43	8.7	741	507	1.21		1.210	0.0225	14.3	0.00454	<0.0005		0.1590	140	<0.005	
4/11	8.60	8.91	446	334	0.986		0.337	0.0358	18.8	0.00224	<0.0010		0.1770	88.7	0.00522	
4/11 (Dup.)	8.55		446		0.871		0.330	0.1010	18.0	0.00263	<0.0010		0.1850	89.9	<0.0050	
7/11	8.49	9.04	560	162	0.863		0.858	0.0152	16.4	0.00319	<0.0010		0.1570	104	<0.0050	
11/11	8.37	8.32	650	644	0.657		0.217	0.0182	15.4	<0.00250	<0.0010		0.1580	121	0.00790	
4/12	8.30	8.39	557	529	2.6		0.160	0.1100	18.4	<0.0050	<0.0010		0.1990	101	<0.0050	
7/12	8.40	9.34	613	590	0.66		<0.0050	0.1300	15.6	<0.0050	<0.0010		0.1730	98.7	<0.0050	
11/12	8.30	9.46	917	6.91	1.2		0.640	0.0690	15.2	<0.0050	<0.0010		0.2180	117	<0.0050	

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
1/05	6.90	6.39	420	370	2.6		1.0		8.7	<0.004	<0.0005		1.9	59	<0.01	
5/05	6.92	6.51	420	374	3.0		0.068		9.5 J	0.012	0.0016		1.7	72	0.045	
10/05	6.82	6.60	630	512	5.8		0.58		17	0.013	0.0014		0.88	100	0.042	
1/06	7.96	7.14	550	463	7.7		2.8		6.3J	0.016	0.0015J		1.6	80	0.043	
5/06	7.00	6.56	570	476	4.0		0.9		8.4J	0.0088	0.00081		0.56	94	0.025	
9/06	6.91	6.53	490	414	2.4		2.4		7.3	<0.004	0.0005		0.60	74	<0.010	
2/07	7.22		500		2.1		<.01		12	0.0090	0.00085		1.70	54	0.03	
5/07	6.85	6.24	310	275	0.9		0.0		3.9	0.0087	<0.0005		0.19	40	0.011	
9/07	7.09	6.88	310	267	1.6		0.2		3.9	<0.0040	<0.00050		0.22	46	0.012	
3/08	6.46	5.93	310	237	<0.05				3.6	<0.004	<0.0005		0.08	47	<0.01	
6/08	6.34		260	183	0.9		0.2		3.4	0.0085	0.00073		0.20	37	0.015	
9/08	6.45	6.60	240	275	0.7		<0.01		3.5	<0.004	<0.0005		0.05	33	<0.01	
1/09	6.30	6.47	332	343	0.7		0.7		4.1	<0.0050	<0.0010		0.05	43.8	<0.0050	
5/09	6.30	6.46	337	327	7.1		0.27		3.3	<0.0050	<0.0010		0.21	53.8	0.0084	
9/09	6.40	6.54	361	307	0.37		0.31		2.8	<0.0050	<0.0010		0.11	55.3	0.012	
1/10	6.60	7.16	396	365	0.096		<0.0050		5.0	0.015	0.0012		0.66	62.3	0.040	
7/10	6.43	6.73	271	235	0.114		0.112		2.75	0.128	0.000595		0.166	24.9	0.0162	
11/10	6.22	7.47	279	185	0.257		0.257	0.0138	2.83	0.00559	0.000564		0.127	22.9	0.0131	
4/11	6.86	7.26	309	185	0.369		0.122	0.0058	3.87	0.00444	0.00105		0.282	39.2	0.0229	
7/11	6.32	7.12	252	100	1.84		1.84	0.0121	3.07	0.0112	0.00144		0.410	31.7	0.0403	
11/11	6.15	6.76	294	280	0.22		0.0797	0.0105	4.19	<0.00250	<0.0010		0.097	34.3	0.0097	
4/12	6.20	6.05	277	266	0.19		0.0370	0.0110	3.00	<0.0050	<0.0010		0.006	34.5	<0.0050	
7/12	6.10	8.57	283	278	<0.25		0.0100	0.0690	2.30	<0.0050	<0.0010		0.031	32.6	<0.0050	
11/12	6.40	7.07	394	304	0.22		0.0260	<0.0050	3.20	<0.0050	<0.0010		0.025	38.2	<0.0050	

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	9.24	9.14	4,800	4,440	7.9		0.025		190 J	0.014	<0.0005		0.15	1,200	<0.01	
5/06	8.96	9.24	4,400	3,530	7.2		2.4		130J	0.011	<0.0005		0.21	940	0.017	
5/07	9.08	9.22	4,000	3,380	5.7		0.069		180	0.012	<0.0005		0.11	950	<0.01	
9/07	9.12	9.55	3,300	2,810	3.2		<0.010		120	0.015	<0.00050		0.16	750	0.01	
3/08	9.03	8.93	3,300	1,881	3.1		<0.01		93	0.013	<0.0005		0.14	830	0.01	
3/08 (Dup)	9.03		3,400		3.9		<0.01		100	0.013	<0.0005		0.15	830	0.01	
6/08	9.06		3,700	1,211	5.7		0.820		140	0.013	<0.0005		0.11	860	<0.01	
9/08	9.08	9.19	3,400	4,120	5.4		<0.01		150	0.014	<0.0005		0.094	960	<0.01	
1/09	8.9	9.04	3,300	3,510	4.0		4		162	0.014	<0.0010		0.083	585	0.0051	
5/09	8.9	9.13	2,980	3,840	3.6		0.11		115	0.016	<0.0010		0.12	1,200	0.0094	
9/09	9.0	9.38	3,050	3,030	3.5		<0.0050		109	0.011	<0.0010		0.13	982	0.013	
1/10	9.1	9.22	3,440	3,050	3.6		0.99		127	0.015	<0.0010		0.14	918	0.011	
7/10	9.0	9.38	3,160	3,460	3.18		3.18		106	0.00873	<0.0005		0.0795	641	0.0117	
11/10	9.06	9.38	3,160	1,675	3.09		3.09	0.0406	153	0.00922	<0.0005		0.0748	540	<0.005	
4/11	9.02	9.49	2,670	1,650	1.74		0.801	0.0687	98	0.0114	<0.001		0.196	751	0.0188	
7/11	8.96	9.48	3,680	1,062	6.670		0.284	0.0866	123	0.0106	<0.0010		0.107	912	0.00898	
7/11 (Dup.)	8.96		3,680		7.580		8.31	0.0618	105	0.0111	<0.0010		0.106	873	0.00921	
11/11	9.13	9.10	3,610	4,010	3.930		0.477	0.0518	142	0.0116	<0.0010		0.0807	950	0.0183	
4/12	9.00	9.20	3,780	4,080	5.400		0.18	0.0687	156	0.0144	<0.0010		0.0637	976	0.0072	
7/12	9.10	9.65	3,730	3,730	5.100		0.26	0.0530	173	0.0126	<0.0010		0.0945	976	0.0089	
11/12	8.90	[10.52]	3,710	2,950	4.200		<0.0050	0.0290	110	0.0124	<0.0010		0.134	702	0.0106	

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	7.63	7.25	2,600	2,510	4.2		0.017		15 J	<0.004	<0.0005		2.6	650	<0.01	
5/06	7.63	7.62	860	720	0.32		<0.01		9.0J	<0.004	<0.0005		0.94	110	<0.01	
5/07	7.42	7.27	1,200	829	0.74		0.012		4.3	<0.004	<0.0005		1.90	150	<0.01	
6/08	7.42		2,400	338	3.7		0.28		12	<0.004	<0.0005		2	520	<0.01	
5/09	7.4	7.65	1,350	1,120	1.1		<0.0050		6.5	<0.0050	<0.0010		1.1	230	<0.0050	
7/10	7.45	7.92	1,410	1,033	1.06		1.06		14	0.000605	<0.0005		0.886	282	<0.0050	
7/11	7.44	8.07	1,970	472	1.19		1.19	0.0379	14	<0.00250	<0.0010		1.35	440	<0.0050	
7/12	7.6	9.00	2,420	2,370	3.50		0.094	0.1300	17.2	<0.0050	<0.0010		1.07	553	<0.0050	

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

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GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	7.76	7.51	960	804	0.24		<0.01		7.3 J	<0.004	<0.0005		1.1	160	<0.01	
5/06	7.95	7.82	1,000	831	10		2.9		21J	<0.004	<0.0005		0.4	170	<0.01	
5/07	7.95	8.01	1,100	823	7		<0.01		44	0.0074	0.00066		0.57	230	0.016	
6/08	8.15		1,100	655	7.1		1		58	0.0072	0.00097		0.64	220	0.026	
5/09	8.0	8.26	1,020	1002	8.9		0.019		37.5	<0.0050	0.0012		0.65	280	0.029	
7/10	8.16	8.42	993	781	2.27		2.27		38.4	0.133	0.000766		0.495	175	0.0234	
7/11	8.06	8.53	1,000	537	2.68		2.68	0.0286	33..1	0.00447	<0.0010		0.482	215	0.0175	
7/12	8.00	9.37	998	973	6.2		0.87	0.0140	38	<0.0050	<0.0010		0.466	213	0.0181	

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

J = One or more quality control criteria not met. Value considered estimated.

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	7.89	7.56	1,000	849	0.68		0.034		4.9 J	<0.004	<0.0005		0.73	140	<0.01	
5/06	7.91	7.82	1,100	915	6.6		0.15		11J	<0.004	<0.0005		0.98	180	<0.01	
5/07	7.76	7.76	1,000	738	4.1		<0.01		17	<0.004	<0.0005		0.94	180	<0.01	
6/08	7.88		990	579	6.8(J)		0.47		29	0.0045	<0.0005		0.77	180	<0.01	
5/09	7.70	8.00	975	964	7.8		<0.0050		19.8	<0.0050	<0.0010		0.82	225	0.0061	
7/10	8.00	8.34	954	753	5.38		5.38		36.2	0.117	0.000581		0.467	158	0.0158	
7/11	7.99	8.41	907	497	3.47		3.47	0.0372	24.1	0.003	<0.0010		0.516	178	0.00841	
7/12	7.80	9.33	882	919	7.90		2.4	0.0540	28	<0.0050	<0.0010		0.594	187	0.0123	
7/12 (Dup.)	8.00		922		6.50		<0.0050	0.0850	28.6	<0.0050	<0.0010		0.589	187	0.0115	

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

J = One or more quality control criteria not met. Value considered estimated.

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/07	6.79	6.89	430	339	<0.01				0.23	0.015	<0.0005		1.3	22	<0.01	

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

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TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	8.30	8.10	2,700	3,110	4.0		0.068		69 J	<0.004	<0.0005		1.2	580	<0.01	
5/06	8.58	7.80	4,400	1,737	3.8		0.13		100J	0.0065	<0.0005		0.23	930	<0.01	
5/07	8.36	8.49	2,600	1,601	1.8		<0.01		39	<0.004	<0.0005		0.2	560	<0.01	
6/08	7.97		2,900	1,224	2.3		0.22		37	<0.004	<0.0005		0.37	570	<0.01	
5/09	7.90	8.10	3,280	3,380	[7.9]		[0.033]		60.1	0.0053	<0.0010		0.25	1,010	<0.0050	
7/09		8.45		2,630	3.1		<0.005									
7/10	8.06	8.07	2,520	1,446	1.39		0.701		36.4	0.115	<0.0005		0.215	391	<0.0050	
7/11	8.01	8.62	2,100	522	1.51		1.51	0.0309	34.1	0.00309	<0.0010		0.334	454	<0.0050	
7/12	8.00	9.13	2,760	2,740	3.10		0.88	0.1600	48.2	<0.0050	<0.0010		0.354	641	<0.0050	

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

J = One or more quality control criteria not met. Value considered estimated.

TABLE 4
SUMMARY OF ANALYTICAL RESULTS FOR REMEDIAL ACTION
GROUNDWATER MONITORING WELLS AND PARAMETERS
ORMET CORPORATION
HANNIBAL, OHIO

	pH (lab)	pH (field)	Specific Cond. (lab)	Specific Cond. (field)	Cyanide Total	Cyanide Free	Cyanide Amenable	WAD Cyanide	Fluoride	Arsenic	Beryllium	Iron	Manganese	Sodium	Vanadium	PCE
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	
5/05	7.87	7.53	2,100	1,844	1.6		0.017		11 J	0.0073	<0.0005		0.35	810	<0.01	
5/06	7.73	7.80	2,000	1,737	2.7		0.92		10.0J	<0.004	<0.0005		1.2	450	<0.01	
5/07	7.81	7.68	1,200	832	0.63		<0.01		9.2	<0.004	<0.0005		0.9	220	<0.01	
6/08	7.64		2,900	1,320	4.6		0.81		14.0	<0.004	<0.0005		1.1	650	<0.01	
5/09	7.7	7.87	2,660	2,260	[5.8]		<0.0050		24.1	0.0058	<0.0010		0.84	877	<0.0050	
7/09		8.10		3,320	4.7		<0.005									
7/10	8.04	8.11	2,510	1,667	1.69		1.17		27.4	0.00108	<0.0005		0.697	634	<0.0050	
7/11	7.87	8.35	2,040	529	1.53		1.53	0.0356	31.1	<0.00250	<0.0010		0.839	466	<0.0050	
7/12	8	8.78	2,570	2,470	0.84		<0.0050	0.2500	34.0	<0.0050	<0.0010		0.784	623	<0.0050	

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

J = One or more quality control criteria not met. Value considered estimated.

TABLE 5

SUMMARY OF ANALYTICAL RESULTS FOR PCBS

ORMET CORPORATION

HANNIBAL, OHIO

	MW-12													
	5/15/02	10/01/02	1/15/03	5/22/03	9/11/03	1/13/04	5/11/04	9/28/04	1/18/05	5/19/05	10/6/05	1/18/06	5/18/06	9/18/06
Aroclor-1016	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52/<0.52	<0.5	<0.51/<0.53	<0.51/<0.5	<0.5	<0.5/<0.5	<0.5/<0.5	<0.5	---
Aroclor-1221	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52/<0.52	<0.5	<0.51/<0.53	<0.51/<0.5	<0.5	<0.5/<0.5	<0.5/<0.5	<0.5	---
Aroclor-1232	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52/<0.52	<0.5	<0.51/<0.53	<0.51/<0.5	<0.5	<0.5/<0.5	<0.5/<0.5	<0.5	---
Aroclor-1242	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52/<0.52	<0.5	<0.51/<0.53	<0.51/<0.5	<0.5	<0.5/<0.5	<0.5/<0.5	<0.5	---
Aroclor-1248	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52/<0.52	<0.5	<0.51/<0.53	<0.51/<0.5	<0.5	<0.5/<0.5	<0.5/<0.5	<0.5	---
Aroclor-1254	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52/<0.52	<0.5	<0.51/<0.53	<0.51/<0.5	<0.5	<0.5/<0.5	<0.5/<0.5	<0.5	---
Aroclor-1260	<0.52	<0.521	<0.5	<0.5	<0.5/<0.5	<0.52/<0.52	<0.5	<0.51/<0.53	<0.51/<0.5	<0.5	<0.5/<0.5	<0.5/<0.5	<0.5	---

	MW-12													
	2/26/07	5/17/07	9/6/07	3/12/08	6/12/08	9/11/08	1/28/09	5/20/09	9/24/09	1/27/10	7/21/10	11/17/10	4/5/11	7/13/11
Aroclor-1016	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.52	<0.51/<0.52	<0.52	<0.52	<0.50	<0.50	<0.5	<0.5
Aroclor-1221	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.52	<0.51/<0.52	<0.52	<0.52	<0.50	<0.50	<0.5	<0.5
Aroclor-1232	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.52	<0.51/<0.52	<0.52	<0.52	<0.50	<0.50	<0.5	<0.5
Aroclor-1242	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.52	<0.51/<0.52	<0.52	<0.52	<0.50	<0.50	<0.5	<0.5
Aroclor-1248	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.52	<0.51/<0.52	<0.52	<0.52	<0.50	<0.50	<0.5	<0.5
Aroclor-1254	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.52	<0.51/<0.52	<0.52	<0.52	<0.50	<0.50	<0.5	<0.5
Aroclor-1260	<0.5	<0.5	---	<0.5	<0.5	<0.5	<0.52	<0.51/<0.52	<0.52	<0.52	<0.50	<0.50	<0.5	<0.5

	MW-12			
	11/16/11	4/4/2012	7/26/2012	11/8/12
Aroclor-1016	<0.5	<0.5	<0.5	<0.5
Aroclor-1221	<0.5	<0.5	<0.5	<0.5
Aroclor-1232	<0.5	<0.5	<0.5	<0.5
Aroclor-1242	<0.5	<0.5	<0.5	<0.5
Aroclor-1248	<0.5	<0.5	<0.5	<0.5
Aroclor-1254	<0.5	<0.5	<0.5	<0.5
Aroclor-1260	<0.5	<0.5	<0.5	<0.5

All results in ug/L. Not Analyzed

TABLE 5

SUMMARY OF ANALYTICAL RESULTS FOR PCBS

ORMET CORPORATION

HANNIBAL, OHIO

	MW-44S													
	5/15/02	10/01/02	1/15/03	5/22/03	9/11/03	1/14/04	5/14/04	9/28/04	1/18/05	5/18/05	10/5/05	1/17/06	5/16/06	9/18/06
Aroclor-1016	<0.52	<0.5	<0.5	<0.5	<0.5	<0.52	<0.5	<0.52	<0.51	<0.5	<0.5	<0.5	<0.5	<0.52
Aroclor-1221	<0.52	<0.5	<0.5	<0.5	<0.5	<0.52	<0.5	<0.52	<0.51	<0.5	<0.5	<0.5	<0.5	<0.52
Aroclor-1232	<0.52	<0.5	<0.5	<0.5	<0.5	<0.52	<0.5	<0.52	<0.51	<0.5	<0.5	<0.5	<0.5	<0.52
Aroclor-1242	<0.52	<0.5	<0.5	<0.5	<0.5	<0.52	<0.5	<0.52	<0.51	<0.5	<0.5	<0.5	<0.5	<0.52
Aroclor-1248	<0.52	<0.5	<0.5	<0.5	<0.5	<0.52	<0.5	<0.52	<0.51	<0.5	<0.5	<0.5	<0.5	<0.52
Aroclor-1254	<0.52	<0.5	<0.5	<0.5	<0.5	<0.52	<0.5	<0.52	<0.51	<0.5	<0.5	<0.5	<0.5	<0.52
Aroclor-1260	<0.52	<0.5	<0.5	<0.5	<0.5	<0.52	<0.5	<0.52	<0.51	<0.5	<0.5	<0.5	<0.5	<0.52

	MW-44S													
	2/26/07	5/17/07	9/6/07	3/12/08	6/11/08	9/11/08	1/28/09	5/19/09	9/23/09	1/26/10	7/21/10	11/18/10	4/5/11	7/12/11
Aroclor-1016	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.53	<0.52	<0.51	<0.51	<0.5	<0.5	<0.5	<0.5
Aroclor-1221	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.53	<0.52	<0.51	<0.51	<0.5	<0.5	<0.5	<0.5
Aroclor-1232	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.53	<0.52	<0.51	<0.51	<0.5	<0.5	<0.5	<0.5
Aroclor-1242	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.53	<0.52	<0.51	<0.51	<0.5	<0.5	<0.5	<0.5
Aroclor-1248	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.53	<0.52	<0.51	<0.51	<0.5	<0.5	<0.5	<0.5
Aroclor-1254	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.53	<0.52	<0.51	<0.51	<0.5	<0.5	<0.5	<0.5
Aroclor-1260	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.53	<0.52	<0.51	<0.51	<0.5	<0.5	<0.5	<0.5

	MW-44S			
	11/15/11	4/3/2012	7/25/2012	11/8/12
Aroclor-1016	<0.5	<0.5	<0.5	<0.5
Aroclor-1221	<0.5	<0.5	<0.5	<0.5
Aroclor-1232	<0.5	<0.5	<0.5	<0.5
Aroclor-1242	<0.5	<0.5	<0.5	<0.5
Aroclor-1248	<0.5	<0.5	<0.5	<0.5
Aroclor-1254	<0.5	<0.5	<0.5	<0.5
Aroclor-1260	<0.5	<0.5	<0.5	<0.5

All results in ug/L. Not Analyzed

TABLE 5

SUMMARY OF ANALYTICAL RESULTS FOR PCBS

ORMET CORPORATION

HANNIBAL, OHIO

	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	1/18/05	5/18/05	10/5/05	1/17/06	5/16/06	9/18/06
Aroclor-1016	<0.5	<0.51	<0.5	<0.5	<0.5	<0.51	<0.5	<0.51	<0.51	<0.5	<0.5	<0.5	<0.5	<0.53
Aroclor-1221	<0.5	<0.51	<0.5	<0.5	<0.5	<0.51	<0.5	<0.51	<0.51	<0.5	<0.5	<0.5	<0.5	<0.53
Aroclor-1232	<0.5	<0.51	<0.5	<0.5	<0.5	<0.51	<0.5	<0.51	<0.51	<0.5	<0.5	<0.5	<0.5	<0.53
Aroclor-1242	<0.5	<0.51	<0.5	<0.5	<0.5	<0.51	<0.5	<0.51	<0.51	<0.5	<0.5	<0.5	<0.5	<0.53
Aroclor-1248	<0.5	<0.51	<0.5	<0.5	<0.5	<0.51	<0.5	<0.51	<0.51	<0.5	<0.5	<0.5	<0.5	<0.53
Aroclor-1254	<0.5	<0.51	<0.5	<0.5	<0.5	<0.51	<0.5	<0.51	<0.51	<0.5	<0.5	<0.5	<0.5	<0.53
Aroclor-1260	<0.5	<0.51	<0.5	<0.5	<0.5	<0.51	<0.5	<0.51	<0.51	<0.5	<0.5	<0.5	<0.5	<0.53

	MW-44D													
	2/26/07	5/17/07	9/6/07	3/12/08	6/11/08	9/11/08	1/28/09	5/19/09	9/23/09	1/26/10	7/21/10	11/18/10	4/5/11	7/12/11
Aroclor-1016	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.52	<0.51	<0.52	<0.52	<0.5	<0.5	<0.5	<0.5
Aroclor-1221	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.52	<0.51	<0.52	<0.52	<0.5	<0.5	<0.5	<0.5
Aroclor-1232	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.52	<0.51	<0.52	<0.52	<0.5	<0.5	<0.5	<0.5
Aroclor-1242	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.52	<0.51	<0.52	<0.52	<0.5	<0.5	<0.5	<0.5
Aroclor-1248	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.52	<0.51	<0.52	<0.52	<0.5	<0.5	<0.5	<0.5
Aroclor-1254	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.52	<0.51	<0.52	<0.52	<0.5	<0.5	<0.5	<0.5
Aroclor-1260	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.52	<0.51	<0.52	<0.52	<0.5	<0.5	<0.5	<0.5

	MW-44D			
	11/16/11	4/3/12	7/25/12	11/8/12
Aroclor-1016	<0.5	<0.5	<0.5	<0.5
Aroclor-1221	<0.5	<0.5	<0.5	<0.5
Aroclor-1232	<0.5	<0.5	<0.5	<0.5
Aroclor-1242	<0.5	<0.5	<0.5	<0.5
Aroclor-1248	<0.5	<0.5	<0.5	<0.5
Aroclor-1254	<0.5	<0.5	<0.5	<0.5
Aroclor-1260	<0.5	<0.5	<0.5	<0.5

All results in ug/L. Not Analyzed

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
5/05	39.5 a.	-6.2	43.7 a.	+12.8
5/06	45.4 a.	+14.9	44.8 a.	+2.5
5/07	42.1 a.	-7.3	46.6 a.	+4.0
6/08	44.0 a.	+4.5	49.9 a.	+7.1
5/09	41.7 a.	-5.2	50.0 a.	+0.2
7/10	47.5 a.	+13.9	51.5 a.	+3.0
7/11	47.5 a.	0.0	45.6 a.	-11.5
7/12	46.4 a.	-2.3	47.9 a.	+5.0

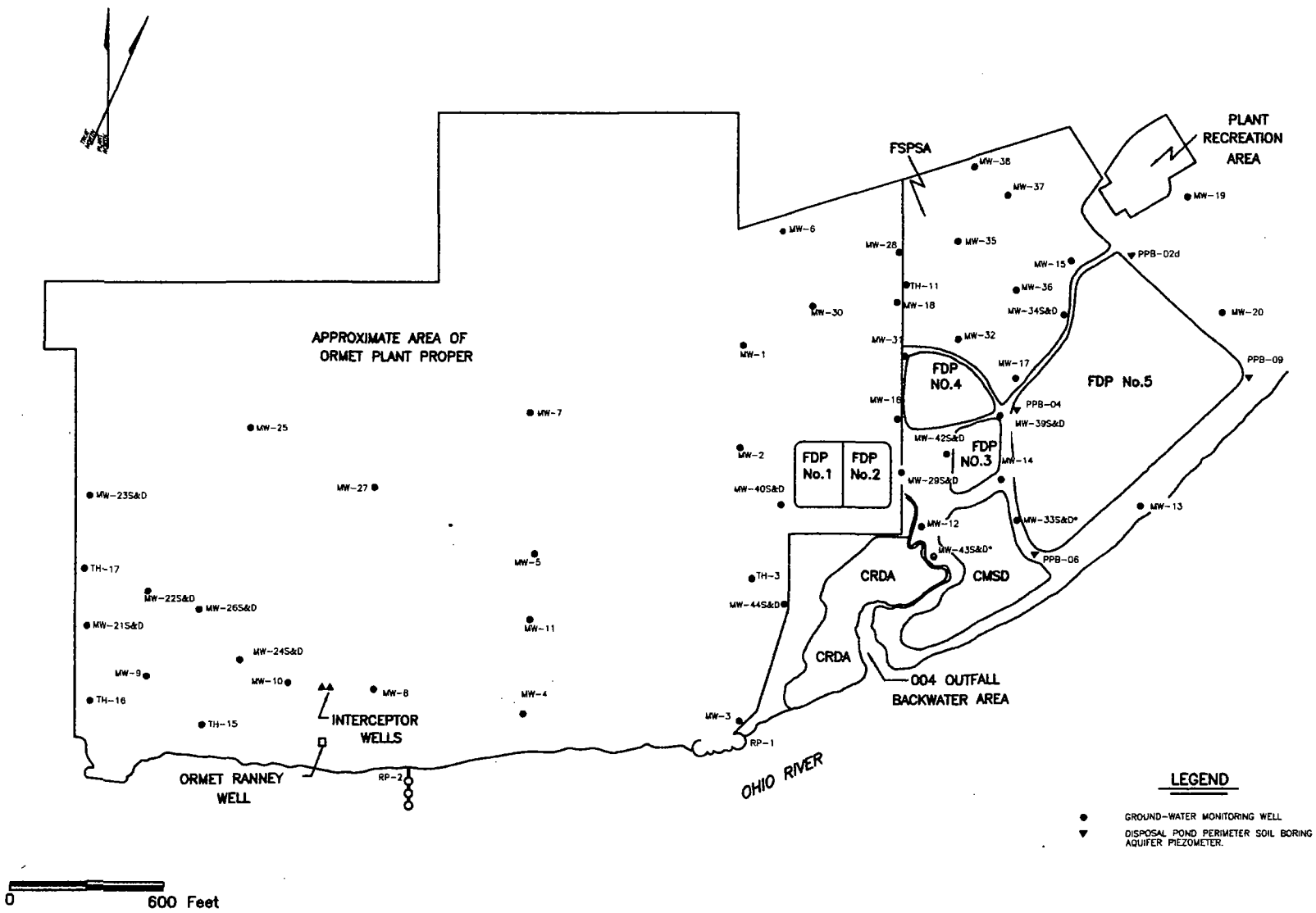
Sampling Date	Estimated Fluoride Mass-in-Place	% Change	Estimated Total CN Mass-in-Place	% Change
6/88	85,702 lbs.		6,821 lbs.	
1/95	28,168 lbs.	-67.1	4,271 lbs.	-37.4
5/97	29,033 lbs.	+3.1	2,943 lbs.	-31.1
5/98	23,888 lbs.	-17.7	2,597 lbs.	-11.8
5/99	30,416 lbs.*	+27.3	5,566 lbs.	+114
5/00	27,071 lbs.	-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
5/05	37,656 lbs.	-3.0	4,681 lbs.	+34.6
5/06	32,725 lbs.	-13.1	6,615 lbs.	+41.3
5/07	35,219 lbs.	+7.6	6,438 lbs.	-2.7
6/08	33,638 lbs.	-4.5	5,997 lbs.	-6.8
5/09	29,510 lbs.	-12.3	5,422 lbs.	-9.6
7/10	37,466 lbs.	+27.0	3,441 lbs.	-36.5
7/11	33,772 lbs.	-9.9	3,499 lbs.	+1.7
7/12	35,324 lbs.	+4.6	5,393 lbs.	+54.1

* - 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	POUNDS CHANGE	MASS REMOVED	ESTIMATED MASS-IN-PLACE	POUNDS CHANGE	MASS REMOVED
5/97	29,033			2,943		
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
5/05	37,656	-1,180	8,802	4,681	+1,619	1,075
5/06	32,735	-4,921	8,607	6,615	+1,934	1,392
5/07	35,219	+2,484	6,085	6,438	-177	1,151
6/08	33,638	-1,581	6,320	5,997	-441	1,000
5/09	29,510	-4,128	6,964	5,422	-575	936
7/10	37,466	+7,956	10,436	3,441	-1,981	1,256
7/11	33,772	-3,694	7,234	3,499	+58	760
7/12	35,324	+1,552	1,724	5,393	+1,894	66
	TOTAL MASS REMOVED		189,015	TOTAL MASS REMOVED		25,771

All values given in pounds.



HMI Environmental Consulting Services

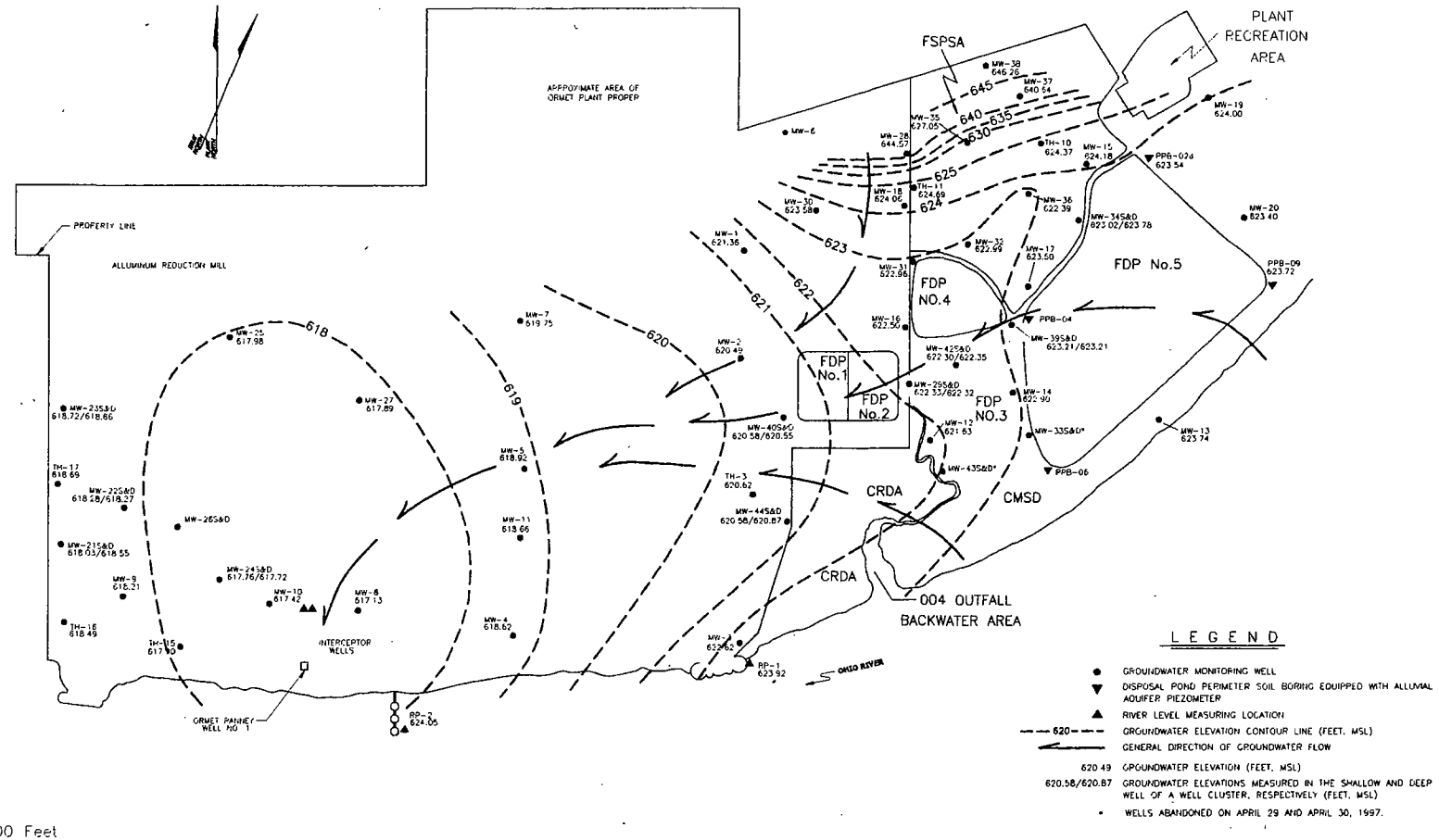
HydroSystems Management, Inc.
P.O. Box 789
Washington, Pennsylvania 15301

PROJECT NO: HM00319	FILE NO:
DRAWING: 012308CL	PLOT SIZE=1"=600'
DRAFTED BY: CL	DATE: 06/20/2006
CHECKED BY: CPS	DATE: 06/20/2006
APPROVED BY: CPS	DATE: 06/20/2006
REVISION NO:	DATE:

LOCATION OF GROUND-WATER MONITORING WELLS

ORMET PRIMARY ALUMINUM CORPORATION — HANNIBAL, OHIO

FIGURE 1



LEGEND

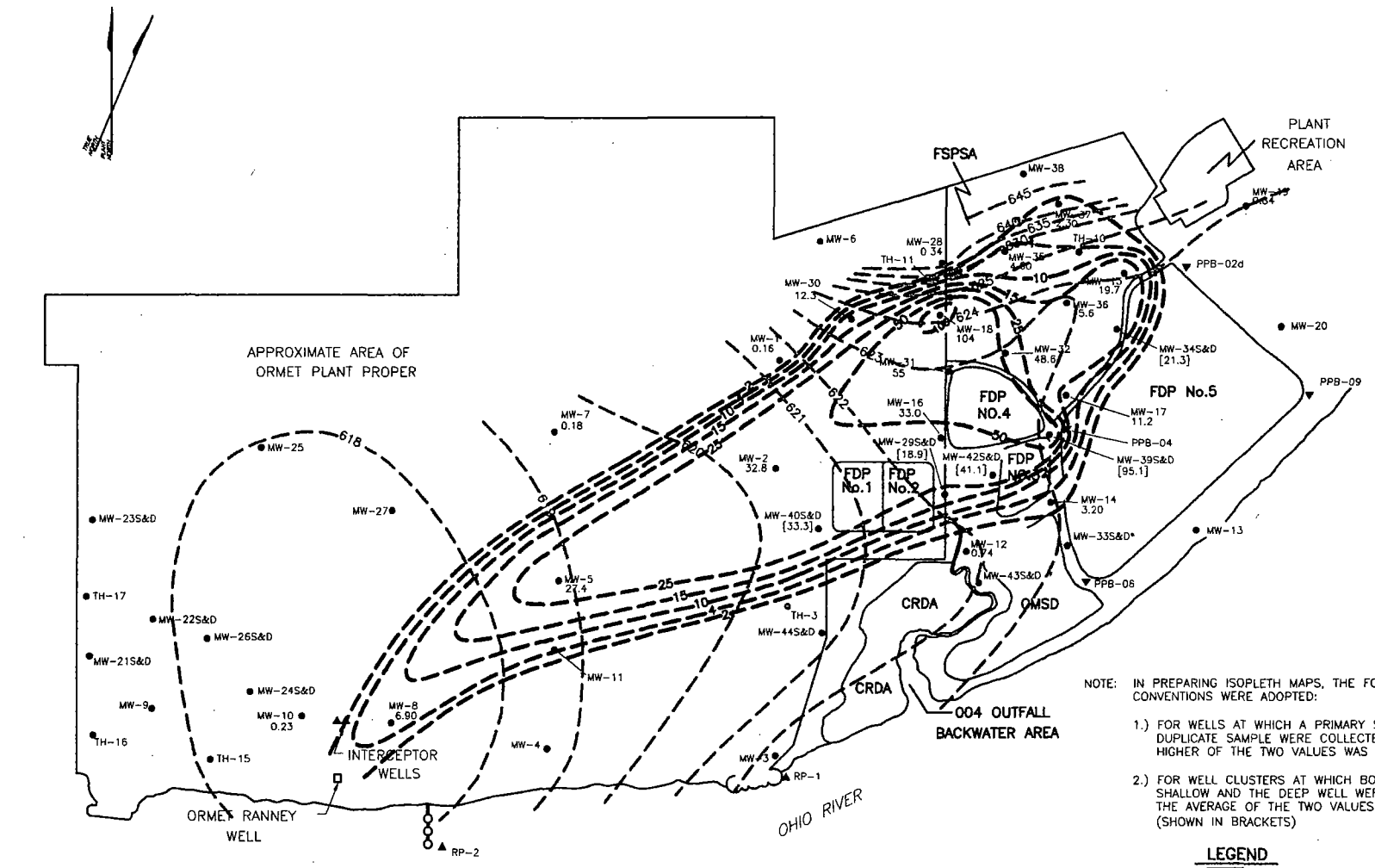
- ● GROUNDWATER MONITORING WELL
- ▼ DISPOSAL POND PERIMETER SOIL BORING EQUIPPED WITH ALLUVIAL AQUIFER PIEZOMETER
- ▲ RIVER LEVEL MEASURING LOCATION
- — 620 — GROUNDWATER ELEVATION CONTOUR LINE (FEET, MSL)
- ⟵ GENERAL DIRECTION OF GROUNDWATER FLOW
- 620.49 GROUNDWATER ELEVATION (FEET, MSL)
- 620.58/620.87 GROUNDWATER ELEVATIONS MEASURED IN THE SHALLOW AND DEEP WELL OF A WELL CLUSTER, RESPECTIVELY (FEET, MSL)
- * WELLS ABANDONED ON APRIL 29 AND APRIL 30, 1997.

HMI Environmental Consulting Services
HydroSystems Management, Inc.
89 West Main Street
West Middletown, Pennsylvania 15379

PROJECT NO: HM00319	FILE NO:
DRAWING: 100212A	PLOT SIZE=1"=600'
DRAFTED BY: CL	DATE: 10/02/2012
CHECKED BY: CPS	DATE: 10/03/2012
APPROVED BY: CPS	DATE: 10/03/2012
REVISION NO:	DATE:

GROUNDWATER ELEVATIONS AND FLOW PATTERNS
WITHIN THE ALLUVIAL AQUIFER
BASED ON JULY 24, 2012 WATER-LEVEL DATA
ORMET PRIMARY ALUMINUM CORPORATION HANNIBAL, OHIO

FIGURE 2



NOTE: IN PREPARING ISOPLETH MAPS, THE FOLLOWING CONVENTIONS WERE ADOPTED:

1.) FOR WELLS AT WHICH A PRIMARY SAMPLE AND A DUPLICATE SAMPLE WERE COLLECTED, THE HIGHER OF THE TWO VALUES WAS USED.

2.) FOR WELL CLUSTERS AT WHICH BOTH THE SHALLOW AND THE DEEP WELL WERE SAMPLED, THE AVERAGE OF THE TWO VALUES WAS USED. (SHOWN IN BRACKETS)

LEGEND

- ● GROUNDWATER MONITORING WELL
- ▼ DISPOSAL POND PERIMETER SOIL BORING EQUIPPED WITH ALLUVIAL AQUIFER PIEZOMETER.
- ▲ RIVER LEVEL MEASURING LOCATION
- 620 GROUNDWATER ELEVATION CONTOUR LINE (FEET, MSL)
- 4 FLUORIDE CONCENTRATION CONTOUR (mg/L)
- * WELLS ABANDONED ON APRIL 29 AND APRIL 30, 1997.

HMI Environmental Consulting Services

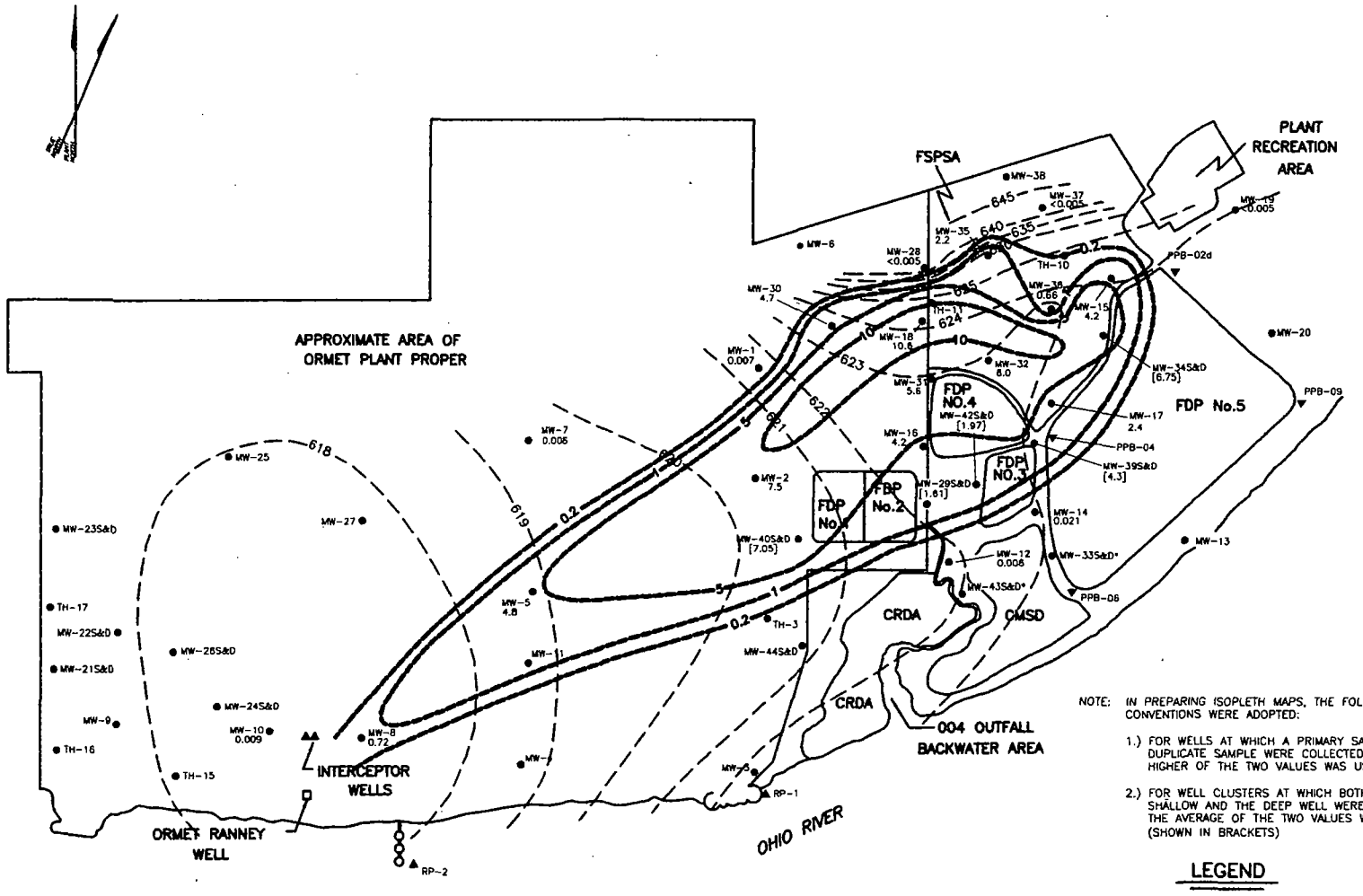
HydroSystems Management, Inc.
89 West Main Street
West Middletown, Pennsylvania 15379

PROJECT NO: HM00319	FILE NO:
	PLOT SIZE=1"=600'
DRAFTED BY: CL	DATE: 10/03/2012
CHECKED BY: CPS	DATE: 10/04/2012
APPROVED BY: CPS	DATE: 10/04/2012
REVISION NO:	DATE:

FLUORIDE ISOPLETH MAP FOR THE ALLUVIAL AQUIFER (BASED ON SAMPLES COLLECTED IN JULY 2012)

ORMET PRIMARY ALUMINUM CORPORATION — HANNIBAL, OHIO

FIGURE 3



NOTE: IN PREPARING ISOPLETH MAPS, THE FOLLOWING CONVENTIONS WERE ADOPTED:

1.) FOR WELLS AT WHICH A PRIMARY SAMPLE AND A DUPLICATE SAMPLE WERE COLLECTED, THE HIGHER OF THE TWO VALUES WAS USED.

2.) FOR WELL CLUSTERS AT WHICH BOTH THE SHALLOW AND THE DEEP WELL WERE SAMPLED, THE AVERAGE OF THE TWO VALUES WAS USED. (SHOWN IN BRACKETS)

LEGEND

- ● GROUNDWATER MONITORING WELL
- ▼ DISPOSAL POND PERIMETER SOIL BORING EQUIPPED WITH ALLUVIAL AQUIFER PIEZOMETER.
- ▲ RIVER LEVEL MEASURING LOCATION
- 620 GROUNDWATER ELEVATION CONTOUR LINE (FEET, MSL)
- 0.2 TOTAL CYANIDE CONCENTRATION CONTOUR (mg/L)
- • WELLS ABANDONED ON APRIL 29 AND APRIL 30, 1997.

HMI Environmental Consulting Services

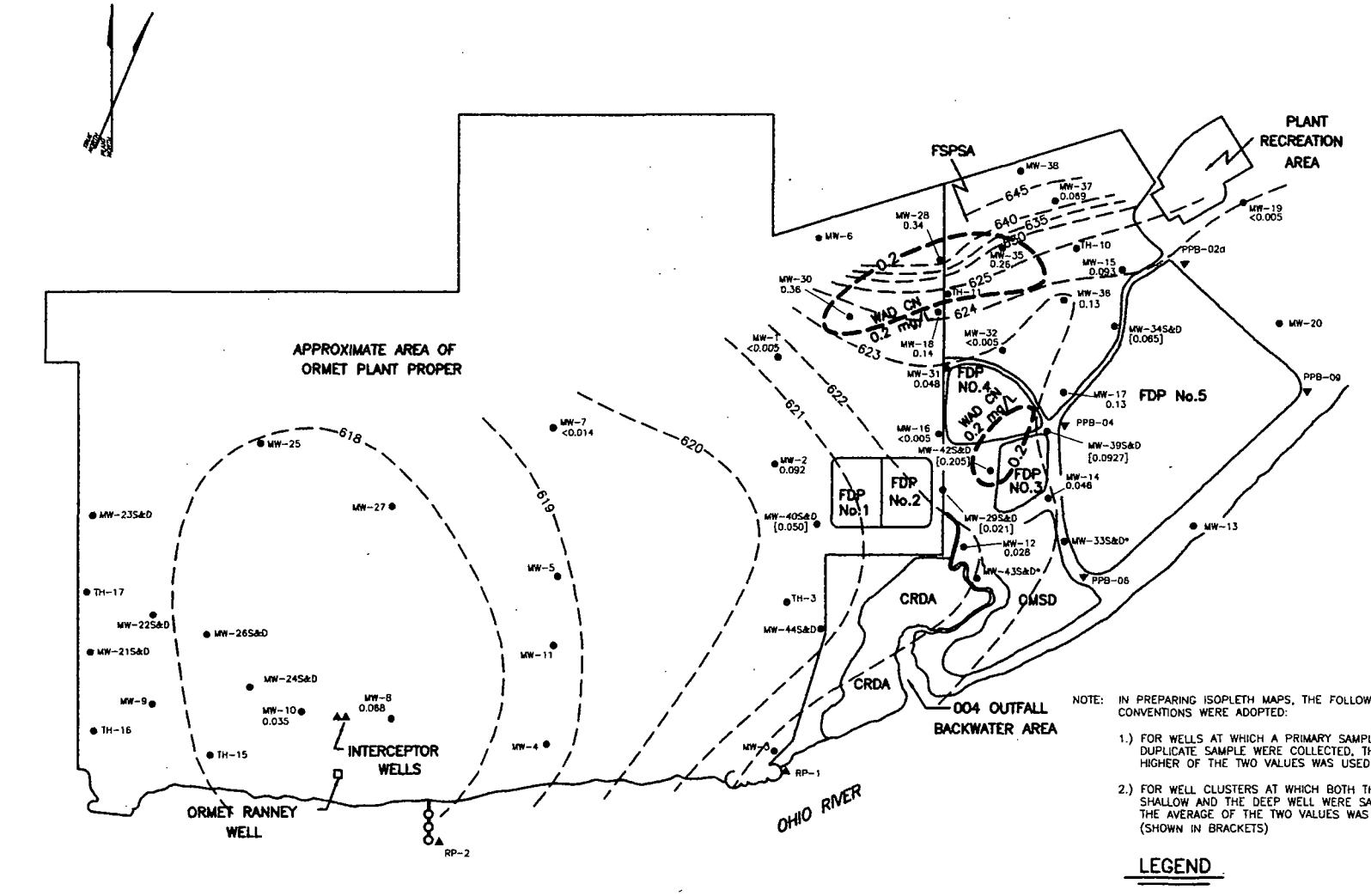
HydroSystems Management, Inc.
89 West Main Street
West Middletown, Pennsylvania 15379

PROJECT NO: HM00319	FILE NO:
DRAWING: 100412A	PLOT SIZE=1"=300'
DRAFTED BY: CL	DATE: 10/04/2012
CHECKED BY: CPS	DATE: 10/04/2012
APPROVED BY: CPS	DATE: 10/06/2012
REVISION NO:	DATE:

TOTAL CYANIDE ISOPLETH MAP FOR THE ALLUVIAL AQUIFER (BASED ON SAMPLES COLLECTED IN JULY 2012)

ORMET PRIMARY ALUMINUM CORPORATION — HANNIBAL, OHIO

FIGURE 4



NOTE: IN PREPARING ISOPLETH MAPS, THE FOLLOWING CONVENTIONS WERE ADOPTED:

1.) FOR WELLS AT WHICH A PRIMARY SAMPLE AND A DUPLICATE SAMPLE WERE COLLECTED, THE HIGHER OF THE TWO VALUES WAS USED.

2.) FOR WELL CLUSTERS AT WHICH BOTH THE SHALLOW AND THE DEEP WELL WERE SAMPLED, THE AVERAGE OF THE TWO VALUES WAS USED. (SHOWN IN BRACKETS)

LEGEND

- ● GROUNDWATER MONITORING WELL
- ▼ DISPOSAL POND PERIMETER SOIL BORING EQUIPPED WITH ALLUVIAL AQUIFER PIEZOMETER.
- ▲ RIVER LEVEL MEASURING LOCATION
- 620 GROUNDWATER ELEVATION CONTOUR LINE (FEET, MSL)
- 0.2 WEAK-ACID DISSOCIABLE (WAD) CYANIDE CONCENTRATION CONTOUR (mg/L)
- • WELLS ABANDONED ON APRIL 29 AND APRIL 30, 1997.

HMI Environmental Consulting Services

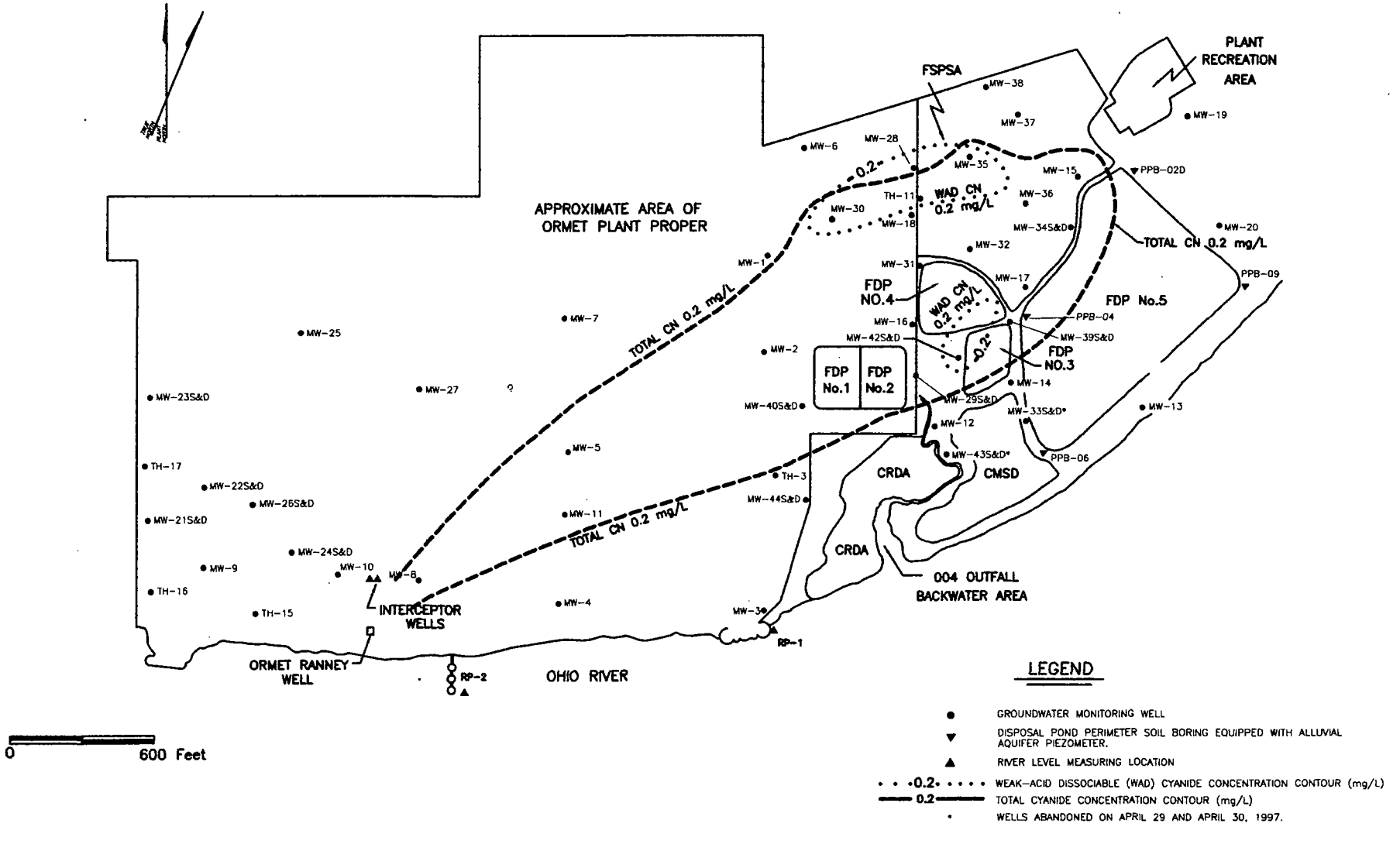
HydroSystems Management, Inc.
69 West Main Street
West Middletown, Pennsylvania 15379

PROJECT NO: HM00319	FILE NO:
DRAWING: 100512A	PLOT SIZE=1"=600'
DRAFTED BY: CL	DATE: 10/03/2012
CHECKED BY: CPS	DATE: 10/03/2012
APPROVED BY: CPS	DATE: 10/05/2012
REVISION NO:	DATE:

WEAK-ACID DISSOCIABLE (WAD) CYANIDE ISOPLETH MAP FOR THE ALLUVIAL AQUIFER (BASED ON SAMPLES COLLECTED IN JULY 2012)

ORMET PRIMARY ALUMINUM CORPORATION — HANNIBAL, OHIO

FIGURE 5



HMI Environmental Consulting Services

HydroSystems Management, Inc.
89 West Main Street
West Middletown, Pennsylvania 15379

PROJECT NO: HM00319	FILE NO:
DRAWING: 100812A	PLOT SIZE=1"=600'
DRAFTED BY: CL	DATE: 10/08/2012
CHECKED BY: CPS	DATE: 10/08/2012
APPROVED BY: CPS	DATE: 10/10/2012
REVISION NO:	DATE:

2012 COMPARISON OF TOTAL VS. WEAK-ACID DISSOCIABLE (WAD) CYANIDE DISTRIBUTION IN GROUND WATER
(BASED ON 0.2 mg/L CONCENTRATION CONTOURS)

ORMET PRIMARY ALUMINUM CORPORATION — HANNIBAL, OHIO

FIGURE 6

FIGURE 7
FLUORIDE AND TOTAL CYANIDE MASS-IN-PLACE VS. TIME
ORMET PRIMARY ALUMINUM CORPORATION
HANNIBAL, OHIO

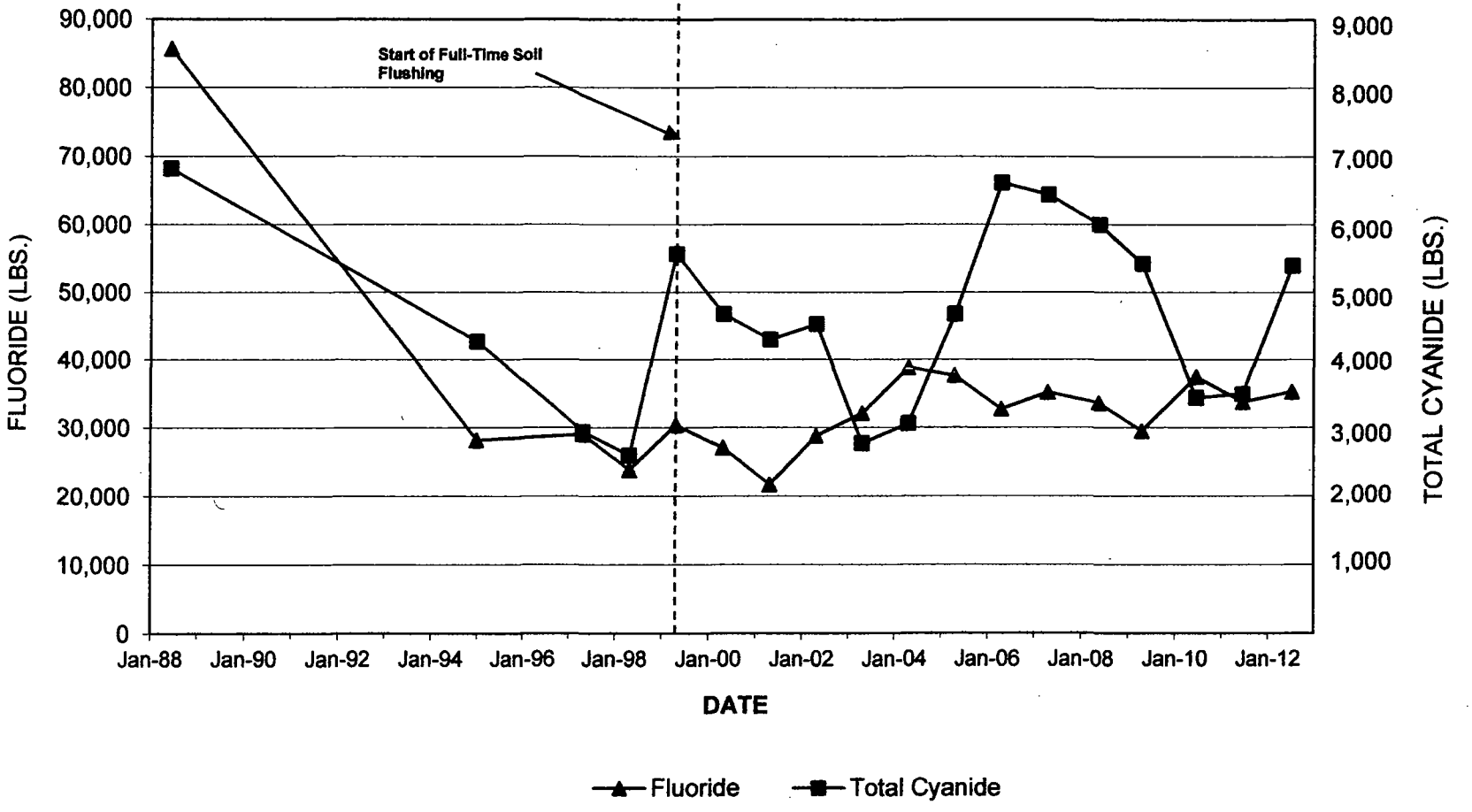
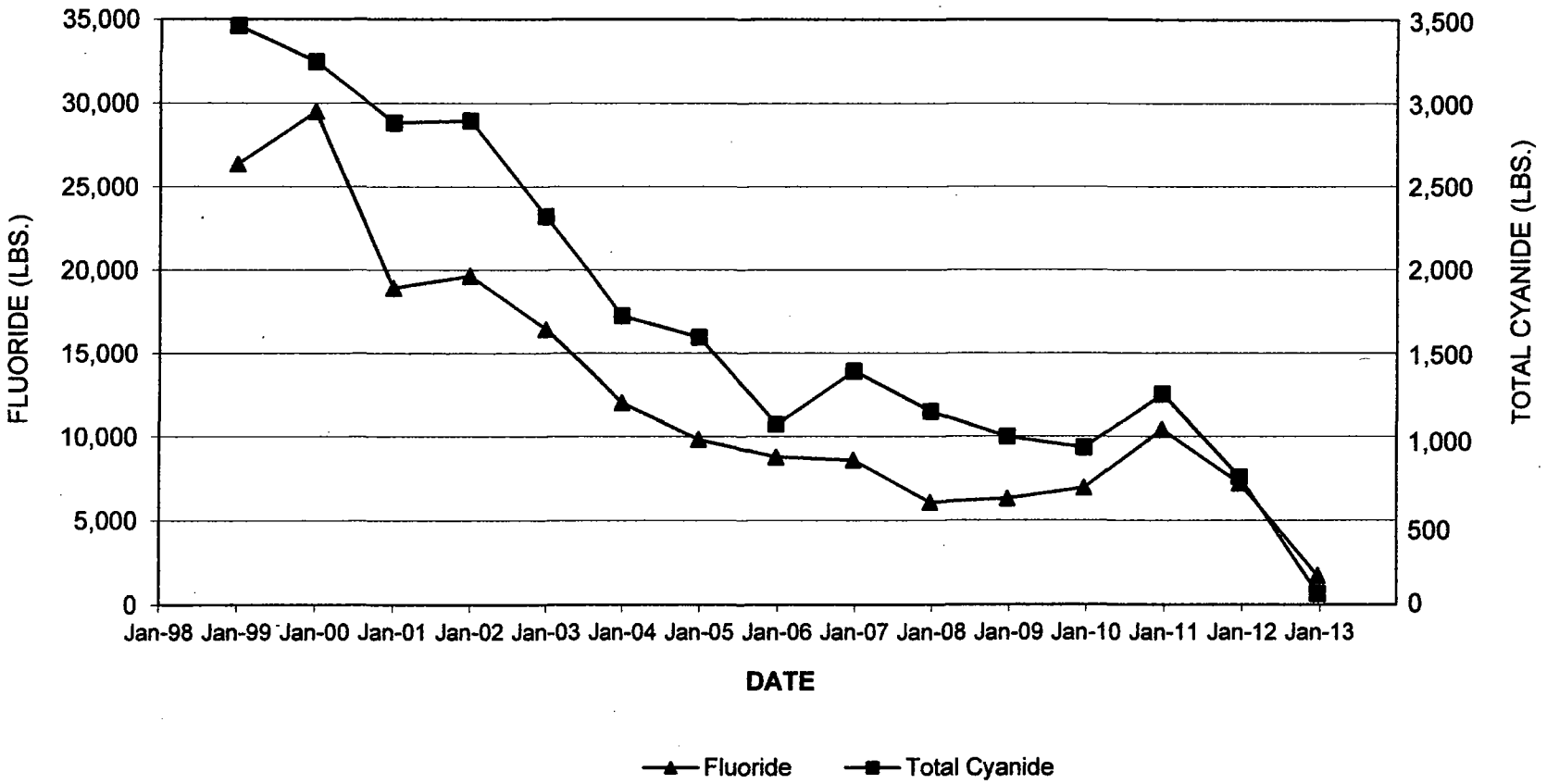


FIGURE 8
FLUORIDE AND TOTAL CYANIDE MASS REMOVAL VS. TIME
ORMET PRIMARY ALUMINUM CORPORATION
HANNIBAL, OHIO



APPENDIX A

WATER SAMPLING LOG FORMS

Appendix A-1	Water Sampling Log Forms for April 2012 Monitoring Event
Appendix A-2	Water Sampling Log Forms for July 2012 Monitoring Event
Appendix A-3	Water Sampling Log Forms for November 2012 Monitoring Event

APPENDIX A-1

WATER SAMPLING LOG FORMS FOR APRIL 2012 MONITORING EVENT

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 4/3/12

Sample I.D.: MW-2
Duplicate I.D.:
Time Sampling Began: 3:5~~5~~pm 3:5pm
Time Sampling Complete: 4:23pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 667.52
Depth of Well Below MP (TD): 82.25
Depth to Water Below MP (DTW): 48.06
Water Column (WC) in Well (TD - DTW): 34.19
Casing Diameter: 2"
Gallons in Well (WC x GPF): 5.47

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 16.4

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: tea/coffee Odor: none Turbidity: none

Well Volumes:	5gal	~~10~~ 7.5gal	10gal	15gal		
pH:	9.50	9.53	9.47	9.46		
Spec. Cond.:	1480	1300	1270	1250		
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	16.1	15.8	15.7	15.4		

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, 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

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 4/3/12

Sample I.D.: MW-5
Duplicate I.D.:
Time Sampling Began: 3:00pm
Time Sampling Complete: 3:35pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 668.16
Depth of Well Below MP (TD): 92.00
Depth to Water Below MP (DTW): 50.69
Water Column (WC) in Well (TD - DTW): 41.31
Casing Diameter: 2"
Gallons in Well (WC x GPF): 6.61

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 19.8

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: tea Odor: none Turbidity: none

Well Volumes:	5gal	10gal	15gal	20gal		
pH:	8.29→~~7.73~~	8.30	8.10	8.13		
Spec. Cond.:	1250	1250	1310	1230		
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	16.5	16.1	15.8	15.8		

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, 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

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 4-4-12

Sample I.D.: MW-12
Duplicate I.D.: ~~MW-12D~~
Time Sampling Began: 11:18 am
Time Sampling Complete: 11:37am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 635.82
Depth of Well Below MP (TD): 68.42
Depth to Water Below MP (DTW): 15.00
Water Column (WC) in Well (TD - DTW): 53.42
Casing Diameter: 2"
Gallons in Well (WC x GPF): 8.55

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 25.6

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: none Odor: none Turbidity: none

Well Volumes:	4.5	12	19.5	27		
pH:	7.18	7.59	7.41	7.40		
Spec. Cond.:	569	648	655	543		
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	14.3	14.4	14.6	14.6		

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH
PCBs	1 LITER AMBER GLASS	4 degrees C

Sampline Personnel: C. SMITH, ~~R. PARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 4/3/2017

Sample I.D.: MW-16
Duplicate I.D.: MW-50 (5:30pm)
Time Sampling Began: 5:18pm
Time Sampling Complete: 5:40pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 662.72
Depth of Well Below MP (TD): 83.12
Depth to Water Below MP (DTW): 41.00
Water Column (WC) in Well (TD - DTW): 42.12
Casing Diameter: 2"
Gallons in Well (WC x GPF): 6.74

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 20.2

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: tea Odor: none Turbidity: none

Well Volumes:	5 gal	12.5 gal	20 gal			
pH:	9.23	9:28	9:27			
Spec. Cond.:	1100	1020	1020			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	16.5	16.1	16.0			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name:	ORMET-REDUCTION MILL	Sample I.D.:	MW-18
Project #:	HM00326	Duplicate I.D.:	
Location:	HANNIBAL, OHIO	Time Sampling Began:	5:51 pm
Date:	4-3-12	Time Sampling Complete:	6:15 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC

MP Elevation: 660.91

Depth of Well Below MP (TD): 61.16

Depth to Water Below MP (DTW): 37.38

Water Column (WC) in Well (TD - DTW): 23.78

Casing Diameter: 2"

Gallons in Well (WC x GPF): 3.80

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 11.4

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: coffee/tea Odor: none Turbidity: ~~none~~ ~~slight~~ moderate

Well Volumes:	4gal	8gal	12gal			
pH:	9.71	9.65	9.64			
Spec. Cond.:	1600	1370	1540			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	15.9	15.8	15.4			

well purged dry at about 12 gallons - Sampled at 12 gallons

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, 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

Sampline Personnel: C. SMITH, R. FARGO

Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 4-4-12

Sample I.D.: MW-28
Duplicate I.D.:
Time Sampling Began: 9:44am
Time Sampling Complete: 9:58 am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 663.27
Depth of Well Below MP (TD): 46.20
Depth to Water Below MP (DTW): 21.12
Water Column (WC) in Well (TD - DTW): 25.08
Casing Diameter: 2"
Gallons in Well (WC x GPF): 4.01

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 12.0

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: none Odor: none Turbidity: none ~~CLOUDY~~

Well Volumes:	4.5gal	9gal	13.5gal			
pH:	5.92	5.90	5.82			
Spec. Cond.:	497	381	381			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	13.5	13.7	13.9			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 4-4-12

Sample I.D.: MW-31 (10:30a)
Duplicate I.D.: ~~MW-31D~~ MW-51 (10
Time Sampling Began: 10:11am
Time Sampling Complete: 10:37am (10:45am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 661.59
Depth of Well Below MP (TD): 67.58
Depth to Water Below MP (DTW): 39.34
Water Column (WC) in Well (TD - DTW): 28.24
Casing Diameter: 2"
Gallons in Well (WC x GPF): 4.52

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 13.6

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: tea/coffee Odor: none Turbidity: none

Well Volumes:	4.5 gal	9 gal	13.5 gal	18 gal		
pH:	9.52	9.62	9.62	9.60		
Spec. Cond.:	1380	1290	1310	1890		
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	14.6	15.0	15.0	15.0		

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, 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

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 4-4-2012

Sample I.D.: MW-32
Duplicate I.D.:
Time Sampling Began: 1:15pm
Time Sampling Complete: 1:32pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 656.12
Depth of Well Below MP (TD): 57.36
Depth to Water Below MP (DTW): 33.78
Water Column (WC) in Well (TD - DTW): 23.58
Casing Diameter: 2"
Gallons in Well (WC x GPF): 3.77

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 11.3

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: tea-coffee Odor: none Turbidity: none

Well Volumes:	4gal	8gal	12gal			
pH:	9.96	10.01	9.97			
Spec. Cond.:	1270	1220	1216			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	17.8	17.0	12.0			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 4-4-2012

Sample I.D.: MW-35
Duplicate I.D.:
Time Sampling Began: 12:24pm
Time Sampling Complete: 12:40pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 661.90
Depth of Well Below MP (TD): 46.94
Depth to Water Below MP (DTW): 35.53
Water Column (WC) in Well (TD - DTW): 11.41
Casing Diameter: 2"
Gallons in Well (WC x GPF): 1.83

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 5.5

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: tea Odor: none Turbidity: slight

Well Volumes:	2 gal	3 gal	3.5 gal	4 gal		
pH:	6.75	7.55	7.56	7.55		
Spec. Cond.:	329	448	450	463		
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	16.5	16.3	16.4	16.5		

v-low yield after 3 gal - sampled at 4 gal

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 4-4-12

Sample I.D.: MW-36
Duplicate I.D.:
Time Sampling Began: 12:50pm
Time Sampling Complete: 1:04pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 655.14
Depth of Well Below MP (TD): 52.08
Depth to Water Below MP (DTW): 33.38
Water Column (WC) in Well (TD - DTW): 18.70
Casing Diameter: 2"
Gallons in Well (WC x GPF): 2.99

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 9.0

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: tea Odor: none Turbidity: slight

Well Volumes:	3gal	6gal	9gal			
pH:	8.09	8.39	8.39			
Spec. Cond.:	559	525	529			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	18.6	18.5	18.2			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 4-4-2012

Sample I.D.: MW-37
Duplicate I.D.:
Time Sampling Began: 11:51am
Time Sampling Complete: 12:13am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 661.14
Depth of Well Below MP (TD): 36.90
Depth to Water Below MP (DTW): 21.94
Vater Column (WC) in Well (TD - DTW): 14.96
Casing Diameter: 2"
Gallons in Well (WC x GPF): 2.39

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 7.2

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: ~~tech~~ slight br. tint Odor: none Turbidity: moderate

Well Volumes:	3.0 gal	4.5 gal	5.5 gal	6.5 gal	7.5 gal	
pH:	5.79	5.91	6.02	6.05	6.05	
Spec. Cond.:	293	294	259	264	266	
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	14.4	14.3	14.3	14.3	14.6	

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 4/3/12

Sample I.D.: MW-44s
Duplicate I.D.:
Time Sampling Began: 4:55pm
Time Sampling Complete: 5:05pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 662.01
Depth of Well Below MP (TD): 69.05
Depth to Water Below MP (DTW): 44.35
Water Column (WC) in Well (TD - DTW): 24.70
Casing Diameter: 2"
Gallons in Well (WC x GPF): 3.95

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 11.9

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: none Odor: none Turbidity: none

Well Volumes:	4.5 gal	12 gal				
pH:	6.80	6.76				
Spec. Cond.:	587	585	← 585			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	15.4	15.4				

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
PCBs	1 LITER AMBER GLASS	4 degrees C

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 4/3/12

Sample I.D.: MW-44D
Duplicate I.D.:
Time Sampling Began: 4:32 pm
Time Sampling Complete: 4:52 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 661.76
Depth of Well Below MP (TD): 93.97
Depth to Water Below MP (DTW): 44.25
Water Column (WC) in Well (TD - DTW): 49.72
Casing Diameter: 2"
Gallons in Well (WC x GPF): 7.96

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 23.9

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: none Odor: none Turbidity: none

Well Volumes:	5gal	10gal	15gal	20gal	24gal	
pH:	7.29	7.66	7.49	7.64	7.60	
Spec. Cond.:	499	437	446	440	445	
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	15.9	15.4	15.2	15.2	15.2	

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
PCBs	1 LITER AMBER GLASS	4 degrees C

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 4-4-12

Sample I.D.: MW-39S
Duplicate I.D.:
Time Sampling Began: 10:52am
Time Sampling Complete: 11:10am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 657.30
Depth of Well Below MP (TD): 60.23
Depth to Water Below MP (DTW): 34.65
Water Column (WC) in Well (TD - DTW): 25.58
Casing Diameter: 2"
Gallons in Well (WC x GPF): 4.09

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 12.3

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Slight tea Odor: none Turbidity: none

Well Volumes:	4.5 gal	9 gal	12 gal	15 gal		
pH:	9.32	9.28	9.24	9.20		
Spec. Cond.:	4680	4410	4250	4080		
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	13.7	14.1	14.2	14.2		

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

CHAIN-OF-CUSTODY / Analytical Request Document

Pace Analytical®
www.pacelabs.com

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Note: Send invoice to Ormet (John Rossi) and send data to HMI (Cleason Smith)

Page: 1 of 2

1534755

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Ormet Primary Aluminum	Report To: Cleason Smith	Attention: John Rossi
Address: State Route 7, Hannibal, Ohio	Copy To: cpsmith@verizon.net	Company Name: Ormet Primary Aluminum Corp.
		Address: St. Route 7, Hannibal, Ohio
Email To: cpsmith@verizon.net	Purchase Order No.:	Pace Quote Reference:
Phone: 724-567-5690 Fax:	Project Name: Ormet CERCLA	Pace Project Manager: Rachel Christner
Requested Due Date/TAT:	Project Number: HM00327	Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): pH, Temp, Cond, Turb	Gen Chem	metals	Cyanide	TPCE	PCBs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-2	WT	G	4/3/12	3:51p														1	1	2	3			
2	MW-5			4/3/12	3:00p														1	1	2	3			
3	MW-12			4/4/12	11:18a														1	1	2	3	2		
4	MW-16			4/3/12	5:18p														1	1	2	3			
5	MW-18			4/3/12	5:51p														1	1	2	3			
6	MW-28			4/4/12	9:44a														1	1	2				
7	MW-31			4/4/12	10:11a														1	1	2	3			
8	MW-32			4/4/12	1:15p														1	1	2				
9	MW-35			4/4/12	12:24p														1	1	2				
10	MW-36			4/4/12	12:50p														1	1	2				
11	MW-37			4/4/12	11:51~~pm~~ AM														1	1	2				
12	MW-44S			4/3/12	4:55p																		2		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Cleason Smith	4/4/12	2:15pm	[signature]	4/4/12	2:15	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Cleason Smith

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 4/4/2012

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

4

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Instructions for completing Chain of Custody (COC)

1. **Section A and B:** Complete all Client information at top of sheet: company name, address, phone, fax, contact (the person to contact if there are questions, and who will receive the final report.), e-mail address (if available), PO#, Project Name and/or Project Number as you would like to see it appear on the report.

2. **Section C:** Invoice Information: Billing information is included in this section. This information should include the name and address of the person receiving the invoice.

3. Quote Reference should be completed if a quotation was provided by Pace Analytical. The Project Manager, and Profile No. will be completed by Pace Analytical Services.

4. **Site Location:** A separate COC must be filled out for each day of sample collection. Record the two letter postal code for the US state in which the samples were collected.

5. **Regulatory Agency:** List the program that is guiding the work to ensure proper regulations are followed.

6. **Section D:** Complete a Sample Description in the "SAMPLE ID' section as you would like it to appear on the laboratory report. The following information should also be included: the sample matrix, sample type (G (grab) or C (composite). When collecting a composite, the start time and end time should be documented in the respective boxes. The collection time for a grab (G) sample should be entered in the boxes marked 'Composite End/Grab'), Sample temp at collection (if required by state), the total number of containers, and preservative used.

7. Mark if the sample was filtered in the field by marking Y or N in 'Filtered' row by the Analysis requested.

8. Requested Analysis: List the required analysis and methods on the lines provided and place a check in the column for the samples requiring the analysis. Additional comments should be referenced in the bottom left hand corner or include attachments for extended lists of parameters.

9. The sampler should print their name in the space provided and sign their name followed by the date of the sampling event at the bottom of the COC in the spaces designated for 'SAMPLER NAME AND SIGNATURE'.

10. When relinquishing custody of the samples to a representative of the laboratory or other organization, indicate the Item Numbers of those samples being transferred, sign relinquished by, date and time, and include your affiliation.

***Important Note:**

Standard Turnaround Time is 2 Weeks/10 business days. Results will be delivered by end of business on the date due unless other arrangements have been made with your project manager.

Special Project Requirements such as Low Level Detection Limits or level of QC reported must be included on the chain of custody in the Additional Comments section.

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Note: Send invoice to Ormet (John Reggi) and send data to HMI (Clearson Smith)

1534756

Section A Required Client Information:

Company: Ormet Primary Aluminum
Address: State Route 7, Hannibal Ohio
Email To: cpsmith@verizon.net
Phone: 724-587-5690 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Clearson Smith
Copy To: cpsmith@verizon.net
Purchase Order No.:
Project Name: Ormet CERCLA
Project Number: HM00227

Section C Invoice Information:

Attention: John Reggi
Company Name: Ormet Primary Aluminum Corp
Address: State Route 7, Hannibal, OH
Pace Quote Reference:
Pace Project Manager: Rachel Christner
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED DATE	COLLECTED TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Metals (4/5)	Gross Alpha	Gross Beta	Cyanides	TPE	PCBs					Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-44D	WT	G	4/3/12	4:32p																		2							
2	MW-50			4/3/12	5:30p															1	1	2								
3	MW-51			4/4/12	10:30a															1	1	2	3							
4	MW-39S			4/4/12	10:52a															1	1	2								
5																														
6																														
7																														
8																														
9																														
10																														
11																														
12																														

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Call if any questions - Clearson Smith at 724-587-5690							
⇒	Clearson Smith (HMI)	4/4/12	2:15pm	Bryan Schaffer	4/4/12	2:15	

4

SAMPLER NAME AND SIGNATURE: Clearson P. Smith
PRINT Name of SAMPLER: Clearson P. Smith
SIGNATURE of SAMPLER: Clearson P. Smith
DATE Signed (MM/DD/YY): 4/4/2012

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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1. **Section A and B:** Complete all Client information at top of sheet: company name, address, phone, fax, contact (the person to contact if there are questions, and who will receive the final report.), e-mail address (if available), PO#, Project Name and/or Project Number as you would like to see it appear on the report.

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3. Quote Reference should be completed if a quotation was provided by Pace Analytical. The Project Manager, and Profile No. will be completed by Pace Analytical Services.

4. **Site Location:** A separate COC must be filled out for each day of sample collection. Record the two letter postal code for the US state in which the samples were collected.

5. **Regulatory Agency:** List the program that is guiding the work to ensure proper regulations are followed.

6. **Section D:** Complete a Sample Description in the "SAMPLE ID' section as you would like it to appear on the laboratory report. The following information should also be included: the sample matrix, sample type (G (grab) or C (composite). When collecting a composite, the start time and end time should be documented in the respective boxes. The collection time for a grab (G) sample should be entered in the boxes marked 'Composite End/Grab'), Sample temp at collection (if required by state), the total number of containers, and preservative used.

7. Mark if the sample was filtered in the field by marking Y or N in 'Filtered' row by the Analysis requested.

8. Requested Analysis: List the required analysis and methods on the lines provided and place a check in the column for the samples requiring the analysis. Additional comments should be referenced in the bottom left hand corner or include attachments for extended lists of parameters.

9. The sampler should print their name in the space provided and sign their name followed by the date of the sampling event at the bottom of the COC in the spaces designated for 'SAMPLER NAME AND SIGNATURE'.

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APPENDIX A-2

WATER SAMPLING LOG FORMS FOR JULY 2012 MONITORING EVENT

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7/24/12

Sample I.D.: MW-1
Duplicate I.D.:
Time Sampling Began: 5:40pm
Time Sampling Complete: 6:05pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 667.80
Depth of Well Below MP (TD): 71.11
Depth to Water Below MP (DTW): 46.44
Water Column (WC) in Well (TD - DTW): 24.67
Casing Diameter: 2"
Gallons in Well (WC x GPF): 3.95

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 11.84

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: None Odor: None Turbidity: None

Well Volumes:	5gal	10gal	15gal			
pH:	8.46	8.55	8.58			
Spec. Cond.:	550	539	535			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	18.1	16.5	16.6			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~

Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-24-12

Sample I.D.: MW-2
Duplicate I.D.:
Time Sampling Began: 4:46 pm
Time Sampling Complete: 5:25 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 667.52
Depth of Well Below MP (TD): 85.23
Depth to Water Below MP (DTW): 47.03
Water Column (WC) in Well (TD - DTW): 38.20
Casing Diameter: 2"
Gallons in Well (WC x GPF): 6.11

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 18.34

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Tea-Coffee Odor: None Turbidity: None

Well Volumes:	7gal	14gal	21gal	25gal		
pH:	9.67	9.70	9.83	9.79		
Spec. Cond.:	1310	1240	1220	1200		
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	18.3	17.1	16.6	16.6		

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius
TETRACHLOROETHENE	3 x 40ml. GLASS	HCL

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7/24/12

Sample I.D.: ~~MW-8~~ MW-5
Duplicate I.D.:
Time Sampling Began: 3:13pm
Time Sampling Complete: 3:43pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC

MP Elevation:	667.71	668.16
Depth of Well Below MP (TD):	99.78	91.88
Depth to Water Below MP (DTW):	~~50.58~~	49.24
Water Column (WC) in Well (TD - DTW):	~~49.20~~	42.64
Casing Diameter:	2"	
Gallons in Well (WC x GPF):	~~7.87~~	6.82

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: ~~23.62~~ 20.47

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Tea Odor: None Turbidity: None

Well Volumes:	10 gal	20 gal	30 gal			
pH:	9.51	9.53	9.47			
Spec. Cond.:	1260	1240	1250			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	18.3	17.2	15.6			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius
Tetrachloroethene		

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-7
Duplicate I.D.:
Time Sampling Began: 9:08am
Time Sampling Complete: 9:30am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 667.94
Depth of Well Below MP (TD): 79.7
Depth to Water Below MP (DTW): 48.19
Water Column (WC) in Well (TD - DTW): 31.51
Casing Diameter: 2"
Gallons in Well (WC x GPF): 5.04

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 15.12

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Slt. Tea$ Odor: None Turbidity: None

Well Volumes:	6 gal	12 gal	18 gal			
pH:	7.00	7.06	7.04			
Spec. Cond.:	569	582	597			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	23.9	25.2	25.5			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name:	ORMET-REDUCTION MILL	Sample I.D.:	~~MW-5~~ MW-8
Project #:	HM00324	Duplicate I.D.:	MW-46 (9:55am)
Location:	HANNIBAL, OHIO	Time Sampling Began:	9:47am
Date:	7-25-12	Time Sampling Complete:	10:20am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC

MP Elevation: ~~668.16~~ 667.71

Depth of Well Below MP (TD): 91.88 99.78

Depth to Water Below MP (DTW): ~~49.24~~ 50.58

Water Column (WC) in Well (TD - DTW): ~~42.64~~ 49.20

Casing Diameter: 2"

Gallons in Well (WC x GPF): ~~6.82~~ 7.87

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: ~~20.47~~ 23.62

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: None

Well Volumes:	7.5gal	15gal	22.5gal	27.5gal	32gal	
pH:	8.51	8.68	8.73	8.74	8.60	
Spec. Cond.:	780	801	849	904	902	
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	19.1	17.8	17.5	19.5	19.4	

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius
~~TETRACHLOROETHENE~~	3 x 40ml. GLASS	HCL

Sampline Personnel: C. SMITH, ~~R. FARGO.~~

Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-10
Duplicate I.D.:
Time Sampling Began: 10:26am
Time Sampling Complete: 10:55am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 667.16
Depth of Well Below MP (TD): 100.72
Depth to Water Below MP (DTW): 49.74
Water Column (WC) in Well (TD - DTW): 50.98
Casing Diameter: 2"
Gallons in Well (WC x GPF): 8.16

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 24.47

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: None

Well Volumes:	7.5gal	15gal	22.5gal	24.5		
pH:	8.44	8.41	8.54	8.41		
Spec. Cond.:	692	679	674	672		
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	17.4	16.8	16.5	16.5		

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-11
Duplicate I.D.:
Time Sampling Began: 9:37am (see below)
Time Sampling Complete:

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 667.31
Depth of Well Below MP (TD): 97.35
Depth to Water Below MP (DTW): 48.65
Water Column (WC) in Well (TD - DTW): 48.70
Casing Diameter: 2"
Gallons in Well (WC x GPF): 7.79

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 23.38

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Odor: Turbidity:

Well Volumes:						
pH:						
Spec. Cond.:						
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:						

Well can not be sampled; outter casing bent and PVC innercasing crimped; neither pump or bailer will go down well

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-26-12

Sample I.D.: MW-12
Duplicate I.D.:
Time Sampling Began: 9:55 am 955
Time Sampling Complete: 10:15 am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 635.82
Depth of Well Below MP (TD): 68.24
Depth to Water Below MP (DTW): 14.19
Water Column (WC) in Well (TD - DTW): 54.05
Casing Diameter: 2"
Gallons in Well (WC x GPF): 8.65

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 25.94

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: None

Well Volumes:	10 gal	20 gal	30 gal			
pH:	8.59	8.86	9.04			
Spec. Cond.:	534	561	526			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	17.2	16.5	15.9			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius
PCB's	1 LITER GLASS	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-14
Duplicate I.D.:
Time Sampling Began: 6:11 pm
Time Sampling Complete: 6:35 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 653.59
Depth of Well Below MP (TD): 86.9
Depth to Water Below MP (DTW): 30.69
Water Column (WC) in Well (TD - DTW): 56.21
Casing Diameter: 2"
Gallons in Well (WC x GPF): 8.99

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 26.98

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: None

Well Volumes:	10gal	20gal	30gal			
pH:	8.72	9.08	9.82			
Spec. Cond.:	510	533	487			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	18.5	16.5	15.9			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-26-12

Sample I.D.: MW-15
Duplicate I.D.:
Time Sampling Began: 11:40am
Time Sampling Complete: 11:59am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 657.31
Depth of Well Below MP (TD): 57.86
Depth to Water Below MP (DTW): 33.13
Water Column (WC) in Well (TD - DTW): 24.73
Casing Diameter: 2"
Gallons in Well (WC x GPF): 3.96

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 11.87

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Lt. Tea Odor: None Turbidity: None

Well Volumes:	4gal	8gal	12gal			
pH:	9.02	9.30	9.16			
Spec. Cond.:	898	909	906			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	21.3	17.8	17.2			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH~~, R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-16
Duplicate I.D.:
Time Sampling Began: 12:36 pm
Time Sampling Complete: 12:54 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 662.72
Depth of Well Below MP (TD): 83.11
Depth to Water Below MP (DTW): 40.22
Water Column (WC) in Well (TD - DTW): 42.89
Casing Diameter: 2"
Gallons in Well (WC x GPF): 6.86

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 20.59

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Tea-Coffee Odor: None Turbidity: None

Well Volumes:	8 gal	16 gal	24 gal			
pH:	9.35	9.40	9.42			
Spec. Cond.:	941	932	930			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	19.8	17.4	16.7			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-26-12

Sample I.D.: MW-17
Duplicate I.D.: MW-48 (10:35am)
Time Sampling Began: 10:25am
Time Sampling Complete: 10:50am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 655.03
Depth of Well Below MP (TD): 77.91
Depth to Water Below MP (DTW): 31.53
Water Column (WC) in Well (TD - DTW): 46.68
Casing Diameter: 2"
Gallons in Well (WC x GPF): 7.47

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 22.41

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Tea-Coffee Odor: None Turbidity: None

Well Volumes:	10 gal	20 gal				
pH:	8.79	9.10	9.18			
Spec. Cond.:	703	706	710			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	19.1	16.4	16.3			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-18
Duplicate I.D.:
Time Sampling Began: 4:27pm
Time Sampling Complete: 4:54pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 660.91
Depth of Well Below MP (TD): 57.00
Depth to Water Below MP (DTW): 36.85
Water Column (WC) in Well (TD - DTW): 20.15
Casing Diameter: 2"
Gallons in Well (WC x GPF): 3.22

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 9.67

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Tea-Coffee Odor: None Turbidity: ~~Slight~~ Moderate

Well Volumes:	5gal	10gal				
pH:	9.42	9.62				
Spec. Cond.:	1280	1280				
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	17.2	16.4				

dewatered at ~ 11gal; Sampled at 11 gal

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius
TETRACHLOROETHENE	3 x 40ml. GLASS	HCL

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-19
Duplicate I.D.:
Time Sampling Began: 3:11 pm
Time Sampling Complete: 3:49 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 662.03
Depth of Well Below MP (TD): 65.2
Depth to Water Below MP (DTW): 38.03
Water Column (WC) in Well (TD - DTW): 27.17
Casing Diameter: 2"
Gallons in Well (WC x GPF): 4.35

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 13.04

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: None

Well Volumes:	5 gal	10 gal	15 gal			
pH:	8.95	9.17	9.18			
Spec. Cond.:	809	804	807			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	19.3	15.6	15.3			

– higher than usual – high temp. of meter in sun?

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-28
Duplicate I.D.:
Time Sampling Began: 4:07 pm
Time Sampling Complete: 4:20 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 663.27
Depth of Well Below MP (TD): 46.06
Depth to Water Below MP (DTW): 21.07
Water Column (WC) in Well (TD - DTW): 24.99
Casing Diameter: 2"
Gallons in Well (WC x GPF): 4.00

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 12.00

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: None

Well Volumes:	5gal	10gal	15gal			
pH:	8.40	8.58	8.35			
Spec. Cond.:	446	440	437			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	17.0	15.8	15.1			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-29S
Duplicate I.D.:
Time Sampling Began: 12:09pm
Time Sampling Complete: 12:24pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 653.4
Depth of Well Below MP (TD): 61.35
Depth to Water Below MP (DTW): 31.07
Water Column (WC) in Well (TD - DTW): 30.28
Casing Diameter: 2"
Gallons in Well (WC x GPF): 4.84

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 14.53

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Tea-Coffee Odor: None Turbidity: None

Well Volumes:	6gal	12gal	18gal			
pH:	9.04	9.20	9.13			
Spec. Cond.:	831	863	909			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	15.8	15.6	15.6			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-29D
Duplicate I.D.:
Time Sampling Began: 11:50am
Time Sampling Complete: 12:07pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 653.07
Depth of Well Below MP (TD): 81.98
Depth to Water Below MP (DTW): 30.75
Water Column (WC) in Well (TD - DTW): 51.23
Casing Diameter: 2"
Gallons in Well (WC x GPF): 8.20

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 24.59

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: ~~Afore~~ Clear Odor: None Turbidity: None

Well Volumes:	10 gal	20 gal	30 gal			
pH:	8.92	9.16	9.12			
Spec. Cond.:	575	575	572			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	19.3	16.3	15.7			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-30
Duplicate I.D.: MW-47 (1:15pm)
Time Sampling Began: 1:08pm
Time Sampling Complete: 1:42 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 667.58
Depth of Well Below MP (TD): 60.41
Depth to Water Below MP (DTW): 44.00
Water Column (WC) in Well (TD - DTW): 16.41
Casing Diameter: 2"
Gallons in Well (WC x GPF): 2.63

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 7.88

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Coffee Odor: None Turbidity: Slight

Well Volumes:	3 gal	6 gal	9 gal			
pH:	9.38	9.36	9.19			
Spec. Cond.:	437	474	481			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	19.0	16.9	16.2			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius
TETRACHLOROETHENE	3 x 40ml. GLASS	HCL

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-31
Duplicate I.D.:
Time Sampling Began: 4:59pm
Time Sampling Complete: 5:22pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 661.59
Depth of Well Below MP (TD): 67.51
Depth to Water Below MP (DTW): 38.63
Water Column (WC) in Well (TD - DTW): 28.88
Casing Diameter: 2"
Gallons in Well (WC x GPF): 4.62

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 13.86

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Tea-Coffee Odor: None Turbidity: Slight

Well Volumes:	5 gal	10 gal	15 gal			
pH:	9.22	9.58	9.54			
Spec. Cond.:	1180	1190	1200			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	19.0	16.8	16.6			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius
TETRACHLOROETHENE	3 X 40ml. GLASS	HCL

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-26-12

Sample I.D.: MW-32
Duplicate I.D.:
Time Sampling Began: 12:27 pm
Time Sampling Complete: 12:44 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 656.12
Depth of Well Below MP (TD): 57.18
Depth to Water Below MP (DTW): 33.13
Water Column (WC) in Well (TD - DTW): 24.05
Casing Diameter: 2"
Gallons in Well (WC x GPF): 3.85

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 11.54

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Tea-Coffee Odor: None Turbidity: None

Well Volumes:	4 gal	8 gal	12 gal			
pH:	9.56	9.76	9.77			
Spec. Cond.:	1180	1160	1170			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	20.4	18.0	17.6			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-26-12

Sample I.D.: MW-34S
Duplicate I.D.:
Time Sampling Began: 11:18am
Time Sampling Complete: 11:31 am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 655.67
Depth of Well Below MP (TD): 49.35
Depth to Water Below MP (DTW): 32.65
Water Column (WC) in Well (TD - DTW): 16.70
Casing Diameter: 2"
Gallons in Well (WC x GPF): 2.67

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 8.02

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Lt. Tea Odor: None Turbidity: None

Well Volumes:	.3gal	6gal	9gal			
pH:	9.15	9.24	9.27			
Spec. Cond.:	797	803	818			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	16.5	16.1	16.3			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-26-12

Sample I.D.: MW-34D
Duplicate I.D.:
Time Sampling Began: 10:59 am
Time Sampling Complete: 11:15am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 654.67
Depth of Well Below MP (TD): 68.24
Depth to Water Below MP (DTW): 30.89
Water Column (WC) in Well (TD - DTW): 37.35
Casing Diameter: 2"
Gallons in Well (WC x GPF): 5.98

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 17.93

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Tea Odor: None Turbidity: None

Well Volumes:	6gal	12 gal	18gal			
pH:	9.11	9.40	9.21			
Spec. Cond.:	810	809	814			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	19.8	16.5	16.2			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-26-12

Sample I.D.: MW-35
Duplicate I.D.:
Time Sampling Began: 12:49pm
Time Sampling Complete: 1:03pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 661.9
Depth of Well Below MP (TD): 46.7
Depth to Water Below MP (DTW): 34.85
Water Column (WC) in Well (TD - DTW): 11.85
Casing Diameter: 2"
Gallons in Well (WC x GPF): 1.90

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 5.69

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Tea Odor: None Turbidity: None

Well Volumes:	2 gal	4 gal	4.5 gal			
pH:	8.73	8.88	9.08			
Spec. Cond.:	315	350	411			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	20.0	18.1	18.1			

well dewatered at 4.5 gal; sampled at 4.5 gal

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-26-12

Sample I.D.: MW-36
Duplicate I.D.:
Time Sampling Began: 12:05 pm
Time Sampling Complete: 12:15 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 655.14
Depth of Well Below MP (TD): 52.08
Depth to Water Below MP (DTW): 32.75
Water Column (WC) in Well (TD - DTW): 19.33
Casing Diameter: 2"
Gallons in Well (WC x GPF): 3.09

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 9.28

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Lt. Tea Odor: None Turbidity: None

Well Volumes:	3 gal	6 gal	9 gal			
pH:	9.04	9.29	9.34			
Spec. Cond.:	594	601	590			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	19.7	17.0	17.1			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-26-12

Sample I.D.: MW-37
Duplicate I.D.:
Time Sampling Began: 1:07pm
Time Sampling Complete: 1:22pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 661.14
Depth of Well Below MP (TD): 36.98
Depth to Water Below MP (DTW): 20.50
Water Column (WC) in Well (TD - DTW): 16.48
Casing Diameter: 2"
Gallons in Well (WC x GPF): 2.64

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 7.91

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Slt. Tea Odor: None Turbidity: ~~None~~ Slight

Well Volumes:	3gal	6gal	8gal			
pH:	8.00	8.50	8.57			
Spec. Cond.:	275	276	278			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	17.6	16.1	16.1			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-39S
Duplicate I.D.:
Time Sampling Began: 5:52 pm
Time Sampling Complete: 6:08 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 657.3
Depth of Well Below MP (TD): 60.23
Depth to Water Below MP (DTW): 34.09
Water Column (WC) in Well (TD - DTW): 26.14
Casing Diameter: 2"
Gallons in Well (WC x GPF): 4.18

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 12.55

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: ~~Clear~~ Lt. Tea Odor: None Turbidity: None

Well Volumes:	5gal	10gal	14gal			
pH:	9.76	9.73	9.65			
Spec. Cond.:	3970	3840	3730			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	14.9	15.0	15.0			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name:	ORMET-REDUCTION MILL	Sample I.D.:	MW-39D
Project #:	HM00324	Duplicate I.D.:	
Location:	HANNIBAL, OHIO	Time Sampling Began:	5:31pm
Date:	7-25-12	Time Sampling Complete:	5:50pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC

MP Elevation: 657.18

Depth of Well Below MP (TD): 80.21

Depth to Water Below MP (DTW): 33.97

Water Column (WC) in Well (TD - DTW): 46.24

Casing Diameter: 2"

Gallons in Well (WC x GPF): 7.40

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 22.20

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: None

Well Volumes:	10gal	20gal	25gal			
pH:	8.77	9.09	9.00			
Spec. Cond.:	2790	2620	2370			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	18.4	15.1	15.2			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius
	3 X 40ml. GLASS	

Sampline Personnel: C. SMITH, ~~R. FARGO~~

Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7/24/12

Sample I.D.: MW-40S
Duplicate I.D.:
Time Sampling Began: 4:16pm
Time Sampling Complete: 4:34pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 663.9
Depth of Well Below MP (TD): 70.4
Depth to Water Below MP (DTW): 43.32
Water Column (WC) in Well (TD - DTW): 27.08
Casing Diameter: 2"
Gallons in Well (WC x GPF): 4.33

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 12.00

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Tea-Coffee Odor: None Turbidity: None

Well Volumes:	5gal	10gal	15gal			
pH:	9.36	9.35	9.37			
Spec. Cond.:	990	975	973			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	17.0	17.0	16.7			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7/24/12

Sample I.D.: MW-40D
Duplicate I.D.: MW-45 (4:15pm)
Time Sampling Began: 3:51 pm
Time Sampling Complete: 4:15 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 663.75
Depth of Well Below MP (TD): 90.4
Depth to Water Below MP (DTW): 43.20
Water Column (WC) in Well (TD - DTW): 47.20
Casing Diameter: 2"
Gallons in Well (WC x GPF): 7.55

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 22.66

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Tea - Coffee Odor: None Turbidity: None

Well Volumes:	10 gal	20 gal	30 gal			
pH:	9.07	9.13	9.33			
Spec. Cond.:	911	918	919			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	20.1	17.3	16.7			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date:

Sample I.D.: MW-41
Duplicate I.D.: Not Sampled
Time Sampling Began:
Time Sampling Complete:

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 637.67
Depth of Well Below MP (TD): 62.26
Depth to Water Below MP (DTW):
Water Column (WC) in Well (TD - DTW):
Casing Diameter: 2"
Gallons in Well (WC x GPF):

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged:

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Odor: Turbidity:

Well Volumes:						
pH:						
Spec. Cond.:						
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:						

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, R. FARGO
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-26-12

Sample I.D.: MW-42S
Duplicate I.D.:
Time Sampling Began: 9:22am
Time Sampling Complete: 9:48am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 654.37
Depth of Well Below MP (TD): 52.3
Depth to Water Below MP (DTW): 32.07
Water Column (WC) in Well (TD - DTW): 20.23
Casing Diameter: 2"
Gallons in Well (WC x GPF): ~~3.24~~ 3.24

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 9.71

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Tea Odor: None Turbidity: None

Well Volumes:	3gal	6gal	10gal	13gal		
pH:	8.80	8.93	9.07	9.13		
Spec. Cond.:	2660	2650	2740	2740		
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	16.1	15.0	15.7	15.0		

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-26-12

Sample I.D.: MW-42D
Duplicate I.D.:
Time Sampling Began: 9:00am
Time Sampling Complete: 9:18

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 654.34
Depth of Well Below MP (TD): 85.1
Depth to Water Below MP (DTW): 31.99
Water Column (WC) in Well (TD - DTW): 53.11
Casing Diameter: 2"
Gallons in Well (WC x GPF): 8.50

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 25.49

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: None

Well Volumes:	10gal	20gal	30gal			
pH:	8.63	8.95	8.78			
Spec. Cond.:	1800	2380	2470			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	16.9	15.7	15.3			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-44S
Duplicate I.D.:
Time Sampling Began: 11:22am
Time Sampling Complete: 11:40am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 662.01
Depth of Well Below MP (TD): 69.05
Depth to Water Below MP (DTW): 41.43
Water Column (WC) in Well (TD - DTW): 27.62
Casing Diameter: 2"
Gallons in Well (WC x GPF): 4.42

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 13.26

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: None

Well Volumes:	6 gal	12 gal	14 gal			
pH:	8.57	8.79	8.82			
Spec. Cond.:	556	556	554			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	15.9	15.6	15.6			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
PCB's	1 LITER GLASS	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO.~~
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00324
Location: HANNIBAL, OHIO
Date: 7-25-12

Sample I.D.: MW-44D
Duplicate I.D.:
Time Sampling Began: 11:04am
Time Sampling Complete: 11:20am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 661.76
Depth of Well Below MP (TD): 93.97
Depth to Water Below MP (DTW): 40.89
Water Column (WC) in Well (TD - DTW): 53.08
Casing Diameter: 2"
Gallons in Well (WC x GPF): 8.49

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 25.48

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Clear Odor: None Turbidity: None

Well Volumes:	10gal	20gal	25gal			
pH:	8.82	8.90	8.76			
Spec. Cond.:	455	453	452			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	16.8	16.2	15.6			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
PCB's	1 LITER GLASS	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FAROO~~
Comments:

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

1568073

Section A Required Client Information:

Company: Ormet Primary Aluminum
Address: Hannibal, Ohio
Attn: John Reggi
Email To:
Phone: 740-483-2659 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Cleason Smith / HMI
Copy To: cpsmith@verizon.net
89 West Main St.
Purchase Order No.: West Middletown, PA 15379
Project Name: Ormet - Hannibal
Project Number: 724-587-5690

Section C Invoice Information:

Attention: John Reggi
Company Name: Ormet Primary Aluminum Corp
Address: Hannibal, Ohio
Pace Quote Reference: Brian Shaffner
Pace Project Manager: Rachel Christner
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Ohio

Requested Analysis Filtered (Y/N)

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved one (Gen Chem)	H_2SO_4	HNO_3 one (metals)	HCl three (VOC)	NaOH two (CN's)	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): Gen Chem	Metals	WAD CN	Amen CN	Tot CN	VOCs	PCBs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-1	WT	G	7-24-12	5:40pm					1		1		2				1	1	1	1	1				
2	MW-2	↓	↓	7-24-12	4:46pm					1		1	3	2				1	1	1	1	1	1			
3	MW-5	↓	↓	7-24-12	3:13pm					1		1	3	2				1	1	1	1	1	1			
4	MW-7	↓	↓	7-25-12	9:08pm					1		1		2				1	1	1	1	1				
5	MW-8	↓	↓	7-25-12	9:47am					1		1		2				↓	↓	↓	↓	↓				
6	MW-10	↓	↓	7-25-12	10:26am					1		1		2				↓	↓	↓	↓	↓				
7	~~MW-11~~	↓	↓	~~7-25-12~~	~~11:11am~~					1		1		2				↓	↓	↓	↓	↓				
8	* MW-12	↓	↓	7-26-12	9:55am					3		1		2				1	1	1	1	1	1			
9	MW-14	↓	↓	7-25-12	6:11pm					1		1		2				1	1	1	1	1				
10	MW-15	↓	↓	7-26-12	11:40am					1		1		2				1	1	1	1	1				
11	MW-16	↓	↓	7-25-12	12:36pm					1		1		2				↓	↓	↓	↓	↓				
12	MW-17	↓	↓	7-26-12	10:25am					1		1		2				↓	↓	↓	↓	↓				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	[signature] / HMI	7-26-12	3:05pm	[signature] Pace	7-26	3:05	

3

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER:
SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

[redacted] *[redacted] Note: B[redacted] this form [redacted] acceptin[redacted] NET 30 [redacted] ent ter[redacted] reeing [redacted] rges of [redacted] month [redacted] voices n[redacted] hin 30 [redacted] [redacted] [redacted] [redacted] LL-Q-[redacted]07, 15[redacted]007 [redacted]

Instructions for completing Chain of Custody (COC)

1. **Section A and B:** Complete all Client information at top of sheet: company name, address, phone, fax, contact (the person to contact if there are questions, and who will receive the final report.), e-mail address (if available), PO#, Project Name and/or Project Number as you would like to see it appear on the report.

2. **Section C:** Invoice Information: Billing information is included in this section. This information should include the name and address of the person receiving the invoice.

3. Quote Reference should be completed if a quotation was provided by Pace Analytical. The Project Manager, and Profile No. will be completed by Pace Analytical Services.

4. **Site Location:** A separate COC must be filled out for each day of sample collection. Record the two letter postal code for the US state in which the samples were collected.

5. **Regulatory Agency:** List the program that is guiding the work to ensure proper regulations are followed.

6. **Section D:** Complete a Sample Description in the "SAMPLE ID' section as you would like it to appear on the laboratory report. The following information should also be included: the sample matrix, sample type (G (grab) or C (composite). When collecting a composite, the start time and end time should be documented in the respective boxes. The collection time for a grab (G) sample should be entered in the boxes marked 'Composite End/Grab'), Sample temp at collection (if required by state), the total number of containers, and preservative used.

7. Mark if the sample was filtered in the field by marking Y or N in 'Filtered' row by the Analysis requested.

8. Requested Analysis: List the required analysis and methods on the lines provided and place a check in the column for the samples requiring the analysis. Additional comments should be referenced in the bottom left hand corner or include attachments for extended lists of parameters.

9. The sampler should print their name in the space provided and sign their name followed by the date of the sampling event at the bottom of the COC in the spaces designated for 'SAMPLER NAME AND SIGNATURE'.

10. When relinquishing custody of the samples to a representative of the laboratory or other organization, indicate the Item Numbers of those samples being transferred; sign relinquished by, date and time, and include your affiliation.

***Important Note:**

Standard Turnaround Time is 2 Weeks/10 business days. Results will be delivered by end of business on the date due unless other arrangements have been made with your project manager.

Special Project Requirements such as Low Level Detection Limits or level of QC reported must be included on the chain of custody in the Additional Comments section.

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

1568074

Section A Required Client Information:

Company: Ormet Primary Al Corp
Address: Hannibal, Ohio
Attn: John Reggi
Email To:
Phone: 740-483-2659 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Clarson Smith / HMI
Copy To: cpsmith@verizon.net
89 West Main St
Purchase Order No.: West Middletown, PA 15379
Project Name: Ormet - Hannibal
Project Number: 724-587-5690

Section C Invoice Information:

Attention: John Reggi
Company Name: Ormet Primary Aluminum Corp
Address: Hannibal, Ohio
Pace Quote Reference: Brian Shaffner
Pace Project Manager: Rachel Christner
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Ohio

Requested Analysis Filtered (Y/N)

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Gen Chem	Metals	WAD CN	Amen CN	Tot. CN	VOCs	PCBs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	* MW-18	WT	G	7-25-12	4:27pm					1		1	3	2				1	1	1	1	1	1				
2	MW-19	↓	↓	7-25-12	3:11pm					↓		↓		↓				1	1	1	1	1					
3	MW-28	↓	↓	7-25-12	4:07pm					↓		↓		↓				↓	↓	↓	↓	↓					
4	MW-29S	↓	↓	7-25-12	12:09pm					↓		↓		↓				↓	↓	↓	↓	↓					
5	MW-29D	↓	↓	7-25-12	11:50am					↓		↓		↓				↓	↓	↓	↓	↓					
6	* MW-30	↓	↓	7-25-12	1:08pm					↓		↓	3	↓				1	1	1	1	1	1				
7	* MW-31	↓	↓	7-25-12	4:59pm					↓		↓	3	↓				1	1	1	1	1	1				
8	MW-32	↓	↓	7-26-12	12:27pm					↓		↓		↓				1	1	1	1	1					
9	MW-34S	↓	↓	7-26-12	11:18am					↓		↓		↓				↓	↓	↓	↓	↓					
10	MW-34D	↓	↓	7-26-12	10:59am					↓		↓		↓				↓	↓	↓	↓	↓					
11	MW-35	↓	↓	7-26-12	12:49pm					↓		↓		↓				↓	↓	↓	↓	↓					
12	MW-36	↓	↓	7-26-12	12:05pm					↓		↓		↓				↓	↓	↓	↓	↓					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Clarson Smith / HMI	7/26/12	3:05pm	[illegible]	7/26	3:05	

3

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

[redacted] "I[redacted] Note: By [redacted] his form [redacted] cceptin[redacted] NET 30 [redacted] ent ter[redacted] reeing t[redacted] rges of [redacted] month f[redacted] oices n[redacted] hin 30 d[redacted] [redacted] [redacted] [redacted] LL-Q-0[redacted] 7, 15-[redacted] 07 [redacted]

Instructions for completing Chain of Custody (COC)

1. **Section A and B:** Complete all Client information at top of sheet: company name, address, phone, fax, contact (the person to contact if there are questions, and who will receive the final report.), e-mail address (if available), PO#, Project Name and/or Project Number as you would like to see it appear on the report.

2. **Section C:** Invoice Information: Billing information is included in this section. This information should include the name and address of the person receiving the invoice.

3. Quote Reference should be completed if a quotation was provided by Pace Analytical. The Project Manager, and Profile No. will be completed by Pace Analytical Services.

4. **Site Location:** A separate COC must be filled out for each day of sample collection. Record the two letter postal code for the US state in which the samples were collected.

5. **Regulatory Agency:** List the program that is guiding the work to ensure proper regulations are followed.

6. **Section D:** Complete a Sample Description in the "SAMPLE ID' section as you would like it to appear on the laboratory report. The following information should also be included: the sample matrix, sample type (G (grab) or C (composite). When collecting a composite, the start time and end time should be documented in the respective boxes. The collection time for a grab (G) sample should be entered in the boxes marked 'Composite End/Grab'), Sample temp at collection (if required by state), the total number of containers, and preservative used.

7. Mark if the sample was filtered in the field by marking Y or N in 'Filtered' row by the Analysis requested.

8. Requested Analysis: List the required analysis and methods on the lines provided and place a check in the column for the samples requiring the analysis. Additional comments should be referenced in the bottom left hand corner or include attachments for extended lists of parameters.

9. The sampler should print their name in the space provided and sign their name followed by the date of the sampling event at the bottom of the COC in the spaces designated for 'SAMPLER NAME AND SIGNATURE'.

10. When relinquishing custody of the samples to a representative of the laboratory or other organization, indicate the Item Numbers of those samples being transferred; sign relinquished by, date and time, and include your affiliation.

***Important Note:**

Standard Turnaround Time is 2 Weeks/10 business days. Results will be delivered by end of business on the date due unless other arrangements have been made with your project manager.

Special Project Requirements such as Low Level Detection Limits or level of QC reported must be included on the chain of custody in the Additional Comments section.

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

1568075

Section A Required Client Information:

Company: Ormet Primary Aluminum Corp
Address: Hannibal, Ohio
Attn: John Rossi
Email To:
Phone: 740-483-2659 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Clayson P. Smith / HMI
Copy To: cpsmith@verizon.net
89 W. Main St.
Purchase Order No.: Wilkinsburg, PA 15379
Project Name: Ormet Hannibal
Project Number: 724-587-5690

Section C Invoice Information:

Attention: John Rossi
Company Name: Ormet Primary Aluminum Corp.
Address: Hannibal, Ohio
Pace Quote Reference: Brian Sliefnor
Pace Project Manager: Rachel Christner
Pace Profile #:

REGULATORY AGENCY
☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Section D Required Client Information

Matrix Codes — MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): Gen Chem Y; Metals Y; WAD CN Y; Amen CN Y; Tot CN Y; VOC Y; PCB Y

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Gen Chem	Metals	WAD CN	Amen CN	Tot CN	VOC	PCB	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-37	WT	G	7-26-12		1:07pm			1		1			2				1	1	1	1	1				
2	MW-39S	↓	↓	7-25-12		5:52pm			↓		↓			↓				↓	↓	↓	↓	↓				
3	MW-39D	↓	↓	7-25-12		5:31pm			↓		↓			↓				↓	↓	↓	↓	↓				
4	MW-40S	↓	↓	7-24-12		4:16pm			↓		↓			↓				↓	↓	↓	↓	↓				
5	* MW-40D	↓	↓	7-24-12		3:51pm			↓		↓			↓				↓	↓	↓	↓	↓				
6	MW-42S	↓	↓	7-26-12		9:22am			↓		↓			↓				↓	↓	↓	↓	↓				
7	MW-42D	↓	↓	7-26-12		9:00am			↓		↓			↓				↓	↓	↓	↓	↓				
8	MW-44S	↓	↓	7-25-12		11:22am			↓	2	↓			↓				↓	↓	↓	↓	↓	1			
9	MW-44D	↓	↓	7-25-12		11:04am			↓	2	↓			↓				↓	↓	↓	↓	↓	1			
10	MW-45	↓	↓	7-24-12		4:15pm			↓	1	↓			↓				1	1	1	1	1				
11	MW-46	↓	↓	7-25-12		9:55am			↓	1	↓			↓				↓	↓	↓	↓	↓				
12	MW-47	↓	↓	7-25-12		1:15pm			↓	1	↓			↓				↓	↓	↓	↓	↓				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Clayson P. Smith / HMI	7-26-12	3:05pm	[illegible] Pace	7-26	3:05	

3

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER:
SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

Instructions for completing Chain of Custody (COC)

1. **Section A and B:** Complete all Client information at top of sheet: company name, address, phone, fax, contact (the person to contact if there are questions, and who will receive the final report.), e-mail address (if available), PO#, Project Name and/or Project Number as you would like to see it appear on the report.

2. **Section C:** Invoice Information: Billing information is included in this section. This information should include the name and address of the person receiving the invoice.

3. Quote Reference should be completed if a quotation was provided by Pace Analytical. The Project Manager, and Profile No. will be completed by Pace Analytical Services.

4. **Site Location:** A separate COC must be filled out for each day of sample collection. Record the two letter postal code for the US state in which the samples were collected.

5. **Regulatory Agency:** List the program that is guiding the work to ensure proper regulations are followed.

6. **Section D:** Complete a Sample Description in the "SAMPLE ID' section as you would like it to appear on the laboratory report. The following information should also be included: the sample matrix, sample type (G (grab) or C (composite). When collecting a composite, the start time and end time should be documented in the respective boxes. The collection time for a grab (G) sample should be entered in the boxes marked 'Composite End/Grab'), Sample temp at collection (if required by state), the total number of containers, and preservative used.

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9. The sampler should print their name in the space provided and sign their name followed by the date of the sampling event at the bottom of the COC in the spaces designated for 'SAMPLER NAME AND SIGNATURE'.

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CHAIN-OF-CUSTODY / Analytical Request Docum[illegible]

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 4 of 4

1568076

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Ornet Primary Aluminum Corp.	Report To: Cleason Smith / HMI	Attention: John Reggi
Address: Hannibal, Ohio	Copy To: cpsmith@verizon.net	Company Name: Ornet Primary Aluminum Corp
Attn. John Reggi	89 W. Main St.	Address: Hannibal, Ohio
Email To:	Purchase Order No.: W. Middletown, PA 15379	Pace Quote Reference: Brian Shaffner
Phone: 740-483-2659 Fax:	Project Name: 724-587-5690	Pace Project Manager: Rachel Christner
Requested Due Date/TAT:	Project Number:	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: Ohio

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	GenChem	Metals	WAD CN	Amen CN	Tot CN	VOCs	PCBs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-48	WT	G	7-26-12		10:35am				1		1		2					1	1	1	1	1				
2																											
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Cleason Smith	7-26-12	3:05pm	[signature] Pace	7/26	3:05	

3

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

[redacted] *I[redacted]Note: By[redacted]his form[redacted]cceptin[redacted]NET 30 [redacted]ent ter[redacted]reeing t[redacted]rges of [redacted]month f[redacted]pices n[redacted]hin 30 d[redacted] [redacted] [redacted] [redacted] [redacted]L-Q-0[redacted]7, 15-[redacted]07 [redacted]

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APPENDIX A-3

WATER SAMPLING LOG FORMS FOR NOVEMBER 2012 MONITORING EVENT

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 11/7/12

Sample I.D.: MW-2
Duplicate I.D.: MW-45 (2:45pm)
Time Sampling Began: 2:20pm
Time Sampling Complete: 3:00pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 667.52
Depth of Well Below MP (TD): 82.25
Depth to Water Below MP (DTW): 45.86
Water Column (WC) in Well (TD - DTW): 36.39
Casing Diameter: 2"
Gallons in Well (WC x GPF): 5.8

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 17.5

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: tea Odor: none Turbidity: none

Well Volumes:	6gal	12 gal	18gal	25gal		
pH: *	10.82	10.82	10.82	10.82	* Values suspect	
Spec. Cond.:	1250	1230	1170	1160		
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	14.3	14.3	14.3	14.3		

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, 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

Sampline Personnel: C. SMITH, ~~R. FARGO~~ J. Parr

Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 11-7-12

Sample I.D.: MW-5
Duplicate I.D.:
Time Sampling Began: 3:15 pm
Time Sampling Complete: 3:40 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 668.16
Depth of Well Below MP (TD): 92.00
Depth to Water Below MP (DTW): 47.54
Water Column (WC) in Well (TD - DTW): 44.46
Casing Diameter: 2"
Gallons in Well (WC x GPF): 7.1

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 21.3

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: lt. tea Odor: none Turbidity: none

Well Volumes:	8gal	16gal	24gal			
pH:	9.07	9.26	9.34			
Spec. Cond.:	1240	1220	1220			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	13.9	14.3	14.6			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, 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

Sampline Personnel: C. SMITH, ~~R. FARGO~~ J. Parr
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name:	ORMET-REDUCTION MILL	Sample I.D.:	MW-12
Project #:	HM00326	Duplicate I.D.:	~~MW-12D~~
Location:	HANNIBAL, OHIO	Time Sampling Began:	11:52 am
Date:	11-8-12	Time Sampling Complete:	12:10 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC

MP Elevation: 635.82

Depth of Well Below MP (TD): 68.42

Depth to Water Below MP (DTW): 13.30

Water Column (WC) in Well (TD - DTW): 55.1

Casing Diameter: 2"

Gallons in Well (WC x GPF): 8.8

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 26.5

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: none Odor: none Turbidity: none

Well Volumes:	9 gal	18 gal	27 gal			
pH: *	7.70	8.57	8.71			
Spec. Cond.:	537	537	535			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	12.3	14.2	14.0			

*

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH
PCBs	1 LITER AMBER GLASS	4 degrees C

Sampline Personnel: C. SMITH, ~~R. FARGO~~ J. Parr

Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name:	ORMET-REDUCTION MILL	Sample I.D.:	MW-~~31~~ 16
Project #:	HM00326	Duplicate I.D.:	~~MW-31D~~
Location:	HANNIBAL, OHIO	Time Sampling Began:	12:23pm
Date:	11-8-12	Time Sampling Complete:	12:40pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC

MP Elevation: ~~661.59~~ 662.72

Depth of Well Below MP (TD): ~~67.58~~ 83.12

Depth to Water Below MP (DTW): ~~37.80~~ 39.36

Water Column (WC) in Well (TD - DTW): ~~29.78~~ 43.76

Casing Diameter: 2"

Gallons in Well (WC x GPF): ~~4.8~~ 7.0

Gallons to be Purged: ~~14.3~~ 21

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: tea - coffee Odor: none Turbidity: none

Well Volumes:	7gal	14gal	21gal			
pH: *	10.41	10.53	10.56			*
Spec. Cond.:	903	908	911			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	14.3	15.1	15.2			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH
[redacted]	3 x 40 ml. GLASS	HCl

Sampline Personnel: C. SMITH, ~~R. FARGO~~ J. Parr

Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 11-7-12

Sample I.D.: MW-18
Duplicate I.D.:
Time Sampling Began: 4:10 pm
Time Sampling Complete: 4:32 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 660.91
Depth of Well Below MP (TD): 61.16
Depth to Water Below MP (DTW): 36.13
Water Column (WC) in Well (TD - DTW): 25.03
Casing Diameter: 2"
Gallons in Well (WC x GPF): 4.0

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 12

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: brown/coffee Odor: none Turbidity: some

Well Volumes:	4gal	8gal	12 gal	14gal		
pH: *	10.84	10.83	10.83	10.83	*	
Spec. Cond.:	1110	1340	1460	1180		
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	13.3	13.8	14.1	14.1		

well dewatered at 12 gal
pH readings suspect

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, 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

Sampline Personnel: C. SMITH, ~~R. FARGO~~ J. Parr
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 11-7-12

Sample I.D.: MW-28
Duplicate I.D.:
Time Sampling Began: 3:50pm
Time Sampling Complete: 4:00pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 663.27
Depth of Well Below MP (TD): 46.20
Depth to Water Below MP (DTW): 21.65
Water Column (WC) in Well (TD - DTW): 24.55
Casing Diameter: 2"
Gallons in Well (WC x GPF): 3.9

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 11.8

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: ~~none~~ Lt. Brown Odor: none Turbidity: none to slight ~~CLOUDY~~

Well Volumes:	4gal	8gal	12gal			
pH:	6.91	6.92	6.84			
Spec. Cond.:	363	398	393			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	14.0	14.1	14.5			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH

Sampline Personnel: C. SMITH, ~~R. FARGO~~ J. Parr
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 11-8-12

Sample I.D.: MW-31
Duplicate I.D.: MW-46 (11:10am)
Time Sampling Began: 10:52am
Time Sampling Complete: 11:17am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: ~~662.72~~ 661.59
Depth of Well Below MP (TD): ~~83.12~~ 67.58
Depth to Water Below MP (DTW): ~~39.36~~ 37.80
Water Column (WC) in Well (TD - DTW): ~~43.76~~ 29.78
Casing Diameter: 2"
Gallons in Well (WC x GPF): ~~7.0~~ 4.8

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: ~~21~~ 14.3

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: tea-coffee Odor: none Turbidity: none

Well Volumes:	7gal	14gal	21gal			
pH: *	10.38	10.83	10.82			
Spec. Cond.:	1220	1220	1240			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	12.1	14.1	14.1			

* pH values suspect

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH
PCE		

Sampline Personnel: C. SMITH, ~~R. FARGO~~ J. Parr
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 11-8-12

Sample I.D.: MW-32
Duplicate I.D.:
Time Sampling Began: 12:53pm
Time Sampling Complete: 1:08pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 656.12
Depth of Well Below MP (TD): 57.36
Depth to Water Below MP (DTW): 32.32
Water Column (WC) in Well (TD - DTW): 25.04
Casing Diameter: 2"
Gallons in Well (WC x GPF): 4.0

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 12

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: tea - coffee Odor: none Turbidity: none

Well Volumes:	4gal	8gal	12gal			
pH: *	10.80	10.80	10.81			*
Spec. Cond.:	1320	1320	1320			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	15.1	15.2	15.3			

*pH suspect

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 v. submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH

Sampline Personnel: C. SMITH, ~~R. FARGO~~ J. Parr
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 11-8-12

Sample I.D.: MW-35
Duplicate I.D.:
Time Sampling Began: 1:28 pm
Time Sampling Complete: 1:40 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 661.90
Depth of Well Below MP (TD): 46.94
Depth to Water Below MP (DTW): 34.40
Water Column (WC) in Well (TD - DTW): 12.54
Casing Diameter: 2"
Gallons in Well (WC x GPF): 2.0

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 6

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: brownish Odor: none Turbidity: moderate

Well Volumes:	2.5 gal	3 gal				
pH:	8.58	8.52				
Spec. Cond.:	317	356				
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	15.1	15.2				

dewatered at ~ 2 gal
sampled at 3 gal

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH

Sampline Personnel: C. SMITH, ~~R. FARGO~~ J. Parr
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 11-8-12

Sample I.D.: MW-36
Duplicate I.D.:
Time Sampling Began: 1:12 pm
Time Sampling Complete: 1:23 pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 655.14
Depth of Well Below MP (TD): 52.08
Depth to Water Below MP (DTW): 31.96
Water Column (WC) in Well (TD - DTW): 20.12
Casing Diameter: 2"
Gallons in Well (WC x GPF): 3.2

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 9.7

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: slight tea Odor: none Turbidity: none

Well Volumes:	3 gal	7 gal	10 gal			
pH:	9.23	9.49	9.46			
Spec. Cond.:	695	686	691			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	17.4	17.4	17.5			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH

Sampline Personnel: C. SMITH, ~~R. FARGO~~ J. Parr
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 11-8-12

Sample I.D.: MW-37
Duplicate I.D.:
Time Sampling Began: 1:45pm
Time Sampling Complete: 2:00pm

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 661.14
Depth of Well Below MP (TD): 36.90
Depth to Water Below MP (DTW): 21.58
Water Column (WC) in Well (TD - DTW): 15.32
Casing Diameter: 2"
Gallons in Well (WC x GPF): 2.5

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 7.4

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Lt. tea Odor: none Turbidity: slight

Well Volumes:	3gal	4.5gal				
pH:	7.03	7.07				
Spec. Cond.:	306	304				
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	14.8	15.8				

dewatered at ~ 2.5 gal
Sampled at 4.5 gal

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
pH, Spec. Cond., F	500 ml. PLASTIC	4 degrees C
DISS. As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (1 MICRON)
TOTAL & AMENABLE CN	250 ml. PLASTIC	NaOH

Sampline Personnel: C. SMITH, ~~R. FARGO~~ J. Parr
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 11-8-12

Sample I.D.: MW-44s
Duplicate I.D.:
Time Sampling Began: 10:20 am
Time Sampling Complete: 10:30 am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 662.01
Depth of Well Below MP (TD): 69.05
Depth to Water Below MP (DTW): 39.73
Water Column (WC) in Well (TD - DTW): 29.32
Casing Diameter: 2"
Gallons in Well (WC x GPF): 4.7

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 14.1

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: None Odor: None Turbidity: None

Well Volumes:	5 gal	10 gal				
pH:	8.28	8.12	8.09			
Spec. Cond.:	551	550	550			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	13.6	13.6	13.7			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
PCBs	1 LITER AMBER GLASS	4 degrees C

Sampline Personnel: C. SMITH, ~~R. FARGO~~ J. Parr
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 11-8-12

Sample I.D.: MW-44D
Duplicate I.D.:
Time Sampling Began: 10:02 am
Time Sampling Complete: 10:16

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 661.76
Depth of Well Below MP (TD): 93.97
Depth to Water Below MP (DTW): 40.28
Water Column (WC) in Well (TD - DTW): 53.69
Casing Diameter: 2"
Gallons in Well (WC x GPF): 8.6

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 25.8

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: none Odor: none Turbidity: none

Well Volumes:	10 gal	20 gal				
pH:	8.25	8.67	8.80			
Spec. Cond.:	471	458	453			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	12.2	13.5	13.9			

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
PCBs	1 LITER AMBER GLASS	4 degrees C

Sampline Personnel: C. SMITH, ~~R. FARGO~~ J. Parr
Comments:

HYDROSYSTEMS MANAGEMENT, INC.
WATER SAMPLING LOG FORM

Project Name: ORMET-REDUCTION MILL
Project #: HM00326
Location: HANNIBAL, OHIO
Date: 11-8-12

Sample I.D.: MW-39S
Duplicate I.D.:
Time Sampling Began: 11:33am
Time Sampling Complete: 11:45am

WELL EVACUATION DATA

Description of Measuring Point (MP): TOP OF PVC
MP Elevation: 657.30
Depth of Well Below MP (TD): 60.23
Depth to Water Below MP (DTW): 33.34
Water Column (WC) in Well (TD - DTW): 26.89
Casing Diameter: 2"
Gallons in Well (WC x GPF): 4.3

GALLONS PER FOOT (GPF)				
1"=0.04	2"=0.16	3"=0.37	4"=0.65	6"=1.47

Gallons to be Purged: 12.9

Evacuation Method: 12 Volt submersible purge pump

SAMPLING DATA AND FIELD PARAMETERS

Color: Lt. tea Odor: none Turbidity: none

Well Volumes:	5gal	10gal	15gal			
pH: *	10.45	10.51	10.52			
Spec. Cond.:	3040	3090	2950			
Diss. Oxygen:						
Turbidity:						
Redox:						
Temp.:	12.7	13.1	13.5			

* pH values suspect

Sampling Method and Materials: VOCs-disposable polypropylene bailer and rope; All others 12 volt submersible pump

Parameters to be Analyzed	Container Description	Preservative
DISSOLVED As, Be, Mn, Na, V	250 ml. PLASTIC	HNO_3 - FIELD FILTERED (IMICRON)
TOTAL CN, AMENABLE CN	250 ml. PLASTIC	NAOH
pH, SPEC. COND., F	500 ml. PLASTIC	4 degrees celsius

Sampline Personnel: C. SMITH, ~~R. FARGO~~ J. Parr
Comments:

Pace Analytical®

BOTTLE ORDER # 22823

10/26/2012 11:38:53 AM

Pace Analytical Services, Inc.
1638 Roseytown Road
Suites 2,3 & 4
Greensburg, PA 15601
(724) 850-5600

Contact:	Mr. John Reggi	**Ship To:**		**Return To:**	
Company:	Ormet Primary Aluminum Corp	**Contact:**	Mr. John Reggi	**Contact:**	
Address:	43840 State Route 7	**Company:**	Ormet Primary Aluminum Corpor	**Lab Name:**	PACE - PIT
		Address:	43840 State Route 7	**Address:**	1638 Roseytown Road
City, St, Zip:	Hannibal ,OH,43931				Suites 2,3 & 4
Phone:	740-483-2659 **Ext.**	**City, St, Zip:**	Hannibal ,OH,43931	**City, St, Zip:**	Greensburg ,PA ,15601
Initiator:	Rachel Christner **PM:** rchri	**Phone:**	740-483-2659 **Ext.**	**Phone:**	(724) 850-5600 **Ext.**

Proj. Description: Ohio Sampling **Quote Number:** **Profile Number:**

Needs Bottles by: 11/01/201 - **Expected Date Ret:** **Shipping Method:** FedEx Std OverNig

Return Shipping Labels
- ☐ No Shipper #
- ☐ With Shipper #

COC's
- ☑ Blank # 5
- ☐ Preprinted

Bottle Labels
- ☑ Blank
- ☐ Pre-Printed - With Sample IDs
- ☐ Pre-Printed - No Sample IDs

Bottles
- ☐ Boxed Cases
- ☐ Individually Wrapped
- ☑ Grouped By Sample ID / Matrix

Misc
- ☐ Sampling Instructions
- ☑ Coolers:
- ☐ Custody Seal
- ☐ Extra Bubble Wrap
- ☐ Short Hold / Rush Stickers
- ☐ Temp. Blanks
- ☐ 10 mL Cut-Off Syringes
- ☐ DI Water 0 Liter(s)

Trip Blank ☐

Qty	Total	Matrix	Method	BottleType	LotNumber	Note
15	15	Water	pH, Sp. Cond., Fluoride	1L plastic unpres.	072312-2DD 081312-2GG	
15	15	Water	Cyanide, Amenable; Cyanide, Total	250mL plastic NaOH	090312-2JJ	
15	15	Water	Cyanide, WAD	250mL plastic NaOH	090312-2JJ	
15	15	Water	Dissolved Metals by 6010 ICP (Field Filter)	250mL plastic HNO3	091012-2KK091712-2LL	
5	15	Water	VOC by 8260	3-40ml clear vial HCl	073012-3	
4	8	Water	PCBs by 608	1L amber glass unpres.	073012-1EE	

Notes: Please bag sets with 1 Chem, 2 Cyanide, and 1 D. Metals in each. Leave VOCs and PCBs out of bags.

Hazard Shipping Placard In Place : NA

*Sample receiving hours are Monday through Friday 8:00 am to 6:00 pm and Saturday from 9:00 am to 12:00 pm unless special arrangements are made with you project manager.

*Pace Analytical reserves the right to return hazardous, toxic, or radioactive samples to you.

*Pace Analytical reserves the right to charge for unused bottles, as well as cost associated with sample storage and disposal.

*Payment term are net 30 days.

*Please include the proposal number on the chain of custody to insure proper billing.

Shipped Date: 10/31/2012
Shipped By: Laci Lambert
Verified By:

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www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 2

1639999

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Ormet Primary Al. Corp	Report To: Cleason Smith / HMI	Attention: John Reggi
Address: Hannibal, Ohio State Route 7	Copy To: cpsmith@verizon.net	Company Name: Ormet Primary Aluminum Corp
		Address: State Route 7, Hannibal, OH
Email To:	Purchase Order No.:	Pace Quote Reference:
Phone: 740-483-2659 Fax:	Project Name: Ormet CERCLA	Pace Project Manager: Rachel Christner
Requested Due Date/TAT:	Project Number:	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Ohio

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED ~~COMPOSITE START~~ Grab DATE	TIME	~~COMPOSITE END/GRAB~~ DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved Gen. Chem./PCBs	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N) Gen. Chem.	Cyanide-Total	Cyanide-Amen.	Cyanide-WAD	Metals	PCE (VOC)	PCBs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-2			11-7-12	2:20p					1		1	3	2				1	1	1	1	1	1	0		
2	MW-5			11-7-12	3:15p					1		1	3	2				1	1	1	1	1	1	0		
3	MW-12			11-8-12	11:52a					2		1	0	2				1	1	1	1	1	0	1		
4	MW-16			11-8-12	12:23p					1		1	0	2				1	1	1	1	1	0	0		
5	MW-18			11-7-12	4:10p					1		1	3	2				1	1	1	1	1	1	0		
6	MW-28			11-7-12	3:50p					1		1	0	2				1	1	1	1	1	0	0		
7	MW-31			11-8-12	10:52a					1		1	3	2				1	1	1	1	1	1	0		
8	MW-32			11-8-12	12:53p					1		1	0	2				1	1	1	1	1	0	0		
9	MW-35			11-8-12	1:28p					1		1	0	2				1	1	1	1	1	0	0		
10	MW-36			11-8-12	1:12p					1		1	0	2				1	1	1	1	1	0	0		
11	MW-37			11-8-12	1:45p					1		1	0	2				1	1	1	1	1	0	0		
12	MW-44S			11-8-12	10:20a					1		0	0	0				0	0	0	0	0	0	1		

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Call Cleason Smith (724-587-5690) or email cpsmith@verizon.net if any questions regarding samples or analyses	Cleason P. Smith	11-8-12	2:50pm	Brian Schaffner	11/8/12	2:50	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Cleason Smith

SIGNATURE of SAMPLER: Cleason Smith

DATE Signed (MM/DD/YY): 11-8-12

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

3

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Instructions for completing Chain of Custody (COC)

1. **Section A and B:** Complete all Client information at top of sheet: company name, address, phone, fax, contact (the person to contact if there are questions, and who will receive the final report.), e-mail address (if available), PO#, Project Name and/or Project Number as you would like to see it appear on the report.

2. **Section C:** Invoice Information: Billing information is included in this section. This information should include the name and address of the person receiving the invoice.

3. Quote Reference should be completed if a quotation was provided by Pace Analytical. The Project Manager, and Profile No. will be completed by Pace Analytical Services.

4. **Site Location:** A separate COC must be filled out for each day of sample collection. Record the two letter postal code for the US state in which the samples were collected.

5. **Regulatory Agency:** List the program that is guiding the work to ensure proper regulations are followed.

6. **Section D:** Complete a Sample Description in the "SAMPLE ID' section as you would like it to appear on the laboratory report. The following information should also be included: the sample matrix, sample type (G (grab) or C (composite). When collecting a composite, the start time and end time should be documented in the respective boxes. The collection time for a grab (G) sample should be entered in the boxes marked 'Composite End/Grab'), Sample temp at collection (if required by state), the total number of containers, and preservative used.

7. Mark if the sample was filtered in the field by marking Y or N in 'Filtered' row by the Analysis requested.

8. Requested Analysis: List the required analysis and methods on the lines provided and place a check in the column for the samples requiring the analysis. Additional comments should be referenced in the bottom left hand corner or include attachments for extended lists of parameters.

9. The sampler should print their name in the space provided and sign their name followed by the date of the sampling event at the bottom of the COC in the spaces designated for 'SAMPLER NAME AND SIGNATURE'.

10. When relinquishing custody of the samples to a representative of the laboratory or other organization, indicate the Item Numbers of those samples being transferred, sign relinquished by, date and time, and include your affiliation.

***Important Note:**

Standard Turnaround Time is 2 Weeks/10 business days. Results will be delivered by end of business on the date due unless other arrangements have been made with your project manager.

Special Project Requirements such as Low Level Detection Limits or level of QC reported must be included on the chain of custody in the Additional Comments section.

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 2

1640000

Section A Required Client Information:

Company: Ormet Primary Aluminum Corp
Address: State Route 7
Hannibal, Ohio
Email To: John Reggi
Phone: 740-483-2659 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Cleason Smith / HMI
Copy To: cpsmith@verizon.net
Purchase Order No.:
Project Name: Ormet CERCLA
Project Number:

Section C Invoice Information:

Attention: John Reggi
Company Name: Ormet Primary Aluminum Corp
Address: State Rt. 7, Hannibal, Ohio
Pace Quote Reference:
Pace Project Manager: Rachel Christner
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Ohio

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED ~~COMPOSITE START~~ Grab DATE	TIME	COMPOSITE END/GRAB DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved Gen Chem/PCBs	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N) Gen Chem.	Cyanide-Total	Cyanide-Amen.	Cyanide-WAD	Metals	PCE (VOC)	PCBs						Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
										Preservatives								N	N	N	N	Yes	N	N							
1	MW-44D			11-8-12	10:02a					1		0	0	0				0	0	0	0	0	0	1							
2	MW-39S			11-8-12	11:33a					1		1	0	2				1	1	1	1	1	0	0							
3	MW-45			11-7-12	2:45p					1		1	3	2				1	1	1	1	1	1	0							
4	MW-46			11-8-12	11:10a					1		1	3	2				1	1	1	1	1	0	0							
5																															
6																															
7																															
8																															
9																															
10																															
11																															
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Call Cleason Smith (724-587-5690) if any questions regarding samples or analysos, or email cpsmith at verizon.net	Cleason P. Smith	11-8-12	2:50pm	Brian Shaffer	11/8/12	2:50	

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Cleason Smith
SIGNATURE of SAMPLER: Cleason P. Smith
DATE Signed (MM/DD/YY): 11-8-12

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

3

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Instructions for completing Chain of Custody (COC)

1. **Section A and B:** Complete all Client information at top of sheet: company name, address, phone, fax, contact (the person to contact if there are questions, and who will receive the final report.), e-mail address (if available), PO#, Project Name and/or Project Number as you would like to see it appear on the report.

2. **Section C:** Invoice Information: Billing information is included in this section. This information should include the name and address of the person receiving the invoice.

3. Quote Reference should be completed if a quotation was provided by Pace Analytical. The Project Manager, and Profile No. will be completed by Pace Analytical Services.

4. **Site Location:** A separate COC must be filled out for each day of sample collection. Record the two letter postal code for the US state in which the samples were collected.

5. **Regulatory Agency:** List the program that is guiding the work to ensure proper regulations are followed.

6. **Section D:** Complete a Sample Description in the "SAMPLE ID' section as you would like it to appear on the laboratory report. The following information should also be included: the sample matrix, sample type (G (grab) or C (composite). When collecting a composite, the start time and end time should be documented in the respective boxes. The collection time for a grab (G) sample should be entered in the boxes marked 'Composite End/Grab'), Sample temp at collection (if required by state), the total number of containers, and preservative used.

7. Mark if the sample was filtered in the field by marking Y or N in 'Filtered' row by the Analysis requested.

8. Requested Analysis: List the required analysis and methods on the lines provided and place a check in the column for the samples requiring the analysis. Additional comments should be referenced in the bottom left hand corner or include attachments for extended lists of parameters.

9. The sampler should print their name in the space provided and sign their name followed by the date of the sampling event at the bottom of the COC in the spaces designated for 'SAMPLER NAME AND SIGNATURE'.

10. When relinquishing custody of the samples to a representative of the laboratory or other organization, indicate the Item Numbers of those samples being transferred; sign relinquished by, date and time, and include your affiliation.

***Important Note:**

Standard Turnaround Time is 2 Weeks/10 business days. Results will be delivered by end of business on the date due unless other arrangements have been made with your project manager.

Special Project Requirements such as Low Level Detection Limits or level of QC reported must be included on the chain of custody in the Additional Comments section.

APPENDIX B

LABORATORY ANALYTICAL REPORTS
(provided on disc including the following:)

Laboratory Analytical Report for April 2012 Monitoring Event

Laboratory Analytical Report for July 2012 Monitoring Event

Laboratory Analytical Report for November 2012 Monitoring Event

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Note: Send invoice to Ormet (John Rossi) and send data to HMI (Cleason Smith)

Page: 1 of 2

1534755

Section A Required Client Information:

Company: Ormet Primary Aluminum
Address: State Route 7, Hannibal, Ohio
Email To: cpsmith@verizon.net
Phone: 724-587-5690 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Cleason Smith
Copy To: cpsmith@verizon.net
Purchase Order No.:
Project Name: Ormet CERCLA
Project Number: HM00327

Section C Invoice Information:

Attention: John Rossi
Company Name: Ormet Primary Aluminum Corp
Address: St. Route 7, Hannibal, Ohio
Pace Quote Reference:
Pace Project Manager: Rachel Christner
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE:

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N): N, Y, Y, Y, N

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	TIME	COMPOSITE END/GRAB DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): Gen Chem	metals	Cyanides	SPCF	PCBs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-2	WT	G	4/3/12	3:51p													1	1	3	3			001
2	MW-5			4/3/12	3:00p													1	1	3	3			002
3	MW-12			4/4/12	11:18p													1	1	2	2			003
4	MW-16			4/3/12	5:18p													1	1	2	3			004
5	MW-18			4/3/12	5:51p													1	1	2	3			005
6	MW-28			4/4/12	9:44a													1	1	2				006
7	MW-31			4/4/12	10:11a													1	1	2	3			007
8	MW-32			4/4/12	1:15p													1	1	2				008
9	MW-35			4/4/12	12:24p													1	1	2				009
10	MW-36			4/4/12	12:50p													1	1	2				010
11	MW-37			4/4/12	11:51 AM													1	1	2				011
12	MW-44.5			4/3/12	4:55p																2			012

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Cleason Smith	4/4/12	2:15pm	Brian Schaffer	4/4/12	2:15				
	Brian Schaffer	4/4/12	4:40	[illegible]	4/4	1600	2.7	Y	N	Y
							1.8			
							0.8			

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Cleason Smith

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 4/4/2012

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

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www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Note: Send invoice to Ormet (John Reggi) and send data to HMI (Cleason Smith)

1534756

Section A Required Client Information:
Company: Ormet Primary Aluminum
Address: State Route 7, Hannibal Ohio
Email To: cpsmith@verizon.net
Phone: 724-587-5690 Fax:
Requested Due Date/TAT:

Section B Required Project Information:
Report To: Cleason Smith
Copy To: cpsmith@verizon.net
Purchase Order No.:
Project Name: Ormet CERCLA
Project Number: HM00327

Section C Invoice Information:
Attention: John Reggi
Company Name: Ormet Primary Aluminum Corp.
Address: State Route 7, Hannibal, OH
Pace Quote Reference:
Pace Project Manager: Rachel Christner
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER ____
Site Location STATE:

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): Y/N; pH, SET Chem, Metals, Cyanide, PCE, PCBs

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED DATE	COLLECTED TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	pH, SET Chem	Metals	Cyanide	PCE	PCBs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-44D	WT	G	4/3/12	4:32p																	2			013
2	MW-50	↓	↓	4/3/12	5:30p														1	1	2				014
3	MW-51	↓	↓	4/4/12	10:30a														1	1	2	3			015
4	MW-39S	↓	↓	4/4/12	10:52a														1	1	2				016
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Call if any questions - Cleason Smith at 724-587-5690										
							0.8			
⇒	Cleason Smith (HMI)	4/4/12	2:15pm	Brian Schaffer	4/4/12	2:15	1.8			
	Brian Schaffer	4/4/12	4:40	[illegible]	4/4	1010	2.7	Y	N	Y
							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE: Cleason P. Smith
PRINT Name of SAMPLER: Cleason P. Smith
SIGNATURE of SAMPLER: Cleason P. Smith
DATE Signed (MM/DD/YY): 4/4/2012

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

Pace Analytical

Client Name: Ormet

Project # 30666699

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Optional
Proj. Due Date:
Proj. Name:

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 3 5 6

Type of Ice: Wet Blue None

☐ Samples on ice, cooling process has begun

Cooler Temperature 2.7, 1.8, 0.8

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/4

Temp should be above freezing to 6°C

Comments:

				Comments
Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☐No	☐N/A	6. ? "gen chem"
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT				
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A	13. 3ml in MW-39S only 4/4 1715
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes	☑No	☐N/A	Initial when completed: [illegible] Lot # of added preservative
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes	☐No		
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blank Present:	☐Yes	☑No	☐N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☐N/A	
Pace Trip Blank Lot # (if purchased):				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [signature] **Date:** 4/5/12

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

F-ALLC003-4 23Feb2010

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

April 18, 2012

Mr. Cleason Smith
Hydrosystems Management, Inc.
89 West Main Street
PO Box 56
West Middletown, PA 15379

RE: Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Dear Mr. Smith:
Enclosed are the analytical results for sample(s) received by the laboratory on April 04, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Timothy Reed for
Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Mr. John Reggi, Ormet Primary Aluminum Corporation

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Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH 0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana/TNI Certification #: LA080002
Louisiana/TNI Certification #: 4086
Maine Certification #: PA0091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: ANTE
Virgin Island/PADEP Certification
Virginia Certification #: 00112
Virginia VELAP (Cert # 460198)
Washington Certification #: C868
West Virginia Certification #: 143
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
A2LA Certification #: 2456.01
Arkansas Certification #: 05-008-0
Illinois Certification #: 001191
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-08-TX
Utah Certification #: 9135995665

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Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3066699001	**MW-2**	Water	04/03/12 15:51	04/04/12 16:40
3066699002	**MW-5**	Water	04/03/12 15:00	04/04/12 16:40
3066699003	**MW-12**	Water	04/04/12 11:18	04/04/12 16:40
3066699004	**MW-16**	Water	04/03/12 17:18	04/04/12 16:40
3066699005	**MW-18**	Water	04/03/12 17:51	04/04/12 16:40
3066699006	**MW-28**	Water	04/04/12 09:44	04/04/12 16:40
3066699007	**MW-31**	Water	04/04/12 10:11	04/04/12 16:40
3066699008	**MW-32**	Water	04/04/12 13:15	04/04/12 16:40
3066699009	**MW-35**	Water	04/04/12 12:24	04/04/12 16:40
3066699010	**MW-36**	Water	04/04/12 12:50	04/04/12 16:40
3066699011	**MW-37**	Water	04/04/12 11:51	04/04/12 16:40
3066699012	**MW-44S**	Water	04/03/12 16:55	04/04/12 16:40
3066699013	**MW-44D**	Water	04/03/12 16:32	04/04/12 16:40
3066699014	**MW-50**	Water	04/03/12 17:30	04/04/12 16:40
3066699015	**MW-51**	Water	04/04/12 10:30	04/04/12 16:40
3066699016	**MW-39S**	Water	04/04/12 10:52	04/04/12 16:40

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Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3066699001	**MW-2**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	DJL	4	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	BAH	1	PASI-PA
		EPA 9050	BKH	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	JES	1	PASI-PA
		SM 4500-CN-G	JES	1	PASI-PA
3066699002	**MW-5**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	DJL	4	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	BAH	1	PASI-PA
		EPA 9050	BKH	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	JES	1	PASI-PA
		SM 4500-CN-G	JES	1	PASI-PA
3066699003	**MW-12**	EPA 8082	SJG	9	PASI-PA
		EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	BAH	1	PASI-PA
		EPA 9050	BKH	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	JES	1	PASI-PA
		SM 4500-CN-G	JES	1	PASI-PA
3066699004	**MW-16**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	BAH	1	PASI-PA
		EPA 9050	BKH	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	JES	1	PASI-PA
		SM 4500-CN-G	JES	1	PASI-PA
3066699005	**MW-18**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	DJL	4	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	BAH	1	PASI-PA
		EPA 9050	BKH	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K

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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 4500-CN-E	JES	1	PASI-PA
		SM 4500-CN-G	JES	1	PASI-PA
3066699006	**MW-28**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	BAH	1	PASI-PA
		EPA 9050	BKH	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	JES	1	PASI-PA
		SM 4500-CN-G	JES	1	PASI-PA
3066699007	**MW-31**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	DJL	4	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	BAH	1	PASI-PA
		EPA 9050	BKH	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	JES	1	PASI-PA
		SM 4500-CN-G	JES	1	PASI-PA
3066699008	**MW-32**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	BAH	1	PASI-PA
		EPA 9050	BKH	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	JES	1	PASI-PA
		SM 4500-CN-G	JES	1	PASI-PA
3066699009	**MW-35**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	BAH	1	PASI-PA
		EPA 9050	BKH	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	JES	1	PASI-PA
		SM 4500-CN-G	JES	1	PASI-PA
3066699010	**MW-36**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	BAH	1	PASI-PA
		EPA 9050	BKH	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	JES	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 4500-CN-G	JES	1	PASI-PA
3066699011	**MW-37**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	BAH	1	PASI-PA
		EPA 9050	BKH	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	JES	1	PASI-PA
		SM 4500-CN-G	JES	1	PASI-PA
3066699012	**MW-44S**	EPA 8082	SJG	9	PASI-PA
3066699013	**MW-44D**	EPA 8082	SJG	9	PASI-PA
3066699014	**MW-50**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	BAH	1	PASI-PA
		EPA 9050	BKH	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	JES	1	PASI-PA
		SM 4500-CN-G	JES	1	PASI-PA
3066699015	**MW-51**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	DJL	4	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	BAH	1	PASI-PA
		EPA 9050	BKH	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	JES	1	PASI-PA
		SM 4500-CN-G	JES	1	PASI-PA
3066699016	**MW-39S**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	BAH	1	PASI-PA
		EPA 9050	BKH	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	JES	1	PASI-PA
		SM 4500-CN-G	JES	1	PASI-PA

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Method: **EPA 8082**
Description: 8082 GCS PCB
Client: Ormet Primary Aluminum Corporation
Date: April 18, 2012

General Information:
3 samples were analyzed for EPA 8082. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: GCSV/4347

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: OEXT/11117

1c: Result reported from front column due to low response in calibration check standards on rear column.

- LCS (Lab ID: 429314)
  - PCB-1232 (Aroclor 1232)

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Method: **EPA 6010B**
Description: 6010 MET ICP
Client: Ormet Primary Aluminum Corporation
Date: April 18, 2012

General Information:
14 samples were analyzed for EPA 6010B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3005 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/8094

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 3066699009,3066832003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 427988)
  - Sodium
- MS (Lab ID: 427990)
  - Manganese
  - Sodium
- MSD (Lab ID: 427991)
  - Sodium

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Method: **EPA 8260**
Description: 8260 MSV
Client: Ormet Primary Aluminum Corporation
Date: April 18, 2012

General Information:
5 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Method: **SM 4500F/C**
Description: 4500FC Fluoride
Client: Ormet Primary Aluminum Corporation
Date: April 18, 2012

General Information:
14 samples were analyzed for SM 4500F/C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Method: **EPA 9040**
Description: 9040 pH
Client: Ormet Primary Aluminum Corporation
Date: April 18, 2012

General Information:
14 samples were analyzed for EPA 9040. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated more than 15 minutes after sample collection.
- MW-12 (Lab ID: 3066699003)
- MW-16 (Lab ID: 3066699004)
- MW-18 (Lab ID: 3066699005)
- MW-2 (Lab ID: 3066699001)
- MW-28 (Lab ID: 3066699006)
- MW-31 (Lab ID: 3066699007)
- MW-32 (Lab ID: 3066699008)
- MW-35 (Lab ID: 3066699009)
- MW-36 (Lab ID: 3066699010)
- MW-37 (Lab ID: 3066699011)
- MW-39S (Lab ID: 3066699016)
- MW-5 (Lab ID: 3066699002)
- MW-50 (Lab ID: 3066699014)
- MW-51 (Lab ID: 3066699015)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Method: **EPA 9050**
Description: 9050 Specific Conductance
Client: Ormet Primary Aluminum Corporation
Date: April 18, 2012

General Information:
14 samples were analyzed for EPA 9050. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Method: **SM 4500-CN I**
Description: Cyanide, Weak Acid Dissociable
Client: Ormet Primary Aluminum Corporation
Date: April 18, 2012

General Information:
14 samples were analyzed for SM 4500-CN I. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/19810

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 5061024001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 979987)
  - Cyanide, Dissociable

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: WETA/19810

R1: RPD value was outside control limits.

- DUP (Lab ID: 979988)
  - Cyanide, Dissociable

Additional Comments:

Analyte Comments:

QC Batch: WETA/19810

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- MS (Lab ID: 979987)
  - Cyanide, Dissociable

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Method: **SM 4500-CN-E**
Description: 4500CNE Cyanide, Total
Client: Ormet Primary Aluminum Corporation
Date: April 18, 2012

General Information:
14 samples were analyzed for SM 4500-CN-E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: WETA/9548

D6: The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 427936)
  - Cyanide

Additional Comments:

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Method: **SM 4500-CN-G**
Description: 4500CNG Cyanide, Amenable
Client: Ormet Primary Aluminum Corporation
Date: April 18, 2012

General Information:
14 samples were analyzed for SM 4500-CN-G. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-2 **Lab ID: 3066699001** Collected: 04/03/12 15:51 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**38.7**	ug/L	5.0	3.6	1	04/10/12 15:00	04/17/12 08:34	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	04/10/12 15:00	04/17/12 08:34	7440-41-7	
Manganese	**349**	ug/L	5.0	2.3	1	04/10/12 15:00	04/17/12 08:34	7439-96-5	
Sodium	**277000**	ug/L	1000	329	1	04/10/12 15:00	04/17/12 08:34	7440-23-5	
Vanadium	**17.0**	ug/L	5.0	1.8	1	04/10/12 15:00	04/17/12 08:34	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	**37.1**	ug/L	5.0	0.17	1		04/09/12 16:39	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		04/09/12 16:39	460-00-4	
1,2-Dichloroethane-d4 (S)	119	%	70-130		1		04/09/12 16:39	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		04/09/12 16:39	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**31.5**	mg/L	1.0	0.51	10		04/12/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.2**	Std. Units	1.0	1.0	1		04/04/12 22:05		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1260**	umhos/cm	1.0	1.0	1		04/12/12 13:32		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.064**	mg/L	0.0050	0.0013	1		04/11/12 12:45	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**8.8**	mg/L	0.25	0.13	50		04/10/12 23:26	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.67**	mg/L	0.0050	0.0031	1		04/11/12 22:00	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-5 **Lab ID: 3066699002** Collected: 04/03/12 15:00 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	04/10/12 15:00	04/17/12 08:38	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	04/10/12 15:00	04/17/12 08:38	7440-41-7	
Manganese	**410**	ug/L	5.0	2.3	1	04/10/12 15:00	04/17/12 08:38	7439-96-5	
Sodium	**281000**	ug/L	1000	329	1	04/10/12 15:00	04/17/12 08:38	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	04/10/12 15:00	04/17/12 08:38	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	ND	ug/L	5.0	0.17	1		04/09/12 15:50	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		04/09/12 15:50	460-00-4	
1,2-Dichloroethane-d4 (S)	116	%	70-130		1		04/09/12 15:50	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		04/09/12 15:50	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**27.5**	mg/L	1.0	0.51	10		04/12/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.9**	Std. Units	1.0	1.0	1		04/04/12 22:05		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1270**	umhos/cm	1.0	1.0	1		04/12/12 13:32		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.091**	mg/L	0.0050	0.0013	1		04/11/12 12:48	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**4.9**	mg/L	0.12	0.067	25		04/10/12 22:37	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.19**	mg/L	0.0050	0.0031	1		04/11/12 22:00	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-12 **Lab ID: 3066699003** Collected: 04/04/12 11:18 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.52		1	04/13/12 14:00	04/17/12 17:52	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.52		1	04/13/12 14:00	04/17/12 17:52	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.52		1	04/13/12 14:00	04/17/12 17:52	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.52		1	04/13/12 14:00	04/17/12 17:52	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.52		1	04/13/12 14:00	04/17/12 17:52	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.52		1	04/13/12 14:00	04/17/12 17:52	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.52		1	04/13/12 14:00	04/17/12 17:52	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	75	%	30-150		1	04/13/12 14:00	04/17/12 17:52	877-09-8	
Decachlorobiphenyl (S)	77	%	30-150		1	04/13/12 14:00	04/17/12 17:52	2051-24-3	
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	04/10/12 15:00	04/17/12 08:42	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	04/10/12 15:00	04/17/12 08:42	7440-41-7	
Manganese	**2120**	ug/L	5.0	2.3	1	04/10/12 15:00	04/17/12 08:42	7439-96-5	
Sodium	**32200**	ug/L	1000	329	1	04/10/12 15:00	04/17/12 08:42	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	04/10/12 15:00	04/17/12 08:42	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**1.2**	mg/L	0.10	0.051	1		04/12/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.4**	Std. Units	1.0	1.0	1		04/04/12 22:05		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**589**	umhos/cm	1.0	1.0	1		04/12/12 13:32		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	ND	mg/L	0.0050	0.0013	1		04/11/12 12:49	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.013**	mg/L	0.0050	0.0027	1		04/10/12 20:19	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		04/11/12 22:00	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-16 **Lab ID: 3066699004** Collected: 04/03/12 17:18 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**29.6**	ug/L	5.0	3.6	1	04/10/12 15:00	04/17/12 09:00	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	04/10/12 15:00	04/17/12 09:00	7440-41-7	
Manganese	**477**	ug/L	5.0	2.3	1	04/10/12 15:00	04/17/12 09:00	7439-96-5	
Sodium	**236000**	ug/L	1000	329	1	04/10/12 15:00	04/17/12 09:00	7440-23-5	
Vanadium	**26.6**	ug/L	5.0	1.8	1	04/10/12 15:00	04/17/12 09:00	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**38.7**	mg/L	1.0	0.51	10		04/12/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.0**	Std. Units	1.0	1.0	1		04/04/12 22:05		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1030**	umhos/cm	1.0	1.0	1		04/18/12 12:08		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.050**	mg/L	0.0050	0.0013	1		04/11/12 12:53	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**3.4**	mg/L	0.12	0.067	25		04/10/12 22:39	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.064**	mg/L	0.0050	0.0031	1		04/11/12 22:00	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-18 **Lab ID: 3066699005** Collected: 04/03/12 17:51 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**70.2**	ug/L	5.0	3.6	1	04/10/12 15:00	04/17/12 09:04	7440-38-2	
Beryllium	**1.3**	ug/L	1.0	0.24	1	04/10/12 15:00	04/17/12 09:04	7440-41-7	
Manganese	**865**	ug/L	5.0	2.3	1	04/10/12 15:00	04/17/12 09:04	7439-96-5	
Sodium	**324000**	ug/L	1000	329	1	04/10/12 15:00	04/17/12 09:04	7440-23-5	
Vanadium	**41.1**	ug/L	5.0	1.8	1	04/10/12 15:00	04/17/12 09:04	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	ND	ug/L	5.0	0.17	1		04/09/12 16:15	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		04/09/12 16:15	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	70-130		1		04/09/12 16:15	17060-07-0	
Toluene-d8 (S)	98	%	70-130		1		04/09/12 16:15	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**91.3**	mg/L	1.0	0.51	10		04/12/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.4**	Std. Units	1.0	1.0	1		04/04/12 22:05		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1590**	umhos/cm	1.0	1.0	1		04/18/12 12:08		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.058**	mg/L	0.0050	0.0013	1		04/11/12 12:54	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**15.7**	mg/L	0.50	0.27	100		04/11/12 20:28	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		04/11/12 22:00	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-28 **Lab ID: 3066699006** Collected: 04/04/12 09:44 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	04/10/12 15:00	04/17/12 09:08	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	04/10/12 15:00	04/17/12 09:08	7440-41-7	
Manganese	ND	ug/L	5.0	2.3	1	04/10/12 15:00	04/17/12 09:08	7439-96-5	
Sodium	**61300**	ug/L	1000	329	1	04/10/12 15:00	04/17/12 09:08	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	04/10/12 15:00	04/17/12 09:08	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**0.49**	mg/L	0.10	0.051	1		04/12/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**6.0**	Std. Units	1.0	1.0	1		04/04/12 22:05		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**395**	umhos/cm	1.0	1.0	1		04/18/12 12:08		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.0069**	mg/L	0.0050	0.0013	1		04/11/12 12:54	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.072**	mg/L	0.0050	0.0027	1		04/10/12 20:27	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.014**	mg/L	0.0050	0.0031	1		04/11/12 22:00	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-31 **Lab ID: 3066699007** Collected: 04/04/12 10:11 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**36.8**	ug/L	5.0	3.6	1	04/10/12 15:00	04/17/12 09:12	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	04/10/12 15:00	04/17/12 09:12	7440-41-7	
Manganese	**729**	ug/L	5.0	2.3	1	04/10/12 15:00	04/17/12 09:12	7439-96-5	
Sodium	**315000**	ug/L	1000	329	1	04/10/12 15:00	04/17/12 09:12	7440-23-5	
Vanadium	**30.2**	ug/L	5.0	1.8	1	04/10/12 15:00	04/17/12 09:12	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	**46.8**	ug/L	5.0	0.17	1		04/09/12 17:04	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		04/09/12 17:04	460-00-4	
1,2-Dichloroethane-d4 (S)	116	%	70-130		1		04/09/12 17:04	17060-07-0	
Toluene-d8 (S)	98	%	70-130		1		04/09/12 17:04	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**54.4**	mg/L	1.0	0.51	10		04/12/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.4**	Std. Units	1.0	1.0	1		04/04/12 22:05		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1330**	umhos/cm	1.0	1.0	1		04/18/12 12:08		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.044**	mg/L	0.0050	0.0013	1		04/11/12 12:57	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**6.3**	mg/L	0.12	0.067	25		04/10/12 22:44	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		04/11/12 22:00	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-32 **Lab ID: 3066699008** Collected: 04/04/12 13:15 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**33.0**	ug/L	5.0	3.6	1	04/10/12 15:00	04/17/12 09:16	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	04/10/12 15:00	04/17/12 09:16	7440-41-7	
Manganese	**1160**	ug/L	5.0	2.3	1	04/10/12 15:00	04/17/12 09:16	7439-96-5	
Sodium	**288000**	ug/L	1000	329	1	04/10/12 15:00	04/17/12 09:16	7440-23-5	
Vanadium	**52.4**	ug/L	5.0	1.8	1	04/10/12 15:00	04/17/12 09:16	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**43.6**	mg/L	1.0	0.51	10		04/12/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.7**	Std. Units	1.0	1.0	1		04/04/12 22:05		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1220**	umhos/cm	1.0	1.0	1		04/18/12 12:08		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.068**	mg/L	0.0050	0.0013	1		04/11/12 12:57	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**4.8**	mg/L	0.12	0.067	25		04/10/12 22:46	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.41**	mg/L	0.0050	0.0031	1		04/11/12 22:00	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-35 **Lab ID: 3066699009** Collected: 04/04/12 12:24 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**14.1**	ug/L	5.0	3.6	1	04/10/12 15:00	04/17/12 09:19	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	04/10/12 15:00	04/17/12 09:19	7440-41-7	
Manganese	**738**	ug/L	5.0	2.3	1	04/10/12 15:00	04/17/12 09:19	7439-96-5	
Sodium	**73900**	ug/L	1000	329	1	04/10/12 15:00	04/17/12 09:19	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	04/10/12 15:00	04/17/12 09:19	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**7.9**	mg/L	0.10	0.051	1		04/12/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.6**	Std. Units	1.0	1.0	1		04/04/12 22:05		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**470**	umhos/cm	1.0	1.0	1		04/18/12 12:08		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.27**	mg/L	0.050	0.013	10		04/11/12 13:23	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**6.9**	mg/L	0.12	0.067	25		04/10/12 22:47	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.72**	mg/L	0.0050	0.0031	1		04/11/12 22:00	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-36 **Lab ID: 3066699010** Collected: 04/04/12 12:50 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	04/10/12 15:00	04/17/12 09:31	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	04/10/12 15:00	04/17/12 09:31	7440-41-7	
Manganese	**199**	ug/L	5.0	2.3	1	04/10/12 15:00	04/17/12 09:31	7439-96-5	
Sodium	**101000**	ug/L	1000	329	1	04/10/12 15:00	04/17/12 09:31	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	04/10/12 15:00	04/17/12 09:31	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**18.4**	mg/L	0.10	0.051	1		04/12/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**8.3**	Std. Units	1.0	1.0	1		04/04/12 22:05		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**557**	umhos/cm	1.0	1.0	1		04/18/12 12:08		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.11**	mg/L	0.0050	0.0013	1		04/11/12 12:58	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**2.6**	mg/L	0.050	0.027	10		04/10/12 21:47	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.16**	mg/L	0.0050	0.0031	1		04/11/12 22:00	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-37 **Lab ID: 3066699011** Collected: 04/04/12 11:51 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	04/10/12 15:00	04/17/12 09:35	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	04/10/12 15:00	04/17/12 09:35	7440-41-7	
Manganese	**5.6**	ug/L	5.0	2.3	1	04/10/12 15:00	04/17/12 09:35	7439-96-5	
Sodium	**34500**	ug/L	1000	329	1	04/10/12 15:00	04/17/12 09:35	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	04/10/12 15:00	04/17/12 09:35	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**3.0**	mg/L	0.10	0.051	1		04/12/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**6.2**	Std. Units	1.0	1.0	1		04/04/12 22:05		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**277**	umhos/cm	1.0	1.0	1		04/18/12 12:08		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.011**	mg/L	0.0050	0.0013	1		04/11/12 13:01	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.19**	mg/L	0.0050	0.0027	1		04/10/12 20:32	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.037**	mg/L	0.0050	0.0031	1		04/11/12 22:00	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-44S **Lab ID: 3066699012** Collected: 04/03/12 16:55 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.51		1	04/13/12 14:00	04/17/12 18:12	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.51		1	04/13/12 14:00	04/17/12 18:12	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.51		1	04/13/12 14:00	04/17/12 18:12	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.51		1	04/13/12 14:00	04/17/12 18:12	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.51		1	04/13/12 14:00	04/17/12 18:12	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.51		1	04/13/12 14:00	04/17/12 18:12	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.51		1	04/13/12 14:00	04/17/12 18:12	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	72	%	30-150		1	04/13/12 14:00	04/17/12 18:12	877-09-8	
Decachlorobiphenyl (S)	75	%	30-150		1	04/13/12 14:00	04/17/12 18:12	2051-24-3	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-44D **Lab ID: 3066699013** Collected: 04/03/12 16:32 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.50		1	04/13/12 14:00	04/17/12 18:33	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.50		1	04/13/12 14:00	04/17/12 18:33	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.50		1	04/13/12 14:00	04/17/12 18:33	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.50		1	04/13/12 14:00	04/17/12 18:33	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.50		1	04/13/12 14:00	04/17/12 18:33	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.50		1	04/13/12 14:00	04/17/12 18:33	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.50		1	04/13/12 14:00	04/17/12 18:33	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	77	%	30-150		1	04/13/12 14:00	04/17/12 18:33	877-09-8	
Decachlorobiphenyl (S)	77	%	30-150		1	04/13/12 14:00	04/17/12 18:33	2051-24-3	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-50 **Lab ID: 3066699014** Collected: 04/03/12 17:30 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**33.6**	ug/L	5.0	3.6	1	04/10/12 15:00	04/17/12 09:53	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	04/10/12 15:00	04/17/12 09:53	7440-41-7	
Manganese	**330**	ug/L	5.0	2.3	1	04/10/12 15:00	04/17/12 09:53	7439-96-5	
Sodium	**238000**	ug/L	1000	329	1	04/10/12 15:00	04/17/12 09:53	7440-23-5	
Vanadium	**26.2**	ug/L	5.0	1.8	1	04/10/12 15:00	04/17/12 09:53	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**40.4**	mg/L	1.0	0.51	10		04/12/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.0**	Std. Units	1.0	1.0	1		04/04/12 22:05		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1050**	umhos/cm	1.0	1.0	1		04/18/12 12:08		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.033**	mg/L	0.0050	0.0013	1		04/11/12 13:01	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**3.3**	mg/L	0.12	0.067	25		04/10/12 22:49	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.081**	mg/L	0.0050	0.0031	1		04/11/12 22:00	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-51 **Lab ID: 3066699015** Collected: 04/04/12 10:30 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**34.4**	ug/L	5.0	3.6	1	04/10/12 15:00	04/17/12 09:57	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	04/10/12 15:00	04/17/12 09:57	7440-41-7	
Manganese	**764**	ug/L	5.0	2.3	1	04/10/12 15:00	04/17/12 09:57	7439-96-5	
Sodium	**312000**	ug/L	1000	329	1	04/10/12 15:00	04/17/12 09:57	7440-23-5	
Vanadium	**35.0**	ug/L	5.0	1.8	1	04/10/12 15:00	04/17/12 09:57	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	**48.8**	ug/L	5.0	0.17	1		04/09/12 17:29	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		04/09/12 17:29	460-00-4	
1,2-Dichloroethane-d4 (S)	120	%	70-130		1		04/09/12 17:29	17060-07-0	
Toluene-d8 (S)	98	%	70-130		1		04/09/12 17:29	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**55.9**	mg/L	1.0	0.51	10		04/12/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.4**	Std. Units	1.0	1.0	1		04/04/12 22:05		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1320**	umhos/cm	1.0	1.0	1		04/18/12 12:08		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.033**	mg/L	0.0050	0.0013	1		04/11/12 13:02	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**6.0**	mg/L	0.12	0.067	25		04/10/12 22:51	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.0058**	mg/L	0.0050	0.0031	1		04/11/12 22:00	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Sample: MW-39S **Lab ID: 3066699016** Collected: 04/04/12 10:52 Received: 04/04/12 16:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**14.4**	ug/L	5.0	3.6	1	04/10/12 15:00	04/17/12 10:01	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	04/10/12 15:00	04/17/12 10:01	7440-41-7	
Manganese	**63.7**	ug/L	5.0	2.3	1	04/10/12 15:00	04/17/12 10:01	7439-96-5	
Sodium	**976000**	ug/L	1000	329	1	04/10/12 15:00	04/17/12 10:01	7440-23-5	
Vanadium	**7.2**	ug/L	5.0	1.8	1	04/10/12 15:00	04/17/12 10:01	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**156**	mg/L	1.0	0.51	10		04/12/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.0**	Std. Units	1.0	1.0	1		04/04/12 22:05		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**3780**	umhos/cm	1.0	1.0	1		04/18/12 12:08		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.088**	mg/L	0.0050	0.0013	1		04/11/12 13:43	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**5.4**	mg/L	0.12	0.067	25		04/10/12 22:53	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.18**	mg/L	0.0050	0.0031	1		04/11/12 22:00	57-12-5	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

QC Batch: MPRP/8094 — Analysis Method: EPA 6010B
QC Batch Method: EPA 3005 — Analysis Description: 6010 MET
Associated Lab Samples: 3066699001, 3066699002, 3066699003, 3066699004, 3066699005, 3066699006, 3066699007, 3066699008, 3066699009, 3066699010, 3066699011, 3066699014, 3066699015, 3066699016

METHOD BLANK: 427985 — Matrix: Water
Associated Lab Samples: 3066699001, 3066699002, 3066699003, 3066699004, 3066699005, 3066699006, 3066699007, 3066699008, 3066699009, 3066699010, 3066699011, 3066699014, 3066699015, 3066699016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	5.0	04/17/12 08:07	
Beryllium	ug/L	ND	1.0	04/17/12 08:07	
Manganese	ug/L	ND	5.0	04/17/12 08:07	
Sodium	ug/L	ND	1000	04/17/12 08:07	
Vanadium	ug/L	ND	5.0	04/17/12 08:07	

LABORATORY CONTROL SAMPLE: 427986

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	500	511	102	80-120	
Beryllium	ug/L	500	522	104	80-120	
Manganese	ug/L	500	509	102	80-120	
Sodium	ug/L	5000	5260	105	80-120	
Vanadium	ug/L	500	504	101	80-120	

MATRIX SPIKE SAMPLE: 427988

Parameter	Units	3066699009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	14.1	500	522	102	80-120	
Beryllium	ug/L	ND	500	508	102	80-120	
Manganese	ug/L	738	500	1180	88	80-120	
Sodium	ug/L	73900	5000	74900	20	80-120	M1
Vanadium	ug/L	ND	500	503	100	80-120	

MATRIX SPIKE SAMPLE: 427990

Parameter	Units	3066832003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	ND	500	517	103	80-120	
Beryllium	ug/L	ND	500	516	103	80-120	
Manganese	ug/L	4240	500	4580	67	80-120	M1
Sodium	ug/L	55800	5000	58600	58	80-120	M1
Vanadium	ug/L	ND	500	500	100	80-120	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

SAMPLE DUPLICATE: 427987

Parameter	Units	3066699009 Result	Dup Result	RPD	Max RPD	Qualifiers
Arsenic	ug/L	14.1	13.9	2	20	
Beryllium	ug/L	ND	ND		20	
Manganese	ug/L	738	739	.04	20	
Sodium	ug/L	73900	73800	.1	20	
Vanadium	ug/L	ND	ND		20	

SAMPLE DUPLICATE: 427989

Parameter	Units	3066832003 Result	Dup Result	RPD	Max RPD	Qualifiers
Arsenic	ug/L	ND	ND		20	
Beryllium	ug/L	ND	ND		20	
Manganese	ug/L	4240	4300	1	20	
Sodium	ug/L	55800	56300	.9	20	
Vanadium	ug/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

QC Batch: MSV/12435 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 3066699001, 3066699002, 3066699005, 3066699007, 3066699015

METHOD BLANK: 427324 Matrix: Water
Associated Lab Samples: 3066699001, 3066699002, 3066699005, 3066699007, 3066699015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Tetrachloroethene	ug/L	ND	5.0	04/09/12 11:18	
1,2-Dichloroethane-d4 (S)	%	111	70-130	04/09/12 11:18	
4-Bromofluorobenzene (S)	%	101	70-130	04/09/12 11:18	
Toluene-d8 (S)	%	99	70-130	04/09/12 11:18	

LABORATORY CONTROL SAMPLE: 427325

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/L	20	18.4	92	63.4-121	
1,2-Dichloroethane-d4 (S)	%			106	70-130	
4-Bromofluorobenzene (S)	%			93	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 427326 427327

Parameter	Units	3066669002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Tetrachloroethene	ug/L	ND	20	20	18.1	18.7	91	94	63.4-121	3	30	
1,2-Dichloroethane-d4 (S)	%						95	94	70-130			
4-Bromofluorobenzene (S)	%						96	96	70-130			
Toluene-d8 (S)	%						95	96	70-130			

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

QC Batch: OEXT/11117 Analysis Method: EPA 8082
QC Batch Method: EPA 3510 Analysis Description: 8082 GCS PCB
Associated Lab Samples: 3066699003, 3066699012, 3066699013

METHOD BLANK: 429313 Matrix: Water
Associated Lab Samples: 3066699003, 3066699012, 3066699013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	ND	0.50	04/17/12 17:11	
PCB-1221 (Aroclor 1221)	ug/L	ND	0.50	04/17/12 17:11	
PCB-1232 (Aroclor 1232)	ug/L	ND	0.50	04/17/12 17:11	
PCB-1242 (Aroclor 1242)	ug/L	ND	0.50	04/17/12 17:11	
PCB-1248 (Aroclor 1248)	ug/L	ND	0.50	04/17/12 17:11	
PCB-1254 (Aroclor 1254)	ug/L	ND	0.50	04/17/12 17:11	
PCB-1260 (Aroclor 1260)	ug/L	ND	0.50	04/17/12 17:11	
Decachlorobiphenyl (S)	%	50	30-150	04/17/12 17:11	
Tetrachloro-m-xylene (S)	%	67	30-150	04/17/12 17:11	

LABORATORY CONTROL SAMPLE: 429314

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1232 (Aroclor 1232)	ug/L	2.5	1.8	72	55-145	1c
Decachlorobiphenyl (S)	%			45	30-150	
Tetrachloro-m-xylene (S)	%			69	30-150	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

QC Batch: WET/13282 Analysis Method: SM 4500F/C
QC Batch Method: SM 4500F/C Analysis Description: SM4500FC Fluoride Water
Associated Lab Samples: 3066699001, 3066699002, 3066699003, 3066699004, 3066699005, 3066699006, 3066699007, 3066699008, 3066699009, 3066699010, 3066699011, 3066699014, 3066699015, 3066699016

METHOD BLANK: 428848 Matrix: Water
Associated Lab Samples: 3066699001, 3066699002, 3066699003, 3066699004, 3066699005, 3066699006, 3066699007, 3066699008, 3066699009, 3066699010, 3066699011, 3066699014, 3066699015, 3066699016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.10	04/12/12 14:00	

LABORATORY CONTROL SAMPLE: 428849

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2	2.0	98	85-115	

MATRIX SPIKE SAMPLE: 428850

Parameter	Units	3067126001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.77	4	4.8	101	85-115	

SAMPLE DUPLICATE: 428851

Parameter	Units	3067126001 Result	Dup Result	RPD	Max RPD	Qualifiers
Fluoride	mg/L	0.77	0.80	3	20	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

QC Batch: WET/13193 Analysis Method: EPA 9040
QC Batch Method: EPA 9040 Analysis Description: 9040 pH
Associated Lab Samples: 3066699001, 3066699002, 3066699003, 3066699004, 3066699005, 3066699006, 3066699007, 3066699008, 3066699009, 3066699010, 3066699011, 3066699014, 3066699015, 3066699016

SAMPLE DUPLICATE: 425817

Parameter	Units	3066699008 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	9.7	9.7	.2		H6

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

QC Batch: WET/13281 Analysis Method: EPA 9050
QC Batch Method: EPA 9050 Analysis Description: 9050 Specific Conductance
Associated Lab Samples: 3066699001, 3066699002, 3066699003

METHOD BLANK: 428654 Matrix: Water
Associated Lab Samples: 3066699001, 3066699002, 3066699003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	1.0	04/12/12 13:32	

LABORATORY CONTROL SAMPLE: 428655

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1410	1460	104	85-115	

SAMPLE DUPLICATE: 428656

Parameter	Units	3066252001 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	59100	59100	0	20	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

QC Batch: WET/13348 Analysis Method: EPA 9050
QC Batch Method: EPA 9050 Analysis Description: 9050 Specific Conductance
Associated Lab Samples: 3066699004, 3066699005, 3066699006, 3066699007, 3066699008, 3066699009, 3066699010, 3066699011, 3066699014, 3066699015, 3066699016

METHOD BLANK: 430819 Matrix: Water
Associated Lab Samples: 3066699004, 3066699005, 3066699006, 3066699007, 3066699008, 3066699009, 3066699010, 3066699011, 3066699014, 3066699015, 3066699016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	1.0	04/18/12 12:08	

LABORATORY CONTROL SAMPLE: 430820

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1410	1480	105	85-115	

SAMPLE DUPLICATE: 430821

Parameter	Units	3066699004 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	1030	1020	.6	20	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

QC Batch: WETA/19810 — Analysis Method: SM 4500-CN I
QC Batch Method: SM 4500-CN I — Analysis Description: SM4500CN-I Cyanide WAD
Associated Lab Samples: 3066699001, 3066699002, 3066699003, 3066699004, 3066699005, 3066699006, 3066699007, 3066699008, 3066699009, 3066699010, 3066699011, 3066699014, 3066699015, 3066699016

METHOD BLANK: 979985 — Matrix: Water
Associated Lab Samples: 3066699001, 3066699002, 3066699003, 3066699004, 3066699005, 3066699006, 3066699007, 3066699008, 3066699009, 3066699010, 3066699011, 3066699014, 3066699015, 3066699016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide, Dissociable	mg/L	ND	0.0050	04/11/12 12:41	

LABORATORY CONTROL SAMPLE: 979986

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide, Dissociable	mg/L	.1	0.12	118	80-120	

MATRIX SPIKE SAMPLE: 979987

Parameter	Units	5061024001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cyanide, Dissociable	mg/L	0.047	.5	0.75	140	80-120	D3,M1

SAMPLE DUPLICATE: 979988

Parameter	Units	3066699001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cyanide, Dissociable	mg/L	0.064	0.086	30	10	R1

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

QC Batch: WETA/9548 — Analysis Method: SM 4500-CN-E
QC Batch Method: SM 4500-CN-E — Analysis Description: 4500CNE Cyanide, Total
Associated Lab Samples: 3066699001, 3066699002, 3066699003, 3066699004, 3066699005, 3066699006, 3066699007, 3066699008, 3066699009, 3066699010, 3066699011, 3066699014, 3066699015, 3066699016

METHOD BLANK: 427934 — Matrix: Water
Associated Lab Samples: 3066699001, 3066699002, 3066699003, 3066699004, 3066699005, 3066699006, 3066699007, 3066699008, 3066699009, 3066699010, 3066699011, 3066699014, 3066699015, 3066699016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	04/10/12 20:12	

LABORATORY CONTROL SAMPLE: 427935

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	.2	0.20	100	90-110	

MATRIX SPIKE SAMPLE: 427937

Parameter	Units	3066699003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	0.013	.1	0.12	103	90-110	

SAMPLE DUPLICATE: 427936

Parameter	Units	3066699003 Result	Dup Result	RPD	Max RPD	Qualifiers
Cyanide	mg/L	0.013	0.010	23	20	D6

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

QC Batch: WETA/9549 | Analysis Method: SM 4500-CN-G
QC Batch Method: SM 4500-CN-G | Analysis Description: 4500CNG Cyanide, Amenable
Associated Lab Samples: 3066699001, 3066699002, 3066699003, 3066699004, 3066699005, 3066699006, 3066699007, 3066699008, 3066699009, 3066699010, 3066699011, 3066699014, 3066699015, 3066699016

METHOD BLANK: 427939 | Matrix: Water
Associated Lab Samples: 3066699001, 3066699002, 3066699003, 3066699004, 3066699005, 3066699006, 3066699007, 3066699008, 3066699009, 3066699010, 3066699011, 3066699014, 3066699015, 3066699016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Amenable Cyanide	mg/L	ND	0.0050	04/11/12 22:00	

SAMPLE DUPLICATE: 427940

Parameter	Units	3066699003 Result	Dup Result	RPD	Max RPD	Qualifiers
Amenable Cyanide	mg/L	ND	ND		20	

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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-PA	Pace Analytical Services - Greensburg

BATCH QUALIFIERS

Batch: OEXT/11117

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1c	Result reported from front column due to low response in calibration check standards on rear column.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
H6	Analysis initiated more than 15 minutes after sample collection.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3066699003	**MW-12**	EPA 3510	OEXT/11117	EPA 8082	GCSV/4347
3066699012	**MW-44S**	EPA 3510	OEXT/11117	EPA 8082	GCSV/4347
3066699013	**MW-44D**	EPA 3510	OEXT/11117	EPA 8082	GCSV/4347
3066699001	**MW-2**	EPA 3005	MPRP/8094	EPA 6010B	ICP/7530
3066699002	**MW-5**	EPA 3005	MPRP/8094	EPA 6010B	ICP/7530
3066699003	**MW-12**	EPA 3005	MPRP/8094	EPA 6010B	ICP/7530
3066699004	**MW-16**	EPA 3005	MPRP/8094	EPA 6010B	ICP/7530
3066699005	**MW-18**	EPA 3005	MPRP/8094	EPA 6010B	ICP/7530
3066699006	**MW-28**	EPA 3005	MPRP/8094	EPA 6010B	ICP/7530
3066699007	**MW-31**	EPA 3005	MPRP/8094	EPA 6010B	ICP/7530
3066699008	**MW-32**	EPA 3005	MPRP/8094	EPA 6010B	ICP/7530
3066699009	**MW-35**	EPA 3005	MPRP/8094	EPA 6010B	ICP/7530
3066699010	**MW-36**	EPA 3005	MPRP/8094	EPA 6010B	ICP/7530
3066699011	**MW-37**	EPA 3005	MPRP/8094	EPA 6010B	ICP/7530
3066699014	**MW-50**	EPA 3005	MPRP/8094	EPA 6010B	ICP/7530
3066699015	**MW-51**	EPA 3005	MPRP/8094	EPA 6010B	ICP/7530
3066699016	**MW-39S**	EPA 3005	MPRP/8094	EPA 6010B	ICP/7530
3066699001	**MW-2**	EPA 8260	MSV/12435		
3066699002	**MW-5**	EPA 8260	MSV/12435		
3066699005	**MW-18**	EPA 8260	MSV/12435		
3066699007	**MW-31**	EPA 8260	MSV/12435		
3066699015	**MW-51**	EPA 8260	MSV/12435		
3066699001	**MW-2**	SM 4500F/C	WET/13282		
3066699002	**MW-5**	SM 4500F/C	WET/13282		
3066699003	**MW-12**	SM 4500F/C	WET/13282		
3066699004	**MW-16**	SM 4500F/C	WET/13282		
3066699005	**MW-18**	SM 4500F/C	WET/13282		
3066699006	**MW-28**	SM 4500F/C	WET/13282		
3066699007	**MW-31**	SM 4500F/C	WET/13282		
3066699008	**MW-32**	SM 4500F/C	WET/13282		
3066699009	**MW-35**	SM 4500F/C	WET/13282		
3066699010	**MW-36**	SM 4500F/C	WET/13282		
3066699011	**MW-37**	SM 4500F/C	WET/13282		
3066699014	**MW-50**	SM 4500F/C	WET/13282		
3066699015	**MW-51**	SM 4500F/C	WET/13282		
3066699016	**MW-39S**	SM 4500F/C	WET/13282		
3066699001	**MW-2**	EPA 9040	WET/13193		
3066699002	**MW-5**	EPA 9040	WET/13193		
3066699003	**MW-12**	EPA 9040	WET/13193		
3066699004	**MW-16**	EPA 9040	WET/13193		
3066699005	**MW-18**	EPA 9040	WET/13193		
3066699006	**MW-28**	EPA 9040	WET/13193		
3066699007	**MW-31**	EPA 9040	WET/13193		
3066699008	**MW-32**	EPA 9040	WET/13193		
3066699009	**MW-35**	EPA 9040	WET/13193		
3066699010	**MW-36**	EPA 9040	WET/13193		
3066699011	**MW-37**	EPA 9040	WET/13193		

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3066699014	**MW-50**	EPA 9040	WET/13193		
3066699015	**MW-51**	EPA 9040	WET/13193		
3066699016	**MW-39S**	EPA 9040	WET/13193		
3066699001	**MW-2**	EPA 9050	WET/13281		
3066699002	**MW-5**	EPA 9050	WET/13281		
3066699003	**MW-12**	EPA 9050	WET/13281		
3066699004	**MW-16**	EPA 9050	WET/13348		
3066699005	**MW-18**	EPA 9050	WET/13348		
3066699006	**MW-28**	EPA 9050	WET/13348		
3066699007	**MW-31**	EPA 9050	WET/13348		
3066699008	**MW-32**	EPA 9050	WET/13348		
3066699009	**MW-35**	EPA 9050	WET/13348		
3066699010	**MW-36**	EPA 9050	WET/13348		
3066699011	**MW-37**	EPA 9050	WET/13348		
3066699014	**MW-50**	EPA 9050	WET/13348		
3066699015	**MW-51**	EPA 9050	WET/13348		
3066699016	**MW-39S**	EPA 9050	WET/13348		
3066699001	**MW-2**	SM 4500-CN I	WETA/19810		
3066699002	**MW-5**	SM 4500-CN I	WETA/19810		
3066699003	**MW-12**	SM 4500-CN I	WETA/19810		
3066699004	**MW-16**	SM 4500-CN I	WETA/19810		
3066699005	**MW-18**	SM 4500-CN I	WETA/19810		
3066699006	**MW-28**	SM 4500-CN I	WETA/19810		
3066699007	**MW-31**	SM 4500-CN I	WETA/19810		
3066699008	**MW-32**	SM 4500-CN I	WETA/19810		
3066699009	**MW-35**	SM 4500-CN I	WETA/19810		
3066699010	**MW-36**	SM 4500-CN I	WETA/19810		
3066699011	**MW-37**	SM 4500-CN I	WETA/19810		
3066699014	**MW-50**	SM 4500-CN I	WETA/19810		
3066699015	**MW-51**	SM 4500-CN I	WETA/19810		
3066699016	**MW-39S**	SM 4500-CN I	WETA/19810		
3066699001	**MW-2**	SM 4500-CN-E	WETA/9548		
3066699002	**MW-5**	SM 4500-CN-E	WETA/9548		
3066699003	**MW-12**	SM 4500-CN-E	WETA/9548		
3066699004	**MW-16**	SM 4500-CN-E	WETA/9548		
3066699005	**MW-18**	SM 4500-CN-E	WETA/9548		
3066699006	**MW-28**	SM 4500-CN-E	WETA/9548		
3066699007	**MW-31**	SM 4500-CN-E	WETA/9548		
3066699008	**MW-32**	SM 4500-CN-E	WETA/9548		
3066699009	**MW-35**	SM 4500-CN-E	WETA/9548		
3066699010	**MW-36**	SM 4500-CN-E	WETA/9548		
3066699011	**MW-37**	SM 4500-CN-E	WETA/9548		
3066699014	**MW-50**	SM 4500-CN-E	WETA/9548		
3066699015	**MW-51**	SM 4500-CN-E	WETA/9548		
3066699016	**MW-39S**	SM 4500-CN-E	WETA/9548		
3066699001	**MW-2**	SM 4500-CN-G	WETA/9549		

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3066699

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3066699002	**MW-5**	SM 4500-CN-G	WETA/9549		
3066699003	**MW-12**	SM 4500-CN-G	WETA/9549		
3066699004	**MW-16**	SM 4500-CN-G	WETA/9549		
3066699005	**MW-18**	SM 4500-CN-G	WETA/9549		
3066699006	**MW-28**	SM 4500-CN-G	WETA/9549		
3066699007	**MW-31**	SM 4500-CN-G	WETA/9549		
3066699008	**MW-32**	SM 4500-CN-G	WETA/9549		
3066699009	**MW-35**	SM 4500-CN-G	WETA/9549		
3066699010	**MW-36**	SM 4500-CN-G	WETA/9549		
3066699011	**MW-37**	SM 4500-CN-G	WETA/9549		
3066699014	**MW-50**	SM 4500-CN-G	WETA/9549		
3066699015	**MW-51**	SM 4500-CN-G	WETA/9549		
3066699016	**MW-39S**	SM 4500-CN-G	WETA/9549		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

1568073

Section A Required Client Information:
Company: Ormet Primary Aluminum
Address: Hannibal, Ohio
Attn: John Reggi
Email To:
Phone: 740-483-2659 Fax:
Requested Due Date/TAT:

Section B Required Project Information:
Report To: Cleason Smith / HMI
Copy To: cpsmith@verizon.net
89 West Main St.
West Middletown, PA 15379
Purchase Order No.:
Project Name: Ormet-Hannibal
Project Number: 724-587-5690

Section C Invoice Information:
Attention: John Reggi
Company Name: Ormet Primary Aluminum Corp
Address: Hannibal, Ohio
Pace Quote Reference: Brian Shaffner
Pace Project Manager: Rachel Christner
Pace Profile #:

REGULATORY AGENCY
☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Ohio

Requested Analysis Filtered (Y/N)

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3 (one Metals)	HCl (three VOC)	NaOH (two CNs)	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): Gen Chem	Metals	WAD CN	Amen CN	Tot CN	VOCs	PCBs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-1	WT	G	7-24-12		5:40pm				1		1		2				1	1	1	1	1				001
2	MW-2	↓	↓	7-24-12		4:46pm				1		1	3	2				1	1	1	1	1	1			002
3	MW-5	↓	↓	7-24-12		3:13pm				1		1	3	2				1	1	1	1	1	1			003
4	MW-7	↓	↓	7-25-12		9:08pm				1		1		2				1	1	1	1	1				004
5	MW-8	↓	↓	7-25-12		9:47am				1		1		2				↓	↓	↓	↓	↓				005
6	MW-10	↓	↓	7-25-12		10:26am				1		1		2				↓	↓	↓	↓	↓				006
7	~~MW-11~~	↓	↓	~~7-25-12~~		~~11:00am~~				1		1		2				↓	↓	↓	↓	↓				~~007~~
8	* MW-12	↓	↓	7-26-12		9:55am				3		1		2				1	1	1	1	1	1			~~006~~ 007
9	MW-14	↓	↓	7-25-12		6:11pm				1		1		2				1	1	1	1	1				~~007~~ 008
10	MW-15	↓	↓	7-26-12		11:40am				1		1		2				↓	↓	↓	↓	↓				~~008~~ 009
11	MW-16	↓	↓	7-25-12		12:36pm				1		1		2				↓	↓	↓	↓	↓				~~009~~ 010
12	MW-17	↓	↓	7-26-12		10:25am				1		1		2				↓	↓	↓	↓	↓				~~010~~ 011

3074195

SMW 7/27/12

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature] HMI	7-26-12	3:05pm	[signature] Pace	7-26	3:05				
	[signature] Pace	7-26	5:40	[signature]	7/26/12	17:40	SMW	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER:
SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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CHAIN-OF-CUSTODY / Analytical Request Document

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1568074

Section A Required Client Information:
Company: Ormet Primary Al Corp
Address: Hannibal, Ohio
Attn: John Reggi
Email To:
Phone: 740-483-2659 Fax:
Requested Due Date/TAT:

Section B Required Project Information:
Report To: Cleason Smith / HMI
Copy To: cpsmith@verizon.net
89 West Main St
Purchase Order No.: West Middletown, PA 15379
Project Name: Ormet-Hannibal
Project Number: 724-587-5690

Section C Invoice Information:
Attention: John Reggi
Company Name: Ormet Primary Aluminum Corp
Address: Hannibal, Ohio
Pace Quote Reference: Brian Shaffner
Pace Project Manager: Rachel Christner
Pace Profile #:

REGULATORY AGENCY
☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Ohio

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Gen Chem	Metals	WAD CN	Amen CN	Tot. CN	VOCs	PCBs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	* MW-18	WT	G	7-25-12	4:27pm					1		1	3	2					1	1	1	1	1	1			013 012
2	MW-19			7-25-12	3:11pm														1	1	1	1	1				014 013
3	MW-28			7-25-12	4:07pm																						015 014
4	MW-29S			7-25-12	12:09pm																						016 015
5	MW-29D			7-25-12	11:50am																						017 016
6	* MW-30			7-25-12	1:08pm								3						1	1	1	1	1	1			018 017
7	* MW-31			7-25-12	4:59pm								3						1	1	1	1	1	1			019 018
8	MW-32			7-26-12	12:27pm														1	1	1	1	1				020 019
9	MW-34S			7-26-12	11:18am																						021 020
10	MW-34D			7-26-12	10:59am																						022 021
11	MW-35			7-26-12	12:49pm																						023 022
12	MW-36			7-26-12	12:05pm																						024 023

3074195

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature] / HMI	7/26/12	3:05pm	[signature] Pace	7-26	3:05				
	[signature] Pace	7-26	5:40	[signature]	7/26/12	1740	Scan	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER:
SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

1568075

Section A Required Client Information:

Company:	Ormet Primary Aluminum Corp
Address:	Hannibal, Ohio
	Attn: John Reggi
Email To:	
Phone:	740-483-2659
Fax:	
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Cleason P. Smith / HMI
Copy To:	cpsmith@verizon.net
	89 W. Main St.
Purchase Order No.:	W. Middletown, PA 15379
Project Name:	Ormet Hannibal
Project Number:	724-587-5690

Section C Invoice Information:

Attention:	John Reggi
Company Name:	Ormet Primary Aluminum Corp.
Address:	Hannibal, Ohio
Pace Quote Reference:	Brian Shaffner
Pace Project Manager:	Rachel Christner
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Gen Chem (N)	Metals (Y)	WAD CN (N)	Amen CN (N)	Tot CN (N)	VOCs (N)	PCB (N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-37	WT	G	7-26-12	1:07pm					1		1		2					1	1	1	1	1				024
2	MW-39S	↓	↓	7-25-12	5:52pm					↓		↓		↓					↓	↓	↓	↓	↓				025
3	MW-39D	↓	↓	7-25-12	5:31pm					↓		↓		↓					↓	↓	↓	↓	↓				026
4	MW-40S	↓	↓	7-24-12	4:16pm					↓		↓		↓					↓	↓	↓	↓	↓				027
5	* MW-40D	↓	↓	7-24-12	3:51pm					↓		↓		↓					↓	↓	↓	↓	↓				028
6	MW-42S	↓	↓	7-26-12	9:22am					↓		↓		↓					↓	↓	↓	↓	↓				029
7	MW-42D	↓	↓	7-26-12	9:00am					↓		↓		↓					↓	↓	↓	↓	↓				030
8	MW-44S	↓	↓	7-25-12	11:22am					2														1			031
9	MW-44D	↓	↓	7-25-12	11:04am					2														1			032
10	MW-45	↓	↓	7-24-12	4:15pm					1		↓		↓					1	1	1	1	1				033
11	MW-46	↓	↓	7-25-12	9:55am					1		↓		↓					↓	↓	↓	↓	↓				034
12	MW-47	↓	↓	7-25-12	1:15pm					1		↓		↓					↓	↓	↓	↓	↓				035

3074195

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Cleason P. Smith / HMI	7-26-12	3:05pm	[signature] Pace	7-26	3:05				
	[signature] Pace	2-26	5:40	[signature]	7/26/12	1740	scur	Y	Y	Y

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER:	
SIGNATURE of SAMPLER:	DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 4 of 4

1568076

Section A Required Client Information:
Company: Ormet Primary Aluminum Corp.
Address: Hannibal, Ohio
Attn. John Reggi
Email To:
Phone: 740-483-2659 Fax:
Requested Due Date/TAT:

Section B Required Project Information:
Report To: Cleason Smith / HMI
Copy To: 8 cpsmith@verizon.net
89 W. Main St.
Purchase Order No.: W. Middletown, PA 15379
Project Name: 724-587-5690
Project Number:

Section C Invoice Information:
Attention: John Reggi
Company Name: Ormet Primary Aluminum Corp
Address: Hannibal, Ohio
Pace Quote Reference: Brian Shaffner
Pace Project Manager: Rachel Christner
Pace Profile #:

REGULATORY AGENCY
☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Ohio

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Gen Chem (N)	Metals (Y)	WAD CN (N)	Amer CN (N)	Tot CN (N)	VOCs (N)	PCBs (N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 3074195
1	MW-48	WT	G	7-26-12		10:35am				1		1		2					1	1	1	1	1				036
2																											
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature]	7-26-12	3:05pm	[signature]	7-26	3:05				
				[signature]	7/26/12	1740	[illegible]	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER:
SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt

Pace Analytical

Client Name: ormet

Project # 3074195

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____

Optional
Proj. Due Date:
Proj. Name:

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 5 (6) 7 Type of Ice: (Wet) Blue None ☑ Samples on ice, cooling process has begun

Cooler Temperature 0.7, 1.6, 0.5, 2.9 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: VEN 7/26/12

Temp should be above freezing to 6°C 1.1, 4.3

				Comments:
Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☐Yes	☑No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☑Yes	☐No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WA				
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A	13. MW-395 Metals : 7/26/12 0930 3ml HNO_3
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes	☑No	☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes	☐No		Initial when completed VEN / Lot # of added preservative RFU-02175
Samples checked for dechlorination:	☑Yes	☐No	☐N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☑No	☐N/A	15.
Trip Blank Present:	☐Yes	☑No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased): _____				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Rachel Zimmerman **Date:** 7/30/12

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical

Project Number: 3074195

Client Name: Ormet

Item No.	Matrix Code	Glass Jar (120 / 250 / 500 / 1L)	Soil kit (2 SB, 1M, soil jar)	Chemistry (250 / 500 / 1L)	Organics (1L)	Nutrient (250 / 500)	Phenolics (250 ml)	TOC (40 ml / 250 ml)	TOX (250 ml)	Total Metals	Dissolved Metals preserved Y N	O & G (1L)	TPH (1L)	VOA (40 ml 30 ml)	Cyanide (250 ml)	Sulfide (500 ml)	Bacteria (120 ml)	Wipes / swipe/ smear/ filter	Radchem Nalgene (125 / 250 / 500 / 1L)	Radchem Nalgene (1/2 gal. / 1 gal.L)	Cubitainer (500 ml / 4L)	Ziploc	Other	Other
001	WS			1						1					2									
002														3										
003																								
004																								
006																								
007					2																			
008																								
011																								
012														3										
013																								
016																								
017														3										

Pace Analytical

LTW 7/26/12

page 2/3

Project Number: 3074195

Client Name: Ormet

Item No.	Matrix Code	Glass Jar (120 / 250 / 500 / 1L)	Soil kit (2 SB, 1M, soil jar)	Chemistry (250 / 500 / 1L)	Organics (1L)	Nutrient (250 / 500)	Phenolics (250 ml)	TOC (40 ml / 250 ml)	TOX (250 ml)	Total Metals	Dissolved Metals preserved Y N	O & G (1L)	TPH (1L)	VOA (40 ml 30 ml)	Cyanide (250 ml)	Sulfide (500 ml)	Bacteria (120 ml)	Wipes / swipe/ smear/ filter	Radchem Nalgene (125 / 250 / 500 / 1L)	Radchem Nalgene (1/2 gal. / 1 gal.L)	Cubitainer (500 ml / 4L)	Ziploc	Other	Other
018	WA			1						1				3	2									
019																								
030																								
031					2																			
032																								
033				1						1					2									
034																								
035														3										
036																								

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

August 10, 2012

Mr. Cleason Smith
Hydrosystems Management, Inc.
89 West Main Street
PO Box 56
West Middletown, PA 15379

RE: Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Dear Mr. Smith:
Enclosed are the analytical results for sample(s) received by the laboratory on July 26, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

David A. Pichette for
Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Mr. John Reggi, Ormet Primary Aluminum Corporation

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CERTIFICATIONS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH 0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana/TNI Certification #: LA080002
Louisiana/TNI Certification #: 4086
Maine Certification #: PA0091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: ANTE
Virgin Island/PADEP Certification
Virginia Certification #: 00112
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia Certification #: 143
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
A2LA Certification #: 2456.01
Arkansas Certification #: 12-019-0
Illinois Certification #: 002885
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-12-3
Utah Certification #: KS000212012-2

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SAMPLE SUMMARY

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3074195001	**MW-1**	Water	07/24/12 17:40	07/26/12 17:40
3074195002	**MW-2**	Water	07/24/12 16:46	07/26/12 17:40
3074195003	**MW-5**	Water	07/24/12 15:13	07/26/12 17:40
3074195004	**MW-7**	Water	07/25/12 09:08	07/26/12 17:40
3074195005	**MW-8**	Water	07/25/12 09:47	07/26/12 17:40
3074195006	**MW-10**	Water	07/25/12 10:26	07/26/12 17:40
3074195007	**MW-12**	Water	07/26/12 09:55	07/26/12 17:40
3074195008	**MW-14**	Water	07/25/12 18:11	07/26/12 17:40
3074195009	**MW-15**	Water	07/26/12 11:40	07/26/12 17:40
3074195010	**MW-16**	Water	07/25/12 12:36	07/26/12 17:40
3074195011	**MW-17**	Water	07/26/12 10:25	07/26/12 17:40
3074195012	**MW-18**	Water	07/25/12 16:27	07/26/12 17:40
3074195013	**MW-19**	Water	07/25/12 15:11	07/26/12 17:40
3074195014	**MW-28**	Water	07/25/12 16:07	07/26/12 17:40
3074195015	**MW-29S**	Water	07/25/12 12:09	07/26/12 17:40
3074195016	**MW-29D**	Water	07/25/12 11:50	07/26/12 17:40
3074195017	**MW-30**	Water	07/25/12 13:08	07/26/12 17:40
3074195018	**MW-31**	Water	07/25/12 16:59	07/26/12 17:40
3074195019	**MW-32**	Water	07/26/12 12:27	07/26/12 17:40
3074195020	**MW-34S**	Water	07/26/12 11:18	07/26/12 17:40
3074195021	**MW-34D**	Water	07/26/12 10:59	07/26/12 17:40
3074195022	**MW-35**	Water	07/26/12 12:49	07/26/12 17:40
3074195023	**MW-36**	Water	07/26/12 12:05	07/26/12 17:40
3074195024	**MW-37**	Water	07/26/12 13:07	07/26/12 17:40
3074195025	**MW-39S**	Water	07/25/12 17:52	07/26/12 17:40
3074195026	**MW-39D**	Water	07/25/12 17:31	07/26/12 17:40
3074195027	**MW-40S**	Water	07/24/12 16:16	07/26/12 17:40
3074195028	**MW-40D**	Water	07/24/12 15:51	07/26/12 17:40
3074195029	**MW-42S**	Water	07/26/12 09:22	07/26/12 17:40
3074195030	**MW-42D**	Water	07/26/12 09:00	07/26/12 17:40
3074195031	**MW-44S**	Water	07/25/12 11:22	07/26/12 17:40
3074195032	**MW-44D**	Water	07/25/12 11:04	07/26/12 17:40
3074195033	**MW-45**	Water	07/24/12 16:15	07/26/12 17:40
3074195034	**MW-46**	Water	07/25/12 09:55	07/26/12 17:40
3074195035	**MW-47**	Water	07/25/12 13:15	07/26/12 17:40
3074195036	**MW-48**	Water	07/26/12 10:35	07/26/12 17:40

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SAMPLE ANALYTE COUNT

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3074195001	**MW-1**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195002	**MW-2**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	JAS	4	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195003	**MW-5**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	JAS	4	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195004	**MW-7**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195005	**MW-8**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3074195006	**MW-10**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195007	**MW-12**	EPA 8082	SJG	9	PASI-PA
		EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195008	**MW-14**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195009	**MW-15**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195010	**MW-16**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195011	**MW-17**	EPA 6010B	CTS	5	PASI-PA

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SAMPLE ANALYTE COUNT

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195012	**MW-18**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	JAS	4	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195013	**MW-19**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195014	**MW-28**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195015	**MW-29S**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195016	**MW-29D**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA

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Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195017	**MW-30**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	JAS	4	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195018	**MW-31**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	JAS	4	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195019	**MW-32**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195020	**MW-34S**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	AMS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195021	**MW-34D**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9040	PM1	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195022	**MW-35**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	PM1	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195023	**MW-36**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	PM1	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195024	**MW-37**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	PM1	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195025	**MW-39S**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	PM1	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195026	**MW-39D**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	PM1	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195027	**MW-40S**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	PM1	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195028	**MW-40D**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	PM1	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195029	**MW-42S**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	PM1	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195030	**MW-42D**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	PM1	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195031	**MW-44S**	EPA 8082	SJG	9	PASI-PA
3074195032	**MW-44D**	EPA 8082	SJG	9	PASI-PA
3074195033	**MW-45**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	PM1	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA

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SAMPLE ANALYTE COUNT

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195034	**MW-46**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	PM1	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195035	**MW-47**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	JAS	4	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	PM1	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3074195036	**MW-48**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	CLP	1	PASI-PA
		EPA 9040	PM1	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	AJM	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Method: **EPA 8082**
Description: 8082 GCS PCB
Client: Ormet Primary Aluminum Corporation
Date: August 10, 2012

General Information:
3 samples were analyzed for EPA 8082. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: GCSV/4715

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

Analyte Comments:

QC Batch: OEXT/12312

1c: Response for Aroclor 1016 is high in the opening calibration check standard associated with the analysis of this sample. No Aroclors are detected in the sample at or above the reported limits. Results are unaffected by the high bias.

- MW-12 (Lab ID: 3074195007)
  - PCB-1016 (Aroclor 1016)
- MW-44D (Lab ID: 3074195032)
  - PCB-1016 (Aroclor 1016)
- MW-44S (Lab ID: 3074195031)
  - PCB-1016 (Aroclor 1016)

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Method: **EPA 6010B**
Description: 6010 MET ICP
Client: Ormet Primary Aluminum Corporation
Date: August 10, 2012

General Information:
34 samples were analyzed for EPA 6010B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3005 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/8781

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 3074195001,3074195011

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 470574)
  - Sodium

QC Batch: MPRP/8782

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 3074195021,3074195034

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 470581)
  - Sodium
- MS (Lab ID: 470584)
  - Sodium

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Method: **EPA 8260**
Description: 8260 MSV
Client: Ormet Primary Aluminum Corporation
Date: August 10, 2012

General Information:
6 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Method: **SM 4500F/C**
Description: 4500FC Fluoride
Client: Ormet Primary Aluminum Corporation
Date: August 10, 2012

General Information:
34 samples were analyzed for SM 4500F/C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: WET/14781

- MS (Lab ID: 473787)
  - Fluoride

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Method: **EPA 9040**
Description: 9040 pH
Client: Ormet Primary Aluminum Corporation
Date: August 10, 2012

General Information:
34 samples were analyzed for EPA 9040. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA recommended holding time.
- MW-1 (Lab ID: 3074195001)
- MW-10 (Lab ID: 3074195006)
- MW-12 (Lab ID: 3074195007)
- MW-14 (Lab ID: 3074195008)
- MW-15 (Lab ID: 3074195009)
- MW-16 (Lab ID: 3074195010)
- MW-17 (Lab ID: 3074195011)
- MW-18 (Lab ID: 3074195012)
- MW-19 (Lab ID: 3074195013)
- MW-2 (Lab ID: 3074195002)
- MW-28 (Lab ID: 3074195014)
- MW-29D (Lab ID: 3074195016)
- MW-29S (Lab ID: 3074195015)
- MW-30 (Lab ID: 3074195017)
- MW-31 (Lab ID: 3074195018)
- MW-32 (Lab ID: 3074195019)
- MW-34D (Lab ID: 3074195021)
- MW-34S (Lab ID: 3074195020)
- MW-35 (Lab ID: 3074195022)
- MW-36 (Lab ID: 3074195023)
- MW-37 (Lab ID: 3074195024)
- MW-39D (Lab ID: 3074195026)
- MW-39S (Lab ID: 3074195025)
- MW-40D (Lab ID: 3074195028)
- MW-40S (Lab ID: 3074195027)
- MW-42D (Lab ID: 3074195030)
- MW-42S (Lab ID: 3074195029)
- MW-45 (Lab ID: 3074195033)
- MW-46 (Lab ID: 3074195034)
- MW-47 (Lab ID: 3074195035)
- MW-48 (Lab ID: 3074195036)
- MW-5 (Lab ID: 3074195003)
- MW-7 (Lab ID: 3074195004)
- MW-8 (Lab ID: 3074195005)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Method: **EPA 9040**
Description: 9040 pH
Client: Ormet Primary Aluminum Corporation
Date: August 10, 2012

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Method: **EPA 9050**
Description: 9050 Specific Conductance
Client: Ormet Primary Aluminum Corporation
Date: August 10, 2012

General Information:
34 samples were analyzed for EPA 9050. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Method: **SM 4500-CN I**
Description: Cyanide, Weak Acid Dissociable
Client: Ormet Primary Aluminum Corporation
Date: August 10, 2012

General Information:
34 samples were analyzed for SM 4500-CN I. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: WETA/21143

D6: The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 1039419)
  - Cyanide, Dissociable

QC Batch: WETA/21144

D6: The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 1039423)
  - Cyanide, Dissociable

Additional Comments:

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Method: **SM 4500-CN-E**
Description: 4500CNE Cyanide, Total
Client: Ormet Primary Aluminum Corporation
Date: August 10, 2012

General Information:
34 samples were analyzed for SM 4500-CN-E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/10463

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 3074195026

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 474015)
  - Cyanide

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: WETA/10451

D8: The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.

- DUP (Lab ID: 473486)
  - Cyanide

Additional Comments:

Analyte Comments:

QC Batch: WETA/10451

- DUP (Lab ID: 473486)
  - Cyanide

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PROJECT NARRATIVE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Method: **SM 4500-CN-G**
Description: 4500CNG Cyanide, Amenable
Client: Ormet Primary Aluminum Corporation
Date: August 10, 2012

General Information:
34 samples were analyzed for SM 4500-CN-G. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-1 **Lab ID: 3074195001** Collected: 07/24/12 17:40 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 09:56	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 09:56	7440-41-7	
Manganese	**961**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 09:56	7439-96-5	
Sodium	**31700**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 09:56	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 09:56	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**0.16**	mg/L	0.10	0.052	1		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**6.1**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**651**	umhos/cm	1.0	1.0	1		08/03/12 09:35		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	ND	mg/L	0.0050	0.0013	1		08/03/12 17:15	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.0072**	mg/L	0.0050	0.0027	1		08/07/12 20:49	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-2 **Lab ID: 3074195002** Collected: 07/24/12 16:46 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**29.8**	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 10:08	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 10:08	7440-41-7	
Manganese	**499**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 10:08	7439-96-5	
Sodium	**262000**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 10:08	7440-23-5	
Vanadium	**19.8**	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 10:08	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	**31.0**	ug/L	5.0	0.12	1		08/06/12 17:10	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		08/06/12 17:10	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		08/06/12 17:10	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		08/06/12 17:10	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**32.8**	mg/L	0.20	0.10	2		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.2**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1400**	umhos/cm	1.0	1.0	1		08/03/12 09:35		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.092**	mg/L	0.0050	0.0013	1		08/03/12 17:16	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**7.5**	mg/L	0.25	0.13	50		08/07/12 20:50	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**1.1**	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-5 **Lab ID: 3074195003** Collected: 07/24/12 15:13 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**6.1**	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 10:11	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 10:11	7440-41-7	
Manganese	**410**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 10:11	7439-96-5	
Sodium	**266000**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 10:11	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 10:11	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	ND	ug/L	5.0	0.12	1		08/06/12 16:18	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		08/06/12 16:18	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130		1		08/06/12 16:18	17060-07-0	
Toluene-d8 (S)	87	%	70-130		1		08/06/12 16:18	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**27.4**	mg/L	0.20	0.10	2		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**8.1**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1430**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.11**	mg/L	0.0050	0.0013	1		08/03/12 17:19	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**4.8**	mg/L	0.25	0.13	50		08/07/12 20:53	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**1.4**	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-7 **Lab ID: 3074195004** Collected: 07/25/12 09:08 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**20.0**	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 10:14	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 10:14	7440-41-7	
Manganese	**2180**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 10:14	7439-96-5	
Sodium	**52700**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 10:14	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 10:14	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**0.18**	mg/L	0.10	0.052	1		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**6.1**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**652**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.014**	mg/L	0.0050	0.0013	1		08/03/12 17:27	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.0060**	mg/L	0.0050	0.0027	1		08/07/12 20:59	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-8 **Lab ID: 3074195005** Collected: 07/25/12 09:47 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 10:17	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 10:17	7440-41-7	
Manganese	**49.8**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 10:17	7439-96-5	
Sodium	**135000**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 10:17	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 10:17	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**6.5**	mg/L	0.10	0.052	1		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.6**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1040**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.068**	mg/L	0.0050	0.0013	1		08/03/12 17:27	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.64**	mg/L	0.25	0.13	50		08/07/12 21:01	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-10 **Lab ID: 3074195006** Collected: 07/25/12 10:26 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 10:30	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 10:30	7440-41-7	
Manganese	ND	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 10:30	7439-96-5	
Sodium	**17900**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 10:30	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 10:30	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**0.23**	mg/L	0.10	0.052	1		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.2**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**803**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.035**	mg/L	0.0050	0.0013	1		08/03/12 17:28	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.0093**	mg/L	0.0050	0.0027	1		08/07/12 21:02	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-12 **Lab ID: 3074195007** Collected: 07/26/12 09:55 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.51	0.077	1	08/02/12 13:30	08/07/12 23:20	12674-11-2	1c
PCB-1221 (Aroclor 1221)	ND	ug/L	0.51	0.092	1	08/02/12 13:30	08/07/12 23:20	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.51	0.073	1	08/02/12 13:30	08/07/12 23:20	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.51	0.033	1	08/02/12 13:30	08/07/12 23:20	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.51	0.024	1	08/02/12 13:30	08/07/12 23:20	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.51	0.037	1	08/02/12 13:30	08/07/12 23:20	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.51	0.031	1	08/02/12 13:30	08/07/12 23:20	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	98	%	30-150		1	08/02/12 13:30	08/07/12 23:20	877-09-8	
Decachlorobiphenyl (S)	69	%	30-150		1	08/02/12 13:30	08/07/12 23:20	2051-24-3	
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 10:33	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 10:33	7440-41-7	
Manganese	**1970**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 10:33	7439-96-5	
Sodium	**30000**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 10:33	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 10:33	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**0.74**	mg/L	0.10	0.052	1		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.6**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**635**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.028**	mg/L	0.0050	0.0013	1		08/03/12 17:52	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.0056**	mg/L	0.0050	0.0027	1		08/07/12 21:03	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-14 **Lab ID: 3074195008** Collected: 07/25/12 18:11 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 10:36	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 10:36	7440-41-7	
Manganese	**823**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 10:36	7439-96-5	
Sodium	**46000**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 10:36	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 10:36	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**3.2**	mg/L	0.10	0.052	1		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.8**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**606**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.046**	mg/L	0.0050	0.0013	1		08/03/12 17:28	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.021**	mg/L	0.0050	0.0027	1		08/07/12 21:03	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-15 **Lab ID: 3074195009** Collected: 07/26/12 11:40 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 10:39	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 10:39	7440-41-7	
Manganese	**208**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 10:39	7439-96-5	
Sodium	**175000**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 10:39	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 10:39	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**19.7**	mg/L	0.10	0.052	1		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.8**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1060**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.093**	mg/L	0.0050	0.0013	1		08/03/12 17:52	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**4.2**	mg/L	0.25	0.13	50		08/07/12 21:06	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**1.2**	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-16 **Lab ID: 3074195010** Collected: 07/25/12 12:36 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**32.5**	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 10:42	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 10:42	7440-41-7	
Manganese	**716**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 10:42	7439-96-5	
Sodium	**209000**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 10:42	7440-23-5	
Vanadium	**35.2**	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 10:42	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**33.0**	mg/L	0.20	0.10	2		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.1**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1090**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	ND	mg/L	0.0050	0.0013	1		08/03/12 17:31	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**4.2**	mg/L	0.10	0.054	20		08/07/12 21:06	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.48**	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-17 **Lab ID: 3074195011** Collected: 07/26/12 10:25 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 10:45	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 10:45	7440-41-7	
Manganese	**1500**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 10:45	7439-96-5	
Sodium	**91700**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 10:45	7440-23-5	
Vanadium	**5.1**	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 10:45	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**10.9**	mg/L	0.10	0.052	1		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.8**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**836**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.13**	mg/L	0.0050	0.0013	1		08/03/12 17:53	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**2.4**	mg/L	0.050	0.027	10		08/07/12 21:07	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.14**	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-18 **Lab ID: 3074195012** Collected: 07/25/12 16:27 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**54.5**	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 10:54	7440-38-2	
Beryllium	**1.2**	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 10:54	7440-41-7	
Manganese	**420**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 10:54	7439-96-5	
Sodium	**277000**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 10:54	7440-23-5	
Vanadium	**36.4**	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 10:54	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	ND	ug/L	5.0	0.12	1		08/06/12 16:44	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	105	%	70-130		1		08/06/12 16:44	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		08/06/12 16:44	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		08/06/12 16:44	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**104**	mg/L	1.0	0.52	10		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.4**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1810**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.14**	mg/L	0.0050	0.0013	1		08/03/12 17:31	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**10.6**	mg/L	1.0	0.54	200		08/09/12 22:35	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-19 **Lab ID: 3074195013** Collected: 07/25/12 15:11 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 10:57	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 10:57	7440-41-7	
Manganese	ND	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 10:57	7439-96-5	
Sodium	**37100**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 10:57	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 10:57	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**0.84**	mg/L	0.10	0.052	1		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.3**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**951**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	ND	mg/L	0.0050	0.0013	1		08/03/12 17:32	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	ND	mg/L	0.0050	0.0027	1		08/07/12 21:11	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-28 **Lab ID: 3074195014** Collected: 07/25/12 16:07 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 11:11	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 11:11	7440-41-7	
Manganese	**59.4**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 11:11	7439-96-5	
Sodium	**57100**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 11:11	7440-23-5	
Vanadium	**6.9**	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 11:11	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**0.34**	mg/L	0.10	0.052	1		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**6.2**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**529**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.34**	mg/L	0.0050	0.0013	1		08/03/12 17:36	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	ND	mg/L	0.10	0.054	20		08/07/12 21:14	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.050**	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-29S **Lab ID: 3074195015** Collected: 07/25/12 12:09 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 11:14	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 11:14	7440-41-7	
Manganese	**253**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 11:14	7439-96-5	
Sodium	**205000**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 11:14	7440-23-5	
Vanadium	**20.0**	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 11:14	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**33.8**	mg/L	0.20	0.10	2		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**8.0**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1160**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	ND	mg/L	0.0050	0.0013	1		08/03/12 17:37	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**2.9**	mg/L	0.10	0.054	20		08/09/12 23:06	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-29D **Lab ID: 3074195016** Collected: 07/25/12 11:50 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 11:17	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 11:17	7440-41-7	
Manganese	**1690**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 11:17	7439-96-5	
Sodium	**46500**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 11:17	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 11:17	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**4.0**	mg/L	0.10	0.052	1		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.8**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**694**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.036**	mg/L	0.0050	0.0013	1		08/03/12 17:37	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.32**	mg/L	0.0050	0.0027	1		08/07/12 21:15	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-30 **Lab ID: 3074195017** Collected: 07/25/12 13:08 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 11:20	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 11:20	7440-41-7	
Manganese	**437**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 11:20	7439-96-5	
Sodium	**58900**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 11:20	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 11:20	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	**35.6**	ug/L	5.0	0.12	1		08/06/12 18:03	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		1		08/06/12 18:03	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	70-130		1		08/06/12 18:03	17060-07-0	
Toluene-d8 (S)	98	%	70-130		1		08/06/12 18:03	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**6.8**	mg/L	0.10	0.052	1		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**6.6**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**547**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.36**	mg/L	0.050	0.013	10		08/03/12 18:19	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**3.2**	mg/L	0.25	0.13	50		08/07/12 21:15	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-31 **Lab ID: 3074195018** Collected: 07/25/12 16:59 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**36.0**	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 11:23	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 11:23	7440-41-7	
Manganese	**970**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 11:23	7439-96-5	
Sodium	**299000**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 11:23	7440-23-5	
Vanadium	**47.8**	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 11:23	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	**21.8**	ug/L	5.0	0.12	1		08/06/12 17:37	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		08/06/12 17:37	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130		1		08/06/12 17:37	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		08/06/12 17:37	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**55.0**	mg/L	0.50	0.26	5		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.4**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1400**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.048**	mg/L	0.0050	0.0013	1		08/03/12 17:40	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**5.6**	mg/L	0.25	0.13	50		08/08/12 21:00	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/08/12 23:08	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-32 **Lab ID: 3074195019** Collected: 07/26/12 12:27 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**27.8**	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 11:26	7440-38-2	
Beryllium	**1.1**	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 11:26	7440-41-7	
Manganese	**1280**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 11:26	7439-96-5	
Sodium	**289000**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 11:26	7440-23-5	
Vanadium	**57.5**	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 11:26	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**48.6**	mg/L	0.20	0.10	2		08/08/12 11:30	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.7**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1360**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	ND	mg/L	0.0050	0.0013	1		08/03/12 17:54	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**6.0**	mg/L	0.25	0.13	50		08/08/12 21:01	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**1.5**	mg/L	0.0050	0.0031	1		08/08/12 23:08	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-34S **Lab ID: 3074195020** Collected: 07/26/12 11:18 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**7.2**	ug/L	5.0	3.6	1	07/30/12 14:21	07/31/12 11:29	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:21	07/31/12 11:29	7440-41-7	
Manganese	**286**	ug/L	5.0	2.3	1	07/30/12 14:21	07/31/12 11:29	7439-96-5	
Sodium	**190000**	ug/L	1000	329	1	07/30/12 14:21	07/31/12 11:29	7440-23-5	
Vanadium	**14.0**	ug/L	5.0	1.8	1	07/30/12 14:21	07/31/12 11:29	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**23.5**	mg/L	0.50	0.26	5		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**8.3**	Std. Units	1.0	1.0	1		07/27/12 17:28		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**975**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	ND	mg/L	0.0050	0.0013	1		08/03/12 17:56	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**4.6**	mg/L	0.10	0.054	20		08/08/12 21:02	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/08/12 23:08	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-34D **Lab ID: 3074195021** Collected: 07/26/12 10:59 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:23	07/31/12 11:54	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:23	07/31/12 11:54	7440-41-7	
Manganese	**227**	ug/L	5.0	2.3	1	07/30/12 14:23	07/31/12 11:54	7439-96-5	
Sodium	**173000**	ug/L	1000	329	1	07/30/12 14:23	07/31/12 11:54	7440-23-5	
Vanadium	**6.5**	ug/L	5.0	1.8	1	07/30/12 14:23	07/31/12 11:54	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**19.1**	mg/L	0.10	0.052	1		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**8.0**	Std. Units	1.0	1.0	1		07/27/12 00:15		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**965**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.049**	mg/L	0.0050	0.0013	1		08/03/12 17:57	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**4.2**	mg/L	0.10	0.054	20		08/08/12 21:02	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/08/12 23:08	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-35 **Lab ID: 3074195022** Collected: 07/26/12 12:49 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:23	07/31/12 12:06	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:23	07/31/12 12:06	7440-41-7	
Manganese	**789**	ug/L	5.0	2.3	1	07/30/12 14:23	07/31/12 12:06	7439-96-5	
Sodium	**51300**	ug/L	1000	329	1	07/30/12 14:23	07/31/12 12:06	7440-23-5	
Vanadium	**8.9**	ug/L	5.0	1.8	1	07/30/12 14:23	07/31/12 12:06	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**4.6**	mg/L	0.10	0.052	1		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.5**	Std. Units	1.0	1.0	1		07/27/12 00:15		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**441**	umhos/cm	1.0	1.0	1		08/03/12 10:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.26**	mg/L	0.050	0.013	10		08/03/12 18:23	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**2.2**	mg/L	0.50	0.27	100		08/08/12 21:05	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.64**	mg/L	0.0050	0.0031	1		08/08/12 23:08	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-36 **Lab ID: 3074195023** Collected: 07/26/12 12:05 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:23	07/31/12 12:09	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:23	07/31/12 12:09	7440-41-7	
Manganese	**173**	ug/L	5.0	2.3	1	07/30/12 14:23	07/31/12 12:09	7439-96-5	
Sodium	**98700**	ug/L	1000	329	1	07/30/12 14:23	07/31/12 12:09	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:23	07/31/12 12:09	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**15.6**	mg/L	0.10	0.052	1		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**8.4**	Std. Units	1.0	1.0	1		07/27/12 00:15		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**613**	umhos/cm	1.0	1.0	1		08/07/12 09:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.13**	mg/L	0.0050	0.0013	1		08/03/12 18:01	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.66**	mg/L	0.25	0.13	50		08/08/12 21:05	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/08/12 23:08	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-37 **Lab ID: 3074195024** Collected: 07/26/12 13:07 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:23	07/31/12 12:12	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:23	07/31/12 12:12	7440-41-7	
Manganese	**31.0**	ug/L	5.0	2.3	1	07/30/12 14:23	07/31/12 12:12	7439-96-5	
Sodium	**32600**	ug/L	1000	329	1	07/30/12 14:23	07/31/12 12:12	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:23	07/31/12 12:12	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**2.3**	mg/L	0.10	0.052	1		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**6.1**	Std. Units	1.0	1.0	1		07/27/12 00:15		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**283**	umhos/cm	1.0	1.0	1		08/07/12 09:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.069**	mg/L	0.0050	0.0013	1		08/03/12 18:02	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	ND	mg/L	0.25	0.13	50		08/08/12 21:06	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.010**	mg/L	0.0050	0.0031	1		08/08/12 23:08	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-39S **Lab ID: 3074195025** Collected: 07/25/12 17:52 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**12.6**	ug/L	5.0	3.6	1	07/30/12 14:23	07/31/12 12:15	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:23	07/31/12 12:15	7440-41-7	
Manganese	**94.5**	ug/L	5.0	2.3	1	07/30/12 14:23	07/31/12 12:15	7439-96-5	
Sodium	**976000**	ug/L	1000	329	1	07/30/12 14:23	07/31/12 12:15	7440-23-5	
Vanadium	**8.9**	ug/L	5.0	1.8	1	07/30/12 14:23	07/31/12 12:15	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**173**	mg/L	1.0	0.52	10		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.1**	Std. Units	1.0	1.0	1		07/27/12 00:15		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**3730**	umhos/cm	1.0	1.0	1		08/07/12 09:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.053**	mg/L	0.0050	0.0013	1		08/03/12 17:41	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**5.1**	mg/L	0.10	0.054	20		08/08/12 21:10	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.26**	mg/L	0.0050	0.0031	1		08/08/12 23:08	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-39D **Lab ID: 3074195026** Collected: 07/25/12 17:31 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:23	07/31/12 12:26	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:23	07/31/12 12:26	7440-41-7	
Manganese	**1070**	ug/L	5.0	2.3	1	07/30/12 14:23	07/31/12 12:26	7439-96-5	
Sodium	**553000**	ug/L	1000	329	1	07/30/12 14:23	07/31/12 12:26	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:23	07/31/12 12:26	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**17.2**	mg/L	0.10	0.052	1		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.6**	Std. Units	1.0	1.0	1		07/27/12 00:15		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**2420**	umhos/cm	1.0	1.0	1		08/07/12 09:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.13**	mg/L	0.0050	0.0013	1		08/03/12 17:44	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**3.5**	mg/L	0.10	0.054	20		08/08/12 21:10	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.094**	mg/L	0.0050	0.0031	1		08/08/12 23:08	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-40S **Lab ID: 3074195027** Collected: 07/24/12 16:16 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:23	07/31/12 12:29	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:23	07/31/12 12:29	7440-41-7	
Manganese	**466**	ug/L	5.0	2.3	1	07/30/12 14:23	07/31/12 12:29	7439-96-5	
Sodium	**213000**	ug/L	1000	329	1	07/30/12 14:23	07/31/12 12:29	7440-23-5	
Vanadium	**18.1**	ug/L	5.0	1.8	1	07/30/12 14:23	07/31/12 12:29	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**38.0**	mg/L	0.50	0.26	5		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**8.0**	Std. Units	1.0	1.0	1		07/27/12 00:15		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**998**	umhos/cm	1.0	1.0	1		08/07/12 09:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.014**	mg/L	0.0050	0.0013	1		08/03/12 17:20	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**6.2**	mg/L	0.25	0.13	50		08/07/12 20:53	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.87**	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-40D **Lab ID: 3074195028** Collected: 07/24/12 15:51 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:23	07/31/12 12:32	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:23	07/31/12 12:32	7440-41-7	
Manganese	**594**	ug/L	5.0	2.3	1	07/30/12 14:23	07/31/12 12:32	7439-96-5	
Sodium	**187000**	ug/L	1000	329	1	07/30/12 14:23	07/31/12 12:32	7440-23-5	
Vanadium	**12.3**	ug/L	5.0	1.8	1	07/30/12 14:23	07/31/12 12:32	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**28.0**	mg/L	0.50	0.26	5		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.8**	Std. Units	1.0	1.0	1		07/27/12 00:15		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**882**	umhos/cm	1.0	1.0	1		08/07/12 09:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.054**	mg/L	0.0050	0.0013	1		08/03/12 17:23	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**7.9**	mg/L	0.25	0.13	50		08/07/12 20:54	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**2.4**	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-42S **Lab ID: 3074195029** Collected: 07/26/12 09:22 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:23	07/31/12 12:35	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:23	07/31/12 12:35	7440-41-7	
Manganese	**354**	ug/L	5.0	2.3	1	07/30/12 14:23	07/31/12 12:35	7439-96-5	
Sodium	**641000**	ug/L	1000	329	1	07/30/12 14:23	07/31/12 12:35	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:23	07/31/12 12:35	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**48.2**	mg/L	0.20	0.10	2		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**8.0**	Std. Units	1.0	1.0	1		07/27/12 00:15		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**2760**	umhos/cm	1.0	1.0	1		08/07/12 09:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.16**	mg/L	0.0050	0.0013	1		08/03/12 18:02	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**3.1**	mg/L	0.25	0.13	50		08/08/12 21:14	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.88**	mg/L	0.0050	0.0031	1		08/08/12 23:08	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-42D **Lab ID: 3074195030** Collected: 07/26/12 09:00 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:23	07/31/12 12:38	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:23	07/31/12 12:38	7440-41-7	
Manganese	**784**	ug/L	5.0	2.3	1	07/30/12 14:23	07/31/12 12:38	7439-96-5	
Sodium	**623000**	ug/L	1000	329	1	07/30/12 14:23	07/31/12 12:38	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:23	07/31/12 12:38	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**34.0**	mg/L	0.20	0.10	2		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**8.0**	Std. Units	1.0	1.0	1		07/27/12 00:15		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**2570**	umhos/cm	1.0	1.0	1		08/07/12 09:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.25**	mg/L	0.050	0.013	10		08/03/12 18:25	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.84**	mg/L	0.25	0.13	50		08/08/12 21:15	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/08/12 23:08	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-44S **Lab ID: 3074195031** Collected: 07/25/12 11:22 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.51	0.077	1	08/02/12 13:30	08/07/12 23:28	12674-11-2	1c
PCB-1221 (Aroclor 1221)	ND	ug/L	0.51	0.092	1	08/02/12 13:30	08/07/12 23:28	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.51	0.073	1	08/02/12 13:30	08/07/12 23:28	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.51	0.033	1	08/02/12 13:30	08/07/12 23:28	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.51	0.024	1	08/02/12 13:30	08/07/12 23:28	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.51	0.037	1	08/02/12 13:30	08/07/12 23:28	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.51	0.031	1	08/02/12 13:30	08/07/12 23:28	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	98	%	30-150		1	08/02/12 13:30	08/07/12 23:28	877-09-8	
Decachlorobiphenyl (S)	60	%	30-150		1	08/02/12 13:30	08/07/12 23:28	2051-24-3	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-44D **Lab ID: 3074195032** Collected: 07/25/12 11:04 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.51	0.076	1	08/02/12 13:30	08/07/12 23:36	12674-11-2	1c
PCB-1221 (Aroclor 1221)	ND	ug/L	0.51	0.091	1	08/02/12 13:30	08/07/12 23:36	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.51	0.072	1	08/02/12 13:30	08/07/12 23:36	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.51	0.032	1	08/02/12 13:30	08/07/12 23:36	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.51	0.024	1	08/02/12 13:30	08/07/12 23:36	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.51	0.036	1	08/02/12 13:30	08/07/12 23:36	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.51	0.031	1	08/02/12 13:30	08/07/12 23:36	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	95	%	30-150		1	08/02/12 13:30	08/07/12 23:36	877-09-8	
Decachlorobiphenyl (S)	60	%	30-150		1	08/02/12 13:30	08/07/12 23:36	2051-24-3	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-45 **Lab ID: 3074195033** Collected: 07/24/12 16:15 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:23	07/31/12 12:50	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:23	07/31/12 12:50	7440-41-7	
Manganese	**589**	ug/L	5.0	2.3	1	07/30/12 14:23	07/31/12 12:50	7439-96-5	
Sodium	**187000**	ug/L	1000	329	1	07/30/12 14:23	07/31/12 12:50	7440-23-5	
Vanadium	**11.5**	ug/L	5.0	1.8	1	07/30/12 14:23	07/31/12 12:50	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**28.6**	mg/L	0.50	0.26	5		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**8.0**	Std. Units	1.0	1.0	1		07/27/12 00:15		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**922**	umhos/cm	1.0	1.0	1		08/07/12 09:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.085**	mg/L	0.0050	0.0013	1		08/03/12 17:24	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**6.5**	mg/L	0.25	0.13	50		08/07/12 20:58	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/07/12 23:26	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-46 **Lab ID: 3074195034** Collected: 07/25/12 09:55 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:23	07/31/12 12:41	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:23	07/31/12 12:41	7440-41-7	
Manganese	**46.1**	ug/L	5.0	2.3	1	07/30/12 14:23	07/31/12 12:41	7439-96-5	
Sodium	**130000**	ug/L	1000	329	1	07/30/12 14:23	07/31/12 12:41	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:23	07/31/12 12:41	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**6.9**	mg/L	0.10	0.052	1		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.4**	Std. Units	1.0	1.0	1		07/27/12 00:15		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**918**	umhos/cm	1.0	1.0	1		08/07/12 09:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.055**	mg/L	0.0050	0.0013	1		08/03/12 17:48	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.72**	mg/L	0.10	0.054	20		08/08/12 21:17	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/08/12 23:08	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-47 **Lab ID: 3074195035** Collected: 07/25/12 13:15 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:23	07/31/12 12:53	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:23	07/31/12 12:53	7440-41-7	
Manganese	**460**	ug/L	5.0	2.3	1	07/30/12 14:23	07/31/12 12:53	7439-96-5	
Sodium	**57700**	ug/L	1000	329	1	07/30/12 14:23	07/31/12 12:53	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:23	07/31/12 12:53	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	**31.2**	ug/L	5.0	0.12	1		08/06/12 18:29	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		08/06/12 18:29	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	70-130		1		08/06/12 18:29	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		08/06/12 18:29	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**12.3**	mg/L	0.10	0.052	1		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**6.4**	Std. Units	1.0	1.0	1		07/27/12 00:15		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**511**	umhos/cm	1.0	1.0	1		08/07/12 09:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.34**	mg/L	0.050	0.013	10		08/03/12 18:22	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**4.7**	mg/L	0.10	0.054	20		08/08/12 21:18	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.31**	mg/L	0.0050	0.0031	1		08/08/12 23:08	57-12-5	

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ANALYTICAL RESULTS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Sample: MW-48 **Lab ID: 3074195036** Collected: 07/26/12 10:35 Received: 07/26/12 17:40 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	07/30/12 14:23	07/31/12 13:07	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	07/30/12 14:23	07/31/12 13:07	7440-41-7	
Manganese	**1580**	ug/L	5.0	2.3	1	07/30/12 14:23	07/31/12 13:07	7439-96-5	
Sodium	**94800**	ug/L	1000	329	1	07/30/12 14:23	07/31/12 13:07	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	07/30/12 14:23	07/31/12 13:07	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**11.2**	mg/L	0.20	0.10	2		08/08/12 15:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.6**	Std. Units	1.0	1.0	1		07/27/12 00:15		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**739**	umhos/cm	1.0	1.0	1		08/07/12 09:15		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.094**	mg/L	0.0050	0.0013	1		08/03/12 18:05	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**2.1**	mg/L	0.10	0.054	20		08/08/12 21:18	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		08/08/12 23:08	57-12-5	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: MPRP/8781 — Analysis Method: EPA 6010B
QC Batch Method: EPA 3005 — Analysis Description: 6010 MET
Associated Lab Samples: 3074195001, 3074195002, 3074195003, 3074195004, 3074195005, 3074195006, 3074195007, 3074195008, 3074195009, 3074195010, 3074195011, 3074195012, 3074195013, 3074195014, 3074195015, 3074195016, 3074195017, 3074195018, 3074195019, 3074195020

METHOD BLANK: 470571 — Matrix: Water
Associated Lab Samples: 3074195001, 3074195002, 3074195003, 3074195004, 3074195005, 3074195006, 3074195007, 3074195008, 3074195009, 3074195010, 3074195011, 3074195012, 3074195013, 3074195014, 3074195015, 3074195016, 3074195017, 3074195018, 3074195019, 3074195020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	5.0	07/31/12 09:48	
Beryllium	ug/L	ND	1.0	07/31/12 09:48	
Manganese	ug/L	ND	5.0	07/31/12 09:48	
Sodium	ug/L	ND	1000	07/31/12 09:48	
Vanadium	ug/L	ND	5.0	07/31/12 09:48	

LABORATORY CONTROL SAMPLE: 470572

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	500	514	103	80-120	
Beryllium	ug/L	500	528	106	80-120	
Manganese	ug/L	500	521	104	80-120	
Sodium	ug/L	5000	4920	98	80-120	
Vanadium	ug/L	500	514	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 470574 470575

Parameter	Units	3074195001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	500	500	523	542	104	108	80-120	4	20	
Beryllium	ug/L	ND	500	500	506	536	101	107	80-120	6	20	
Manganese	ug/L	961	500	500	1400	1470	89	102	80-120	5	20	
Sodium	ug/L	31700	5000	5000	37900	37600	125	117	80-120	1	20	M1
Vanadium	ug/L	ND	500	500	507	526	101	105	80-120	4	20	

MATRIX SPIKE SAMPLE: 470577

Parameter	Units	3074195011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	ND	500	534	107	80-120	
Beryllium	ug/L	ND	500	530	106	80-120	
Manganese	ug/L	1500	500	2000	101	80-120	
Sodium	ug/L	91700	5000	97300	111	80-120	
Vanadium	ug/L	5.1	500	523	104	80-120	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

SAMPLE DUPLICATE: 470573

Parameter	Units	3074195001 Result	Dup Result	RPD	Max RPD	Qualifiers
Arsenic	ug/L	ND	ND		20	
Beryllium	ug/L	ND	ND		20	
Manganese	ug/L	961	957	.3	20	
Sodium	ug/L	31700	31500	.7	20	
Vanadium	ug/L	ND	ND		20	

SAMPLE DUPLICATE: 470576

Parameter	Units	3074195011 Result	Dup Result	RPD	Max RPD	Qualifiers
Arsenic	ug/L	ND	ND		20	
Beryllium	ug/L	ND	.55J		20	
Manganese	ug/L	1500	1500	.6	20	
Sodium	ug/L	91700	92300	.6	20	
Vanadium	ug/L	5.1	3.7J		20	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: MPRP/8782 — Analysis Method: EPA 6010B
QC Batch Method: EPA 3005 — Analysis Description: 6010 MET
Associated Lab Samples: 3074195021, 3074195022, 3074195023, 3074195024, 3074195025, 3074195026, 3074195027, 3074195028, 3074195029, 3074195030, 3074195033, 3074195034, 3074195035, 3074195036

METHOD BLANK: 470578 — Matrix: Water
Associated Lab Samples: 3074195021, 3074195022, 3074195023, 3074195024, 3074195025, 3074195026, 3074195027, 3074195028, 3074195029, 3074195030, 3074195033, 3074195034, 3074195035, 3074195036

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	5.0	07/31/12 11:46	
Beryllium	ug/L	ND	1.0	07/31/12 11:46	
Manganese	ug/L	ND	5.0	07/31/12 11:46	
Sodium	ug/L	ND	1000	07/31/12 11:46	
Vanadium	ug/L	ND	5.0	07/31/12 11:46	

LABORATORY CONTROL SAMPLE: 470579

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	500	520	104	80-120	
Beryllium	ug/L	500	522	104	80-120	
Manganese	ug/L	500	516	103	80-120	
Sodium	ug/L	5000	5060	101	80-120	
Vanadium	ug/L	500	510	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 470581 470582

Parameter	Units	3074195021 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	500	500	533	541	106	108	80-120	1	20	
Beryllium	ug/L	ND	500	500	522	527	104	105	80-120	1	20	
Manganese	ug/L	227	500	500	738	742	102	103	80-120	.5	20	
Sodium	ug/L	173000	5000	5000	180000	178000	143	101	80-120	1	20	M1
Vanadium	ug/L	6.5	500	500	515	522	102	103	80-120	1	20	

MATRIX SPIKE SAMPLE: 470584

Parameter	Units	3074195034 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	ND	500	539	108	80-120	
Beryllium	ug/L	ND	500	523	105	80-120	
Manganese	ug/L	46.1	500	557	102	80-120	
Sodium	ug/L	130000	5000	139000	175	80-120	M1
Vanadium	ug/L	ND	500	513	103	80-120	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

SAMPLE DUPLICATE: 470580

Parameter	Units	3074195021 Result	Dup Result	RPD	Max RPD	Qualifiers
Arsenic	ug/L	ND	7.1		20	
Beryllium	ug/L	ND	.66J		20	
Manganese	ug/L	227	230	1	20	
Sodium	ug/L	173000	175000	1	20	
Vanadium	ug/L	6.5	6.3	4	20	

SAMPLE DUPLICATE: 470583

Parameter	Units	3074195034 Result	Dup Result	RPD	Max RPD	Qualifiers
Arsenic	ug/L	ND	ND		20	
Beryllium	ug/L	ND	.67J		20	
Manganese	ug/L	46.1	46.4	.7	20	
Sodium	ug/L	130000	129000	.5	20	
Vanadium	ug/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: MSV/13501 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 3074195002, 3074195003, 3074195012, 3074195017, 3074195018, 3074195035

METHOD BLANK: 473109 Matrix: Water
Associated Lab Samples: 3074195002, 3074195003, 3074195012, 3074195017, 3074195018, 3074195035

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Tetrachloroethene	ug/L	ND	5.0	08/06/12 11:55	
1,2-Dichloroethane-d4 (S)	%	110	70-130	08/06/12 11:55	
4-Bromofluorobenzene (S)	%	98	70-130	08/06/12 11:55	
Toluene-d8 (S)	%	98	70-130	08/06/12 11:55	

LABORATORY CONTROL SAMPLE: 473110

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/L	20	14.5	72	63.4-121	
1,2-Dichloroethane-d4 (S)	%			101	70-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Toluene-d8 (S)	%			100	70-130	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: OEXT/12312 Analysis Method: EPA 8082
QC Batch Method: EPA 3510 Analysis Description: 8082 GCS PCB
Associated Lab Samples: 3074195007, 3074195031, 3074195032

METHOD BLANK: 471861 Matrix: Water
Associated Lab Samples: 3074195007, 3074195031, 3074195032

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	ND	0.50	08/02/12 19:27	
PCB-1221 (Aroclor 1221)	ug/L	ND	0.50	08/02/12 19:27	
PCB-1232 (Aroclor 1232)	ug/L	ND	0.50	08/02/12 19:27	
PCB-1242 (Aroclor 1242)	ug/L	ND	0.50	08/02/12 19:27	
PCB-1248 (Aroclor 1248)	ug/L	ND	0.50	08/02/12 19:27	
PCB-1254 (Aroclor 1254)	ug/L	ND	0.50	08/02/12 19:27	
PCB-1260 (Aroclor 1260)	ug/L	ND	0.50	08/02/12 19:27	
Decachlorobiphenyl (S)	%	54	30-150	08/02/12 19:27	
Tetrachloro-m-xylene (S)	%	86	30-150	08/02/12 19:27	

LABORATORY CONTROL SAMPLE: 471862

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	2.5	2.3	90	55-145	
PCB-1260 (Aroclor 1260)	ug/L	2.5	2.3	90	55-145	
Decachlorobiphenyl (S)	%			32	30-150	
Tetrachloro-m-xylene (S)	%			90	30-150	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: WET/14780 Analysis Method: SM 4500F/C
QC Batch Method: SM 4500F/C Analysis Description: SM4500FC Fluoride Water
Associated Lab Samples: 3074195001, 3074195002, 3074195003, 3074195004, 3074195005, 3074195006, 3074195007, 3074195008, 3074195009, 3074195010, 3074195011, 3074195012, 3074195013, 3074195014, 3074195015, 3074195016, 3074195017, 3074195018, 3074195019

METHOD BLANK: 473780 Matrix: Water
Associated Lab Samples: 3074195001, 3074195002, 3074195003, 3074195004, 3074195005, 3074195006, 3074195007, 3074195008, 3074195009, 3074195010, 3074195011, 3074195012, 3074195013, 3074195014, 3074195015, 3074195016, 3074195017, 3074195018, 3074195019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.10	08/08/12 11:30	

LABORATORY CONTROL SAMPLE: 473781

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2	2.1	107	85-115	

MATRIX SPIKE SAMPLE: 473782

Parameter	Units	3074195001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.16	4	4.5	109	85-115	

SAMPLE DUPLICATE: 473783

Parameter	Units	3074195001 Result	Dup Result	RPD	Max RPD	Qualifiers
Fluoride	mg/L	0.16	0.17	8	20	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: WET/14781 Analysis Method: SM 4500F/C
QC Batch Method: SM 4500F/C Analysis Description: SM4500FC Fluoride Water
Associated Lab Samples: 3074195020, 3074195021, 3074195022, 3074195023, 3074195024, 3074195025, 3074195026, 3074195027, 3074195028, 3074195029, 3074195030, 3074195033, 3074195034, 3074195035, 3074195036

METHOD BLANK: 473785 Matrix: Water
Associated Lab Samples: 3074195020, 3074195021, 3074195022, 3074195023, 3074195024, 3074195025, 3074195026, 3074195027, 3074195028, 3074195029, 3074195030, 3074195033, 3074195034, 3074195035, 3074195036

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.10	08/08/12 15:00	

LABORATORY CONTROL SAMPLE: 473786

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2	2.2	109	85-115	

MATRIX SPIKE SAMPLE: 473787

Parameter	Units	3074195020 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	23.5	3.8	27.0	93	85-115	

SAMPLE DUPLICATE: 473788

Parameter	Units	3074195020 Result	Dup Result	RPD	Max RPD	Qualifiers
Fluoride	mg/L	23.5	23.2	2	20	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: WET/14649 Analysis Method: EPA 9040
QC Batch Method: EPA 9040 Analysis Description: 9040 pH
Associated Lab Samples: 3074195001, 3074195002, 3074195003, 3074195004, 3074195005, 3074195006, 3074195007, 3074195008, 3074195009, 3074195010, 3074195011, 3074195012, 3074195013, 3074195014, 3074195015, 3074195016, 3074195017, 3074195018, 3074195019, 3074195020

SAMPLE DUPLICATE: 470001

Parameter	Units	3074195001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	6.1	6.1	.5		H6

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: WET/14655 Analysis Method: EPA 9040
QC Batch Method: EPA 9040 Analysis Description: 9040 pH
Associated Lab Samples: 3074195021, 3074195022, 3074195023, 3074195024, 3074195025, 3074195026, 3074195027, 3074195028, 3074195029, 3074195030, 3074195033, 3074195034, 3074195035, 3074195036

SAMPLE DUPLICATE: 470197

Parameter	Units	3073985001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	5.3	5.3	.4		H6

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: WET/14713 | Analysis Method: EPA 9050
QC Batch Method: EPA 9050 | Analysis Description: 9050 Specific Conductance
Associated Lab Samples: 3074195001, 3074195002

METHOD BLANK: 472156 | Matrix: Water
Associated Lab Samples: 3074195001, 3074195002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	1.0	08/03/12 09:35	

LABORATORY CONTROL SAMPLE: 472157

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1410	1550	110	85-115	

SAMPLE DUPLICATE: 472158

Parameter	Units	3073825001 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	75.0	75.9	1	20	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: WET/14714 Analysis Method: EPA 9050
QC Batch Method: EPA 9050 Analysis Description: 9050 Specific Conductance
Associated Lab Samples: 3074195003, 3074195004, 3074195005, 3074195006, 3074195007, 3074195008, 3074195009, 3074195010, 3074195011, 3074195012, 3074195013, 3074195014, 3074195015, 3074195016, 3074195017, 3074195018, 3074195019, 3074195020, 3074195021, 3074195022

METHOD BLANK: 472159 Matrix: Water
Associated Lab Samples: 3074195003, 3074195004, 3074195005, 3074195006, 3074195007, 3074195008, 3074195009, 3074195010, 3074195011, 3074195012, 3074195013, 3074195014, 3074195015, 3074195016, 3074195017, 3074195018, 3074195019, 3074195020, 3074195021, 3074195022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	1.0	08/03/12 10:15	

LABORATORY CONTROL SAMPLE: 472160

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1410	1530	108	85-115	

SAMPLE DUPLICATE: 472161

Parameter	Units	3074195003 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	1430	1420	.4	20	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: WET/14761 Analysis Method: EPA 9050
QC Batch Method: EPA 9050 Analysis Description: 9050 Specific Conductance
Associated Lab Samples: 3074195023, 3074195024, 3074195025, 3074195026, 3074195027, 3074195028, 3074195029, 3074195030, 3074195033, 3074195034, 3074195035, 3074195036

METHOD BLANK: 473316 Matrix: Water
Associated Lab Samples: 3074195023, 3074195024, 3074195025, 3074195026, 3074195027, 3074195028, 3074195029, 3074195030, 3074195033, 3074195034, 3074195035, 3074195036

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	1.0	08/07/12 09:15	

LABORATORY CONTROL SAMPLE: 473317

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1410	1340	95	85-115	

SAMPLE DUPLICATE: 473318

Parameter	Units	3074195023 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	613	623	2	20	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: WETA/21143 | Analysis Method: SM 4500-CN I
QC Batch Method: SM 4500-CN I | Analysis Description: SM4500CN-I Cyanide WAD

Associated Lab Samples: 3074195001, 3074195002, 3074195003, 3074195004, 3074195005, 3074195006, 3074195008, 3074195010, 3074195012, 3074195013, 3074195014, 3074195015, 3074195016, 3074195017, 3074195018, 3074195025, 3074195027, 3074195028, 3074195033

METHOD BLANK: 1039416 | Matrix: Water

Associated Lab Samples: 3074195001, 3074195002, 3074195003, 3074195004, 3074195005, 3074195006, 3074195008, 3074195010, 3074195012, 3074195013, 3074195014, 3074195015, 3074195016, 3074195017, 3074195018, 3074195025, 3074195027, 3074195028, 3074195033

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide, Dissociable	mg/L	ND	0.0050	08/03/12 17:12	

LABORATORY CONTROL SAMPLE: 1039417

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide, Dissociable	mg/L	.1	0.097	97	80-120	

MATRIX SPIKE SAMPLE: 1039418

Parameter	Units	3074195001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cyanide, Dissociable	mg/L	ND	.1	0.089	89	80-120	

SAMPLE DUPLICATE: 1039419

Parameter	Units	3074195002 Result	Dup Result	RPD	Max RPD	Qualifiers
Cyanide, Dissociable	mg/L	0.092	0.0061	175	10	D6

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: WETA/21144 — Analysis Method: SM 4500-CN I
QC Batch Method: SM 4500-CN I — Analysis Description: SM4500CN-I Cyanide WAD
Associated Lab Samples: 3074195007, 3074195009, 3074195011, 3074195019, 3074195020, 3074195021, 3074195022, 3074195023, 3074195024, 3074195026, 3074195029, 3074195030, 3074195034, 3074195035, 3074195036

METHOD BLANK: 1039420 — Matrix: Water
Associated Lab Samples: 3074195007, 3074195009, 3074195011, 3074195019, 3074195020, 3074195021, 3074195022, 3074195023, 3074195024, 3074195026, 3074195029, 3074195030, 3074195034, 3074195035, 3074195036

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide, Dissociable	mg/L	ND	0.0050	08/03/12 17:41	

LABORATORY CONTROL SAMPLE: 1039421

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide, Dissociable	mg/L	.1	0.10	102	80-120	

MATRIX SPIKE SAMPLE: 1039422

Parameter	Units	3074195026 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cyanide, Dissociable	mg/L	0.13	.1	0.21	82	80-120	

SAMPLE DUPLICATE: 1039423

Parameter	Units	3074195034 Result	Dup Result	RPD	Max RPD	Qualifiers
Cyanide, Dissociable	mg/L	0.055	0.043	24	10	D6

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: WETA/10451 — Analysis Method: SM 4500-CN-E
QC Batch Method: SM 4500-CN-E — Analysis Description: 4500CNE Cyanide, Total
Associated Lab Samples: 3074195001, 3074195002, 3074195003, 3074195004, 3074195005, 3074195006, 3074195007, 3074195008, 3074195009, 3074195010, 3074195011, 3074195012, 3074195013, 3074195014, 3074195015, 3074195016, 3074195017, 3074195027, 3074195028, 3074195033

METHOD BLANK: 473484 — Matrix: Water
Associated Lab Samples: 3074195001, 3074195002, 3074195003, 3074195004, 3074195005, 3074195006, 3074195007, 3074195008, 3074195009, 3074195010, 3074195011, 3074195012, 3074195013, 3074195014, 3074195015, 3074195016, 3074195017, 3074195027, 3074195028, 3074195033

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	08/07/12 20:45	

LABORATORY CONTROL SAMPLE: 473485

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	.2	0.18	90	90-110	

MATRIX SPIKE SAMPLE: 473487

Parameter	Units	3074195001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	0.0072	.1	0.12	110	90-110	

SAMPLE DUPLICATE: 473486

Parameter	Units	3074195001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cyanide	mg/L	0.0072	0.0056	25	20	D8

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: WETA/10463 — Analysis Method: SM 4500-CN-E
QC Batch Method: SM 4500-CN-E — Analysis Description: 4500CNE Cyanide, Total
Associated Lab Samples: 3074195018, 3074195019, 3074195020, 3074195021, 3074195022, 3074195023, 3074195024, 3074195025, 3074195026, 3074195029, 3074195030, 3074195034, 3074195035, 3074195036

METHOD BLANK: 474012 — Matrix: Water
Associated Lab Samples: 3074195018, 3074195019, 3074195020, 3074195021, 3074195022, 3074195023, 3074195024, 3074195025, 3074195026, 3074195029, 3074195030, 3074195034, 3074195035, 3074195036

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	08/08/12 20:57	

METHOD BLANK: 474016 — Matrix: Water
Associated Lab Samples: 3074195018, 3074195019, 3074195020, 3074195021, 3074195022, 3074195023, 3074195024, 3074195025, 3074195026, 3074195029, 3074195030, 3074195034, 3074195035, 3074195036

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	08/08/12 21:26	

LABORATORY CONTROL SAMPLE: 474013

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	.2	0.19	94	90-110	

MATRIX SPIKE SAMPLE: 474015

Parameter	Units	3074195026 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	3.5	.1	0.17	-3330	90-110	M1

SAMPLE DUPLICATE: 474014

Parameter	Units	3074195026 Result	Dup Result	RPD	Max RPD	Qualifiers
Cyanide	mg/L	3.5	3.4	2	20	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: WETA/10452 Analysis Method: SM 4500-CN-G
QC Batch Method: SM 4500-CN-G Analysis Description: 4500CNG Cyanide, Amenable
Associated Lab Samples: 3074195001, 3074195002, 3074195003, 3074195004, 3074195005, 3074195006, 3074195007, 3074195008, 3074195009, 3074195010, 3074195011, 3074195012, 3074195013, 3074195014, 3074195015, 3074195016, 3074195017, 3074195027, 3074195028, 3074195033

METHOD BLANK: 473499 Matrix: Water
Associated Lab Samples: 3074195001, 3074195002, 3074195003, 3074195004, 3074195005, 3074195006, 3074195007, 3074195008, 3074195009, 3074195010, 3074195011, 3074195012, 3074195013, 3074195014, 3074195015, 3074195016, 3074195017, 3074195027, 3074195028, 3074195033

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Amenable Cyanide	mg/L	ND	0.0050	08/07/12 22:57	

SAMPLE DUPLICATE: 473500

Parameter	Units	3074195001 Result	Dup Result	RPD	Max RPD	Qualifiers
Amenable Cyanide	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

QC Batch: WETA/10464 Analysis Method: SM 4500-CN-G
QC Batch Method: SM 4500-CN-G Analysis Description: 4500CNG Cyanide, Amenable
Associated Lab Samples: 3074195018, 3074195019, 3074195020, 3074195021, 3074195022, 3074195023, 3074195024, 3074195025, 3074195026, 3074195029, 3074195030, 3074195034, 3074195035, 3074195036

METHOD BLANK: 474017 Matrix: Water
Associated Lab Samples: 3074195018, 3074195019, 3074195020, 3074195021, 3074195022, 3074195023, 3074195024, 3074195025, 3074195026, 3074195029, 3074195030, 3074195034, 3074195035, 3074195036

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Amenable Cyanide	mg/L	ND	0.0050	08/08/12 23:08	

SAMPLE DUPLICATE: 474018

Parameter	Units	3074195026 Result	Dup Result	RPD	Max RPD	Qualifiers
Amenable Cyanide	mg/L	0.094	ND		20	

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QUALIFIERS

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-PA	Pace Analytical Services - Greensburg

BATCH QUALIFIERS

Batch: OEXT/12312

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1c	Response for Aroclor 1016 is high in the opening calibration check standard associated with the analysis of this sample. No Aroclors are detected in the sample at or above the reported limits. Results are unaffected by the high bias.
D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
D8	The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
H6	Analysis initiated outside of the 15 minute EPA recommended holding time.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3074195007	**MW-12**	EPA 3510	OEXT/12312	EPA 8082	GCSV/4715
3074195031	**MW-44S**	EPA 3510	OEXT/12312	EPA 8082	GCSV/4715
3074195032	**MW-44D**	EPA 3510	OEXT/12312	EPA 8082	GCSV/4715
3074195001	**MW-1**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195002	**MW-2**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195003	**MW-5**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195004	**MW-7**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195005	**MW-8**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195006	**MW-10**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195007	**MW-12**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195008	**MW-14**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195009	**MW-15**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195010	**MW-16**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195011	**MW-17**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195012	**MW-18**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195013	**MW-19**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195014	**MW-28**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195015	**MW-29S**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195016	**MW-29D**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195017	**MW-30**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195018	**MW-31**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195019	**MW-32**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195020	**MW-34S**	EPA 3005	MPRP/8781	EPA 6010B	ICP/8229
3074195021	**MW-34D**	EPA 3005	MPRP/8782	EPA 6010B	ICP/8230
3074195022	**MW-35**	EPA 3005	MPRP/8782	EPA 6010B	ICP/8230
3074195023	**MW-36**	EPA 3005	MPRP/8782	EPA 6010B	ICP/8230
3074195024	**MW-37**	EPA 3005	MPRP/8782	EPA 6010B	ICP/8230
3074195025	**MW-39S**	EPA 3005	MPRP/8782	EPA 6010B	ICP/8230
3074195026	**MW-39D**	EPA 3005	MPRP/8782	EPA 6010B	ICP/8230
3074195027	**MW-40S**	EPA 3005	MPRP/8782	EPA 6010B	ICP/8230
3074195028	**MW-40D**	EPA 3005	MPRP/8782	EPA 6010B	ICP/8230
3074195029	**MW-42S**	EPA 3005	MPRP/8782	EPA 6010B	ICP/8230
3074195030	**MW-42D**	EPA 3005	MPRP/8782	EPA 6010B	ICP/8230
3074195033	**MW-45**	EPA 3005	MPRP/8782	EPA 6010B	ICP/8230
3074195034	**MW-46**	EPA 3005	MPRP/8782	EPA 6010B	ICP/8230
3074195035	**MW-47**	EPA 3005	MPRP/8782	EPA 6010B	ICP/8230
3074195036	**MW-48**	EPA 3005	MPRP/8782	EPA 6010B	ICP/8230
3074195002	**MW-2**	EPA 8260	MSV/13501		
3074195003	**MW-5**	EPA 8260	MSV/13501		
3074195012	**MW-18**	EPA 8260	MSV/13501		
3074195017	**MW-30**	EPA 8260	MSV/13501		
3074195018	**MW-31**	EPA 8260	MSV/13501		
3074195035	**MW-47**	EPA 8260	MSV/13501		
3074195001	**MW-1**	SM 4500F/C	WET/14780		
3074195002	**MW-2**	SM 4500F/C	WET/14780		
3074195003	**MW-5**	SM 4500F/C	WET/14780		
3074195004	**MW-7**	SM 4500F/C	WET/14780		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3074195005	**MW-8**	SM 4500F/C	WET/14780		
3074195006	**MW-10**	SM 4500F/C	WET/14780		
3074195007	**MW-12**	SM 4500F/C	WET/14780		
3074195008	**MW-14**	SM 4500F/C	WET/14780		
3074195009	**MW-15**	SM 4500F/C	WET/14780		
3074195010	**MW-16**	SM 4500F/C	WET/14780		
3074195011	**MW-17**	SM 4500F/C	WET/14780		
3074195012	**MW-18**	SM 4500F/C	WET/14780		
3074195013	**MW-19**	SM 4500F/C	WET/14780		
3074195014	**MW-28**	SM 4500F/C	WET/14780		
3074195015	**MW-29S**	SM 4500F/C	WET/14780		
3074195016	**MW-29D**	SM 4500F/C	WET/14780		
3074195017	**MW-30**	SM 4500F/C	WET/14780		
3074195018	**MW-31**	SM 4500F/C	WET/14780		
3074195019	**MW-32**	SM 4500F/C	WET/14780		
3074195020	**MW-34S**	SM 4500F/C	WET/14781		
3074195021	**MW-34D**	SM 4500F/C	WET/14781		
3074195022	**MW-35**	SM 4500F/C	WET/14781		
3074195023	**MW-36**	SM 4500F/C	WET/14781		
3074195024	**MW-37**	SM 4500F/C	WET/14781		
3074195025	**MW-39S**	SM 4500F/C	WET/14781		
3074195026	**MW-39D**	SM 4500F/C	WET/14781		
3074195027	**MW-40S**	SM 4500F/C	WET/14781		
3074195028	**MW-40D**	SM 4500F/C	WET/14781		
3074195029	**MW-42S**	SM 4500F/C	WET/14781		
3074195030	**MW-42D**	SM 4500F/C	WET/14781		
3074195033	**MW-45**	SM 4500F/C	WET/14781		
3074195034	**MW-46**	SM 4500F/C	WET/14781		
3074195035	**MW-47**	SM 4500F/C	WET/14781		
3074195036	**MW-48**	SM 4500F/C	WET/14781		
3074195001	**MW-1**	EPA 9040	WET/14649		
3074195002	**MW-2**	EPA 9040	WET/14649		
3074195003	**MW-5**	EPA 9040	WET/14649		
3074195004	**MW-7**	EPA 9040	WET/14649		
3074195005	**MW-8**	EPA 9040	WET/14649		
3074195006	**MW-10**	EPA 9040	WET/14649		
3074195007	**MW-12**	EPA 9040	WET/14649		
3074195008	**MW-14**	EPA 9040	WET/14649		
3074195009	**MW-15**	EPA 9040	WET/14649		
3074195010	**MW-16**	EPA 9040	WET/14649		
3074195011	**MW-17**	EPA 9040	WET/14649		
3074195012	**MW-18**	EPA 9040	WET/14649		
3074195013	**MW-19**	EPA 9040	WET/14649		
3074195014	**MW-28**	EPA 9040	WET/14649		
3074195015	**MW-29S**	EPA 9040	WET/14649		
3074195016	**MW-29D**	EPA 9040	WET/14649		
3074195017	**MW-30**	EPA 9040	WET/14649		
3074195018	**MW-31**	EPA 9040	WET/14649		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3074195019	**MW-32**	EPA 9040	WET/14649		
3074195020	**MW-34S**	EPA 9040	WET/14649		
3074195021	**MW-34D**	EPA 9040	WET/14655		
3074195022	**MW-35**	EPA 9040	WET/14655		
3074195023	**MW-36**	EPA 9040	WET/14655		
3074195024	**MW-37**	EPA 9040	WET/14655		
3074195025	**MW-39S**	EPA 9040	WET/14655		
3074195026	**MW-39D**	EPA 9040	WET/14655		
3074195027	**MW-40S**	EPA 9040	WET/14655		
3074195028	**MW-40D**	EPA 9040	WET/14655		
3074195029	**MW-42S**	EPA 9040	WET/14655		
3074195030	**MW-42D**	EPA 9040	WET/14655		
3074195033	**MW-45**	EPA 9040	WET/14655		
3074195034	**MW-46**	EPA 9040	WET/14655		
3074195035	**MW-47**	EPA 9040	WET/14655		
3074195036	**MW-48**	EPA 9040	WET/14655		
3074195001	**MW-1**	EPA 9050	WET/14713		
3074195002	**MW-2**	EPA 9050	WET/14713		
3074195003	**MW-5**	EPA 9050	WET/14714		
3074195004	**MW-7**	EPA 9050	WET/14714		
3074195005	**MW-8**	EPA 9050	WET/14714		
3074195006	**MW-10**	EPA 9050	WET/14714		
3074195007	**MW-12**	EPA 9050	WET/14714		
3074195008	**MW-14**	EPA 9050	WET/14714		
3074195009	**MW-15**	EPA 9050	WET/14714		
3074195010	**MW-16**	EPA 9050	WET/14714		
3074195011	**MW-17**	EPA 9050	WET/14714		
3074195012	**MW-18**	EPA 9050	WET/14714		
3074195013	**MW-19**	EPA 9050	WET/14714		
3074195014	**MW-28**	EPA 9050	WET/14714		
3074195015	**MW-29S**	EPA 9050	WET/14714		
3074195016	**MW-29D**	EPA 9050	WET/14714		
3074195017	**MW-30**	EPA 9050	WET/14714		
3074195018	**MW-31**	EPA 9050	WET/14714		
3074195019	**MW-32**	EPA 9050	WET/14714		
3074195020	**MW-34S**	EPA 9050	WET/14714		
3074195021	**MW-34D**	EPA 9050	WET/14714		
3074195022	**MW-35**	EPA 9050	WET/14714		
3074195023	**MW-36**	EPA 9050	WET/14761		
3074195024	**MW-37**	EPA 9050	WET/14761		
3074195025	**MW-39S**	EPA 9050	WET/14761		
3074195026	**MW-39D**	EPA 9050	WET/14761		
3074195027	**MW-40S**	EPA 9050	WET/14761		
3074195028	**MW-40D**	EPA 9050	WET/14761		
3074195029	**MW-42S**	EPA 9050	WET/14761		
3074195030	**MW-42D**	EPA 9050	WET/14761		
3074195033	**MW-45**	EPA 9050	WET/14761		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3074195034	**MW-46**	EPA 9050	WET/14761		
3074195035	**MW-47**	EPA 9050	WET/14761		
3074195036	**MW-48**	EPA 9050	WET/14761		
3074195001	**MW-1**	SM 4500-CN I	WETA/21143		
3074195002	**MW-2**	SM 4500-CN I	WETA/21143		
3074195003	**MW-5**	SM 4500-CN I	WETA/21143		
3074195004	**MW-7**	SM 4500-CN I	WETA/21143		
3074195005	**MW-8**	SM 4500-CN I	WETA/21143		
3074195006	**MW-10**	SM 4500-CN I	WETA/21143		
3074195007	**MW-12**	SM 4500-CN I	WETA/21144		
3074195008	**MW-14**	SM 4500-CN I	WETA/21143		
3074195009	**MW-15**	SM 4500-CN I	WETA/21144		
3074195010	**MW-16**	SM 4500-CN I	WETA/21143		
3074195011	**MW-17**	SM 4500-CN I	WETA/21144		
3074195012	**MW-18**	SM 4500-CN I	WETA/21143		
3074195013	**MW-19**	SM 4500-CN I	WETA/21143		
3074195014	**MW-28**	SM 4500-CN I	WETA/21143		
3074195015	**MW-29S**	SM 4500-CN I	WETA/21143		
3074195016	**MW-29D**	SM 4500-CN I	WETA/21143		
3074195017	**MW-30**	SM 4500-CN I	WETA/21143		
3074195018	**MW-31**	SM 4500-CN I	WETA/21143		
3074195019	**MW-32**	SM 4500-CN I	WETA/21144		
3074195020	**MW-34S**	SM 4500-CN I	WETA/21144		
3074195021	**MW-34D**	SM 4500-CN I	WETA/21144		
3074195022	**MW-35**	SM 4500-CN I	WETA/21144		
3074195023	**MW-36**	SM 4500-CN I	WETA/21144		
3074195024	**MW-37**	SM 4500-CN I	WETA/21144		
3074195025	**MW-39S**	SM 4500-CN I	WETA/21143		
3074195026	**MW-39D**	SM 4500-CN I	WETA/21144		
3074195027	**MW-40S**	SM 4500-CN I	WETA/21143		
3074195028	**MW-40D**	SM 4500-CN I	WETA/21143		
3074195029	**MW-42S**	SM 4500-CN I	WETA/21144		
3074195030	**MW-42D**	SM 4500-CN I	WETA/21144		
3074195033	**MW-45**	SM 4500-CN I	WETA/21143		
3074195034	**MW-46**	SM 4500-CN I	WETA/21144		
3074195035	**MW-47**	SM 4500-CN I	WETA/21144		
3074195036	**MW-48**	SM 4500-CN I	WETA/21144		
3074195001	**MW-1**	SM 4500-CN-E	WETA/10451		
3074195002	**MW-2**	SM 4500-CN-E	WETA/10451		
3074195003	**MW-5**	SM 4500-CN-E	WETA/10451		
3074195004	**MW-7**	SM 4500-CN-E	WETA/10451		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3074195005	**MW-8**	SM 4500-CN-E	WETA/10451		
3074195006	**MW-10**	SM 4500-CN-E	WETA/10451		
3074195007	**MW-12**	SM 4500-CN-E	WETA/10451		
3074195008	**MW-14**	SM 4500-CN-E	WETA/10451		
3074195009	**MW-15**	SM 4500-CN-E	WETA/10451		
3074195010	**MW-16**	SM 4500-CN-E	WETA/10451		
3074195011	**MW-17**	SM 4500-CN-E	WETA/10451		
3074195012	**MW-18**	SM 4500-CN-E	WETA/10451		
3074195013	**MW-19**	SM 4500-CN-E	WETA/10451		
3074195014	**MW-28**	SM 4500-CN-E	WETA/10451		
3074195015	**MW-29S**	SM 4500-CN-E	WETA/10451		
3074195016	**MW-29D**	SM 4500-CN-E	WETA/10451		
3074195017	**MW-30**	SM 4500-CN-E	WETA/10451		
3074195018	**MW-31**	SM 4500-CN-E	WETA/10463		
3074195019	**MW-32**	SM 4500-CN-E	WETA/10463		
3074195020	**MW-34S**	SM 4500-CN-E	WETA/10463		
3074195021	**MW-34D**	SM 4500-CN-E	WETA/10463		
3074195022	**MW-35**	SM 4500-CN-E	WETA/10463		
3074195023	**MW-36**	SM 4500-CN-E	WETA/10463		
3074195024	**MW-37**	SM 4500-CN-E	WETA/10463		
3074195025	**MW-39S**	SM 4500-CN-E	WETA/10463		
3074195026	**MW-39D**	SM 4500-CN-E	WETA/10463		
3074195027	**MW-40S**	SM 4500-CN-E	WETA/10451		
3074195028	**MW-40D**	SM 4500-CN-E	WETA/10451		
3074195029	**MW-42S**	SM 4500-CN-E	WETA/10463		
3074195030	**MW-42D**	SM 4500-CN-E	WETA/10463		
3074195033	**MW-45**	SM 4500-CN-E	WETA/10451		
3074195034	**MW-46**	SM 4500-CN-E	WETA/10463		
3074195035	**MW-47**	SM 4500-CN-E	WETA/10463		
3074195036	**MW-48**	SM 4500-CN-E	WETA/10463		
3074195001	**MW-1**	SM 4500-CN-G	WETA/10452		
3074195002	**MW-2**	SM 4500-CN-G	WETA/10452		
3074195003	**MW-5**	SM 4500-CN-G	WETA/10452		
3074195004	**MW-7**	SM 4500-CN-G	WETA/10452		
3074195005	**MW-8**	SM 4500-CN-G	WETA/10452		
3074195006	**MW-10**	SM 4500-CN-G	WETA/10452		
3074195007	**MW-12**	SM 4500-CN-G	WETA/10452		
3074195008	**MW-14**	SM 4500-CN-G	WETA/10452		
3074195009	**MW-15**	SM 4500-CN-G	WETA/10452		
3074195010	**MW-16**	SM 4500-CN-G	WETA/10452		
3074195011	**MW-17**	SM 4500-CN-G	WETA/10452		
3074195012	**MW-18**	SM 4500-CN-G	WETA/10452		
3074195013	**MW-19**	SM 4500-CN-G	WETA/10452		
3074195014	**MW-28**	SM 4500-CN-G	WETA/10452		
3074195015	**MW-29S**	SM 4500-CN-G	WETA/10452		
3074195016	**MW-29D**	SM 4500-CN-G	WETA/10452		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HM00327 Ormet CERCLA
Pace Project No.: 3074195

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3074195017	**MW-30**	SM 4500-CN-G	WETA/10452		
3074195018	**MW-31**	SM 4500-CN-G	WETA/10464		
3074195019	**MW-32**	SM 4500-CN-G	WETA/10464		
3074195020	**MW-34S**	SM 4500-CN-G	WETA/10464		
3074195021	**MW-34D**	SM 4500-CN-G	WETA/10464		
3074195022	**MW-35**	SM 4500-CN-G	WETA/10464		
3074195023	**MW-36**	SM 4500-CN-G	WETA/10464		
3074195024	**MW-37**	SM 4500-CN-G	WETA/10464		
3074195025	**MW-39S**	SM 4500-CN-G	WETA/10464		
3074195026	**MW-39D**	SM 4500-CN-G	WETA/10464		
3074195027	**MW-40S**	SM 4500-CN-G	WETA/10452		
3074195028	**MW-40D**	SM 4500-CN-G	WETA/10452		
3074195029	**MW-42S**	SM 4500-CN-G	WETA/10464		
3074195030	**MW-42D**	SM 4500-CN-G	WETA/10464		
3074195033	**MW-45**	SM 4500-CN-G	WETA/10452		
3074195034	**MW-46**	SM 4500-CN-G	WETA/10464		
3074195035	**MW-47**	SM 4500-CN-G	WETA/10464		
3074195036	**MW-48**	SM 4500-CN-G	WETA/10464		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 2

1640000

Section A Required Client Information:

Company: Ormet Primary Aluminum Corp.
Address: State Route 7
Hannibal, Ohio
Email To: John Reggi
Phone: 740-483-2659 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Cleason Smith / HMI
Copy To: cpsmith@verizon.net
Purchase Order No.:
Project Name: Ormet CERCLA
Project Number:

Section C Invoice Information:

Attention: John Reggi
Company Name: Ormet Primary Aluminum Corp
Address: State Rt. 7, Hannibal, Ohio
Pace Quote Reference:
Pace Project Manager: Rachel Christner
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: Ohio

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED ~~COMPOSITE START~~ Grab DATE	TIME	COMPOSITE END/GRAB DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N) Gen Chem.	Cyanide-Total	Cyanide-Amen.	Cyanide-WAD	Metals	PCE (VOC)	PCBs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 3081622
										Gen Chem/PCBs		Preservatives						N	N	N	N	Yes	N	N		
1	MW-44D			11-8-12	10:02a					1		0	0	0				0	0	0	0	0	0	1		001
2	MW-39S			11-8-12	11:33a					1		1	0	2				1	1	1	1	1	0	0		002
3	MW-45			11-7-12	2:45p					1		1	3	2				1	1	1	1	1	1	0		003
4	MW-46			11-8-12	11:10a					1		1	0	2				1	1	1	1	1	0	0		004
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Call Cleason Smith (724-587-5490)	Cleason P. Smith	11-8-12	2:50pm	Brian Schaffner	11/8/12	2:50				
if any questions regarding	Brian Schaffner	11-9-12	11:00	S Baugh	11/9/12	1100	cur	Y	N	Y
samples or analyses, or email										
cpsmith@verizon.net										

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Cleason Smith

SIGNATURE of SAMPLER: Cleason P. Smith DATE Signed (MM/DD/YY): 11-8-12

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 2

1639999

Section A Required Client Information:

Company: Ormet Primary Al. Corp
Address: Hannibal, Ohio State Route 7
Email To:
Phone: 740-483-2659 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: Cleason Smith / HMI
Copy To: cpsmith@verizon.net
Purchase Order No.:
Project Name: Ormet CERCLA
Project Number:

Section C Invoice Information:

Attention: John Reggi
Company Name: Ormet Primary Aluminum Corp
Address: State Route 7, Hannibal, OH
Pace Quote Reference:
Pace Project Manager: Rachel Christner
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: Ohio

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED DATE (~~COMPOSITE START~~ Grab)	COLLECTED TIME	COLLECTED DATE (~~COMPOSITE END/GRAB~~)	COLLECTED TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved Gen. Chem/Alk	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N) Gen. Chem.	Cyanide-Total	Cyanide-Amen.	Cyanide-WAD	Metals	PCE (VOC)	PCBs					Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 3081622
																		N	N	N	N	Yes	N	N						
1	MW-2			11-7-12	2:20p					1		1	3	2				1	1	1	1	1	1	0						005
2	MW-5			11-7-12	3:15p					1		1	3	2				1	1	1	1	1	1	0						006
3	MW-12			11-8-12	11:52a					2		1	0	2				1	1	1	1	1	0	1						007
4	MW-16			11-8-12	12:23p					1		1	0	2				1	1	1	1	1	0	0						008
5	MW-18			11-7-12	4:10p					1		1	3	2				1	1	1	1	1	1	0						009
6	MW-28			11-7-12	3:50p					1		1	0	2				1	1	1	1	1	0	0						010
7	MW-31			11-8-12	10:52a					1		1	3	2				1	1	1	1	1	1	0						011
8	MW-32			11-8-12	12:53p					1		1	0	2				1	1	1	1	1	0	0						012
9	MW-35			11-8-12	1:28p					1		1	0	2				1	1	1	1	1	0	0						013
10	MW-36			11-8-12	1:12p					1		1	0	2				1	1	1	1	1	0	0						014
11	MW-37			11-8-12	1:45p					1		1	0	2				1	1	1	1	1	0	0						015
12	MW-44S			11-8-12	10:20a					1		0	0	0				0	0	0	0	0	0	1						016

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Call Cleason Smith (724-587-5690)	Cleason P. Smith	11-8-12	2:50pm	Brian Schaffner	11/8/12	2:50				
or email cpsmith@verizon.net	Brian Schaffner	11-9-12	11:00	Samantha Bayer	11/9/12	1100	Sur	Y	N	Y
if any questions regarding										
samples or analyses										

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Cleason Smith

SIGNATURE of SAMPLER: Cleason P. Smith DATE Signed (MM/DD/YY): 11-8-12

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

Pace Analytical

Client Name: Ormet Project # 30916222

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____

Optional
Proj. Due Date:
Proj. Name:

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 5 (6) 7 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.3, 1.9, 0.6 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: SMB 11/9/12

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☑Yes ☐No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: (VOA), coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No	Initial when completed SMB / Lot # of added preservative
Samples checked for dechlorination:	☑Yes ☐No ☐N/A	14. MW-5, MW-36, MW-37 positive, * many unreadable
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15. due to color of sample
Trip Blank Present:	☐Yes ☑No ☐N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Rachel L Chamness **Date:** 11/9/12

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical

Project Number: 30816222

Client Name: Ormet

Item No.	Matrix Code	Glass Jar (120 / 250 / 500 / 1L)	Soil kit (2 SB, 1M, soil jar)	Chemistry (250 / 500 / 1L)	Organics (1L)	Nutrient (250 / 500)	Phenolics (250 ml)	TOC (40 ml / 250 ml)	TOX (250 ml)	Total Metals	Dissolved Metals preserved Y N	O & G (1L)	TPH (1L)	VOA (40 ml 30 ml)	Cyanide (250 ml)	Sulfide (500 ml)	Bacteria (120 ml)	Wipes / swipe/ smear/ filter	Radchem Nalgene (125 / 250 / 500 / 1L)	Radchem Nalgene (1/2 gal. / 1 gal.L)	Cubitainer (500 ml / 4L)	Ziploc	Other	Other
001	WT				2																			
002				1						1					2									
003				1						1				3	2									
004				1						1					2									
005				1						1				3	2									
006				1						1				3	2									
007				1	1					1					2									
008				1						1					2									
009				1						1				3	2									
010				1						1					2									
011				1						1				3	2									
012				1						1					2									
015																								
016					2																			

SCURF Back (C016-4 15May2012).xls

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

November 27, 2012

Mr. Cleason Smith
Hydrosystems Management, Inc.
89 West Main Street
PO Box 56
West Middletown, PA 15379

RE: Project: Ormet CERCLA
Pace Project No.: 3081622

Dear Mr. Smith:
Enclosed are the analytical results for sample(s) received by the laboratory on November 09, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Rachel Christner

Rachel Christner

rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Mr. John Reggi, Ormet Primary Aluminum Corporation

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Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: Ormet CERCLA
Pace Project No.: 3081622

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana/TNI Certification #: LA080002
Louisiana/TNI Certification #: 4086
Maine Certification #: PA0091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: ANTE
Virgin Island/PADEP Certification
Virginia Certification #: 00112
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia Certification #: 143
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219
A2LA Certification #: 2456.01
Arkansas Certification #: 12-019-0
Illinois Certification #: 002885
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-12-3
Utah Certification #: KS000212012-2

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Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: Ormet CERCLA
Pace Project No.: 3081622

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3081622001	**MW-44D**	Water	11/08/12 10:02	11/09/12 11:00
3081622002	**MW-39S**	Water	11/08/12 11:33	11/09/12 11:00
3081622003	**MW-45**	Water	11/07/12 14:45	11/09/12 11:00
3081622004	**MW-46**	Water	11/08/12 11:10	11/09/12 11:00
3081622005	**MW-2**	Water	11/07/12 14:20	11/09/12 11:00
3081622006	**MW-5**	Water	11/07/12 15:15	11/09/12 11:00
3081622007	**MW-12**	Water	11/08/12 11:52	11/09/12 11:00
3081622008	**MW-16**	Water	11/08/12 12:23	11/09/12 11:00
3081622009	**MW-18**	Water	11/07/12 16:10	11/09/12 11:00
3081622010	**MW-28**	Water	11/07/12 15:50	11/09/12 11:00
3081622011	**MW-31**	Water	11/08/12 10:52	11/09/12 11:00
3081622012	**MW-32**	Water	11/08/12 12:53	11/09/12 11:00
3081622013	**MW-35**	Water	11/08/12 13:28	11/09/12 11:00
3081622014	**MW-36**	Water	11/08/12 13:12	11/09/12 11:00
3081622015	**MW-37**	Water	11/08/12 13:45	11/09/12 11:00
3081622016	**MW-44S**	Water	11/08/12 10:20	11/09/12 11:00

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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: Ormet CERCLA
Pace Project No.: 3081622

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3081622001	**MW-44D**	EPA 8082	SJG	9	PASI-PA
3081622002	**MW-39S**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	JLS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3081622003	**MW-45**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	RES	4	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	JLS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3081622004	**MW-46**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	JLS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3081622005	**MW-2**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	RES	4	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	JLS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3081622006	**MW-5**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	RES	4	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	JLS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K

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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: Ormet CERCLA
Pace Project No.: 3081622

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3081622007	**MW-12**	EPA 8082	SJG	9	PASI-PA
		EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	JLS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3081622008	**MW-16**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	JLS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3081622009	**MW-18**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	RES	4	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	JLS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3081622010	**MW-28**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	JLS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3081622011	**MW-31**	EPA 6010B	CTS	5	PASI-PA
		EPA 8260	RES	4	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	JLS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA

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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: Ormet CERCLA
Pace Project No.: 3081622

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3081622012	**MW-32**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	JLS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3081622013	**MW-35**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	JLS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3081622014	**MW-36**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	JLS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3081622015	**MW-37**	EPA 6010B	CTS	5	PASI-PA
		SM 4500F/C	AMS	1	PASI-PA
		EPA 9040	JLS	1	PASI-PA
		EPA 9050	CLP	1	PASI-PA
		SM 4500-CN I	OL	1	PASI-K
		SM 4500-CN-E	PM1	1	PASI-PA
		SM 4500-CN-G	PM1	1	PASI-PA
3081622016	**MW-44S**	EPA 8082	SJG	9	PASI-PA

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PROJECT NARRATIVE

Project: Ormet CERCLA
Pace Project No.: 3081622

Method: **EPA 8082**
Description: 8082 GCS PCB
Client: Ormet Primary Aluminum Corporation
Date: November 27, 2012

General Information:
3 samples were analyzed for EPA 8082. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: GCSV/5062

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

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PROJECT NARRATIVE

Project: Ormet CERCLA
Pace Project No.: 3081622

Method: **EPA 6010B**
Description: 6010 MET ICP
Client: Ormet Primary Aluminum Corporation
Date: November 27, 2012

General Information:
14 samples were analyzed for EPA 6010B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3005 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Ormet CERCLA
Pace Project No.: 3081622

Method: **EPA 8260**
Description: 8260 MSV
Client: Ormet Primary Aluminum Corporation
Date: November 27, 2012

General Information:
5 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Ormet CERCLA
Pace Project No.: 3081622

Method: **SM 4500F/C**
Description: 4500FC Fluoride
Client: Ormet Primary Aluminum Corporation
Date: November 27, 2012

General Information:
14 samples were analyzed for SM 4500F/C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Ormet CERCLA
Pace Project No.: 3081622

Method: **EPA 9040**
Description: 9040 pH
Client: Ormet Primary Aluminum Corporation
Date: November 27, 2012

General Information:
14 samples were analyzed for EPA 9040. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H6: Analysis initiated outside of the 15 minute EPA recommended holding time.

- MW-12 (Lab ID: 3081622007)
- MW-16 (Lab ID: 3081622008)
- MW-18 (Lab ID: 3081622009)
- MW-2 (Lab ID: 3081622005)
- MW-28 (Lab ID: 3081622010)
- MW-31 (Lab ID: 3081622011)
- MW-32 (Lab ID: 3081622012)
- MW-35 (Lab ID: 3081622013)
- MW-36 (Lab ID: 3081622014)
- MW-37 (Lab ID: 3081622015)
- MW-39S (Lab ID: 3081622002)
- MW-45 (Lab ID: 3081622003)
- MW-46 (Lab ID: 3081622004)
- MW-5 (Lab ID: 3081622006)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Ormet CERCLA
Pace Project No.: 3081622

Method: **EPA 9050**
Description: 9050 Specific Conductance
Client: Ormet Primary Aluminum Corporation
Date: November 27, 2012

General Information:
14 samples were analyzed for EPA 9050. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Ormet CERCLA
Pace Project No.: 3081622

Method: **SM 4500-CN I**
Description: Cyanide, Weak Acid Dissociable
Client: Ormet Primary Aluminum Corporation
Date: November 27, 2012

General Information:
14 samples were analyzed for SM 4500-CN I. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/22467

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 3081622003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1098459)
  - Cyanide, Dissociable

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: WETA/22467

D6: The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 1098460)
  - Cyanide, Dissociable

Additional Comments:

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PROJECT NARRATIVE

Project: Ormet CERCLA
Pace Project No.: 3081622

Method: **SM 4500-CN-E**
Description: 4500CNE Cyanide, Total
Client: Ormet Primary Aluminum Corporation
Date: November 27, 2012

General Information:
14 samples were analyzed for SM 4500-CN-E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/11260

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 3081622007

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 512201)
  - Cyanide

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Ormet CERCLA
Pace Project No.: 3081622

Method: **SM 4500-CN-G**
Description: 4500CNG Cyanide, Amenable
Client: Ormet Primary Aluminum Corporation
Date: November 27, 2012

General Information:
14 samples were analyzed for SM 4500-CN-G. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-44D **Lab ID: 3081622001** Collected: 11/08/12 10:02 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.54	0.082	1	11/20/12 09:00	11/21/12 21:12	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.54	0.097	1	11/20/12 09:00	11/21/12 21:12	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.54	0.078	1	11/20/12 09:00	11/21/12 21:12	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.54	0.035	1	11/20/12 09:00	11/21/12 21:12	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.54	0.025	1	11/20/12 09:00	11/21/12 21:12	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.54	0.039	1	11/20/12 09:00	11/21/12 21:12	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.54	0.033	1	11/20/12 09:00	11/21/12 21:12	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	77	%	30-150		1	11/20/12 09:00	11/21/12 21:12	877-09-8	
Decachlorobiphenyl (S)	75	%	30-150		1	11/20/12 09:00	11/21/12 21:12	2051-24-3	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-39S **Lab ID: 3081622002** Collected: 11/08/12 11:33 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**12.4**	ug/L	5.0	3.6	1	11/13/12 07:23	11/14/12 08:31	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	11/13/12 07:23	11/14/12 08:31	7440-41-7	
Manganese	**134**	ug/L	5.0	2.3	1	11/13/12 07:23	11/14/12 08:31	7439-96-5	
Sodium	**702000**	ug/L	1000	329	1	11/13/12 07:23	11/14/12 08:31	7440-23-5	
Vanadium	**10.6**	ug/L	5.0	1.8	1	11/13/12 07:23	11/14/12 08:31	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**110**	mg/L	1.0	0.52	10		11/26/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**8.9**	Std. Units	1.0	1.0	1		11/09/12 19:45		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**3710**	umhos/cm	1.0	1.0	1		11/19/12 14:58		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.029**	mg/L	0.0050	0.0013	1		11/14/12 15:48	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**4.2**	mg/L	0.10	0.054	20		11/14/12 01:03	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		11/15/12 01:19	57-12-5	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-45 **Lab ID: 3081622003** Collected: 11/07/12 14:45 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**27.0**	ug/L	5.0	3.6	1	11/13/12 07:23	11/14/12 08:35	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	11/13/12 07:23	11/14/12 08:35	7440-41-7	
Manganese	**492**	ug/L	5.0	2.3	1	11/13/12 07:23	11/14/12 08:35	7439-96-5	
Sodium	**243000**	ug/L	1000	329	1	11/13/12 07:23	11/14/12 08:35	7440-23-5	
Vanadium	**16.6**	ug/L	5.0	1.8	1	11/13/12 07:23	11/14/12 08:35	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	**38.5**	ug/L	5.0	0.12	1		11/12/12 18:42	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	94	%	85-115		1		11/12/12 18:42	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	77-119		1		11/12/12 18:42	17060-07-0	
Toluene-d8 (S)	92	%	85-115		1		11/12/12 18:42	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**24.7**	mg/L	0.10	0.052	1		11/26/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.1**	Std. Units	1.0	1.0	1		11/09/12 19:45		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1530**	umhos/cm	1.0	1.0	1		11/19/12 14:58		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.013**	mg/L	0.0050	0.0013	1		11/14/12 15:39	57-12-5	M1
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**6.3**	mg/L	1.0	0.54	200		11/14/12 00:51	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		11/15/12 01:19	57-12-5	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-46 **Lab ID: 3081622004** Collected: 11/08/12 11:10 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**34.9**	ug/L	5.0	3.6	1	11/13/12 07:23	11/14/12 08:39	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	11/13/12 07:23	11/14/12 08:39	7440-41-7	
Manganese	**665**	ug/L	5.0	2.3	1	11/13/12 07:23	11/14/12 08:39	7439-96-5	
Sodium	**288000**	ug/L	1000	329	1	11/13/12 07:23	11/14/12 08:39	7440-23-5	
Vanadium	**38.2**	ug/L	5.0	1.8	1	11/13/12 07:23	11/14/12 08:39	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**43.7**	mg/L	0.50	0.26	5		11/26/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.4**	Std. Units	1.0	1.0	1		11/09/12 19:45		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1680**	umhos/cm	1.0	1.0	1		11/19/12 14:58		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.040**	mg/L	0.0050	0.0013	1		11/14/12 15:42	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**5.3**	mg/L	0.50	0.27	100		11/14/12 01:03	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.49**	mg/L	0.0050	0.0031	1		11/15/12 01:19	57-12-5	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-2 **Lab ID: 3081622005** Collected: 11/07/12 14:20 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**30.0**	ug/L	5.0	3.6	1	11/13/12 07:23	11/14/12 08:42	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	11/13/12 07:23	11/14/12 08:42	7440-41-7	
Manganese	**517**	ug/L	5.0	2.3	1	11/13/12 07:23	11/14/12 08:42	7439-96-5	
Sodium	**245000**	ug/L	1000	329	1	11/13/12 07:23	11/14/12 08:42	7440-23-5	
Vanadium	**17.0**	ug/L	5.0	1.8	1	11/13/12 07:23	11/14/12 08:42	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	**38.1**	ug/L	5.0	0.12	1		11/12/12 19:08	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	97	%	85-115		1		11/12/12 19:08	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	77-119		1		11/12/12 19:08	17060-07-0	
Toluene-d8 (S)	92	%	85-115		1		11/12/12 19:08	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**30.0**	mg/L	0.50	0.26	5		11/26/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.1**	Std. Units	1.0	1.0	1		11/09/12 19:45		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1560**	umhos/cm	1.0	1.0	1		11/19/12 14:58		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.059**	mg/L	0.0050	0.0013	1		11/14/12 15:43	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**4.6**	mg/L	0.25	0.13	50		11/14/12 00:54	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.46**	mg/L	0.0050	0.0031	1		11/15/12 01:19	57-12-5	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-5 **Lab ID: 3081622006** Collected: 11/07/12 15:15 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**6.4**	ug/L	5.0	3.6	1	11/13/12 07:23	11/14/12 09:00	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	11/13/12 07:23	11/14/12 09:00	7440-41-7	
Manganese	**380**	ug/L	5.0	2.3	1	11/13/12 07:23	11/14/12 09:00	7439-96-5	
Sodium	**255000**	ug/L	1000	329	1	11/13/12 07:23	11/14/12 09:00	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	11/13/12 07:23	11/14/12 09:00	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	ND	ug/L	5.0	0.12	1		11/12/12 19:33	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	97	%	85-115		1		11/12/12 19:33	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	77-119		1		11/12/12 19:33	17060-07-0	
Toluene-d8 (S)	100	%	85-115		1		11/12/12 19:33	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**29.8**	mg/L	0.50	0.26	5		11/26/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**8.0**	Std. Units	1.0	1.0	1		11/09/12 19:45		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1660**	umhos/cm	1.0	1.0	1		11/19/12 14:58		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.034**	mg/L	0.0050	0.0013	1		11/14/12 15:44	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**5.1**	mg/L	0.10	0.054	20		11/14/12 00:54	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**2.8**	mg/L	0.0050	0.0031	1		11/15/12 01:19	57-12-5	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-12 **Lab ID: 3081622007** Collected: 11/08/12 11:52 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.52	0.078	1	11/20/12 09:00	11/21/12 21:20	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.52	0.093	1	11/20/12 09:00	11/21/12 21:20	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.52	0.074	1	11/20/12 09:00	11/21/12 21:20	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.52	0.033	1	11/20/12 09:00	11/21/12 21:20	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.52	0.024	1	11/20/12 09:00	11/21/12 21:20	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.52	0.037	1	11/20/12 09:00	11/21/12 21:20	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.52	0.032	1	11/20/12 09:00	11/21/12 21:20	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	73	%	30-150		1	11/20/12 09:00	11/21/12 21:20	877-09-8	
Decachlorobiphenyl (S)	77	%	30-150		1	11/20/12 09:00	11/21/12 21:20	2051-24-3	
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	11/13/12 07:23	11/14/12 08:15	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	11/13/12 07:23	11/14/12 08:15	7440-41-7	
Manganese	**2010**	ug/L	5.0	2.3	1	11/13/12 07:23	11/14/12 08:15	7439-96-5	
Sodium	**30400**	ug/L	1000	329	1	11/13/12 07:23	11/14/12 08:15	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	11/13/12 07:23	11/14/12 08:15	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**0.94**	mg/L	0.10	0.052	1		11/26/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.7**	Std. Units	1.0	1.0	1		11/09/12 19:45		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**737**	umhos/cm	1.0	1.0	1		11/19/12 14:58		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.012**	mg/L	0.0050	0.0013	1		11/14/12 15:51	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	ND	mg/L	0.0050	0.0027	1		11/14/12 01:04	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		11/15/12 01:19	57-12-5	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-16 **Lab ID: 3081622008** Collected: 11/08/12 12:23 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**30.6**	ug/L	5.0	3.6	1	11/13/12 07:23	11/14/12 09:04	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	11/13/12 07:23	11/14/12 09:04	7440-41-7	
Manganese	**722**	ug/L	5.0	2.3	1	11/13/12 07:23	11/14/12 09:04	7439-96-5	
Sodium	**199000**	ug/L	1000	329	1	11/13/12 07:23	11/14/12 09:04	7440-23-5	
Vanadium	**29.5**	ug/L	5.0	1.8	1	11/13/12 07:23	11/14/12 09:04	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**29.4**	mg/L	0.50	0.26	5		11/26/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.0**	Std. Units	1.0	1.0	1		11/09/12 19:45		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1240**	umhos/cm	1.0	1.0	1		11/19/12 14:58		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.029**	mg/L	0.0050	0.0013	1		11/14/12 15:52	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**4.4**	mg/L	0.10	0.054	20		11/14/12 01:07	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.72**	mg/L	0.0050	0.0031	1		11/15/12 01:19	57-12-5	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-18 **Lab ID: 3081622009** Collected: 11/07/12 16:10 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**52.7**	ug/L	5.0	3.6	1	11/13/12 07:23	11/14/12 09:08	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	11/13/12 07:23	11/14/12 09:08	7440-41-7	
Manganese	**367**	ug/L	5.0	2.3	1	11/13/12 07:23	11/14/12 09:08	7439-96-5	
Sodium	**249000**	ug/L	1000	329	1	11/13/12 07:23	11/14/12 09:08	7440-23-5	
Vanadium	**28.7**	ug/L	5.0	1.8	1	11/13/12 07:23	11/14/12 09:08	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	ND	ug/L	5.0	0.12	1		11/12/12 19:59	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	95	%	85-115		1		11/12/12 19:59	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	77-119		1		11/12/12 19:59	17060-07-0	
Toluene-d8 (S)	104	%	85-115		1		11/12/12 19:59	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**66.5**	mg/L	1.0	0.52	10		11/26/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.3**	Std. Units	1.0	1.0	1		11/09/12 19:45		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1710**	umhos/cm	1.0	1.0	1		11/19/12 14:58		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.039**	mg/L	0.0050	0.0013	1		11/14/12 15:46	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**4.7**	mg/L	0.50	0.27	100		11/14/12 00:59	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		11/15/12 01:19	57-12-5	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-28 **Lab ID: 3081622010** Collected: 11/07/12 15:50 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	11/13/12 07:23	11/14/12 09:12	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	11/13/12 07:23	11/14/12 09:12	7440-41-7	
Manganese	**76.1**	ug/L	5.0	2.3	1	11/13/12 07:23	11/14/12 09:12	7439-96-5	
Sodium	**62000**	ug/L	1000	329	1	11/13/12 07:23	11/14/12 09:12	7440-23-5	
Vanadium	**5.2**	ug/L	5.0	1.8	1	11/13/12 07:23	11/14/12 09:12	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**0.45**	mg/L	0.10	0.052	1		11/26/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**6.2**	Std. Units	1.0	1.0	1		11/09/12 19:45		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**531**	umhos/cm	1.0	1.0	1		11/19/12 14:58		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.0055**	mg/L	0.0050	0.0013	1		11/14/12 15:47	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.094**	mg/L	0.0050	0.0027	1		11/14/12 01:00	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		11/15/12 01:19	57-12-5	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-31 **Lab ID: 3081622011** Collected: 11/08/12 10:52 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**32.5**	ug/L	5.0	3.6	1	11/13/12 07:23	11/14/12 09:16	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	11/13/12 07:23	11/14/12 09:16	7440-41-7	
Manganese	**668**	ug/L	5.0	2.3	1	11/13/12 07:23	11/14/12 09:16	7439-96-5	
Sodium	**293000**	ug/L	1000	329	1	11/13/12 07:23	11/14/12 09:16	7440-23-5	
Vanadium	**37.2**	ug/L	5.0	1.8	1	11/13/12 07:23	11/14/12 09:16	7440-62-2	
8260 MSV	Analytical Method: EPA 8260								
Tetrachloroethene	**37.3**	ug/L	5.0	0.12	1		11/12/12 20:24	127-18-4	
Surrogates									
4-Bromofluorobenzene (S)	96	%	85-115		1		11/12/12 20:24	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	77-119		1		11/12/12 20:24	17060-07-0	
Toluene-d8 (S)	100	%	85-115		1		11/12/12 20:24	2037-26-5	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**43.5**	mg/L	1.0	0.52	10		11/26/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.3**	Std. Units	1.0	1.0	1		11/09/12 19:45		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1680**	umhos/cm	1.0	1.0	1		11/19/12 14:58		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.045**	mg/L	0.0050	0.0013	1		11/14/12 15:52	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**3.3**	mg/L	0.25	0.13	50		11/14/12 01:08	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		11/15/12 01:19	57-12-5	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-32 **Lab ID: 3081622012** Collected: 11/08/12 12:53 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**37.2**	ug/L	5.0	3.6	1	11/13/12 07:23	11/14/12 09:31	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	11/13/12 07:23	11/14/12 09:31	7440-41-7	
Manganese	**1340**	ug/L	5.0	2.3	1	11/13/12 07:23	11/14/12 09:31	7439-96-5	
Sodium	**298000**	ug/L	1000	329	1	11/13/12 07:23	11/14/12 09:31	7440-23-5	
Vanadium	**57.4**	ug/L	5.0	1.8	1	11/13/12 07:23	11/14/12 09:31	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**53.9**	mg/L	1.0	0.52	10		11/26/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**9.7**	Std. Units	1.0	1.0	1		11/09/12 19:45		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**1720**	umhos/cm	1.0	1.0	1		11/19/12 14:58		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.038**	mg/L	0.0050	0.0013	1		11/14/12 15:55	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**4.6**	mg/L	0.25	0.13	50		11/14/12 01:12	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		11/15/12 01:19	57-12-5	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-35 **Lab ID: 3081622013** Collected: 11/08/12 13:28 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	**10.9**	ug/L	5.0	3.6	1	11/13/12 07:23	11/14/12 09:35	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	11/13/12 07:23	11/14/12 09:35	7440-41-7	
Manganese	**800**	ug/L	5.0	2.3	1	11/13/12 07:23	11/14/12 09:35	7439-96-5	
Sodium	**40600**	ug/L	1000	329	1	11/13/12 07:23	11/14/12 09:35	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	11/13/12 07:23	11/14/12 09:35	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**4.9**	mg/L	0.50	0.26	5		11/26/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**7.6**	Std. Units	1.0	1.0	1		11/09/12 19:45		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**479**	umhos/cm	1.0	1.0	1		11/19/12 14:58		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.070**	mg/L	0.0050	0.0013	1		11/14/12 15:55	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**2.7**	mg/L	0.25	0.13	50		11/14/12 01:12	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	ND	mg/L	0.0050	0.0031	1		11/15/12 01:19	57-12-5	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-36 **Lab ID: 3081622014** Collected: 11/08/12 13:12 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	11/13/12 07:23	11/14/12 09:19	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	11/13/12 07:23	11/14/12 09:19	7440-41-7	
Manganese	**218**	ug/L	5.0	2.3	1	11/13/12 07:23	11/14/12 09:19	7439-96-5	
Sodium	**117000**	ug/L	1000	329	1	11/13/12 07:23	11/14/12 09:19	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	11/13/12 07:23	11/14/12 09:19	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**15.2**	mg/L	0.50	0.26	5		11/26/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**8.3**	Std. Units	1.0	1.0	1		11/09/12 19:45		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**917**	umhos/cm	1.0	1.0	1		11/19/12 14:58		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	**0.069**	mg/L	0.0050	0.0013	1		11/14/12 15:56	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**1.2**	mg/L	0.25	0.13	50		11/14/12 01:15	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.64**	mg/L	0.0050	0.0031	1		11/15/12 01:19	57-12-5	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-37 **Lab ID: 3081622015** Collected: 11/08/12 13:45 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005								
Arsenic	ND	ug/L	5.0	3.6	1	11/13/12 07:23	11/14/12 09:52	7440-38-2	
Beryllium	ND	ug/L	1.0	0.24	1	11/13/12 07:23	11/14/12 09:52	7440-41-7	
Manganese	**24.6**	ug/L	5.0	2.3	1	11/13/12 07:23	11/14/12 09:52	7439-96-5	
Sodium	**38200**	ug/L	1000	329	1	11/13/12 07:23	11/14/12 09:52	7440-23-5	
Vanadium	ND	ug/L	5.0	1.8	1	11/13/12 07:23	11/14/12 09:52	7440-62-2	
4500FC Fluoride	Analytical Method: SM 4500F/C								
Fluoride	**3.2**	mg/L	0.50	0.26	5		11/26/12 14:00	16984-48-8	
9040 pH	Analytical Method: EPA 9040								
pH	**6.4**	Std. Units	1.0	1.0	1		11/09/12 19:45		H6
9050 Specific Conductance	Analytical Method: EPA 9050								
Specific Conductance	**394**	umhos/cm	1.0	1.0	1		11/19/12 14:58		
Cyanide, Weak Acid Dissociable	Analytical Method: SM 4500-CN I								
Cyanide, Dissociable	ND	mg/L	0.0050	0.0013	1		11/14/12 15:56	57-12-5	
4500CNE Cyanide, Total	Analytical Method: SM 4500-CN-E								
Cyanide	**0.22**	mg/L	0.10	0.054	20		11/14/12 01:15	57-12-5	
4500CNG Cyanide, Amenable	Analytical Method: SM 4500-CN-G								
Amenable Cyanide	**0.026**	mg/L	0.0050	0.0031	1		11/15/12 01:19	57-12-5	

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ANALYTICAL RESULTS

Project: Ormet CERCLA
Pace Project No.: 3081622

Sample: MW-44S **Lab ID: 3081622016** Collected: 11/08/12 10:20 Received: 11/09/12 11:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082 GCS PCB	Analytical Method: EPA 8082 Preparation Method: EPA 3510								
PCB-1016 (Aroclor 1016)	ND	ug/L	0.52	0.077	1	11/20/12 09:00	11/21/12 21:28	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.52	0.092	1	11/20/12 09:00	11/21/12 21:28	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.52	0.074	1	11/20/12 09:00	11/21/12 21:28	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.52	0.033	1	11/20/12 09:00	11/21/12 21:28	53469-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.52	0.024	1	11/20/12 09:00	11/21/12 21:28	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.52	0.037	1	11/20/12 09:00	11/21/12 21:28	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.52	0.032	1	11/20/12 09:00	11/21/12 21:28	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	80	%	30-150		1	11/20/12 09:00	11/21/12 21:28	877-09-8	
Decachlorobiphenyl (S)	85	%	30-150		1	11/20/12 09:00	11/21/12 21:28	2051-24-3	

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QUALITY CONTROL DATA

Project: Ormet CERCLA
Pace Project No.: 3081622

QC Batch: MPRP/9515 — Analysis Method: EPA 6010B
QC Batch Method: EPA 3005 — Analysis Description: 6010 MET
Associated Lab Samples: 3081622002, 3081622003, 3081622004, 3081622005, 3081622006, 3081622007, 3081622008, 3081622009, 3081622010, 3081622011, 3081622012, 3081622013, 3081622014, 3081622015

METHOD BLANK: 511390 — Matrix: Water
Associated Lab Samples: 3081622002, 3081622003, 3081622004, 3081622005, 3081622006, 3081622007, 3081622008, 3081622009, 3081622010, 3081622011, 3081622012, 3081622013, 3081622014, 3081622015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	5.0	11/14/12 08:08	
Beryllium	ug/L	ND	1.0	11/14/12 08:08	
Manganese	ug/L	ND	5.0	11/14/12 08:08	
Sodium	ug/L	ND	1000	11/14/12 08:08	
Vanadium	ug/L	ND	5.0	11/14/12 08:08	

LABORATORY CONTROL SAMPLE: 511391

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	500	495	99	80-120	
Beryllium	ug/L	500	509	102	80-120	
Manganese	ug/L	500	516	103	80-120	
Sodium	ug/L	5000	5440	109	80-120	
Vanadium	ug/L	500	495	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 511393 511394

Parameter	Units	3081622007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	500	500	526	530	105	106	80-120	.8	20	
Beryllium	ug/L	ND	500	500	540	535	108	107	80-120	1	20	
Manganese	ug/L	2010	500	500	2570	2530	113	104	80-120	2	20	
Sodium	ug/L	30400	5000	5000	36400	35800	119	108	80-120	2	20	
Vanadium	ug/L	ND	500	500	532	526	106	105	80-120	1	20	

MATRIX SPIKE SAMPLE: 511396

Parameter	Units	3081622014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	ND	500	530	106	80-120	
Beryllium	ug/L	ND	500	545	109	80-120	
Manganese	ug/L	218	500	757	108	80-120	
Sodium	ug/L	117000	5000	122000	96	80-120	
Vanadium	ug/L	ND	500	542	108	80-120	

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QUALITY CONTROL DATA

Project: Ormet CERCLA
Pace Project No.: 3081622

SAMPLE DUPLICATE: 511392

Parameter	Units	3081622007 Result	Dup Result	RPD	Max RPD	Qualifiers
Arsenic	ug/L	ND	ND		20	
Beryllium	ug/L	ND	ND		20	
Manganese	ug/L	2010	1980	2	20	
Sodium	ug/L	30400	29900	2	20	
Vanadium	ug/L	ND	ND		20	

SAMPLE DUPLICATE: 511395

Parameter	Units	3081622014 Result	Dup Result	RPD	Max RPD	Qualifiers
Arsenic	ug/L	ND	ND		20	
Beryllium	ug/L	ND	ND		20	
Manganese	ug/L	218	217	.4	20	
Sodium	ug/L	117000	116000	1	20	
Vanadium	ug/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: Ormet CERCLA
Pace Project No.: 3081622

QC Batch: MSV/14533 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 3081622003, 3081622005, 3081622006, 3081622009, 3081622011

METHOD BLANK: 511219 Matrix: Water
Associated Lab Samples: 3081622003, 3081622005, 3081622006, 3081622009, 3081622011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Tetrachloroethene	ug/L	ND	5.0	11/12/12 12:18	
1,2-Dichloroethane-d4 (S)	%	107	77-119	11/12/12 12:18	
4-Bromofluorobenzene (S)	%	97	85-115	11/12/12 12:18	
Toluene-d8 (S)	%	101	85-115	11/12/12 12:18	

LABORATORY CONTROL SAMPLE: 511220

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/L	20	20.3	102	62-125	
1,2-Dichloroethane-d4 (S)	%			104	77-119	
4-Bromofluorobenzene (S)	%			98	85-115	
Toluene-d8 (S)	%			98	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 511221 511222

Parameter	Units	3081290002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Tetrachloroethene	ug/L	1.0 U	20	20	19.1	19.4	96	97	62-125	1	30	
1,2-Dichloroethane-d4 (S)	%						102	103	77-119			
4-Bromofluorobenzene (S)	%						98	88	85-115			
Toluene-d8 (S)	%						97	97	85-115			

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QUALITY CONTROL DATA

Project: Ormet CERCLA
Pace Project No.: 3081622

QC Batch: OEXT/13476 Analysis Method: EPA 8082
QC Batch Method: EPA 3510 Analysis Description: 8082 GCS PCB
Associated Lab Samples: 3081622001, 3081622007, 3081622016

METHOD BLANK: 514151 Matrix: Water
Associated Lab Samples: 3081622001, 3081622007, 3081622016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	ND	0.50	11/21/12 19:58	
PCB-1221 (Aroclor 1221)	ug/L	ND	0.50	11/21/12 19:58	
PCB-1232 (Aroclor 1232)	ug/L	ND	0.50	11/21/12 19:58	
PCB-1242 (Aroclor 1242)	ug/L	ND	0.50	11/21/12 19:58	
PCB-1248 (Aroclor 1248)	ug/L	ND	0.50	11/21/12 19:58	
PCB-1254 (Aroclor 1254)	ug/L	ND	0.50	11/21/12 19:58	
PCB-1260 (Aroclor 1260)	ug/L	ND	0.50	11/21/12 19:58	
Decachlorobiphenyl (S)	%	60	30-150	11/21/12 19:58	
Tetrachloro-m-xylene (S)	%	79	30-150	11/21/12 19:58	

LABORATORY CONTROL SAMPLE: 514152

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1221 (Aroclor 1221)	ug/L	2.5	2.0	79	55-145	
PCB-1254 (Aroclor 1254)	ug/L	2.5	2.1	84	55-145	
Decachlorobiphenyl (S)	%			53	30-150	
Tetrachloro-m-xylene (S)	%			70	30-150	

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QUALITY CONTROL DATA

Project: Ormet CERCLA
Pace Project No.: 3081622

QC Batch: WET/16124 | Analysis Method: SM 4500F/C
QC Batch Method: SM 4500F/C | Analysis Description: SM4500FC Fluoride Water
Associated Lab Samples: 3081622002, 3081622003, 3081622004, 3081622005, 3081622006, 3081622007, 3081622008, 3081622009, 3081622010, 3081622011, 3081622012, 3081622013, 3081622014, 3081622015

METHOD BLANK: 515781 | Matrix: Water
Associated Lab Samples: 3081622002, 3081622003, 3081622004, 3081622005, 3081622006, 3081622007, 3081622008, 3081622009, 3081622010, 3081622011, 3081622012, 3081622013, 3081622014, 3081622015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.10	11/26/12 14:00	

LABORATORY CONTROL SAMPLE: 515782

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2	2.0	100	85-115	

MATRIX SPIKE SAMPLE: 515783

Parameter	Units	3082352001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.24	4	4.1	97	85-115	

SAMPLE DUPLICATE: 515784

Parameter	Units	3082352001 Result	Dup Result	RPD	Max RPD	Qualifiers
Fluoride	mg/L	0.24	0.24	2	20	

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QUALITY CONTROL DATA

Project: Ormet CERCLA
Pace Project No.: 3081622

QC Batch: WET/15953 Analysis Method: EPA 9040
QC Batch Method: EPA 9040 Analysis Description: 9040 pH
Associated Lab Samples: 3081622002, 3081622003, 3081622004, 3081622005, 3081622006, 3081622007, 3081622008, 3081622009, 3081622010, 3081622011, 3081622012, 3081622013, 3081622014, 3081622015

SAMPLE DUPLICATE: 510636

Parameter	Units	3081613001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH	Std. Units	5.9	5.8	.7		H6

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QUALITY CONTROL DATA

Project: Ormet CERCLA
Pace Project No.: 3081622

QC Batch: WET/16066 Analysis Method: EPA 9050
QC Batch Method: EPA 9050 Analysis Description: 9050 Specific Conductance
Associated Lab Samples: 3081622002, 3081622003, 3081622004, 3081622005, 3081622006, 3081622007, 3081622008, 3081622009, 3081622010, 3081622011, 3081622012, 3081622013, 3081622014, 3081622015

METHOD BLANK: 513695 Matrix: Water
Associated Lab Samples: 3081622002, 3081622003, 3081622004, 3081622005, 3081622006, 3081622007, 3081622008, 3081622009, 3081622010, 3081622011, 3081622012, 3081622013, 3081622014, 3081622015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	1.0	11/19/12 14:58	

LABORATORY CONTROL SAMPLE: 513696

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1410	1430	101	85-115	

SAMPLE DUPLICATE: 513697

Parameter	Units	3081622002 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	3710	3700	.3	20	

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QUALITY CONTROL DATA

Project: Ormet CERCLA
Pace Project No.: 3081622

QC Batch: WETA/22467 | Analysis Method: SM 4500-CN I
QC Batch Method: SM 4500-CN I | Analysis Description: SM4500CN-I Cyanide WAD
Associated Lab Samples: 3081622002, 3081622003, 3081622004, 3081622005, 3081622006, 3081622007, 3081622008, 3081622009, 3081622010, 3081622011, 3081622012, 3081622013, 3081622014, 3081622015

METHOD BLANK: 1098457 | Matrix: Water
Associated Lab Samples: 3081622002, 3081622003, 3081622004, 3081622005, 3081622006, 3081622007, 3081622008, 3081622009, 3081622010, 3081622011, 3081622012, 3081622013, 3081622014, 3081622015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide, Dissociable	mg/L	ND	0.0050	11/14/12 15:35	

LABORATORY CONTROL SAMPLE: 1098458

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide, Dissociable	mg/L	.1	0.095	95	80-120	

MATRIX SPIKE SAMPLE: 1098459

Parameter	Units	3081622003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cyanide, Dissociable	mg/L	0.013	.1	0.14	129	80-120	M1

SAMPLE DUPLICATE: 1098460

Parameter	Units	3081622004 Result	Dup Result	RPD	Max RPD	Qualifiers
Cyanide, Dissociable	mg/L	0.040	0.032	21	10	D6

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QUALITY CONTROL DATA

Project: Ormet CERCLA
Pace Project No.: 3081622

QC Batch: WETA/11260 | Analysis Method: SM 4500-CN-E
QC Batch Method: SM 4500-CN-E | Analysis Description: 4500CNE Cyanide, Total
Associated Lab Samples: 3081622002, 3081622003, 3081622004, 3081622005, 3081622006, 3081622007, 3081622008, 3081622009, 3081622010, 3081622011, 3081622012, 3081622013, 3081622014, 3081622015

METHOD BLANK: 512198 | Matrix: Water
Associated Lab Samples: 3081622002, 3081622003, 3081622004, 3081622005, 3081622006, 3081622007, 3081622008, 3081622009, 3081622010, 3081622011, 3081622012, 3081622013, 3081622014, 3081622015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	11/14/12 00:46	

METHOD BLANK: 512202 | Matrix: Water
Associated Lab Samples: 3081622002, 3081622003, 3081622004, 3081622005, 3081622006, 3081622007, 3081622008, 3081622009, 3081622010, 3081622011, 3081622012, 3081622013, 3081622014, 3081622015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cyanide	mg/L	ND	0.0050	11/14/12 01:17	

LABORATORY CONTROL SAMPLE: 512199

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	.2	0.19	97	90-110	

MATRIX SPIKE SAMPLE: 512201

Parameter	Units	3081622007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/L	ND	.1	0.12	121	90-110	M0

SAMPLE DUPLICATE: 512200

Parameter	Units	3081622007 Result	Dup Result	RPD	Max RPD	Qualifiers
Cyanide	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: Ormet CERCLA
Pace Project No.: 3081622

QC Batch: WETA/11259 Analysis Method: SM 4500-CN-G
QC Batch Method: SM 4500-CN-G Analysis Description: 4500CNG Cyanide, Amenable
Associated Lab Samples: 3081622002, 3081622003, 3081622004, 3081622005, 3081622006, 3081622007, 3081622008, 3081622009, 3081622010, 3081622011, 3081622012, 3081622013, 3081622014, 3081622015

METHOD BLANK: 512195 Matrix: Water
Associated Lab Samples: 3081622002, 3081622003, 3081622004, 3081622005, 3081622006, 3081622007, 3081622008, 3081622009, 3081622010, 3081622011, 3081622012, 3081622013, 3081622014, 3081622015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Amenable Cyanide	mg/L	ND	0.0050	11/15/12 01:19	

SAMPLE DUPLICATE: 512196

Parameter	Units	3081622007 Result	Dup Result	RPD	Max RPD	Qualifiers
Amenable Cyanide	mg/L	ND	ND		20	

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QUALIFIERS

Project: Ormet CERCLA
Pace Project No.: 3081622

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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TNI - The NELAC Institute.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-PA	Pace Analytical Services - Greensburg

BATCH QUALIFIERS

Batch: OEXT/13476

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
H6	Analysis initiated outside of the 15 minute EPA recommended holding time.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Ormet CERCLA
Pace Project No.: 3081622

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3081622001	**MW-44D**	EPA 3510	OEXT/13476	EPA 8082	GCSV/5062
3081622007	**MW-12**	EPA 3510	OEXT/13476	EPA 8082	GCSV/5062
3081622016	**MW-44S**	EPA 3510	OEXT/13476	EPA 8082	GCSV/5062
3081622002	**MW-39S**	EPA 3005	MPRP/9515	EPA 6010B	ICP/8924
3081622003	**MW-45**	EPA 3005	MPRP/9515	EPA 6010B	ICP/8924
3081622004	**MW-46**	EPA 3005	MPRP/9515	EPA 6010B	ICP/8924
3081622005	**MW-2**	EPA 3005	MPRP/9515	EPA 6010B	ICP/8924
3081622006	**MW-5**	EPA 3005	MPRP/9515	EPA 6010B	ICP/8924
3081622007	**MW-12**	EPA 3005	MPRP/9515	EPA 6010B	ICP/8924
3081622008	**MW-16**	EPA 3005	MPRP/9515	EPA 6010B	ICP/8924
3081622009	**MW-18**	EPA 3005	MPRP/9515	EPA 6010B	ICP/8924
3081622010	**MW-28**	EPA 3005	MPRP/9515	EPA 6010B	ICP/8924
3081622011	**MW-31**	EPA 3005	MPRP/9515	EPA 6010B	ICP/8924
3081622012	**MW-32**	EPA 3005	MPRP/9515	EPA 6010B	ICP/8924
3081622013	**MW-35**	EPA 3005	MPRP/9515	EPA 6010B	ICP/8924
3081622014	**MW-36**	EPA 3005	MPRP/9515	EPA 6010B	ICP/8924
3081622015	**MW-37**	EPA 3005	MPRP/9515	EPA 6010B	ICP/8924
3081622003	**MW-45**	EPA 8260	MSV/14533		
3081622005	**MW-2**	EPA 8260	MSV/14533		
3081622006	**MW-5**	EPA 8260	MSV/14533		
3081622009	**MW-18**	EPA 8260	MSV/14533		
3081622011	**MW-31**	EPA 8260	MSV/14533		
3081622002	**MW-39S**	SM 4500F/C	WET/16124		
3081622003	**MW-45**	SM 4500F/C	WET/16124		
3081622004	**MW-46**	SM 4500F/C	WET/16124		
3081622005	**MW-2**	SM 4500F/C	WET/16124		
3081622006	**MW-5**	SM 4500F/C	WET/16124		
3081622007	**MW-12**	SM 4500F/C	WET/16124		
3081622008	**MW-16**	SM 4500F/C	WET/16124		
3081622009	**MW-18**	SM 4500F/C	WET/16124		
3081622010	**MW-28**	SM 4500F/C	WET/16124		
3081622011	**MW-31**	SM 4500F/C	WET/16124		
3081622012	**MW-32**	SM 4500F/C	WET/16124		
3081622013	**MW-35**	SM 4500F/C	WET/16124		
3081622014	**MW-36**	SM 4500F/C	WET/16124		
3081622015	**MW-37**	SM 4500F/C	WET/16124		
3081622002	**MW-39S**	EPA 9040	WET/15953		
3081622003	**MW-45**	EPA 9040	WET/15953		
3081622004	**MW-46**	EPA 9040	WET/15953		
3081622005	**MW-2**	EPA 9040	WET/15953		
3081622006	**MW-5**	EPA 9040	WET/15953		
3081622007	**MW-12**	EPA 9040	WET/15953		
3081622008	**MW-16**	EPA 9040	WET/15953		
3081622009	**MW-18**	EPA 9040	WET/15953		
3081622010	**MW-28**	EPA 9040	WET/15953		
3081622011	**MW-31**	EPA 9040	WET/15953		
3081622012	**MW-32**	EPA 9040	WET/15953		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Ormet CERCLA
Pace Project No.: 3081622

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3081622013	**MW-35**	EPA 9040	WET/15953		
3081622014	**MW-36**	EPA 9040	WET/15953		
3081622015	**MW-37**	EPA 9040	WET/15953		
3081622002	**MW-39S**	EPA 9050	WET/16066		
3081622003	**MW-45**	EPA 9050	WET/16066		
3081622004	**MW-46**	EPA 9050	WET/16066		
3081622005	**MW-2**	EPA 9050	WET/16066		
3081622006	**MW-5**	EPA 9050	WET/16066		
3081622007	**MW-12**	EPA 9050	WET/16066		
3081622008	**MW-16**	EPA 9050	WET/16066		
3081622009	**MW-18**	EPA 9050	WET/16066		
3081622010	**MW-28**	EPA 9050	WET/16066		
3081622011	**MW-31**	EPA 9050	WET/16066		
3081622012	**MW-32**	EPA 9050	WET/16066		
3081622013	**MW-35**	EPA 9050	WET/16066		
3081622014	**MW-36**	EPA 9050	WET/16066		
3081622015	**MW-37**	EPA 9050	WET/16066		
3081622002	**MW-39S**	SM 4500-CN I	WETA/22467		
3081622003	**MW-45**	SM 4500-CN I	WETA/22467		
3081622004	**MW-46**	SM 4500-CN I	WETA/22467		
3081622005	**MW-2**	SM 4500-CN I	WETA/22467		
3081622006	**MW-5**	SM 4500-CN I	WETA/22467		
3081622007	**MW-12**	SM 4500-CN I	WETA/22467		
3081622008	**MW-16**	SM 4500-CN I	WETA/22467		
3081622009	**MW-18**	SM 4500-CN I	WETA/22467		
3081622010	**MW-28**	SM 4500-CN I	WETA/22467		
3081622011	**MW-31**	SM 4500-CN I	WETA/22467		
3081622012	**MW-32**	SM 4500-CN I	WETA/22467		
3081622013	**MW-35**	SM 4500-CN I	WETA/22467		
3081622014	**MW-36**	SM 4500-CN I	WETA/22467		
3081622015	**MW-37**	SM 4500-CN I	WETA/22467		
3081622002	**MW-39S**	SM 4500-CN-E	WETA/11260		
3081622003	**MW-45**	SM 4500-CN-E	WETA/11260		
3081622004	**MW-46**	SM 4500-CN-E	WETA/11260		
3081622005	**MW-2**	SM 4500-CN-E	WETA/11260		
3081622006	**MW-5**	SM 4500-CN-E	WETA/11260		
3081622007	**MW-12**	SM 4500-CN-E	WETA/11260		
3081622008	**MW-16**	SM 4500-CN-E	WETA/11260		
3081622009	**MW-18**	SM 4500-CN-E	WETA/11260		
3081622010	**MW-28**	SM 4500-CN-E	WETA/11260		
3081622011	**MW-31**	SM 4500-CN-E	WETA/11260		
3081622012	**MW-32**	SM 4500-CN-E	WETA/11260		
3081622013	**MW-35**	SM 4500-CN-E	WETA/11260		
3081622014	**MW-36**	SM 4500-CN-E	WETA/11260		
3081622015	**MW-37**	SM 4500-CN-E	WETA/11260		
3081622002	**MW-39S**	SM 4500-CN-G	WETA/11259		
3081622003	**MW-45**	SM 4500-CN-G	WETA/11259		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Ormet CERCLA
Pace Project No.: 3081622

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3081622004	**MW-46**	SM 4500-CN-G	WETA/11259		
3081622005	**MW-2**	SM 4500-CN-G	WETA/11259		
3081622006	**MW-5**	SM 4500-CN-G	WETA/11259		
3081622007	**MW-12**	SM 4500-CN-G	WETA/11259		
3081622008	**MW-16**	SM 4500-CN-G	WETA/11259		
3081622009	**MW-18**	SM 4500-CN-G	WETA/11259		
3081622010	**MW-28**	SM 4500-CN-G	WETA/11259		
3081622011	**MW-31**	SM 4500-CN-G	WETA/11259		
3081622012	**MW-32**	SM 4500-CN-G	WETA/11259		
3081622013	**MW-35**	SM 4500-CN-G	WETA/11259		
3081622014	**MW-36**	SM 4500-CN-G	WETA/11259		
3081622015	**MW-37**	SM 4500-CN-G	WETA/11259		

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APPENDIX C

COMPARISON OF PRIMARY AND DUPLICATE SAMPLE RESULTS FROM 2012 ANALYSES OF GROUNDWATER SAMPLES

Hydrosystems Management, Inc.

APPENDIX C

COMPARISON OF PRIMARY AND DUPLICATE SAMPLE RESULTS FROM 2012 ANALYSES OF GROUNDWATER SAMPLES ORMET PRIMARY ALUMINUM CORPORATION HANNIBAL, OHIO

NOTE TO REVIEWERS:

In reviewing the percent differences in concentrations reported for primary and duplicate groundwater samples collected during 2012, relatively minor differences in concentrations, in cases where reported concentrations are low, can result in relatively high percentages of difference. Percent differences exceeding 20% are bolded on the following table.

Additional Quality Assurance/Quality Control information for each of the 2012 data sets is summarized in the laboratory data reports provided in Appendix B.

COMPARISON OF PRIMARY AND DUPLICATE SAMPLE RESULTS
FROM 2012 ANALYSES OF GROUNDWATER SAMPLES
ORMET PRIMARY ALUMINUM CORPORATION
HANNIBAL, OHIO

	APRIL 2012						NOVEMBER 2012					
	MW-16	MW-50	% Diff	MW-31	MW-51	% Diff	MW-2	MW-45	% Diff	MW-31	MW-46	% Diff
pH	9.00	9.00	0.00	9.40	9.40	0.00	9.10	9.10	0.00	9.30	9.40	1.06
Specific Conductance	1030	1050	1.90	1330	1320	0.75	1560	1530	1.92	1680	1680	0.00
Total Cyanide	3.40	3.30	2.94	6.30	6.00	4.76	4.60	6.30	**26.98**	3.30	5.30	**37.74**
Amenable Cyanide	0.064	0.081	**20.99**	<0.0050	0.0058	13.79	0.46	<0.0050	**98.91**	<0.0050	0.49	**98.98**
WAD Cyanide	0.050	0.033	**34.00**	0.044	0.033	**25.00**	0.059	0.013	**77.97**	0.045	0.040	11.11
Fluoride	38.7	40.4	4.21	54.4	55.9	2.68	30.0	24.7	17.67	43.5	43.7	0.46
Arsenic	0.0296	0.0336	11.90	0.0368	0.0344	6.52	0.0300	0.0270	10.00	0.0325	0.0349	6.88
Beryllium	<0.001	<0.001	0.00	<0.001	<0.001	0.00	<0.001	<0.001	0.00	<0.001	<0.001	0.00
Manganese	0.477	0.330	**30.82**	0.729	0.764	4.58	0.517	0.492	4.84	0.668	0.665	0.45
Sodium	236	238	0.84	315	312	0.95	245	243	0.82	293	288	1.71
Vanadium	0.0266	0.0262	1.50	0.0302	0.0350	13.71	0.0170	0.0166	2.35	0.0372	0.0382	2.62
Tetrachloroethene	--	--	--	0.0470	0.0490	4.08	0.0381	0.0385	1.04	--	--	--

	JULY 2012											
	MW-8	MW-46	% Diff	MW-17	MW-48	% Diff	MW-30	MW-47	% Diff	MW-40D	MW-46	% Diff
pH	7.60	7.40	2.63	7.80	7.60	2.56	6.60	6.40	3.03	7.80	8.00	2.50
Specific Conductance	1040	918	11.73	836	739	11.60	547	511	6.58	882	922	4.34
Total Cyanide	0.64	0.72	11.11	2.40	2.16	10.00	3.20	4.70	**31.91**	7.90	6.50	17.72
Amenable Cyanide	<0.0050	<0.0050	0.00	0.14	<0.0050	**96.43**	<0.0050	0.31	**98.39**	2.4	<0.0050	**99.79**
WAD Cyanide	0.068	0.055	19.12	0.130	0.094	**27.69**	0.360	0.340	5.56	0.054	0.085	**36.47**
Fluoride	6.5	6.9	5.80	10.9	11.2	2.68	6.8	12.3	**44.72**	28.0	28.6	2.10
Arsenic	<0.0050	<0.0050	0.00	<0.0050	<0.0050	0.00	<0.0050	<0.0050	0.00	<0.0050	<0.0050	0.00
Beryllium	<0.001	<0.001	0.00	<0.001	<0.001	0.00	<0.001	<0.001	0.00	<0.001	<0.001	0.00
Manganese	0.050	0.046	7.43	1.500	1.580	5.06	0.437	0.460	5.00	0.594	0.589	0.84
Sodium	135	130	3.70	91.7	94.8	3.27	58.9	57.7	2.04	187	187	0.00
Vanadium	<0.0050	<0.0050	0.00	0.0051	<0.0050	1.96	<0.0050	<0.0050	0.00	0.0123	0.0115	6.50
Tetrachloroethene	--	--	--	--	--	--	0.0356	0.0312	12.36	--	--	--

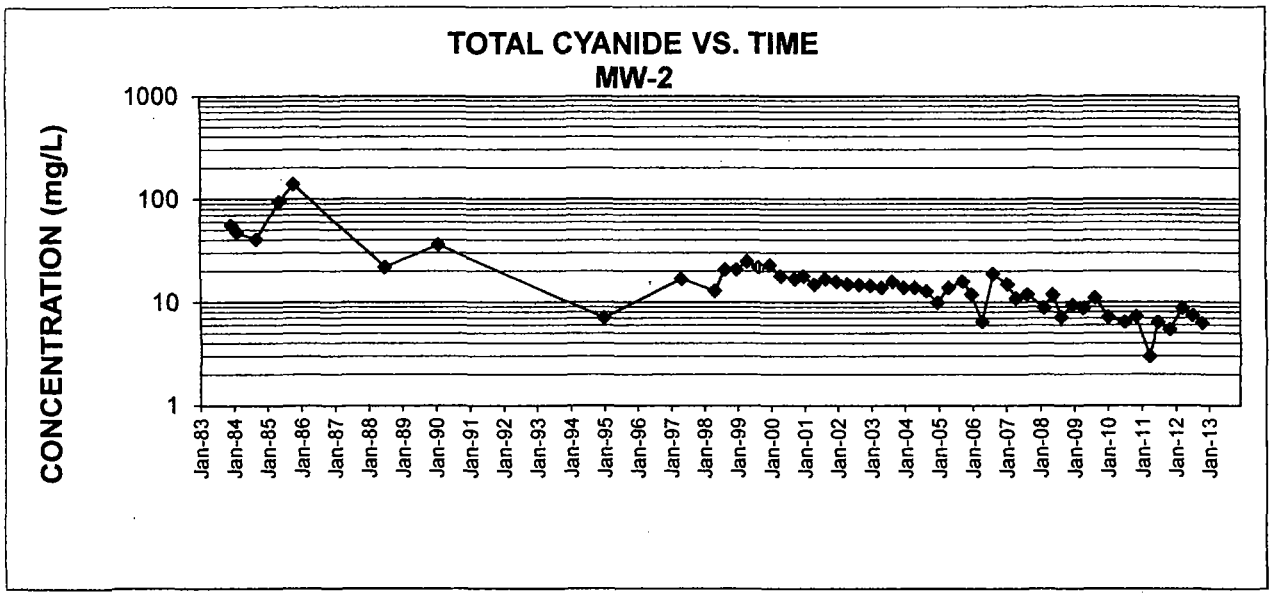
APPENDIX D

CONCENTRATION VS. TIME GRAPHS FOR REMEDIAL ACTION MONITORING PARAMETERS

Appendix D-1	Total Cyanide
Appendix D-2	WAD Cyanide
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
CONCENTRATION (mg/L)
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
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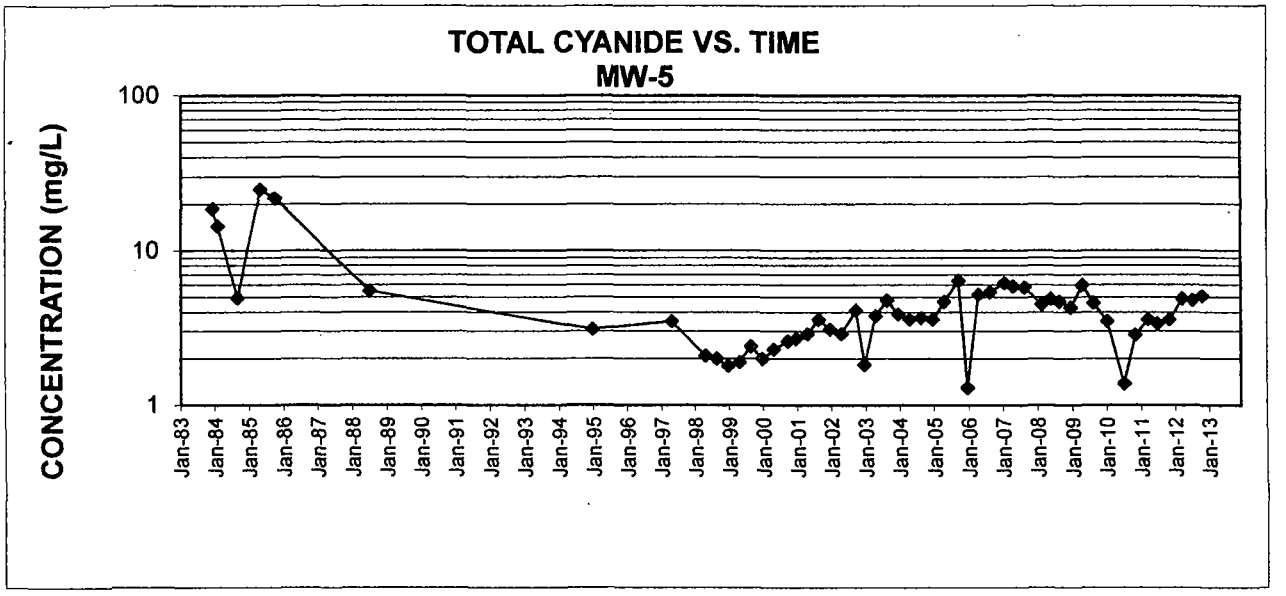
Jan-10
Jan-11
Jan-12
Jan-13


TOTAL CYANIDE VS. TIME
MW-5
CONCENTRATION (mg/L)
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
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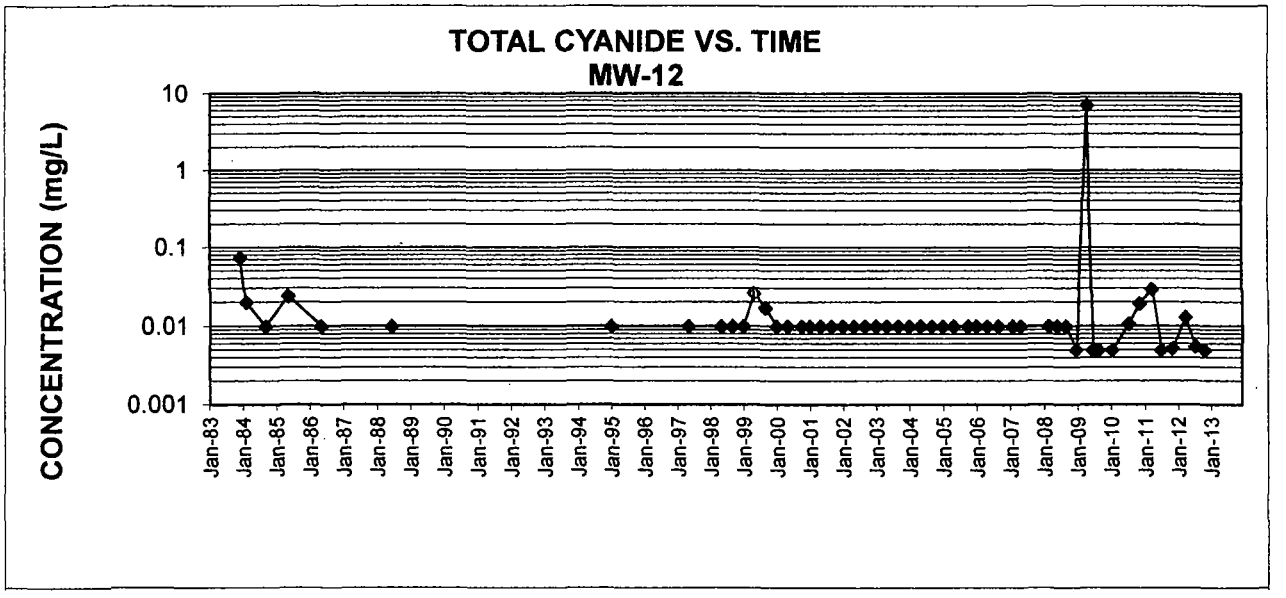
Jan-11
Jan-12
Jan-13


TOTAL CYANIDE VS. TIME
MW-12
CONCENTRATION (mg/L)
10
1
0.1
0.01
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
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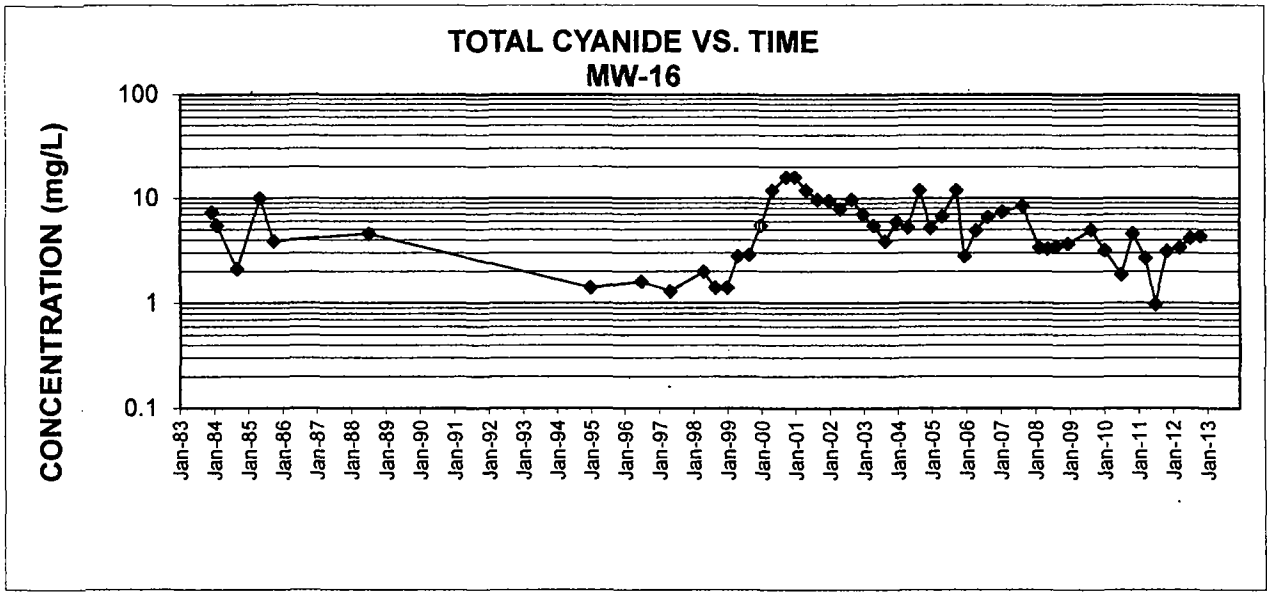
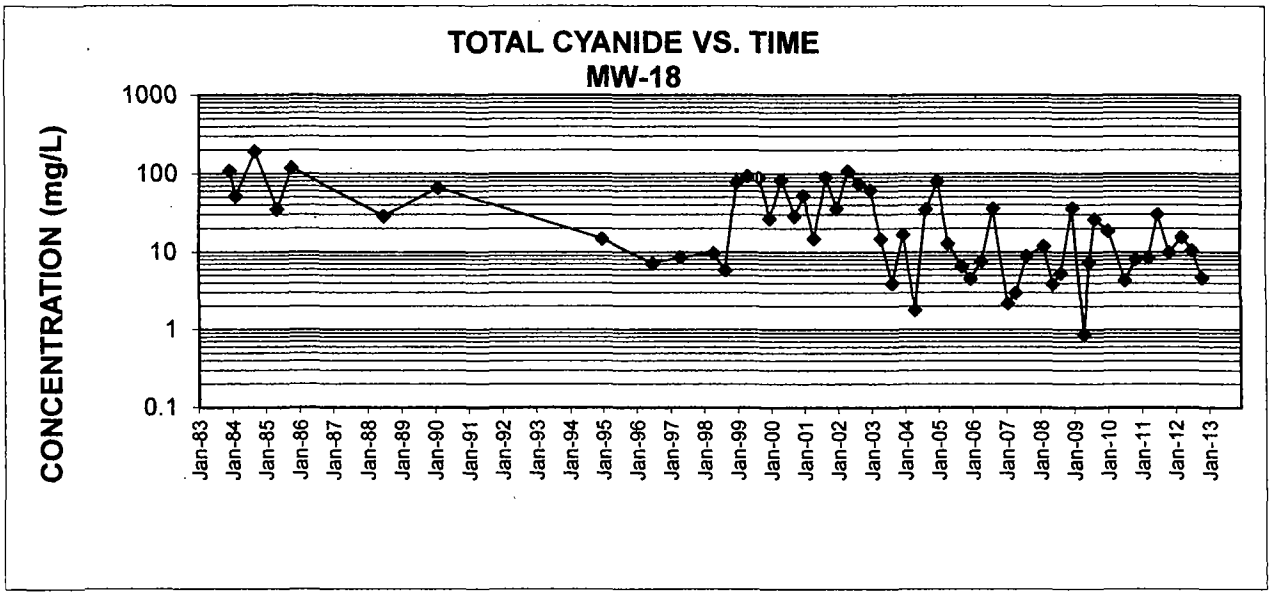
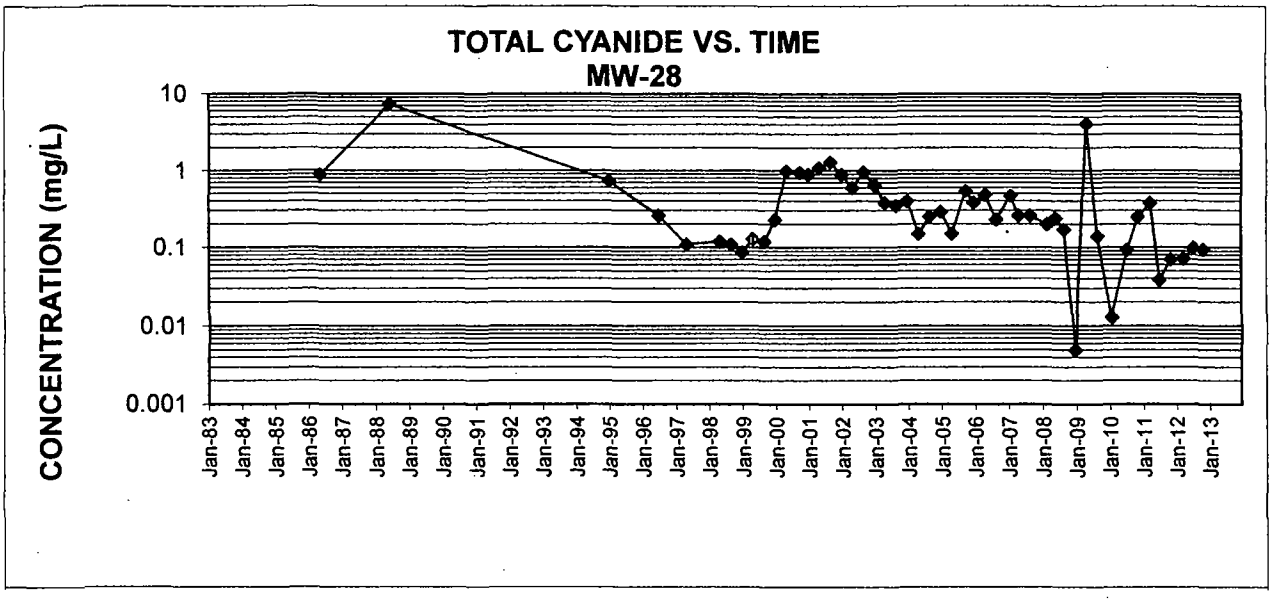
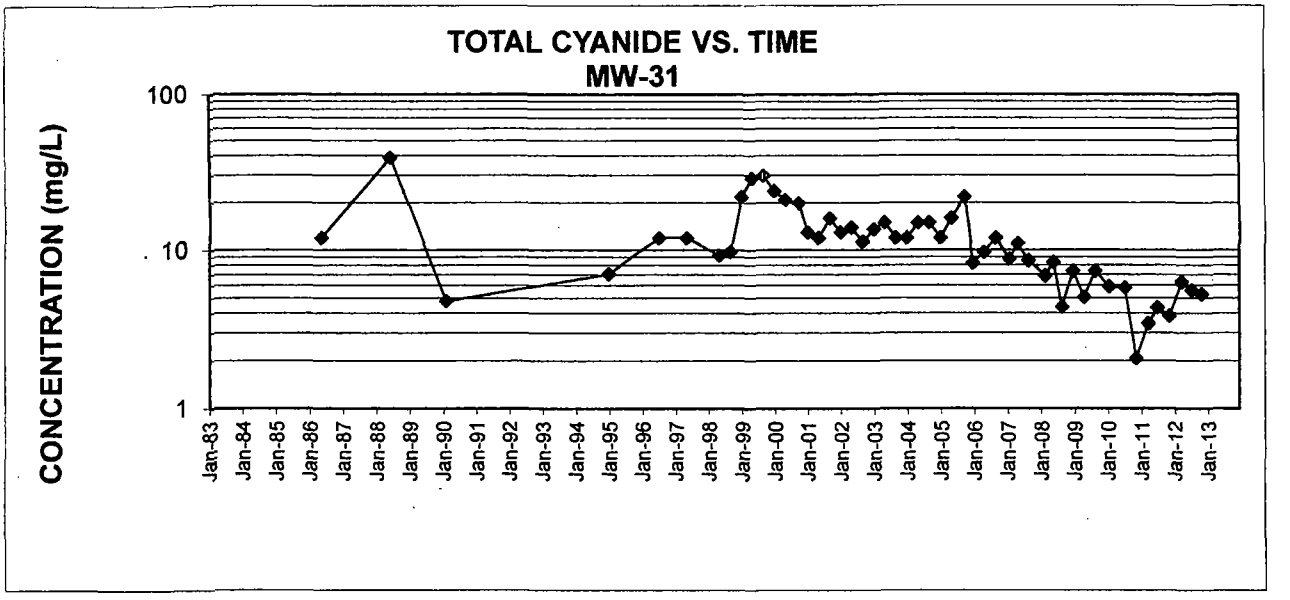
Jan-10
Jan-11
Jan-12
Jan-13


TOTAL CYANIDE VS. TIME
MW-16
CONCENTRATION (mg/L)
100
10
1
0.1
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 Jan-06 Jan-07 Jan-08 Jan-09 Jan-10 Jan-11 Jan-12 Jan-13


TOTAL CYANIDE VS. TIME
MW-18
CONCENTRATION (mg/L)
1000
100
10
1
0.1
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 Jan-06 Jan-07 Jan-08 Jan-09 Jan-10 Jan-11 Jan-12 Jan-13


TOTAL CYANIDE VS. TIME
MW-28
CONCENTRATION (mg/L)
10
1
0.1
0.01
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 Jan-06 Jan-07 Jan-08 Jan-09 Jan-10 Jan-11 Jan-12 Jan-13


TOTAL CYANIDE VS. TIME
MW-31
CONCENTRATION (mg/L)
100
10
1
Jan-83
Jan-84
Jan-85
Jan-86
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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
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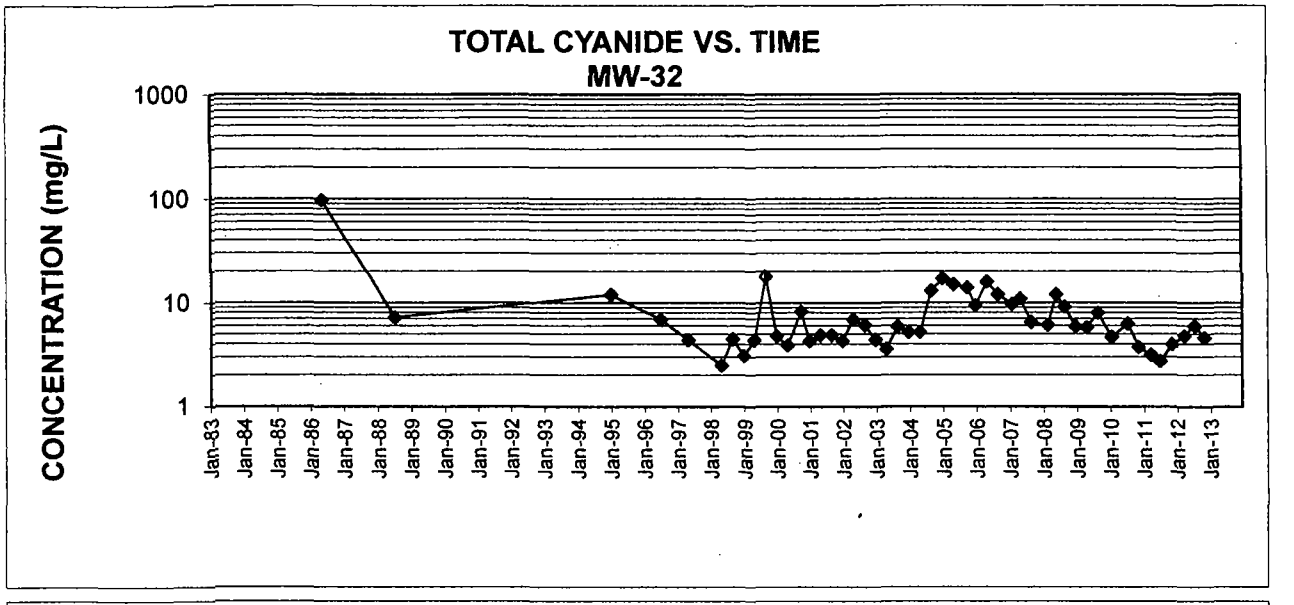
Jan-10
Jan-11
Jan-12
Jan-13


TOTAL CYANIDE VS. TIME
MW-32
CONCENTRATION (mg/L)
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
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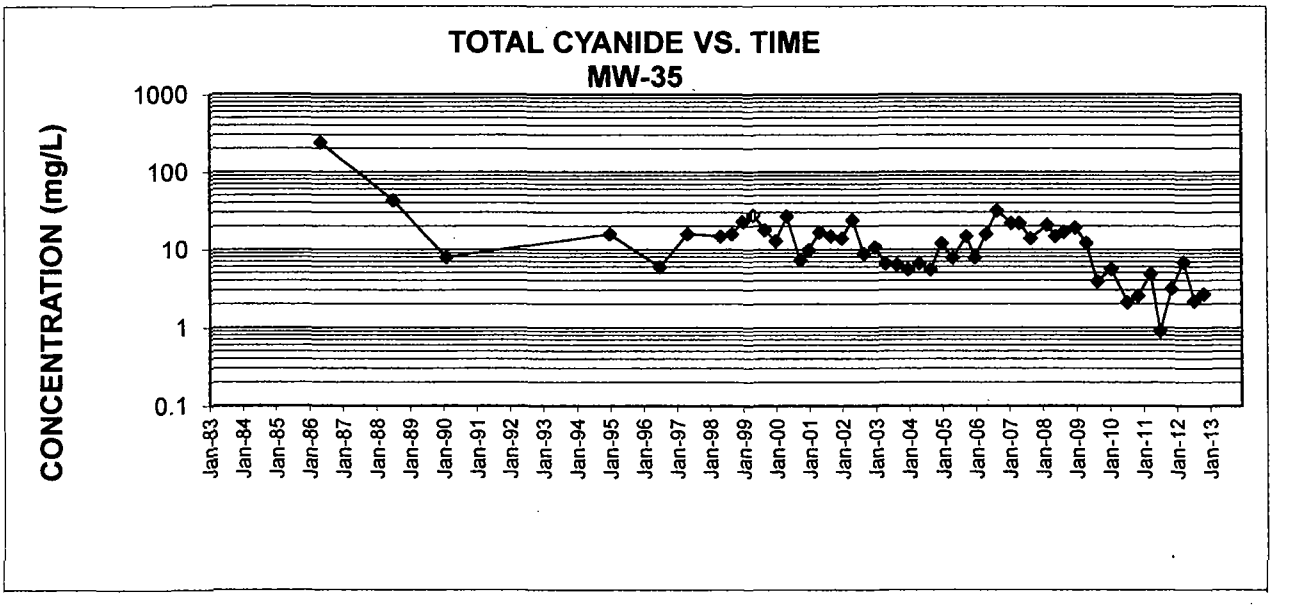
Jan-12
Jan-13


TOTAL CYANIDE VS. TIME
MW-35
CONCENTRATION (mg/L)
1000
100
10
1
0.1
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
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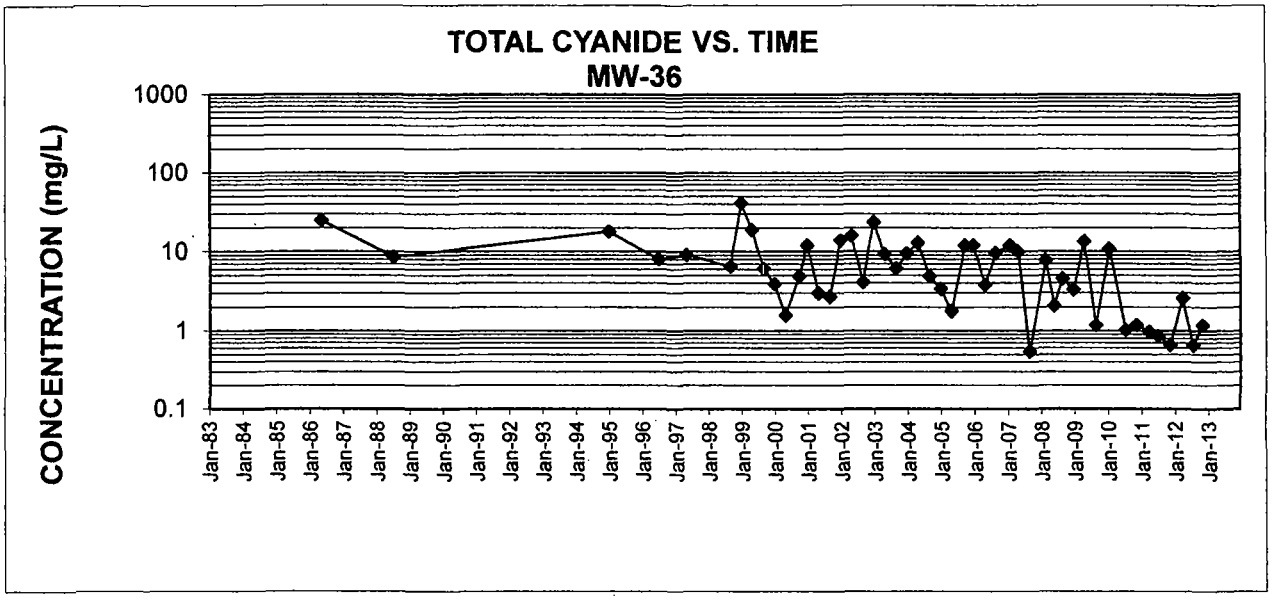
Jan-12
Jan-13


TOTAL CYANIDE VS. TIME
MW-36
CONCENTRATION (mg/L)
1000
100
10
1
0.1
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
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Jan-05
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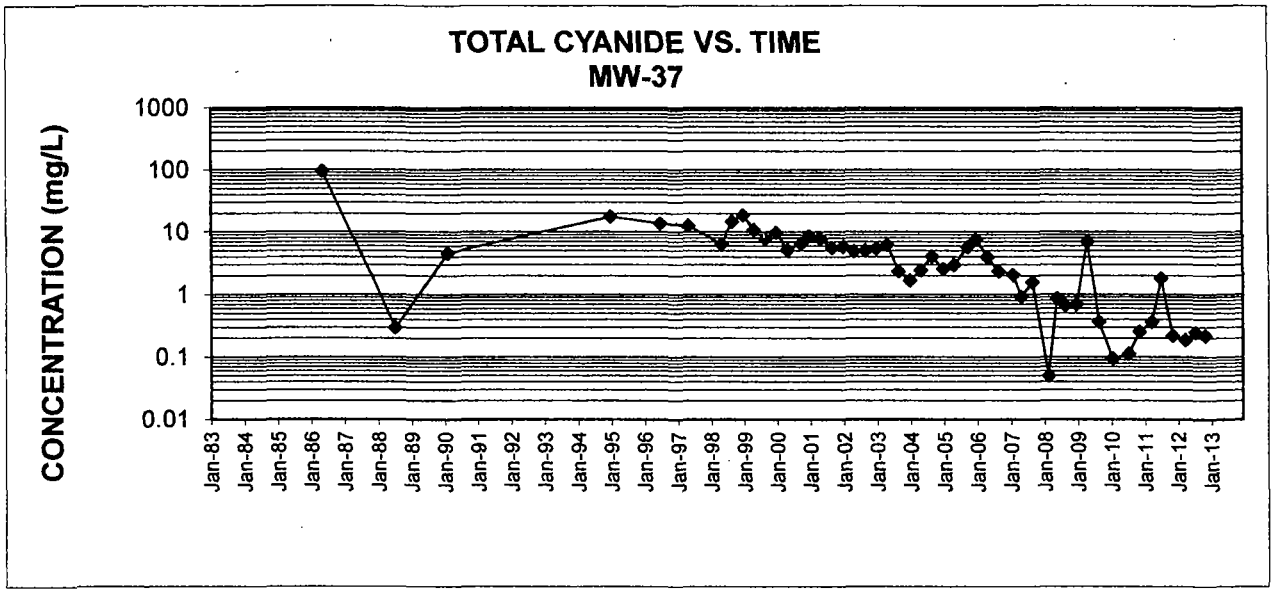
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13


TOTAL CYANIDE VS. TIME
MW-37
CONCENTRATION (mg/L)
1000
100
10
1
0.1
0.01
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
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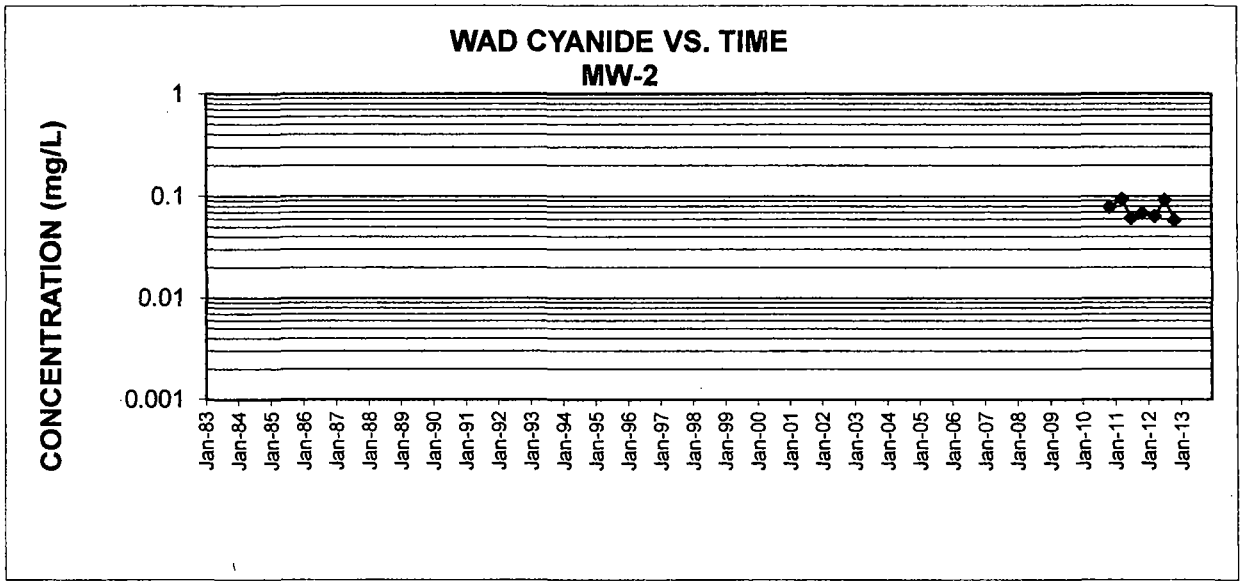
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13

APPENDIX D-2

WAD CYANIDE


WAD CYANIDE VS. TIME
MW-2
CONCENTRATION (mg/L)
1
0.1
0.01
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
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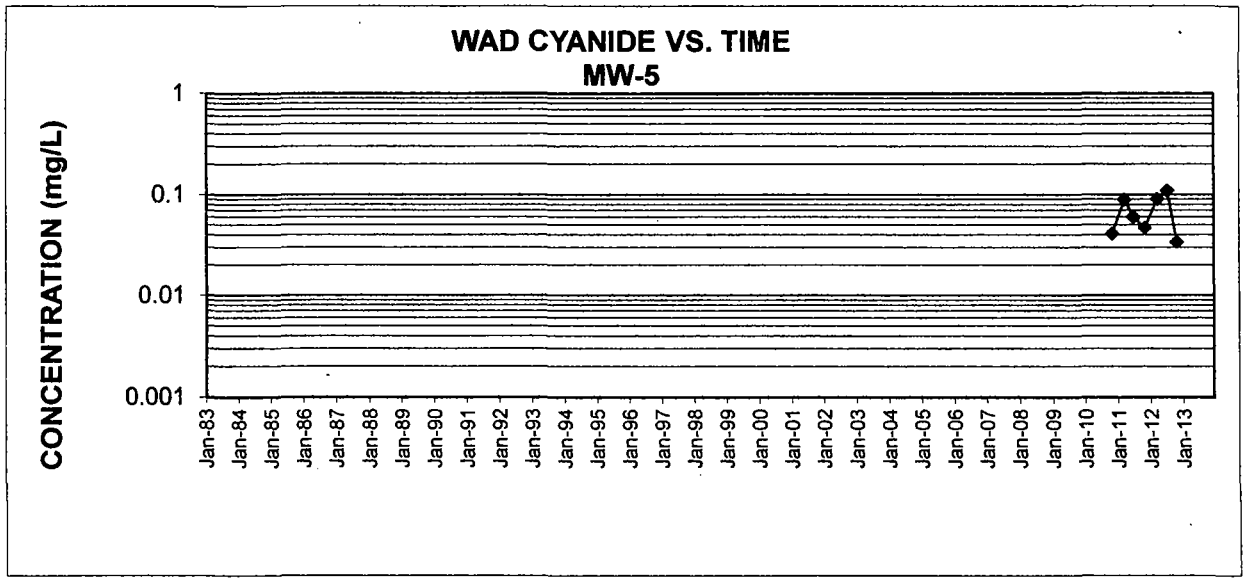
Jan-10
Jan-11
Jan-12
Jan-13


WAD CYANIDE VS. TIME
MW-5
CONCENTRATION (mg/L)
1
0.1
0.01
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
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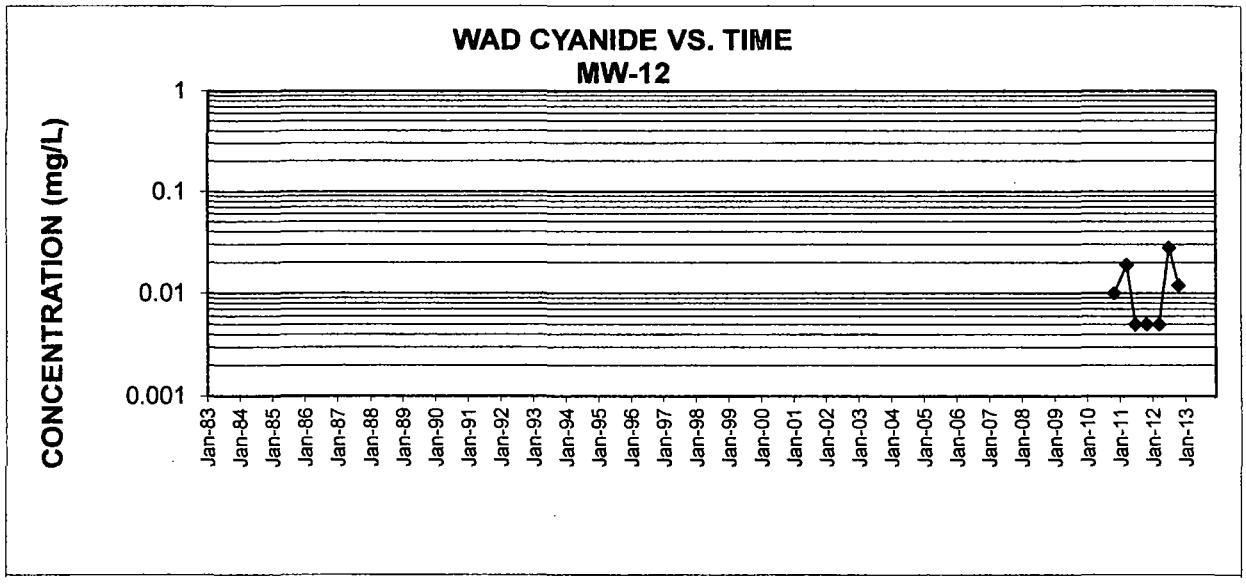
Jan-10
Jan-11
Jan-12
Jan-13


WAD CYANIDE VS. TIME
MW-12
CONCENTRATION (mg/L)
1
0.1
0.01
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
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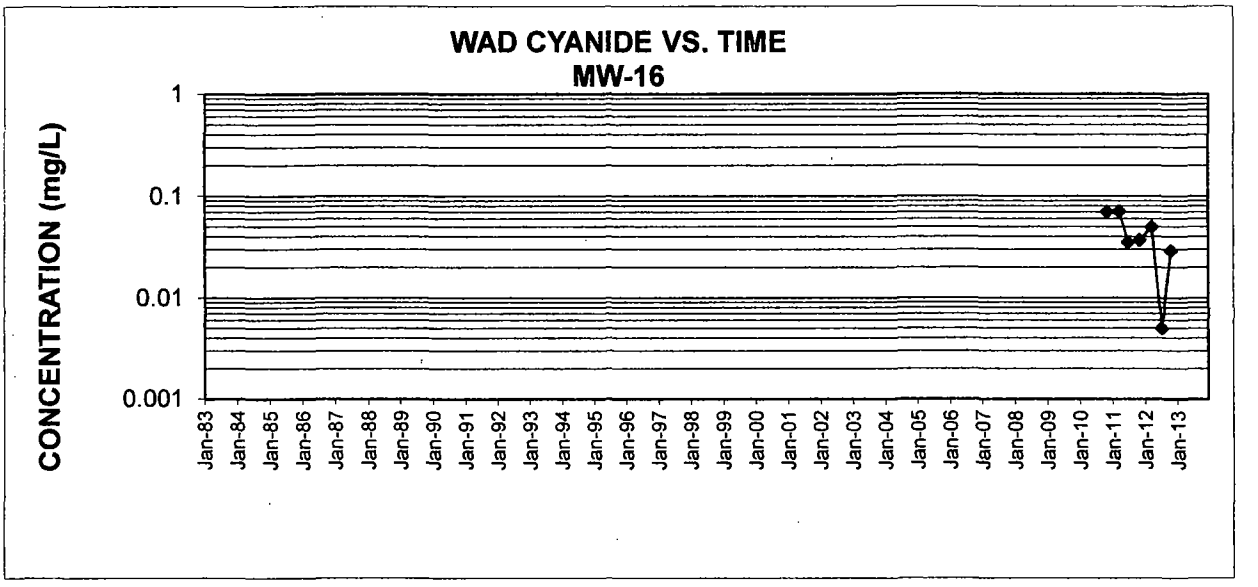
Jan-10
Jan-11
Jan-12
Jan-13


WAD CYANIDE VS. TIME
MW-16
CONCENTRATION (mg/L)
1
0.1
0.01
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
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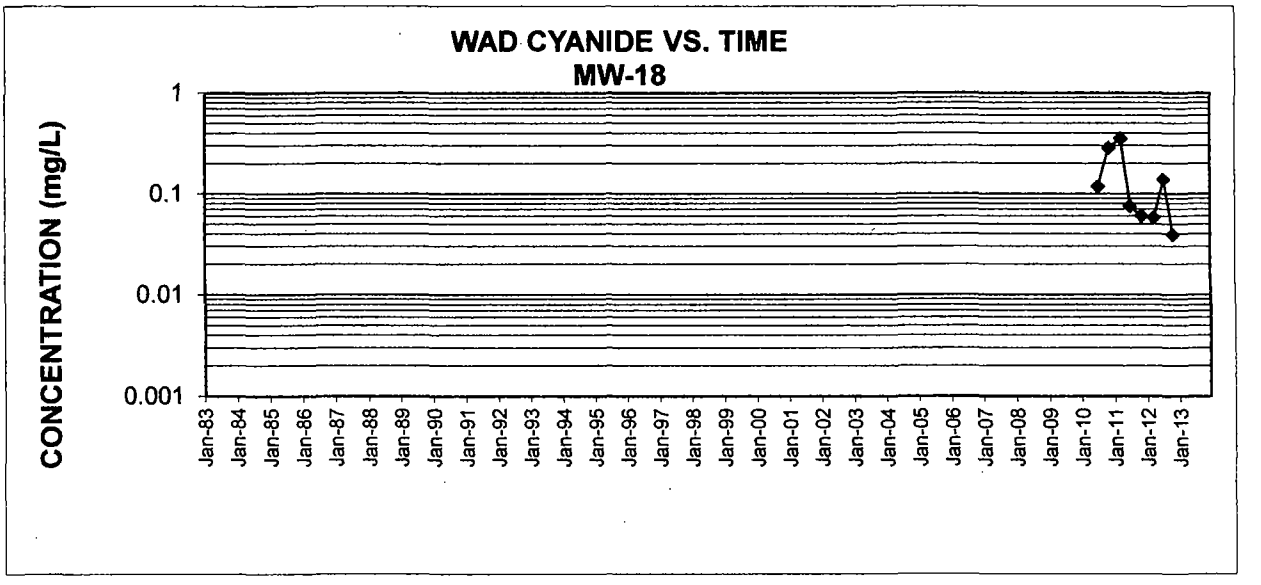
Jan-10
Jan-11
Jan-12
Jan-13


WAD CYANIDE VS. TIME
MW-18
CONCENTRATION (mg/L)
1
0.1
0.01
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
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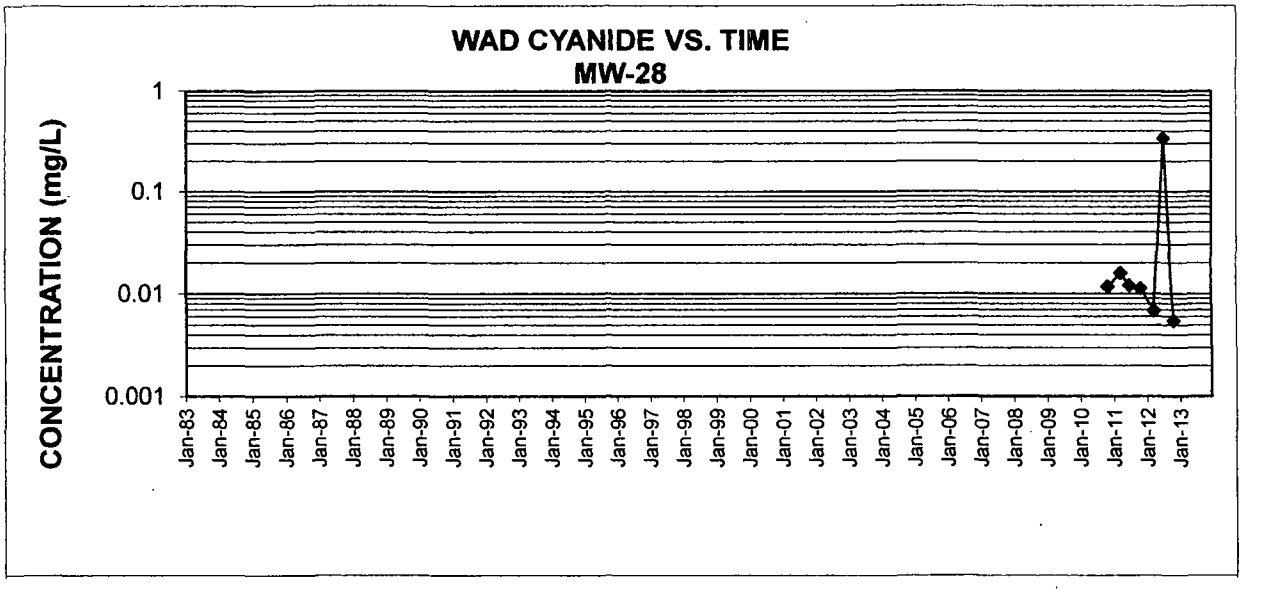
Jan-10
Jan-11
Jan-12
Jan-13


WAD CYANIDE VS. TIME
MW-28
CONCENTRATION (mg/L)
1
0.1
0.01
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
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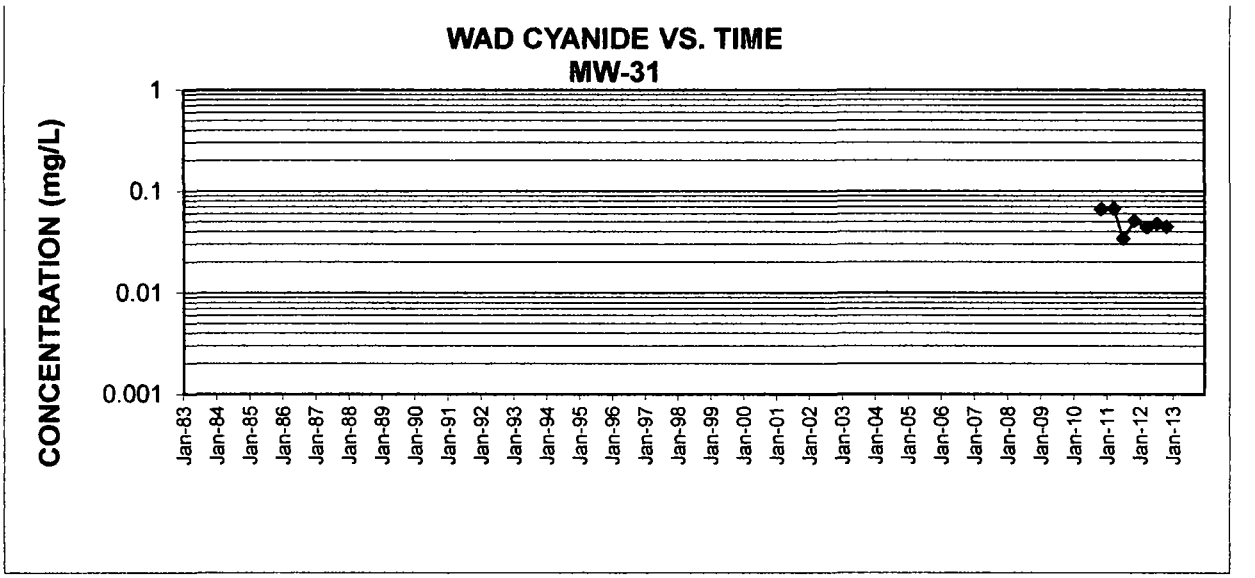
Jan-11
Jan-12
Jan-13


WAD CYANIDE VS. TIME
MW-31
CONCENTRATION (mg/L)
1
0.1
0.01
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
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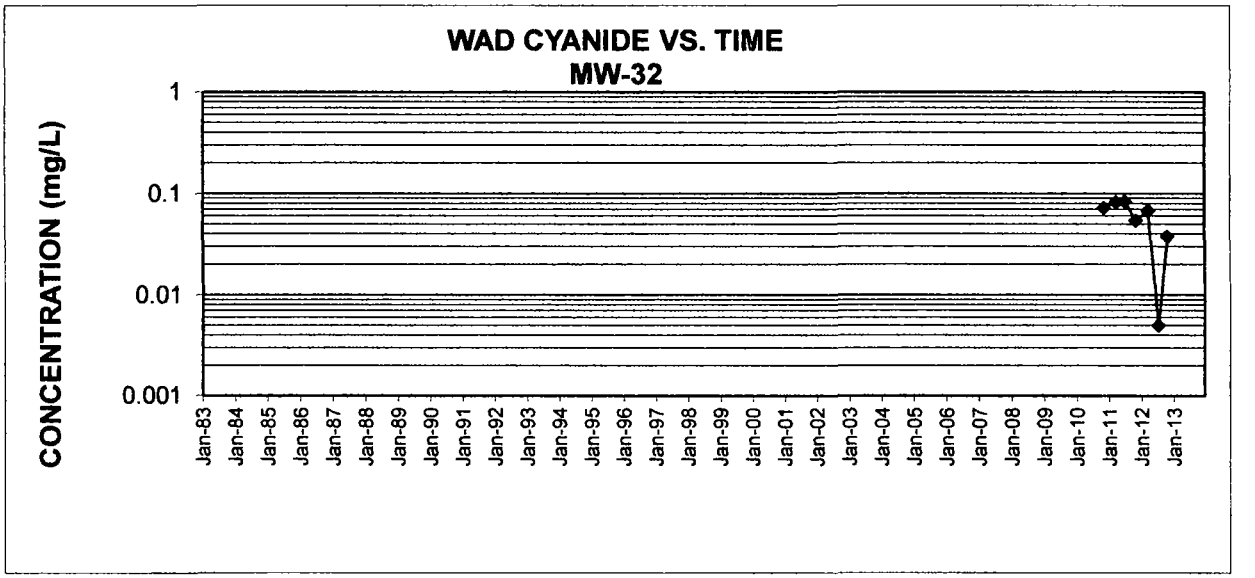
Jan-10
Jan-11
Jan-12
Jan-13


WAD CYANIDE VS. TIME
MW-32
CONCENTRATION (mg/L)
1
0.1
0.01
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
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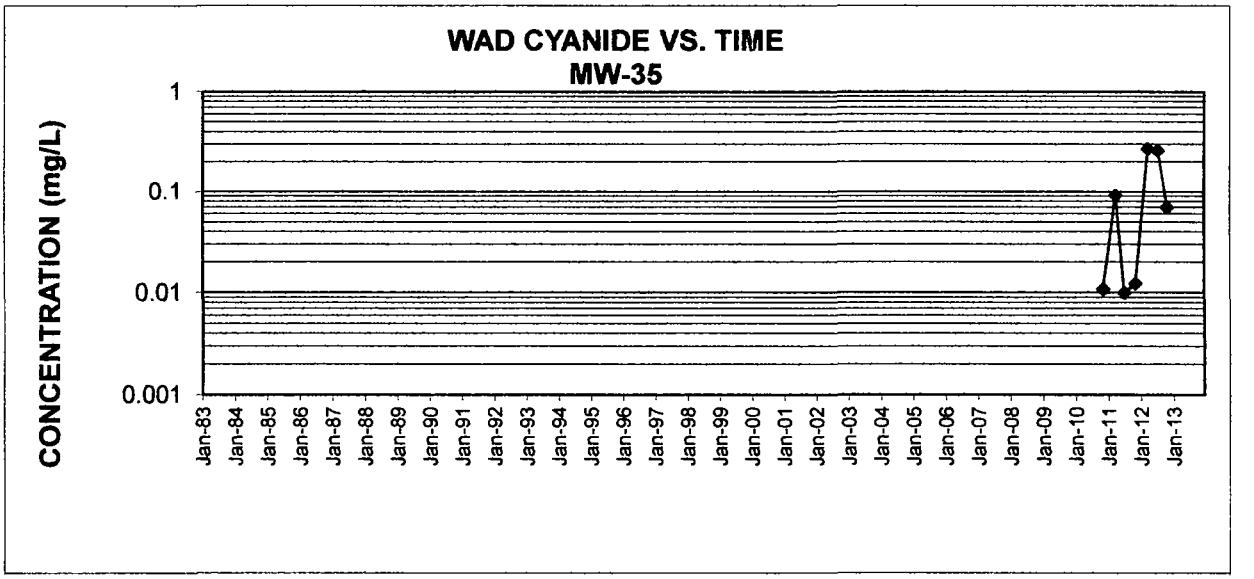
Jan-10
Jan-11
Jan-12
Jan-13


WAD CYANIDE VS. TIME
MW-35
CONCENTRATION (mg/L)
1
0.1
0.01
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
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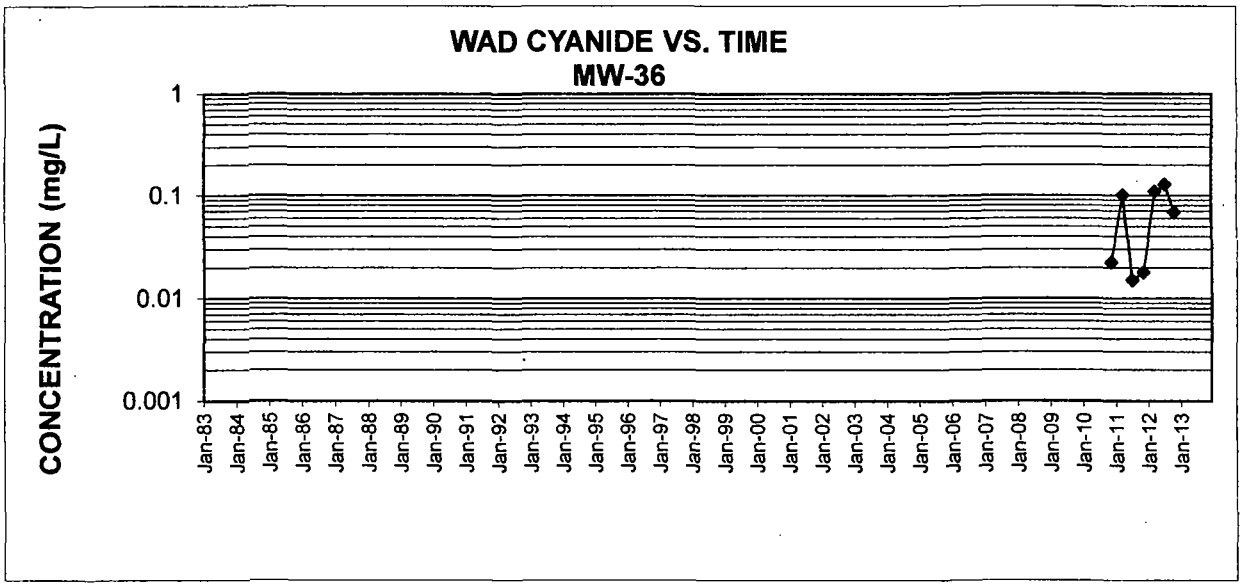
Jan-10
Jan-11
Jan-12
Jan-13


WAD CYANIDE VS. TIME
MW-36
CONCENTRATION (mg/L)
1
0.1
0.01
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
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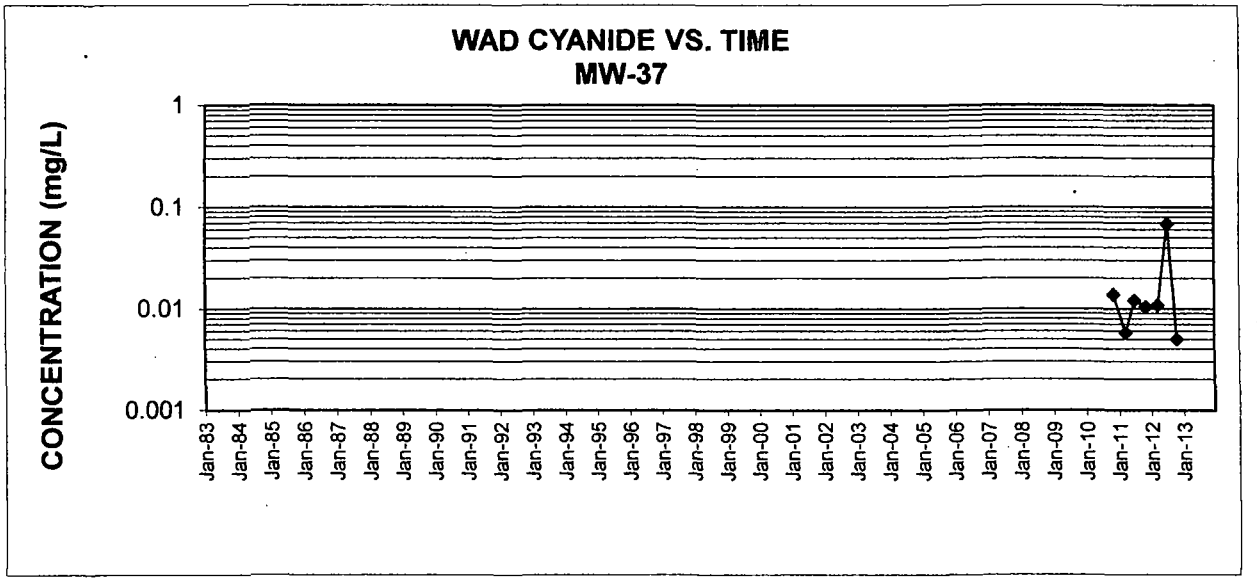
Jan-10
Jan-11
Jan-12
Jan-13


WAD CYANIDE VS. TIME
MW-37
CONCENTRATION (mg/L)
1
0.1
0.01
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
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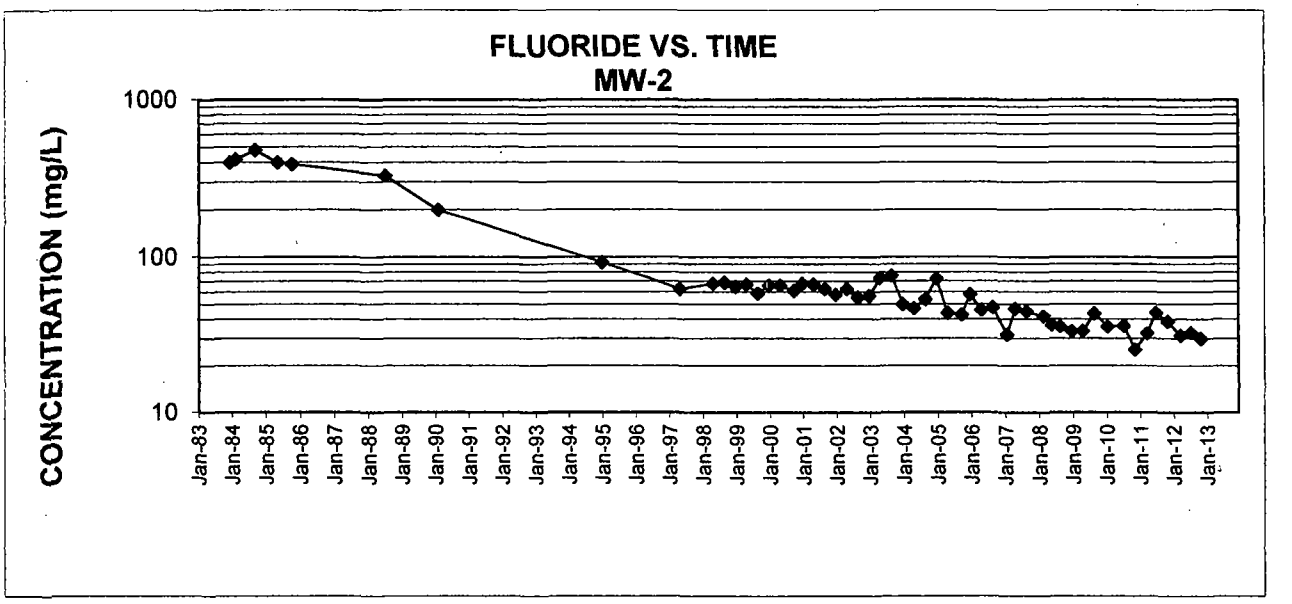
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13

APPENDIX D-3

FLUORIDE


FLUORIDE VS. TIME
MW-2
CONCENTRATION (mg/L)
1000
100
10
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
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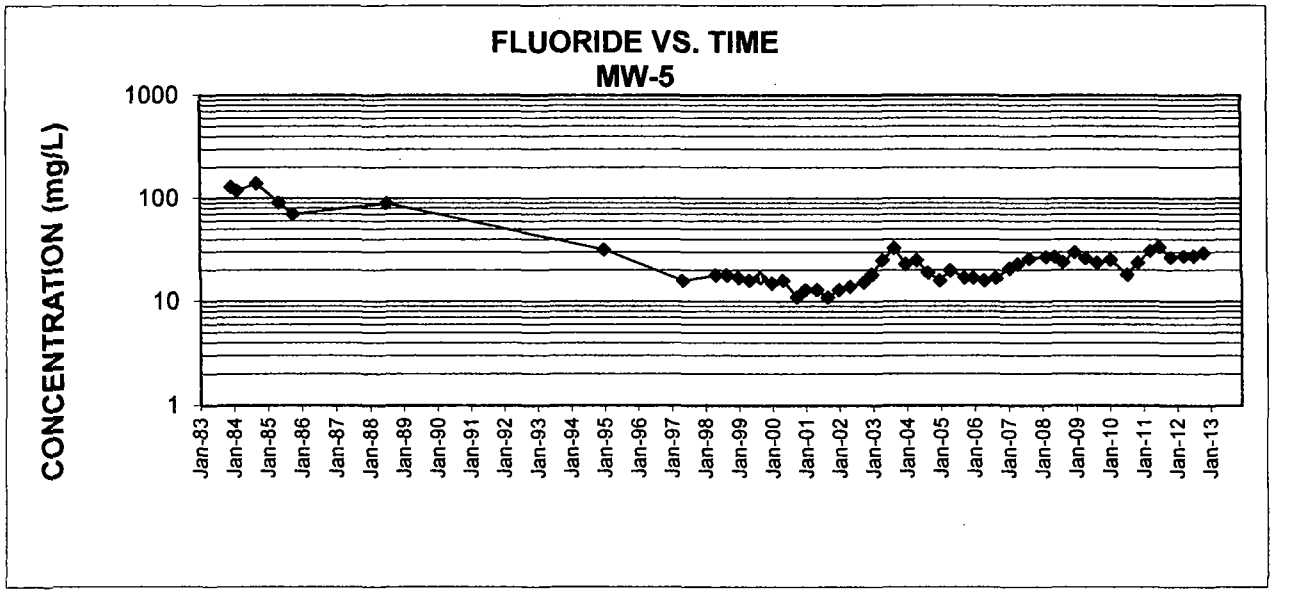
Jan-10
Jan-11
Jan-12
Jan-13


FLUORIDE VS. TIME
MW-5
CONCENTRATION (mg/L)
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
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Jan-05
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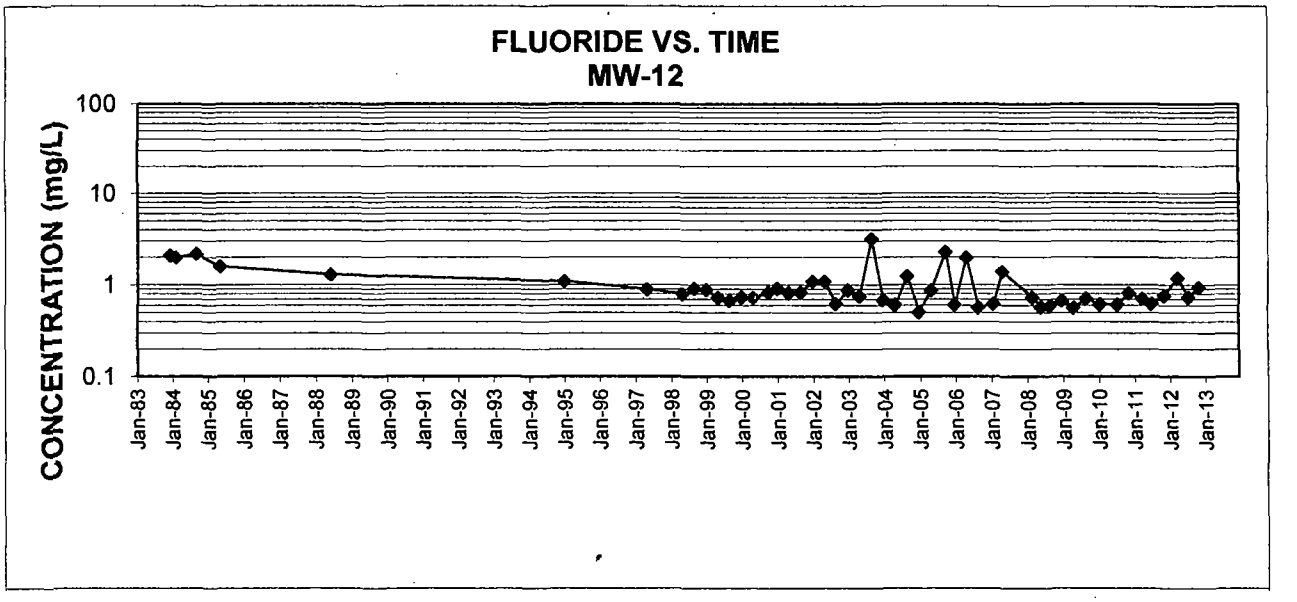
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13


FLUORIDE VS. TIME
MW-12
CONCENTRATION (mg/L)
100
10
1
0.1
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
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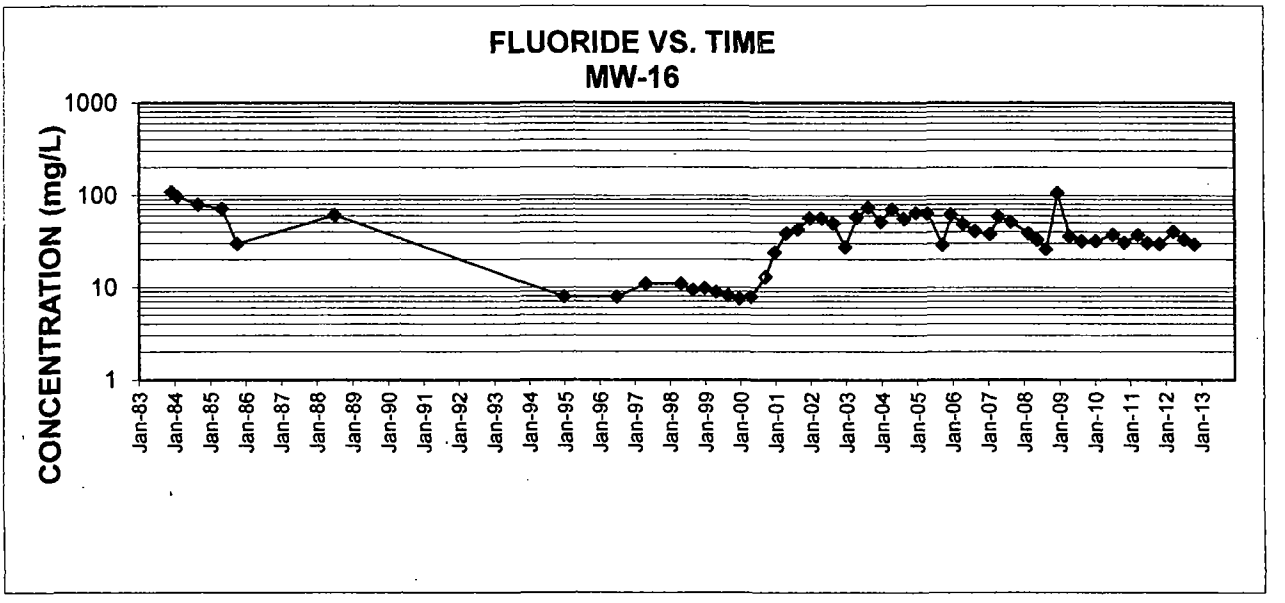
Jan-11
Jan-12
Jan-13


FLUORIDE VS. TIME
MW-16
CONCENTRATION (mg/L)
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
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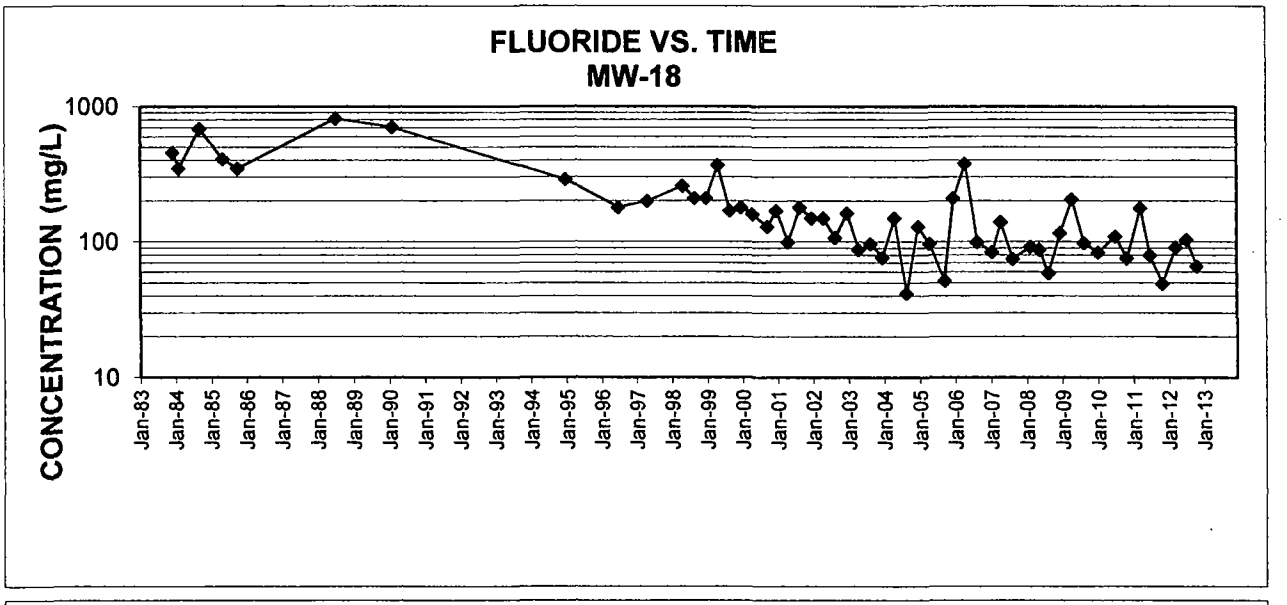
Jan-13


FLUORIDE VS. TIME
MW-18
CONCENTRATION (mg/L)
1000
100
10
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
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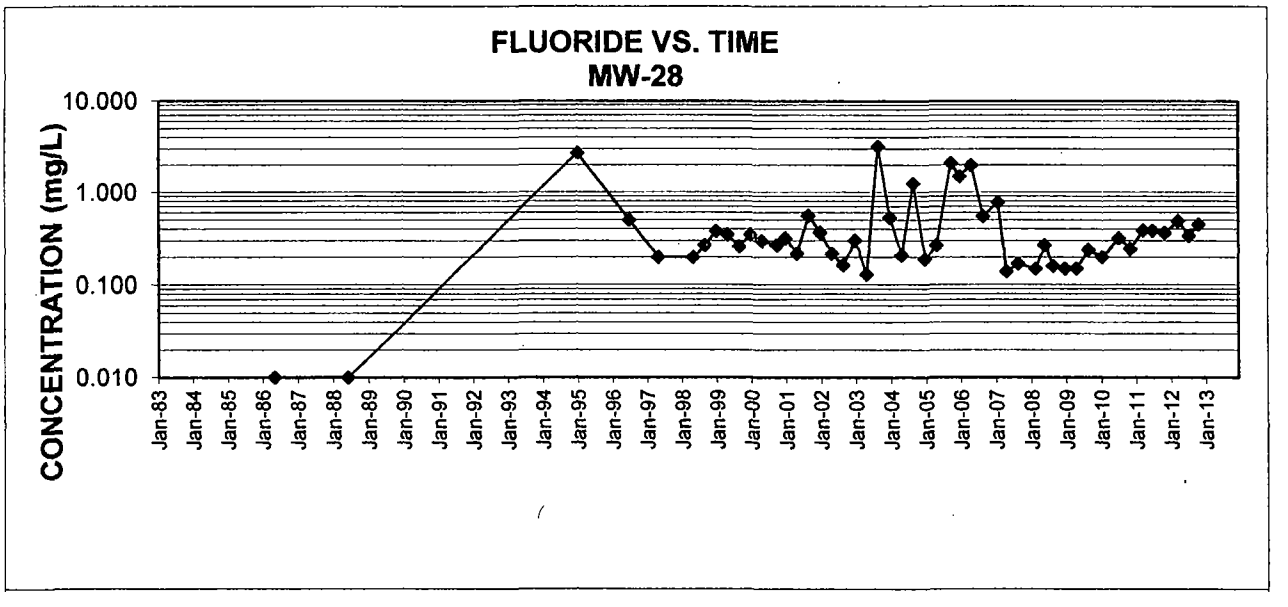
Jan-11
Jan-12
Jan-13


FLUORIDE VS. TIME
MW-28
CONCENTRATION (mg/L)
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
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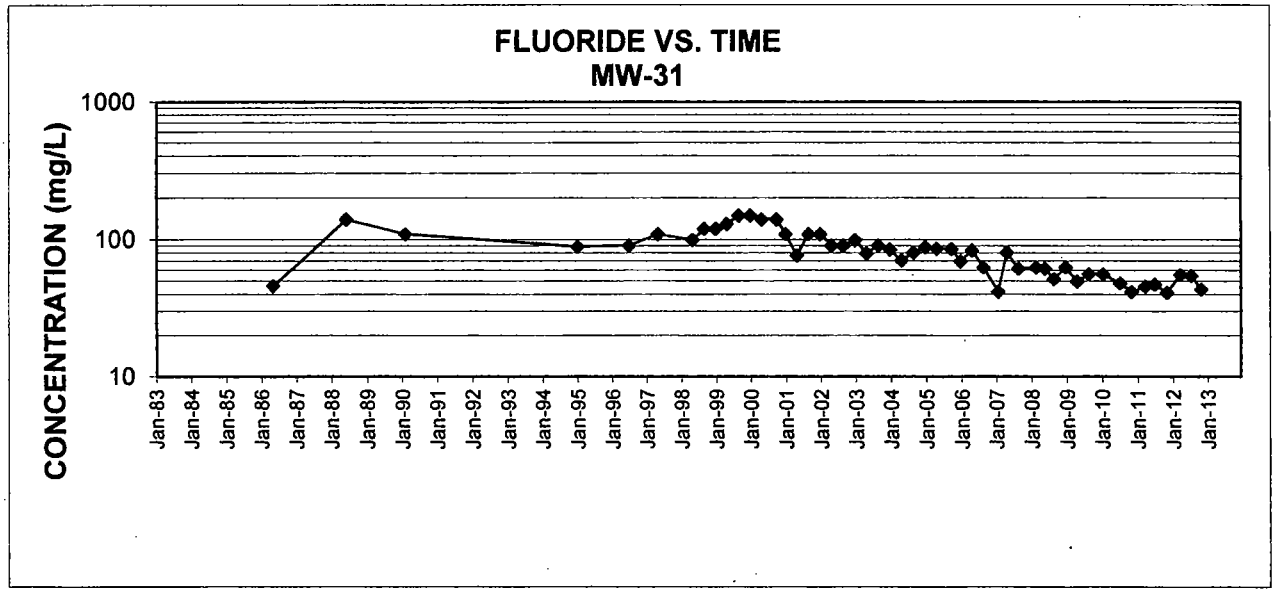
Jan-11
Jan-12
Jan-13


FLUORIDE VS. TIME
MW-31
CONCENTRATION (mg/L)
1000
100
10
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
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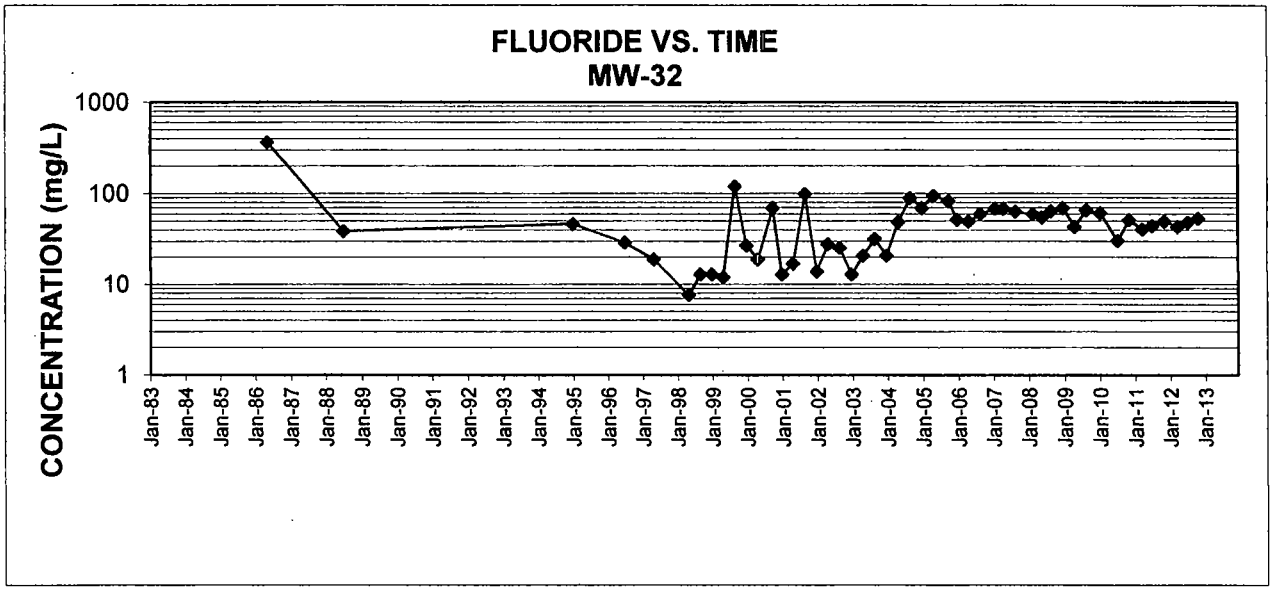
Jan-12
Jan-13


FLUORIDE VS. TIME
MW-32
CONCENTRATION (mg/L)
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
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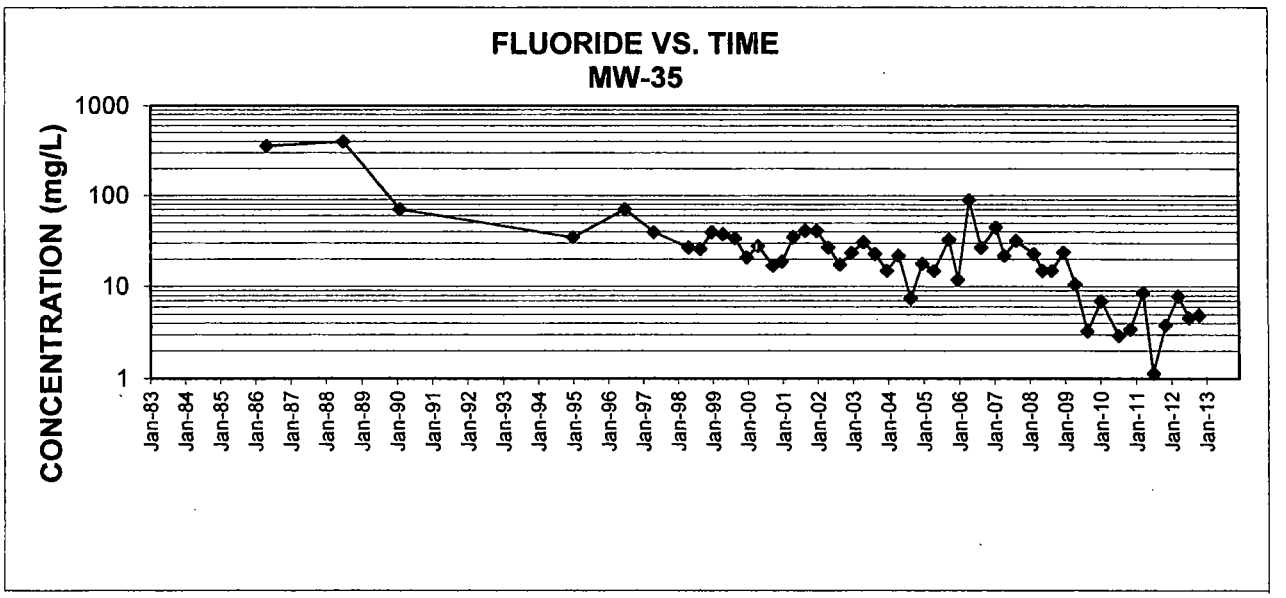
Jan-12
Jan-13


FLUORIDE VS. TIME
MW-35
CONCENTRATION (mg/L)
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
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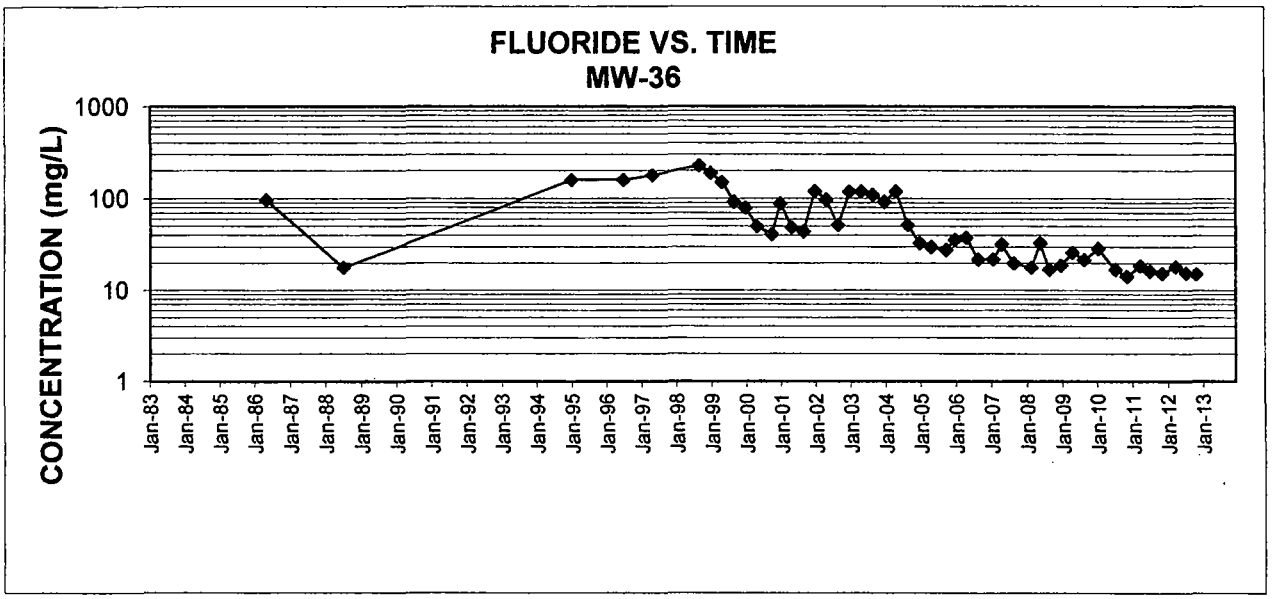
Jan-12
Jan-13


FLUORIDE VS. TIME
MW-36
CONCENTRATION (mg/L)
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
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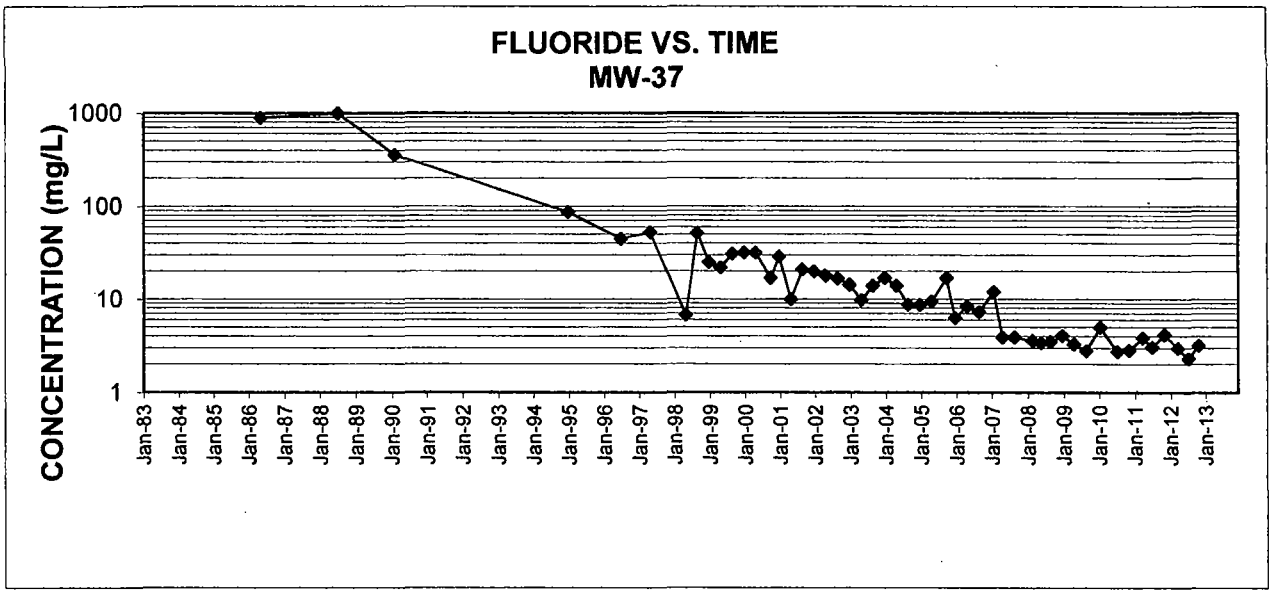
Jan-12
Jan-13


FLUORIDE VS. TIME
MW-37
CONCENTRATION (mg/L)
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
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Jan-98
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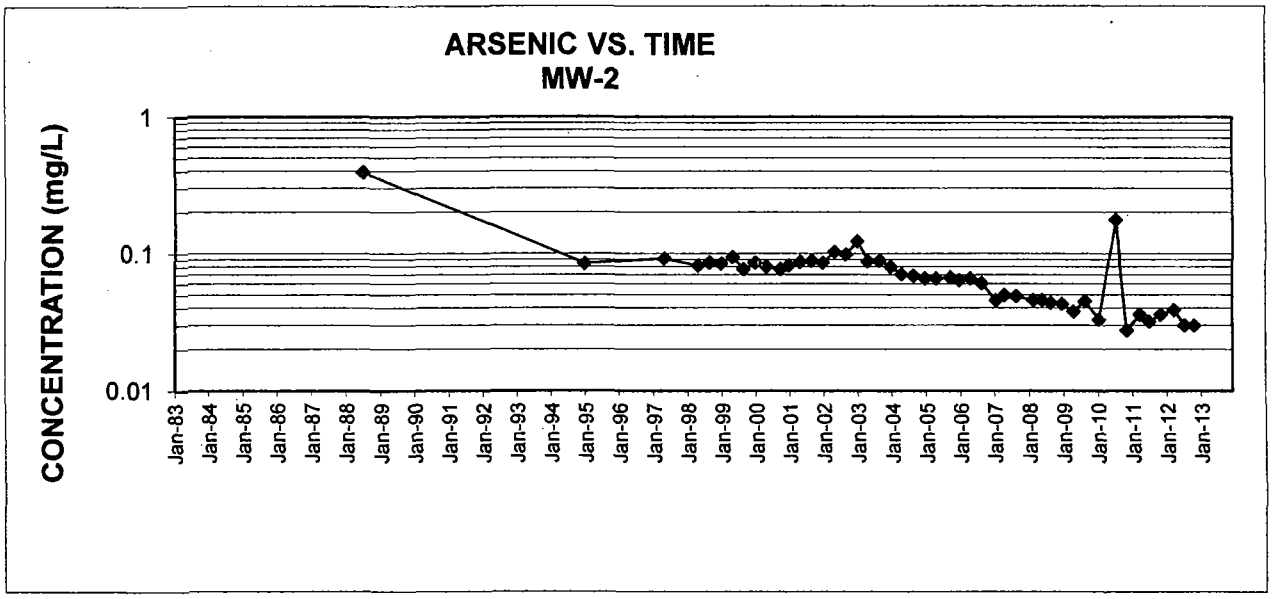
Jan-11
Jan-12
Jan-13

APPENDIX D-4

ARSENIC


ARSENIC VS. TIME
MW-2
CONCENTRATION (mg/L)
1
0.1
0.01
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
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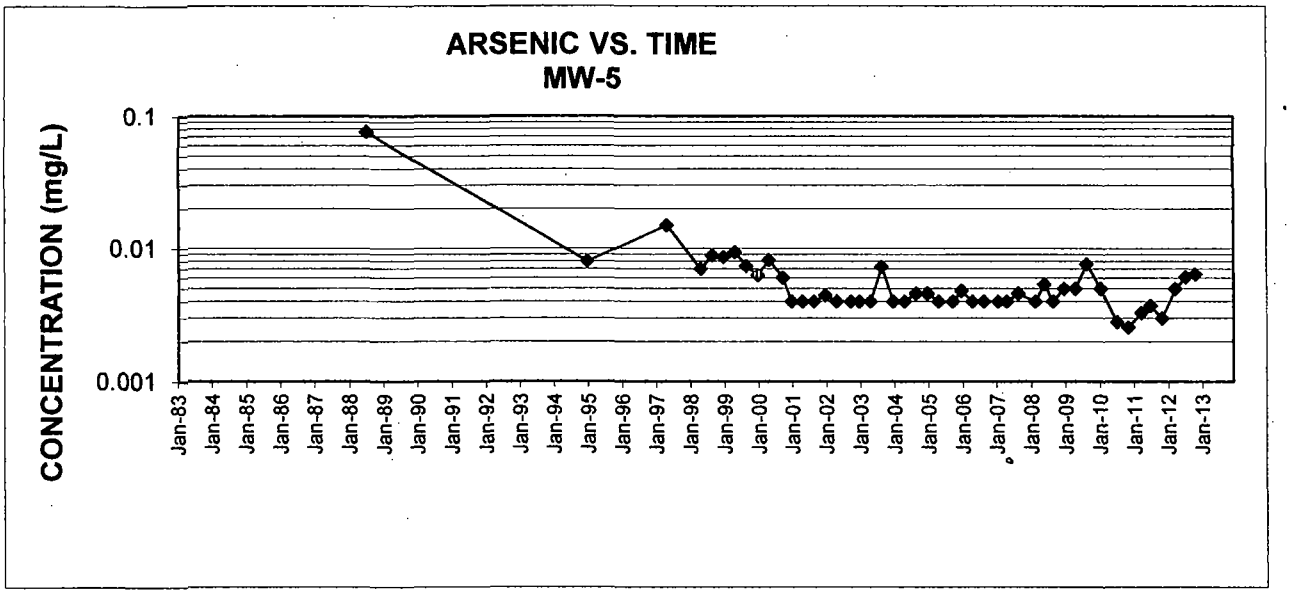
Jan-10
Jan-11
Jan-12
Jan-13


ARSENIC VS. TIME
MW-5
CONCENTRATION (mg/L)
0.1
0.01
0.001
Jan-83
Jan-84
Jan-85
Jan-86
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Jan-89
Jan-90
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Jan-92
Jan-93
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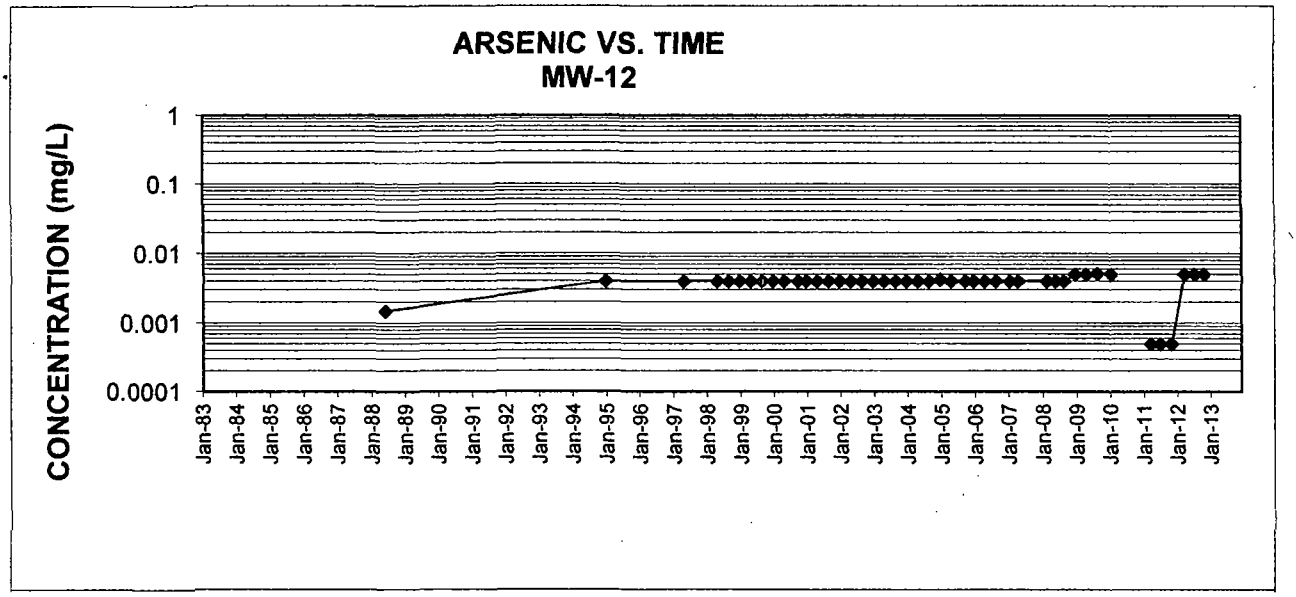
Jan-13


ARSENIC VS. TIME
MW-12
CONCENTRATION (mg/L)
1
0.1
0.01
0.001
0.0001
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
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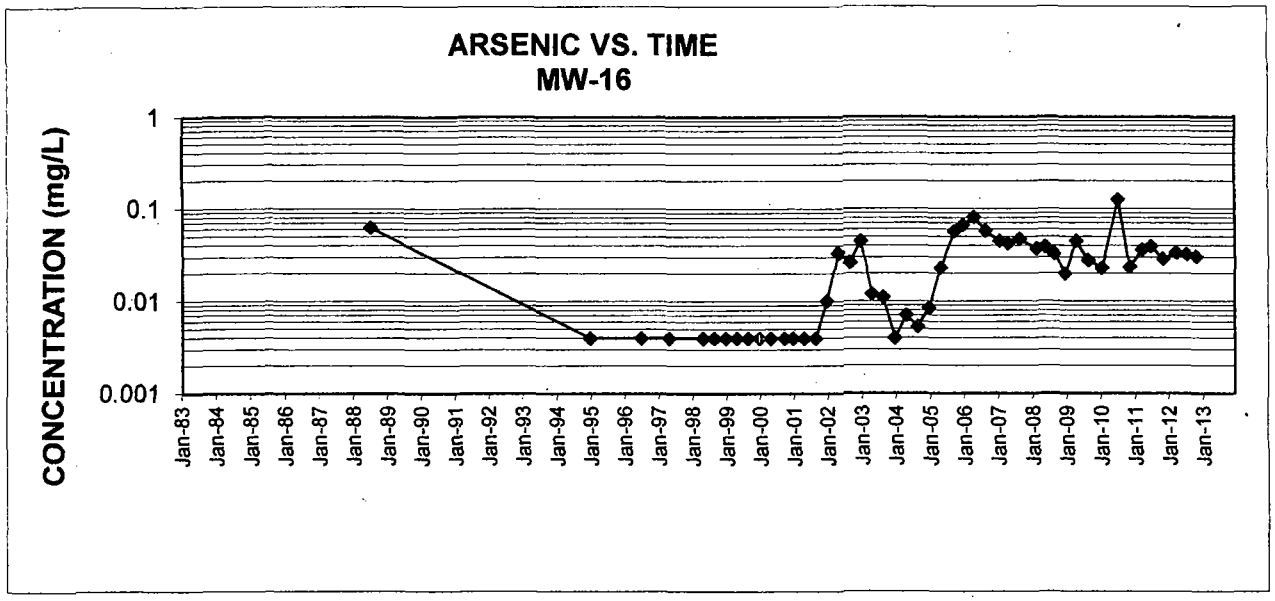
Jan-13


ARSENIC VS. TIME
MW-16
CONCENTRATION (mg/L)
1
0.1
0.01
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
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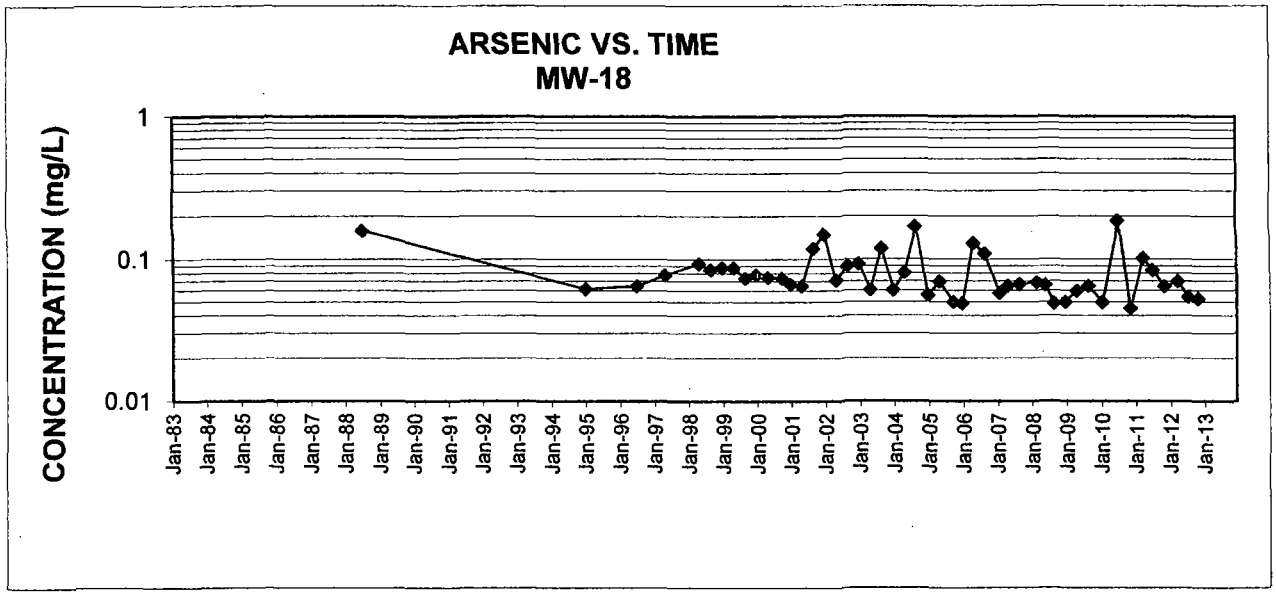
Jan-13


ARSENIC VS. TIME
MW-18
CONCENTRATION (mg/L)
1
0.1
0.01
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
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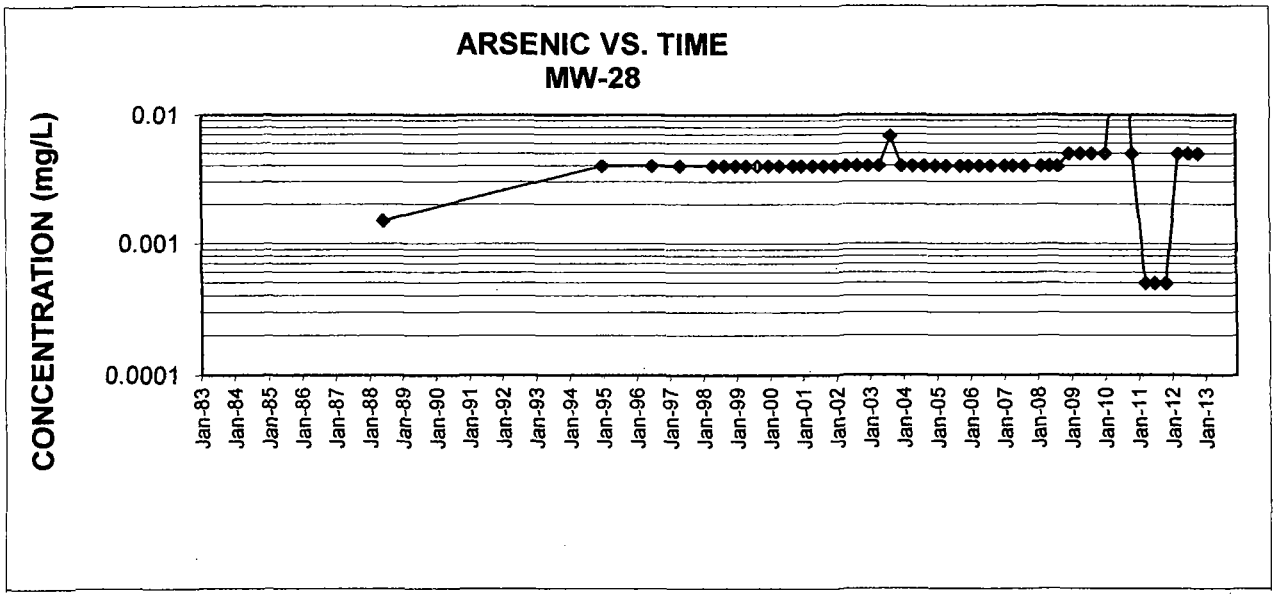
Jan-11
Jan-12
Jan-13


ARSENIC VS. TIME
MW-28
CONCENTRATION (mg/L)
0.01
0.001
0.0001
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
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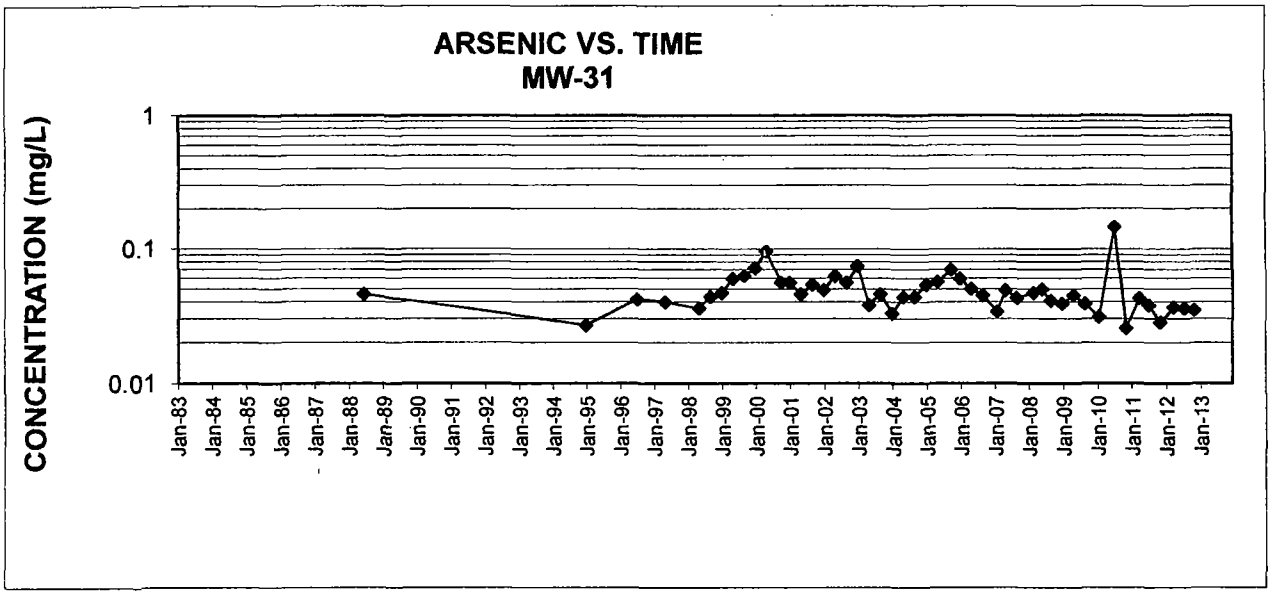
Jan-11
Jan-12
Jan-13


ARSENIC VS. TIME
MW-31
CONCENTRATION (mg/L)
1
0.1
0.01
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
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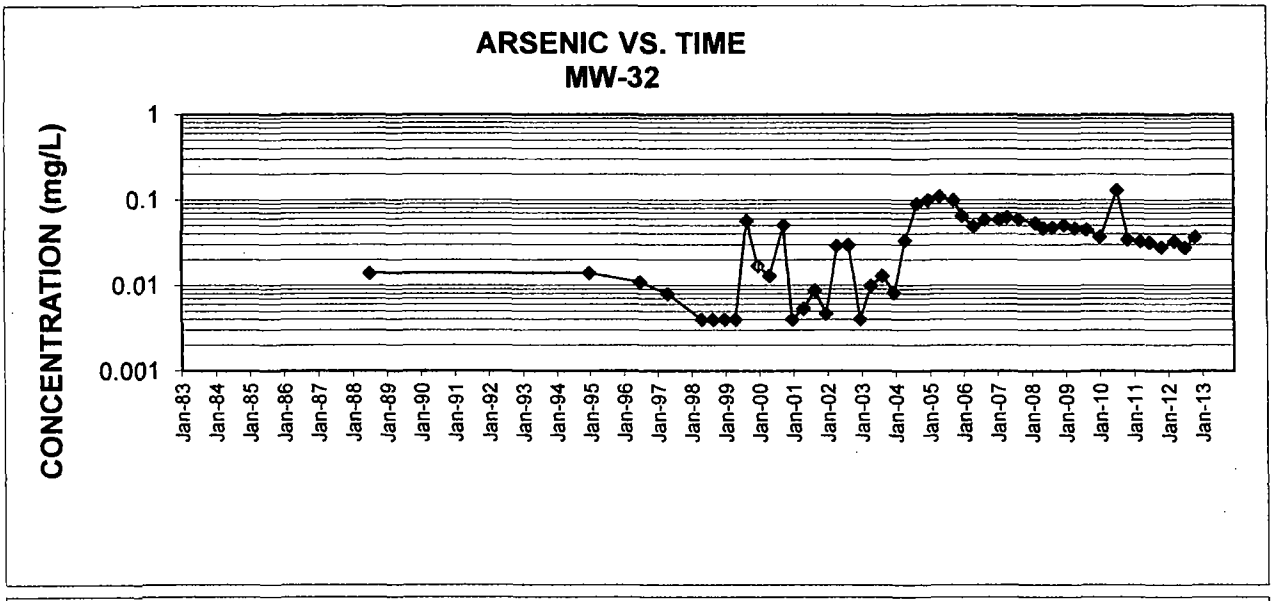
Jan-10
Jan-11
Jan-12
Jan-13


ARSENIC VS. TIME
MW-32
CONCENTRATION (mg/L)
1
0.1
0.01
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
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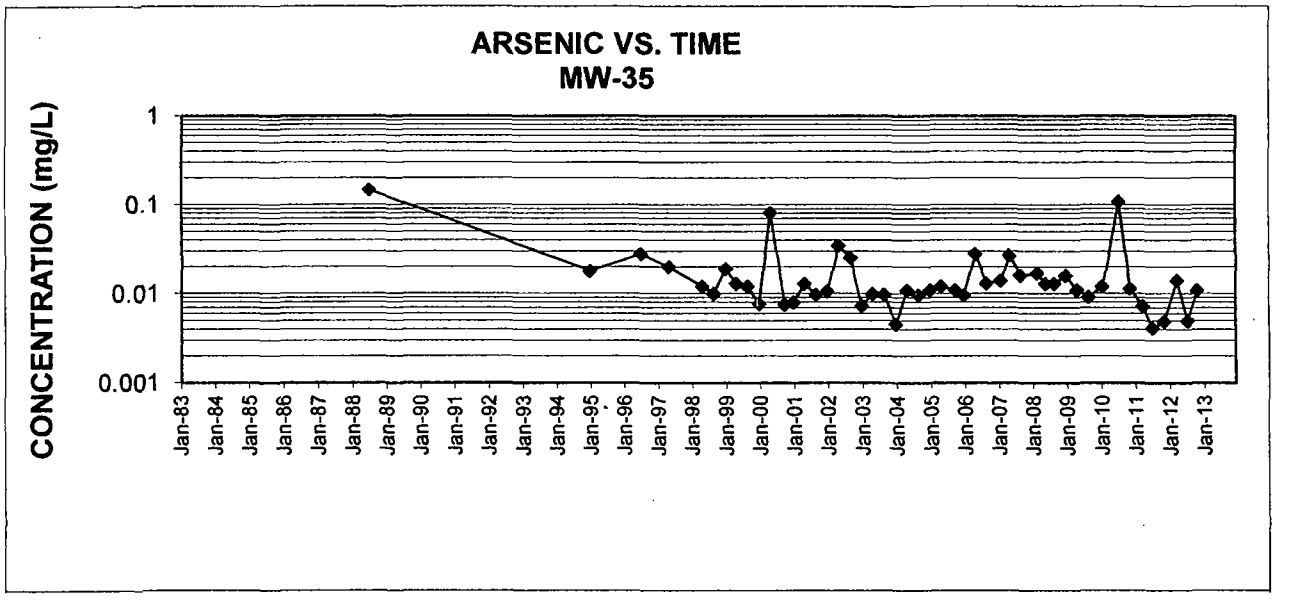
Jan-11
Jan-12
Jan-13


ARSENIC VS. TIME
MW-35
CONCENTRATION (mg/L)
1
0.1
0.01
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
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Jan-96
Jan-97
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Jan-01
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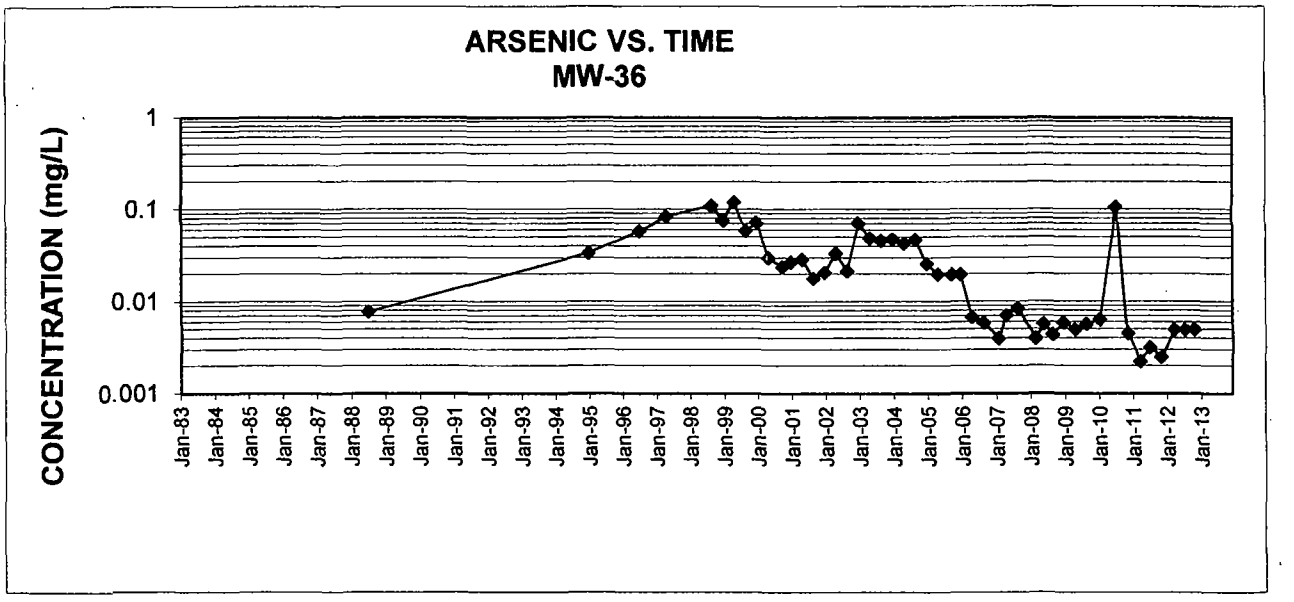
Jan-11
Jan-12
Jan-13


ARSENIC VS. TIME
MW-36
CONCENTRATION (mg/L)
1
0.1
0.01
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
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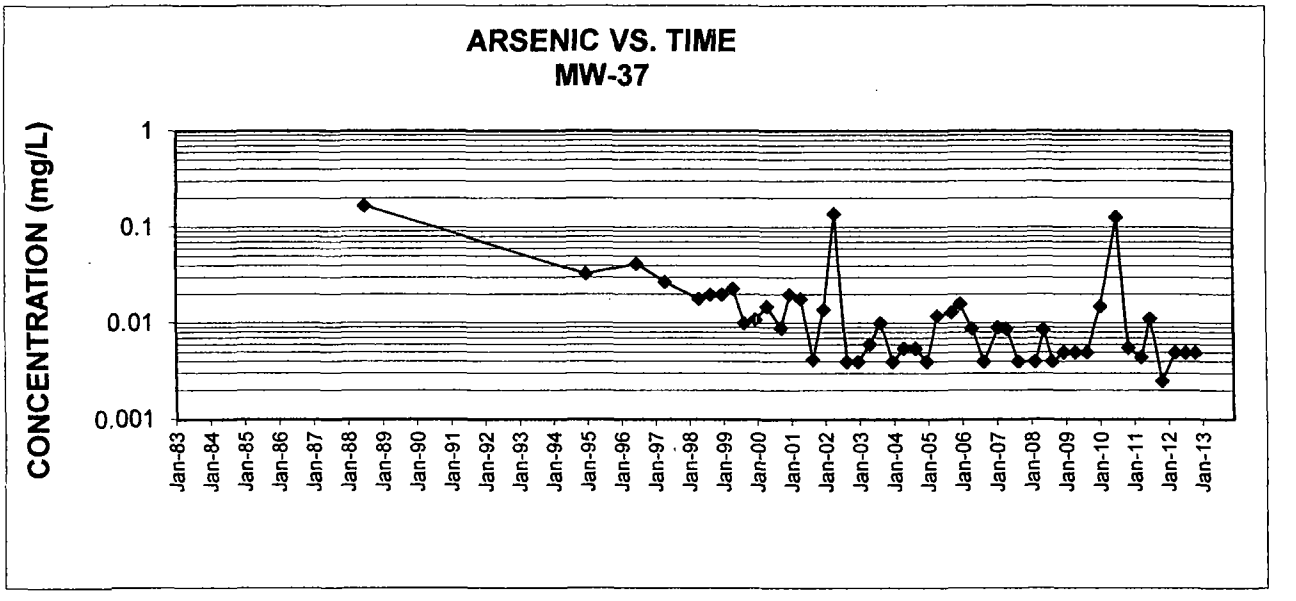
Jan-11
Jan-12
Jan-13


ARSENIC VS. TIME
MW-37
CONCENTRATION (mg/L)
1
0.1
0.01
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
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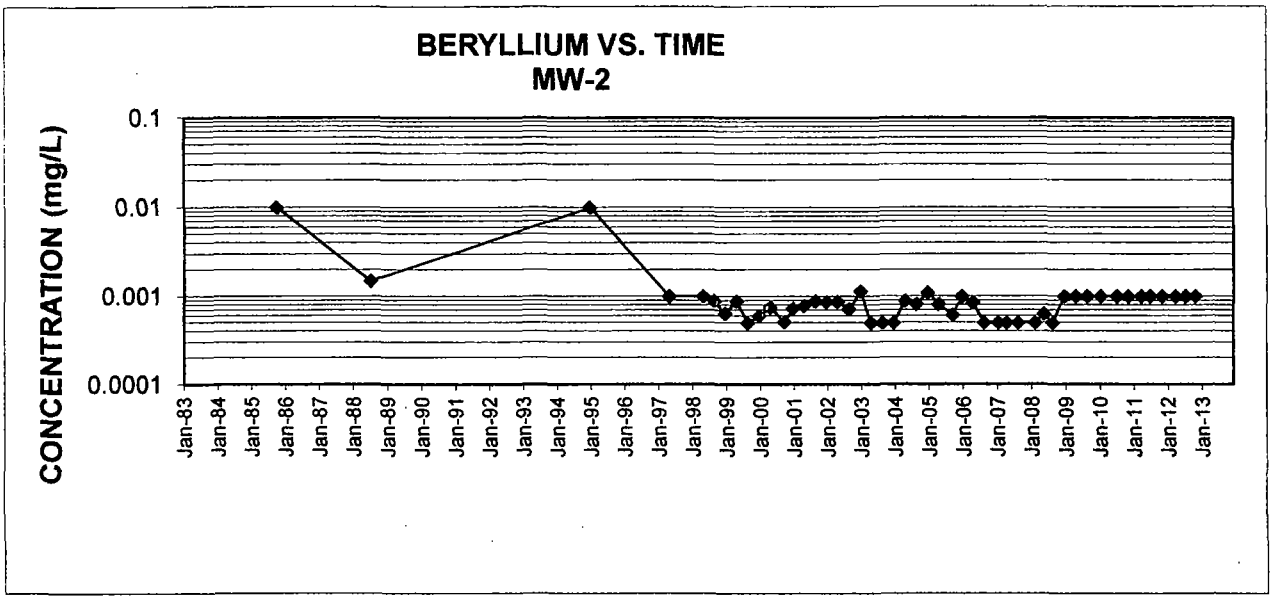
Jan-12
Jan-13

APPENDIX D-5

BERYLLIUM


BERYLLIUM VS. TIME
MW-2
CONCENTRATION (mg/L)
0.1
0.01
0.001
0.0001
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
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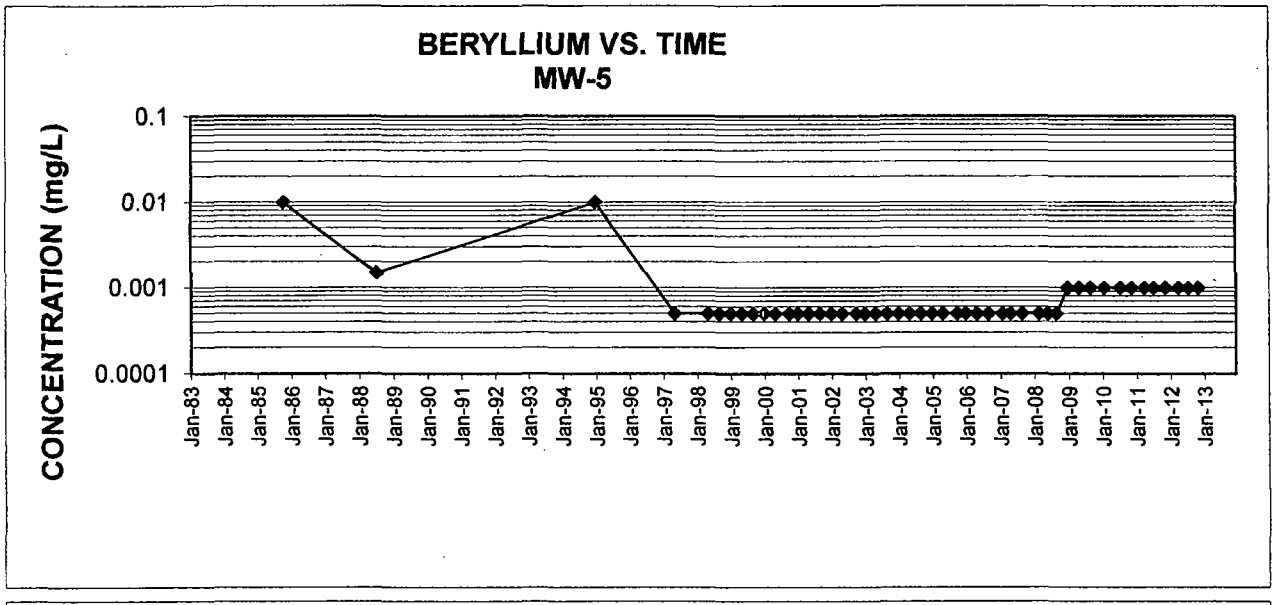
Jan-10
Jan-11
Jan-12
Jan-13


BERYLLIUM VS. TIME
MW-5
CONCENTRATION (mg/L)
0.1
0.01
0.001
0.0001
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
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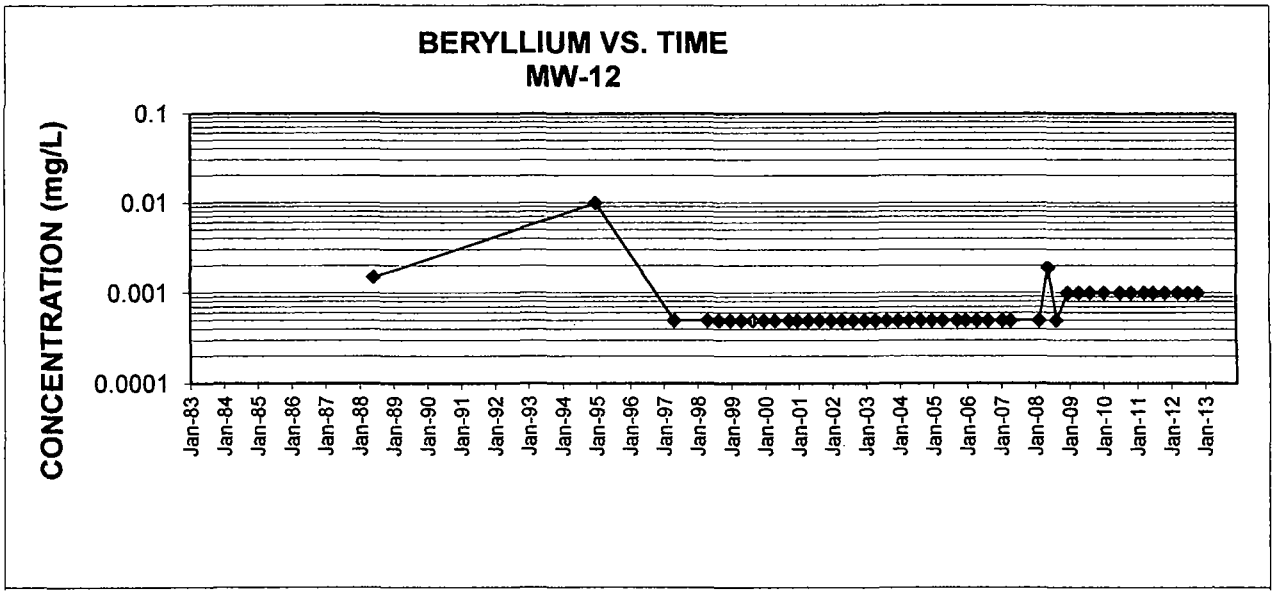
Jan-10
Jan-11
Jan-12
Jan-13


BERYLLIUM VS. TIME
MW-12
CONCENTRATION (mg/L)
0.1
0.01
0.001
0.0001
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-00
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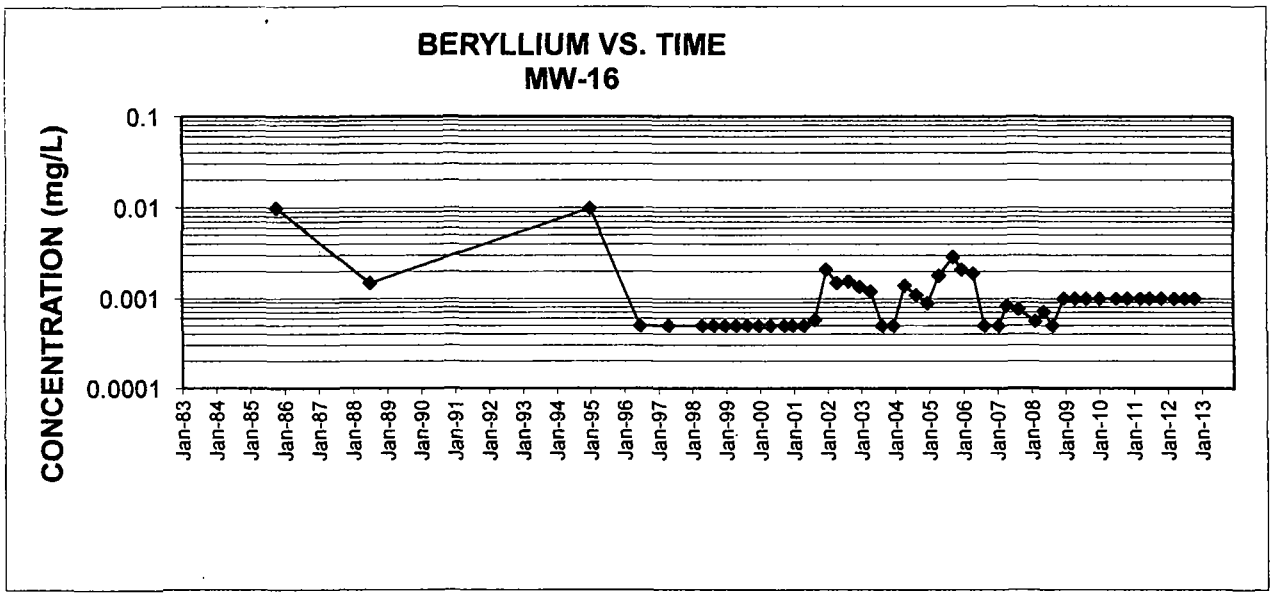
Jan-12
Jan-13


BERYLLIUM VS. TIME
MW-16
CONCENTRATION (mg/L)
0.1
0.01
0.001
0.0001
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
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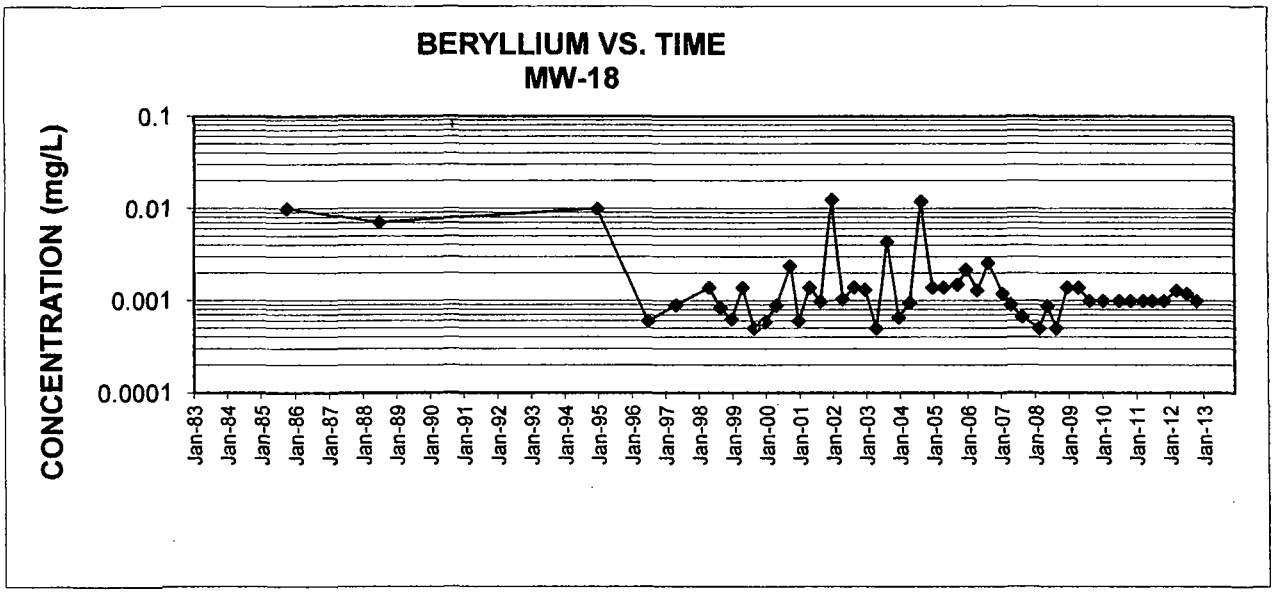
Jan-11
Jan-12
Jan-13


BERYLLIUM VS. TIME
MW-18
CONCENTRATION (mg/L)
0.1
0.01
0.001
0.0001
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
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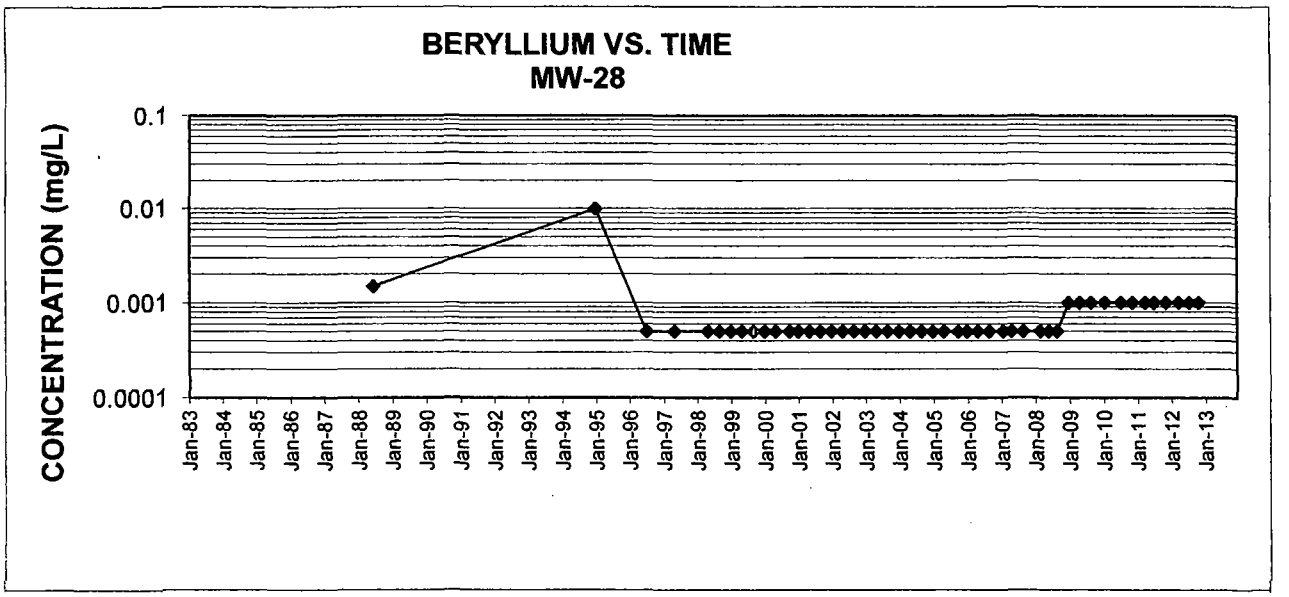
Jan-11
Jan-12
Jan-13


BERYLLIUM VS. TIME
MW-28
CONCENTRATION (mg/L)
0.1
0.01
0.001
0.0001
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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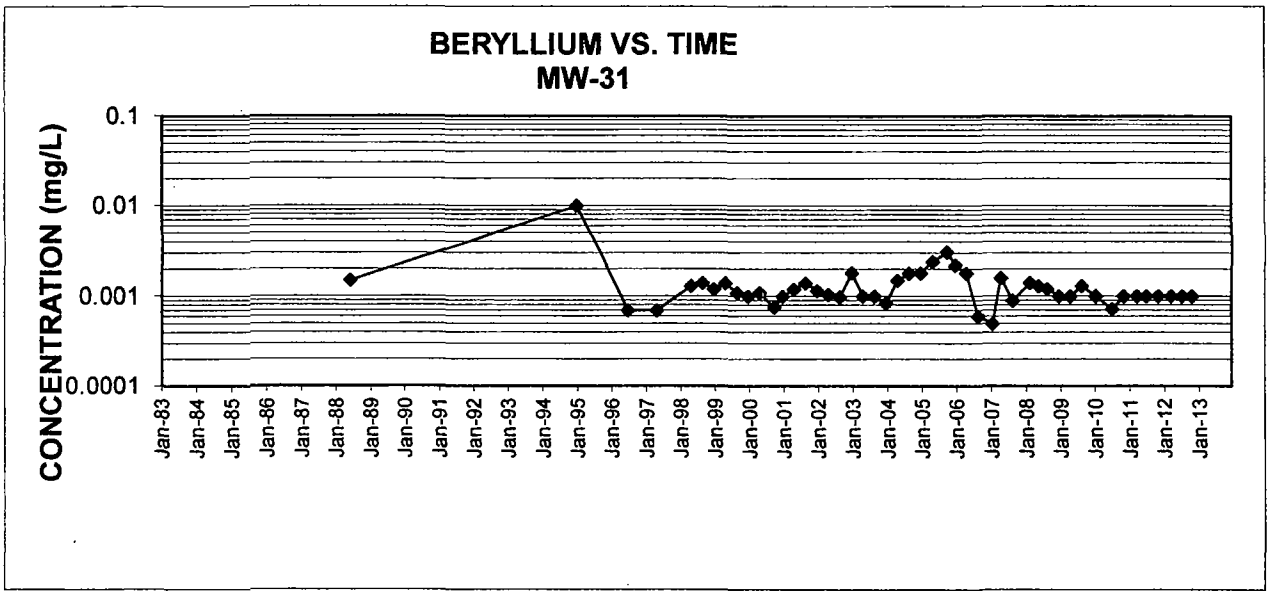
Jan-12
Jan-13


BERYLLIUM VS. TIME
MW-31
CONCENTRATION (mg/L)
0.1
0.01
0.001
0.0001
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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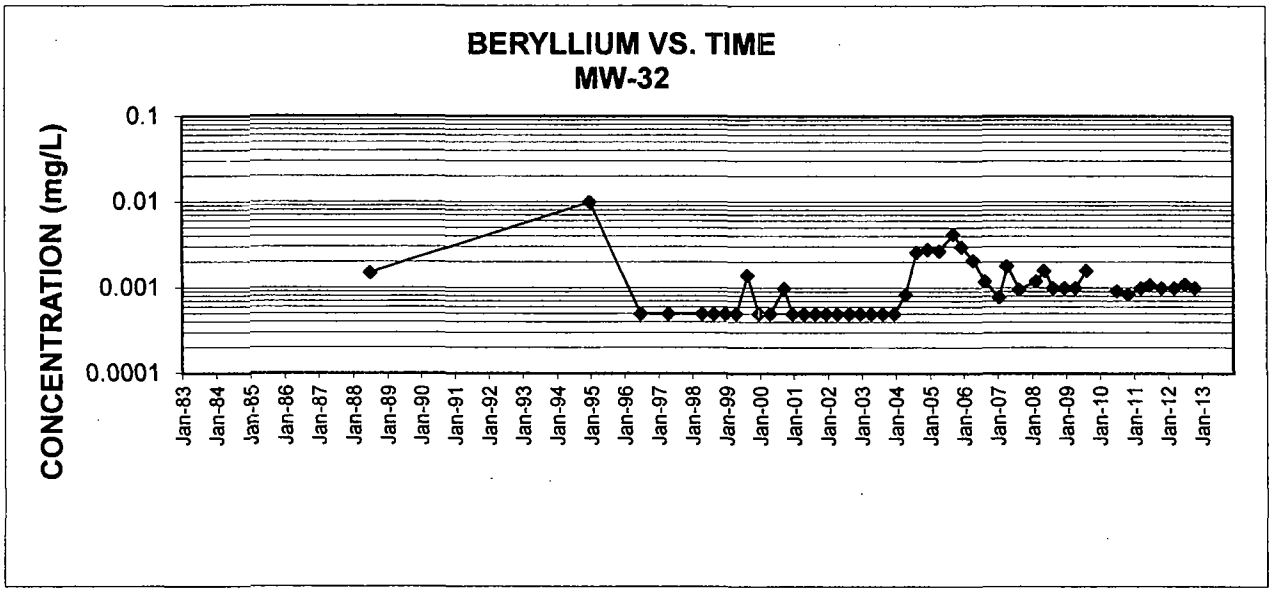
Jan-12
Jan-13


BERYLLIUM VS. TIME
MW-32
CONCENTRATION (mg/L)
0.1
0.01
0.001
0.0001
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
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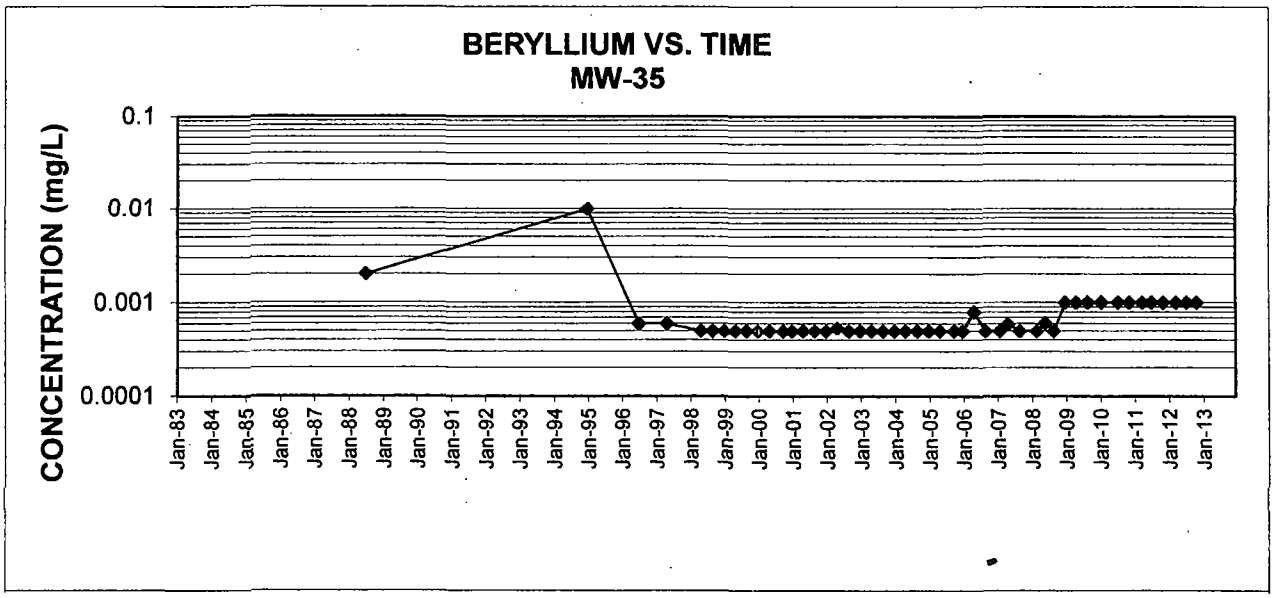
Jan-12
Jan-13


BERYLLIUM VS. TIME
MW-35
CONCENTRATION (mg/L)
0.1
0.01
0.001
0.0001
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
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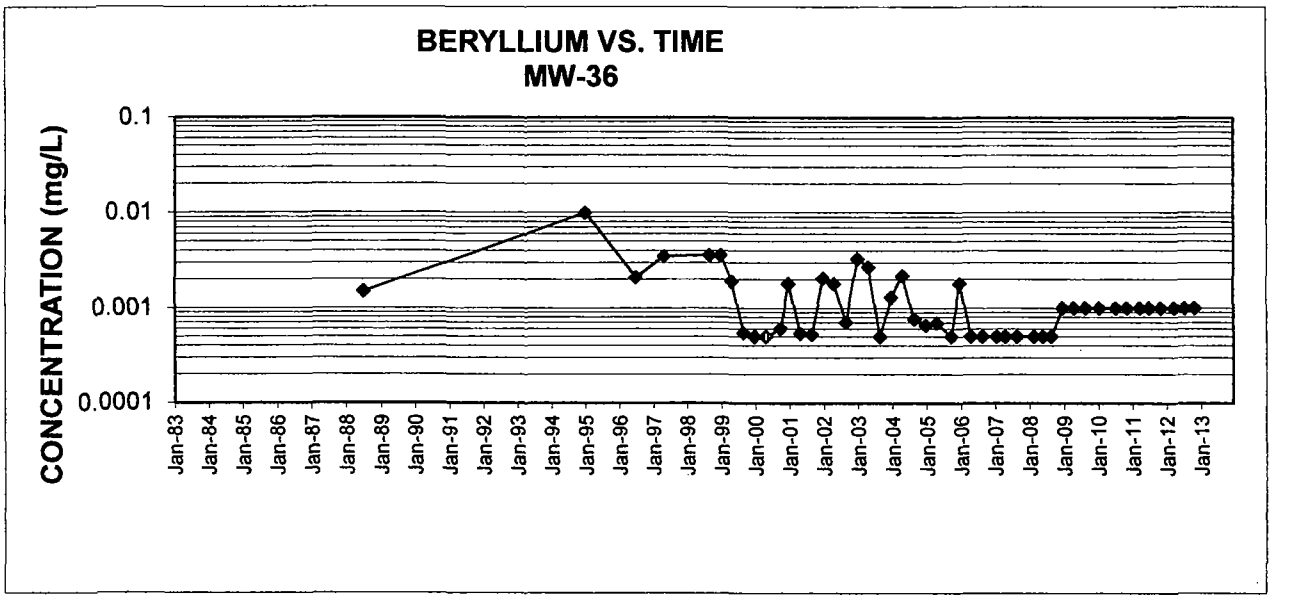
Jan-12
Jan-13


BERYLLIUM VS. TIME
MW-36
CONCENTRATION (mg/L)
0.1
0.01
0.001
0.0001
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
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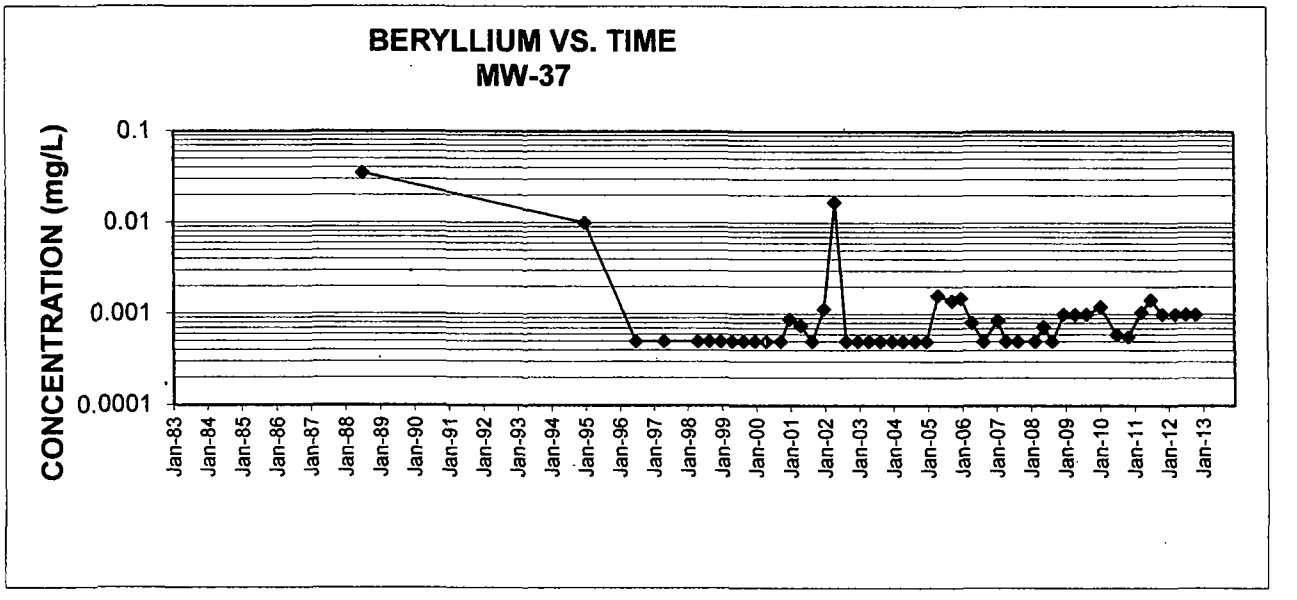
Jan-12
Jan-13


BERYLLIUM VS. TIME
MW-37
CONCENTRATION (mg/L)
0.1
0.01
0.001
0.0001
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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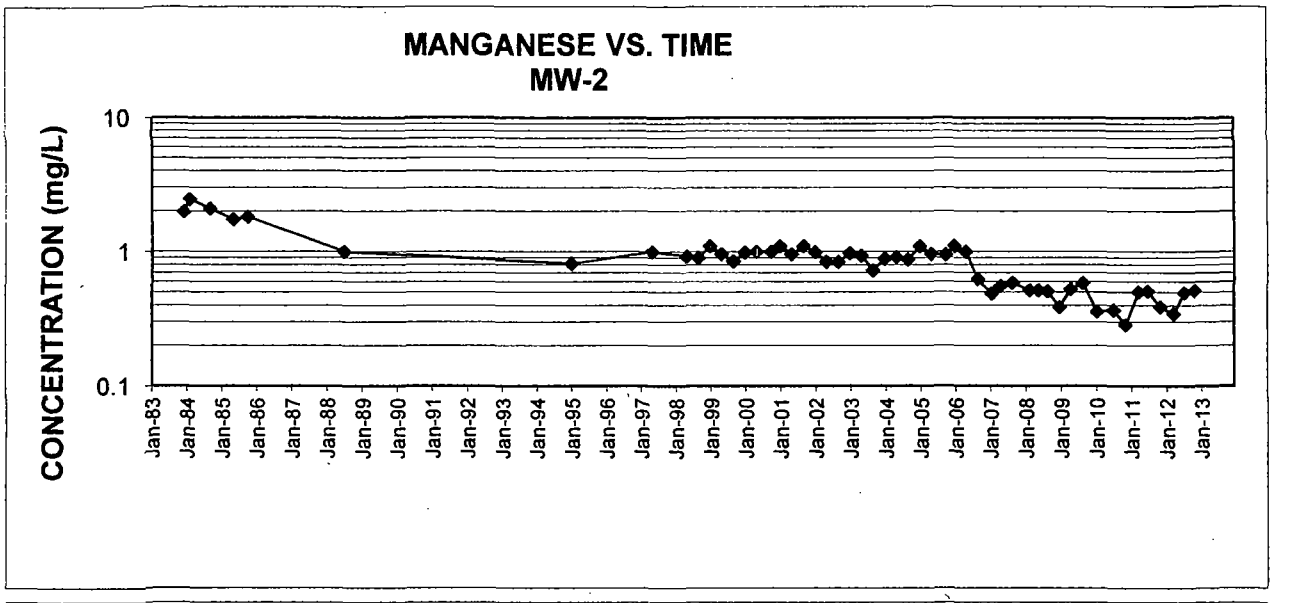
Jan-13

APPENDIX D-6

MANGANESE


MANGANESE VS. TIME
MW-2
CONCENTRATION (mg/L)
10
1
0.1
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
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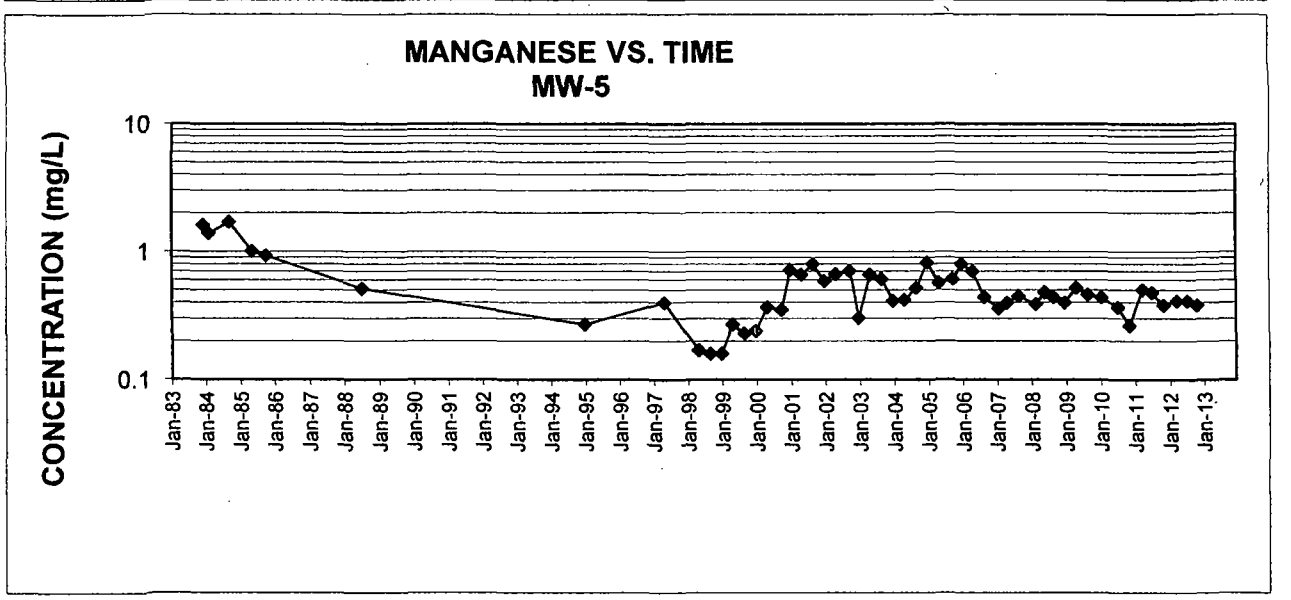
Jan-12
Jan-13


MANGANESE VS. TIME
MW-5
CONCENTRATION (mg/L)
10
1
0.1
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
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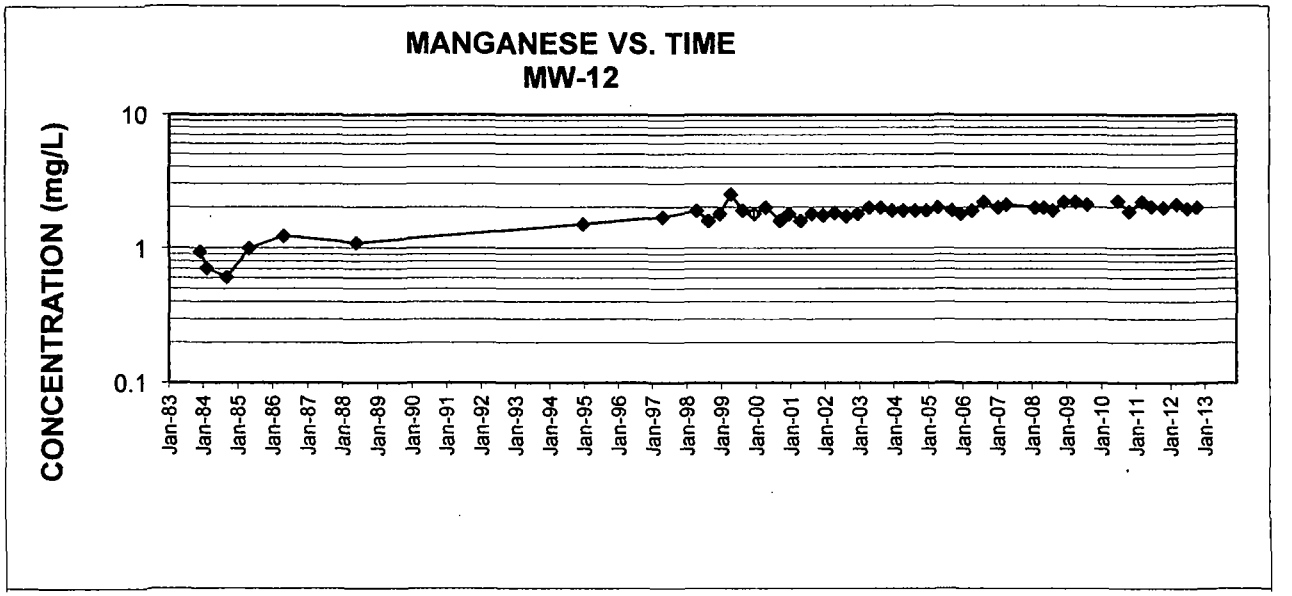
Jan-11
Jan-12
Jan-13


MANGANESE VS. TIME
MW-12
CONCENTRATION (mg/L)
10
1
0.1
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
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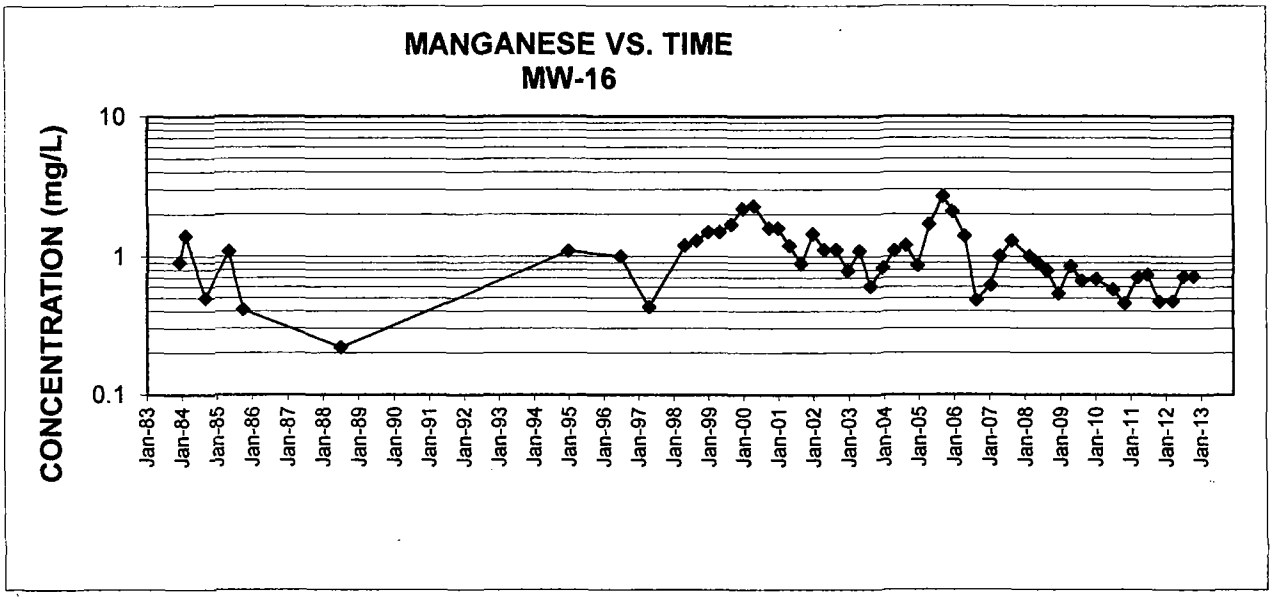
Jan-12
Jan-13


MANGANESE VS. TIME
MW-16
CONCENTRATION (mg/L)
10
1
0.1
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
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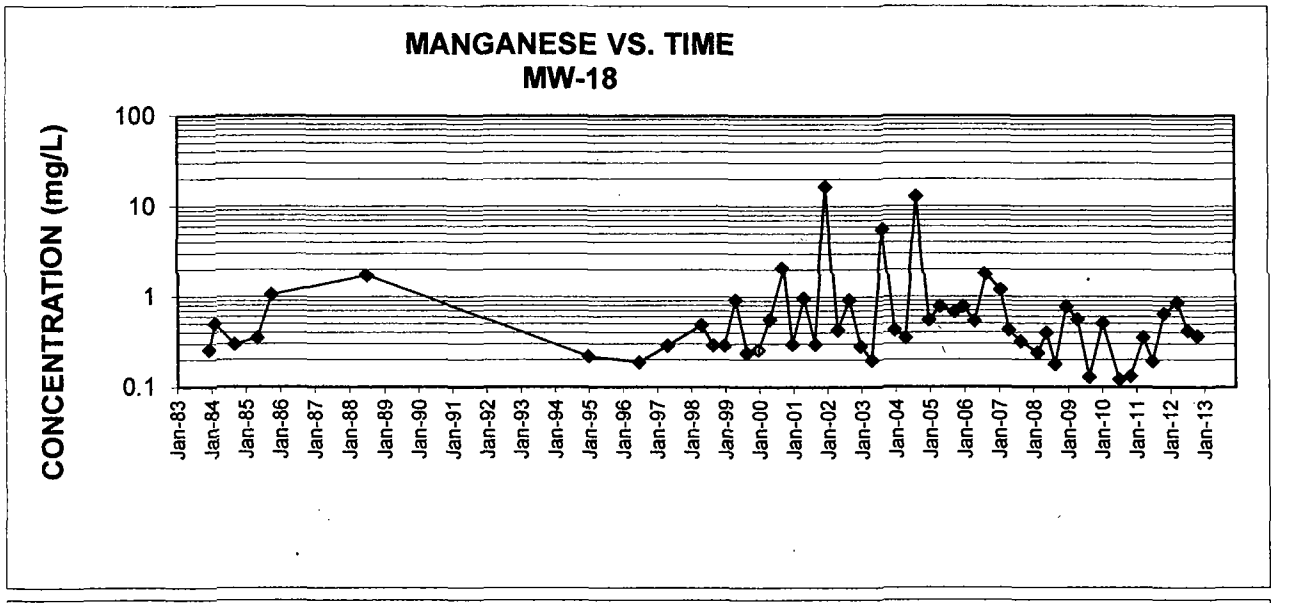
Jan-11
Jan-12
Jan-13


MANGANESE VS. TIME
MW-18
CONCENTRATION (mg/L)
100
10
1
0.1
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
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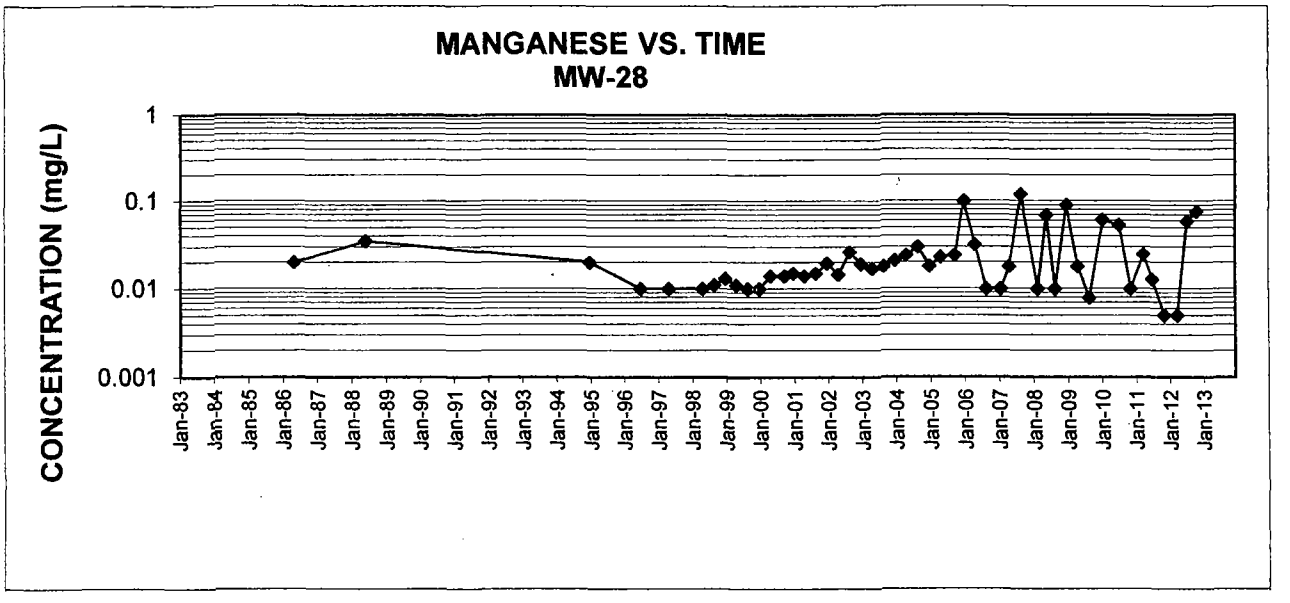
Jan-11
Jan-12
Jan-13


MANGANESE VS. TIME
MW-28
CONCENTRATION (mg/L)
1
0.1
0.01
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
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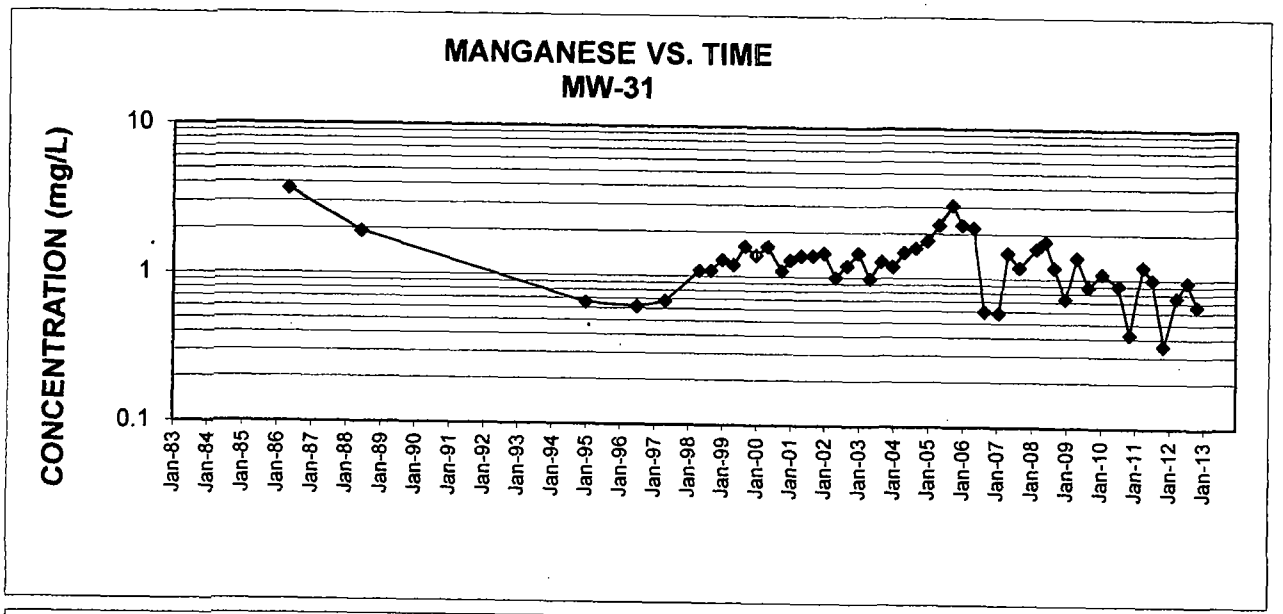
Jan-12
Jan-13


MANGANESE VS. TIME
MW-31
CONCENTRATION (mg/L)
10
1
0.1
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
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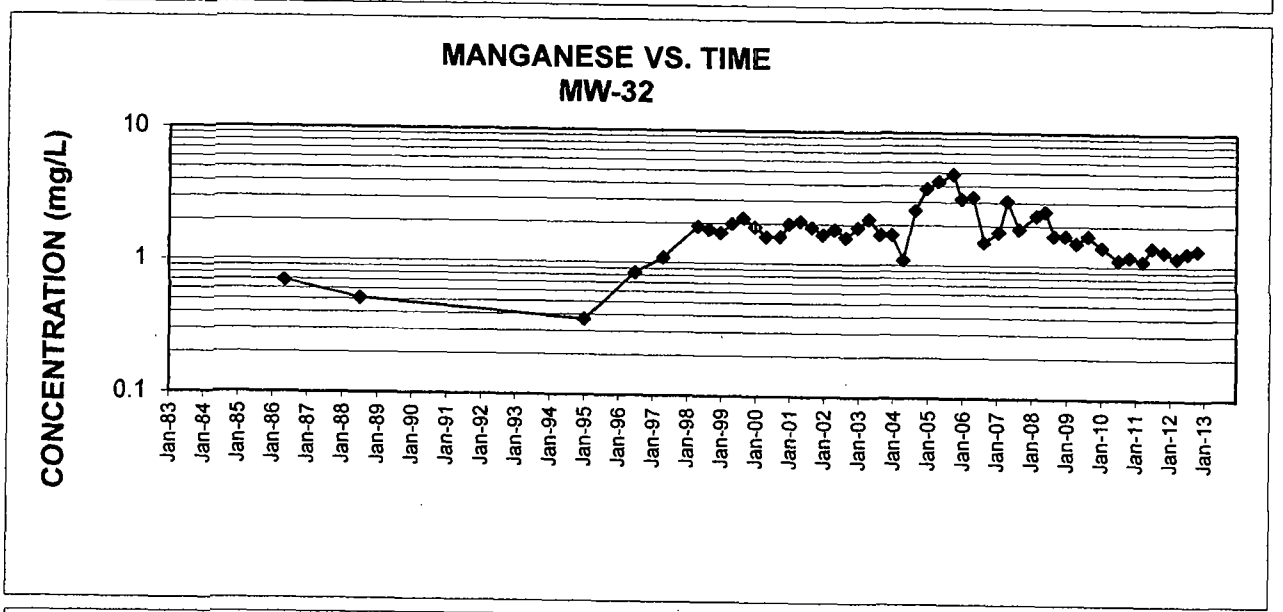
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13


MANGANESE VS. TIME
MW-32
CONCENTRATION (mg/L)
10
1
0.1
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
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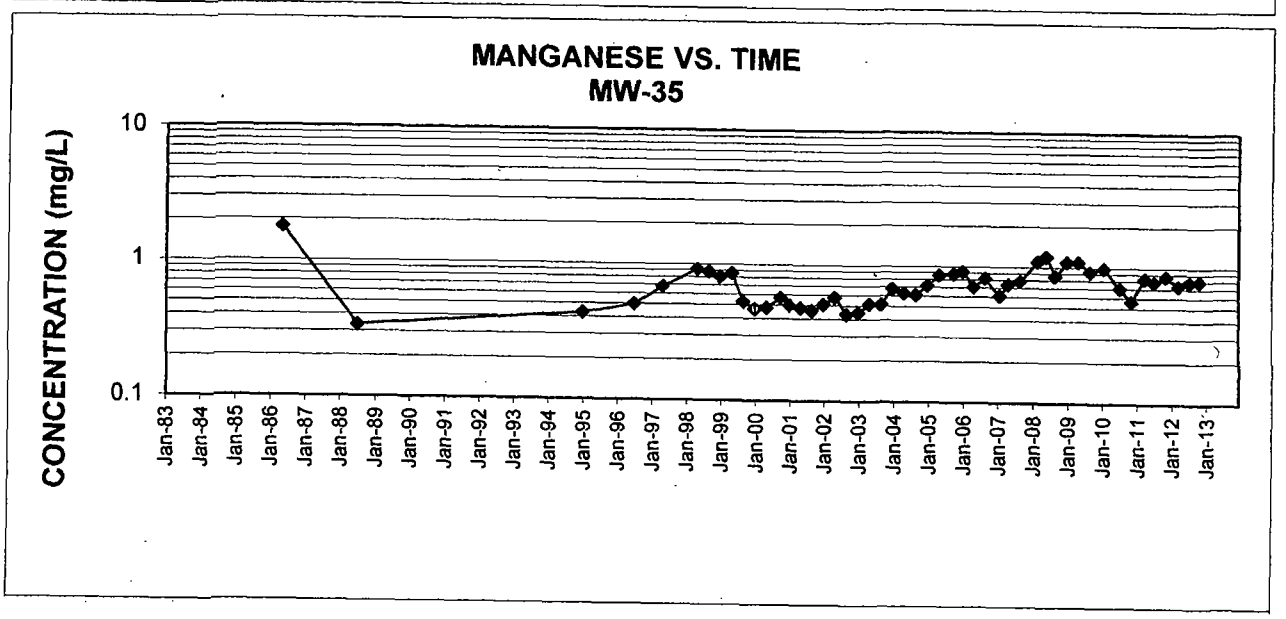
Jan-10
Jan-11
Jan-12
Jan-13


MANGANESE VS. TIME
MW-35
CONCENTRATION (mg/L)
10
1
0.1
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
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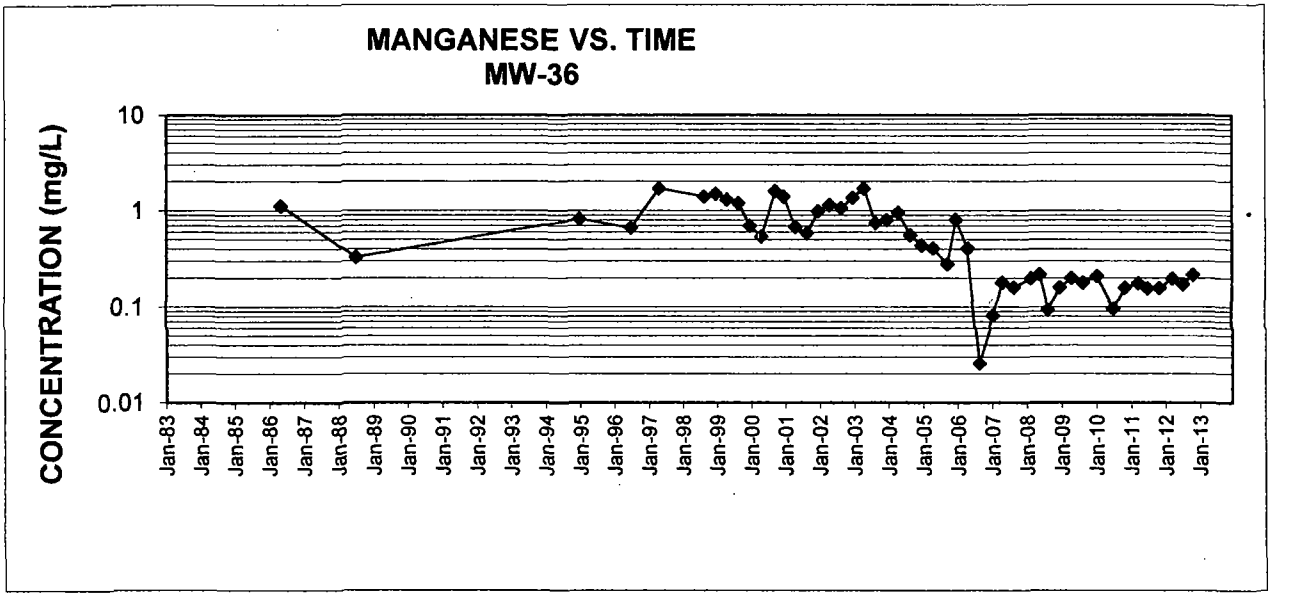
Jan-10
Jan-11
Jan-12
Jan-13


MANGANESE VS. TIME
MW-36
CONCENTRATION (mg/L)
10
1
0.1
0.01
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
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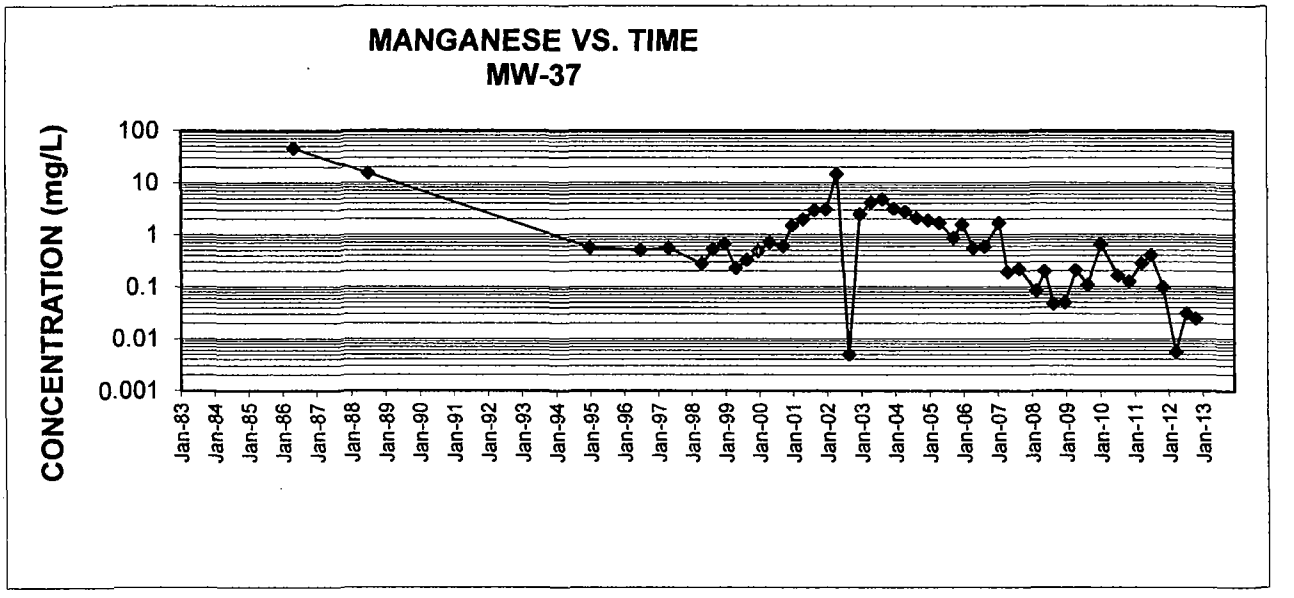
Jan-11
Jan-12
Jan-13


MANGANESE VS. TIME
MW-37
CONCENTRATION (mg/L)
100
10
1
0.1
0.01
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
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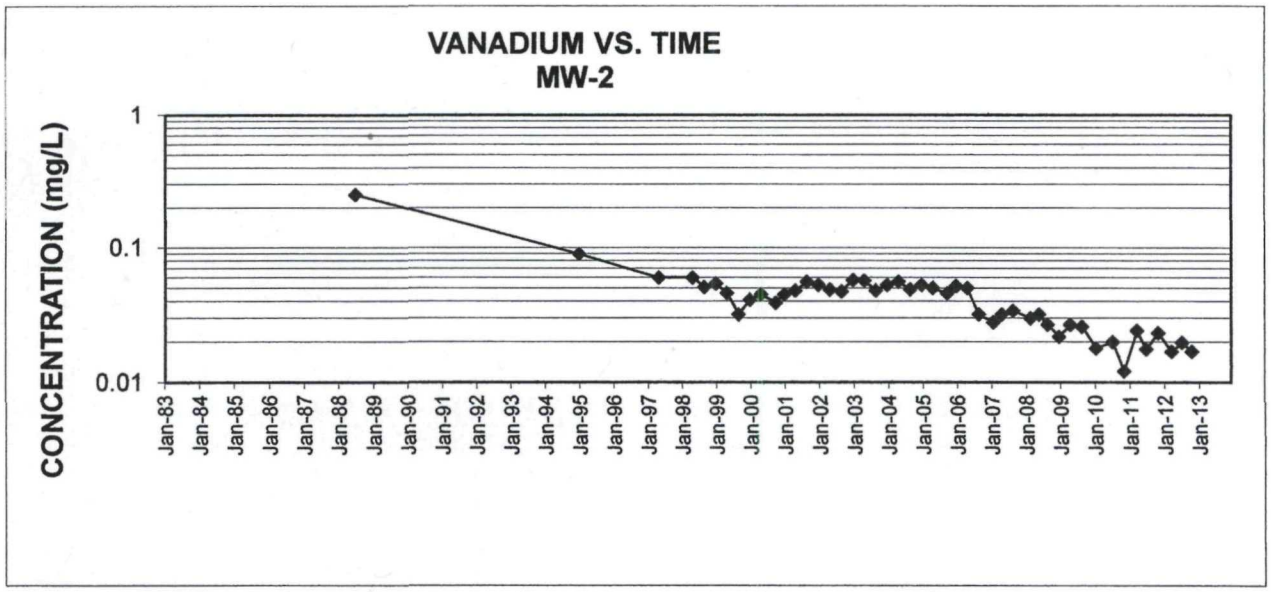
Jan-10
Jan-11
Jan-12
Jan-13

APPENDIX D-7

VANADIUM


VANADIUM VS. TIME
MW-2
CONCENTRATION (mg/L)
1
0.1
0.01
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
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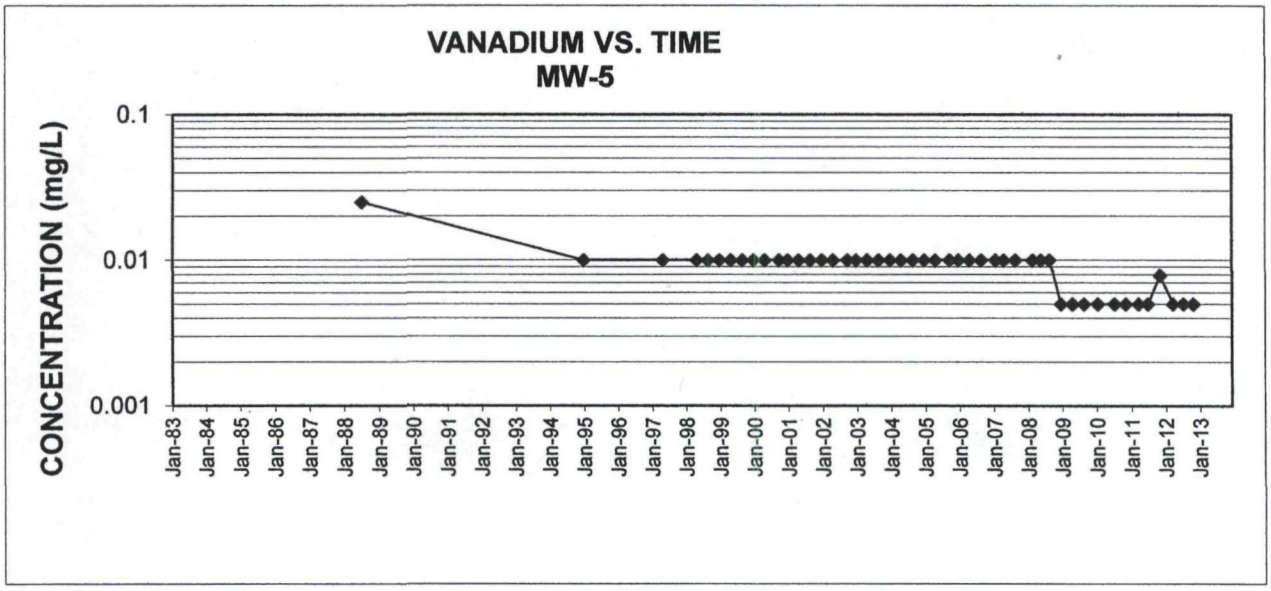
Jan-10
Jan-11
Jan-12
Jan-13


VANADIUM VS. TIME
MW-5
CONCENTRATION (mg/L)
0.1
0.01
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
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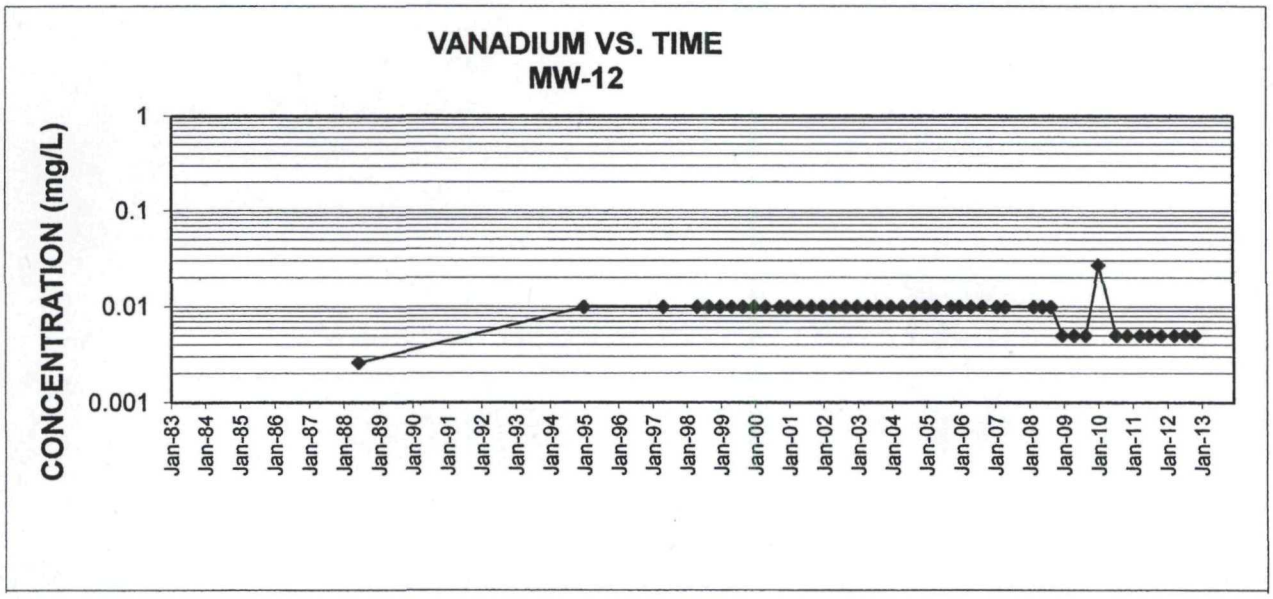
Jan-10
Jan-11
Jan-12
Jan-13


VANADIUM VS. TIME
MW-12
CONCENTRATION (mg/L)
1
0.1
0.01
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
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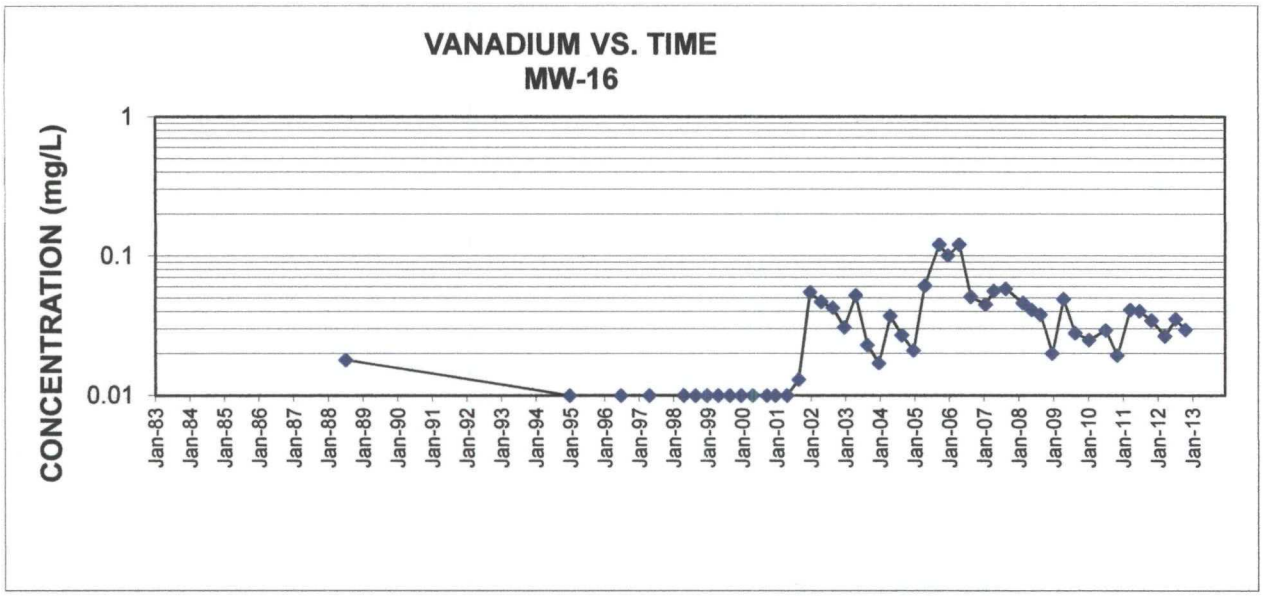
Jan-10
Jan-11
Jan-12
Jan-13


VANADIUM VS. TIME
MW-16
CONCENTRATION (mg/L)
1
0.1
0.01
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
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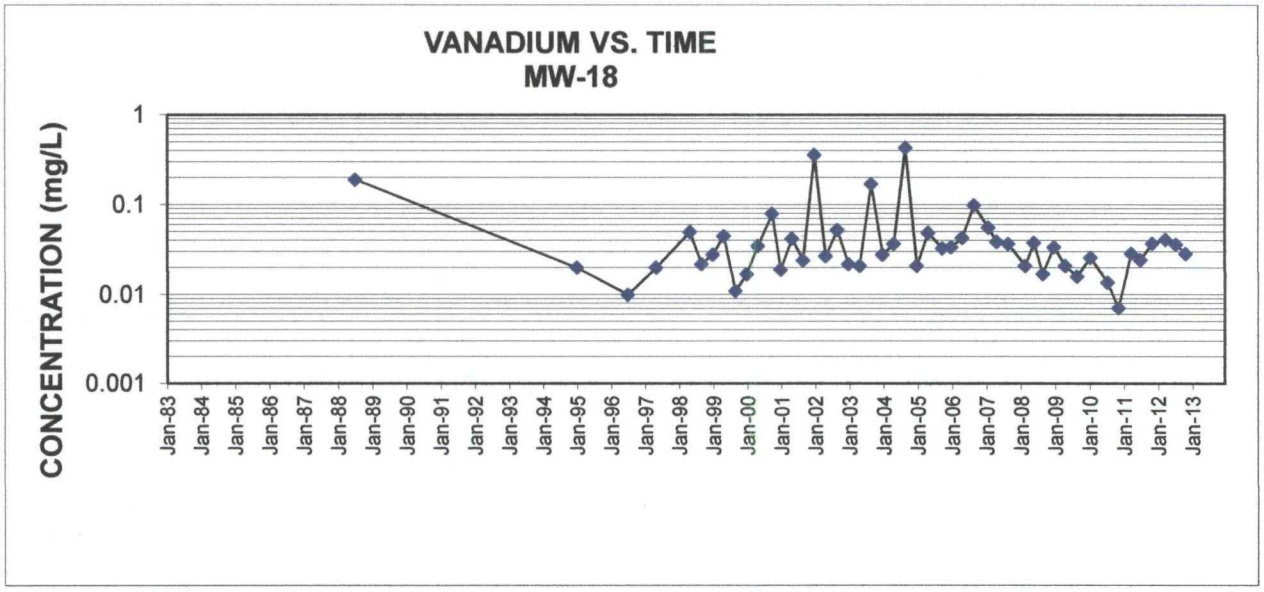
Jan-10
Jan-11
Jan-12
Jan-13


VANADIUM VS. TIME
MW-18
CONCENTRATION (mg/L)
1
0.1
0.01
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
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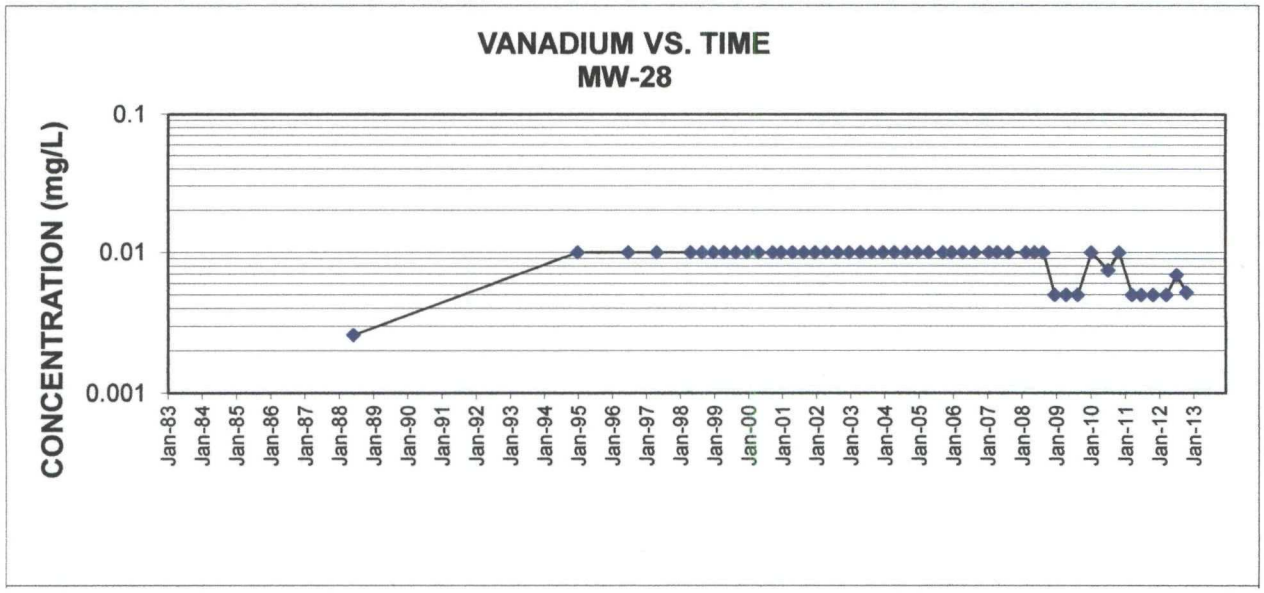
Jan-10
Jan-11
Jan-12
Jan-13


VANADIUM VS. TIME
MW-28
CONCENTRATION (mg/L)
0.1
0.01
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
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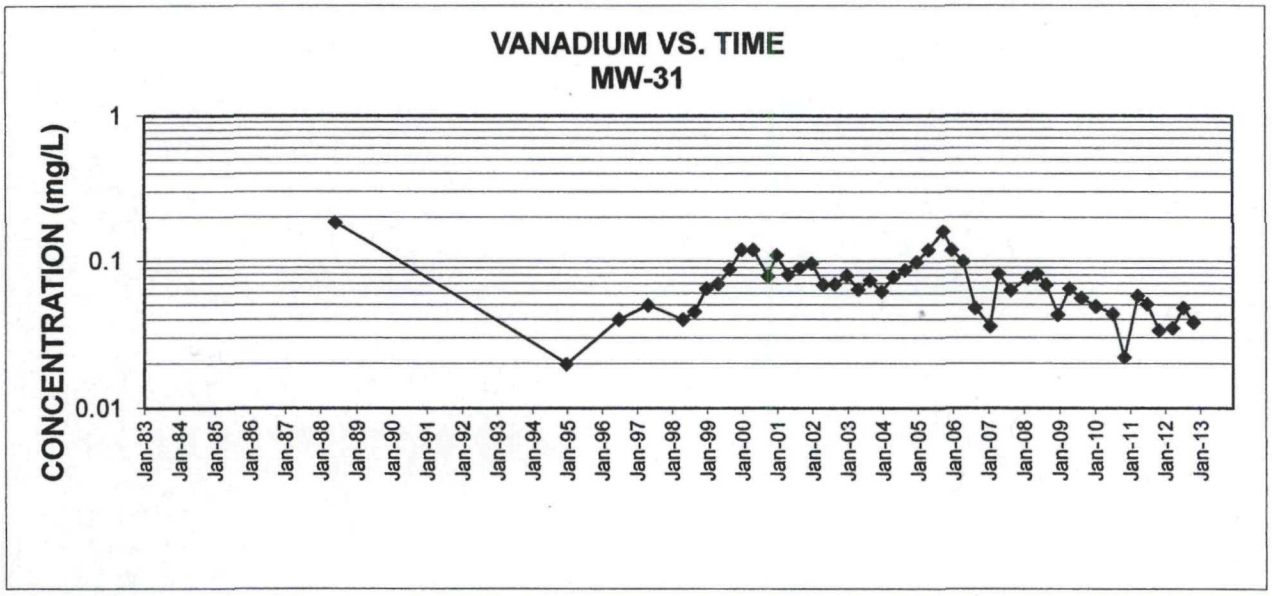
Jan-12
Jan-13


VANADIUM VS. TIME
MW-31
CONCENTRATION (mg/L)
1
0.1
0.01
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
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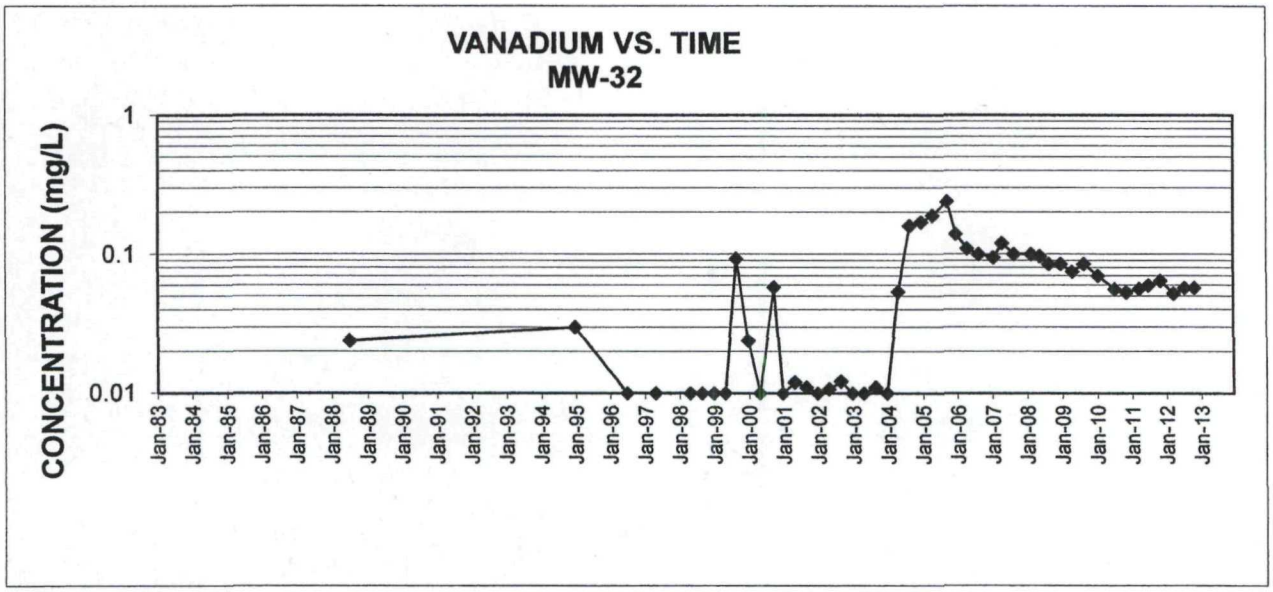
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13


VANADIUM VS. TIME
MW-32
CONCENTRATION (mg/L)
1
0.1
0.01
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
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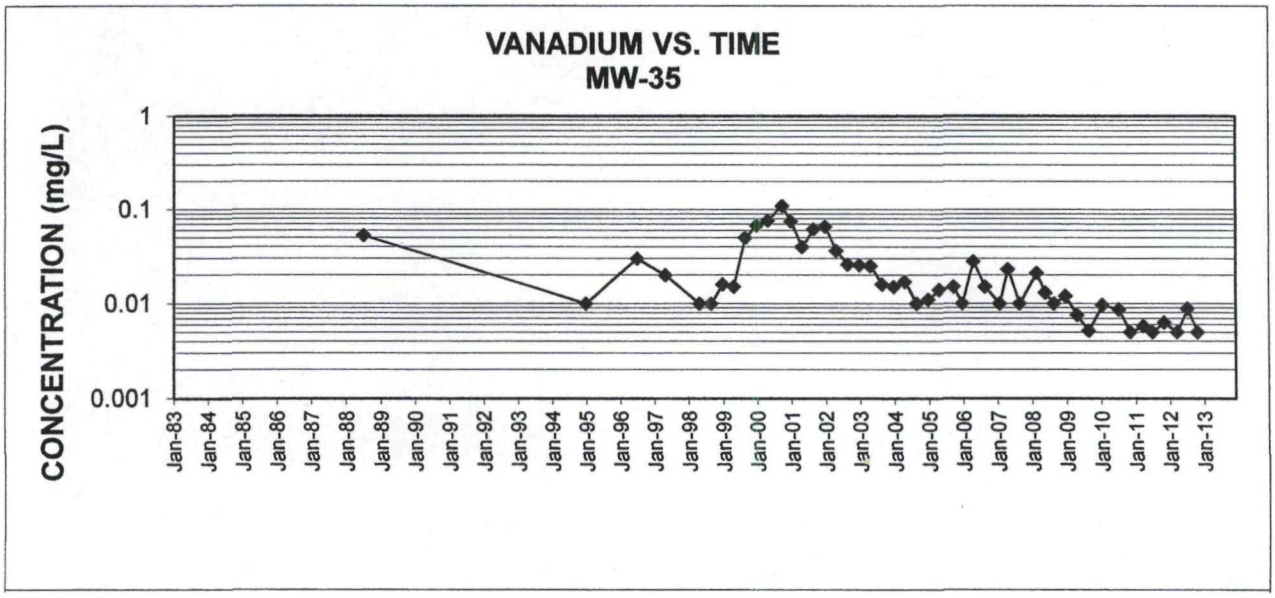
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13


VANADIUM VS. TIME
MW-35
CONCENTRATION (mg/L)
1
0.1
0.01
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
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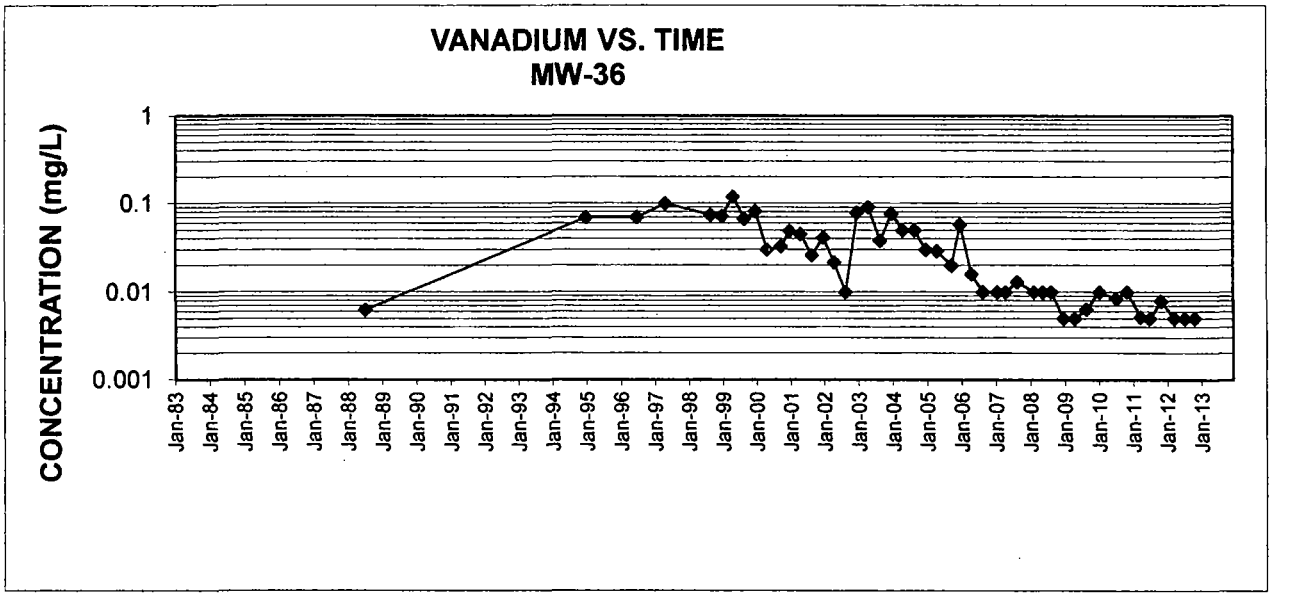
Jan-11
Jan-12
Jan-13


VANADIUM VS. TIME
MW-36
CONCENTRATION (mg/L)
1
0.1
0.01
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
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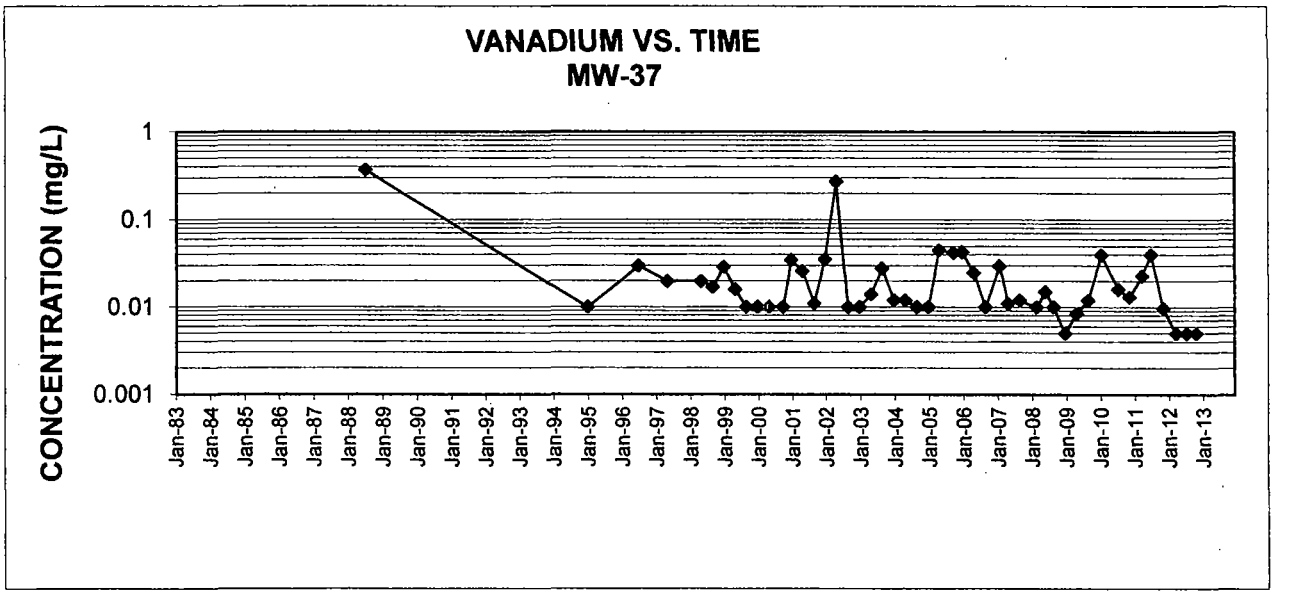
Jan-12
Jan-13


VANADIUM VS. TIME
MW-37
CONCENTRATION (mg/L)
1
0.1
0.01
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
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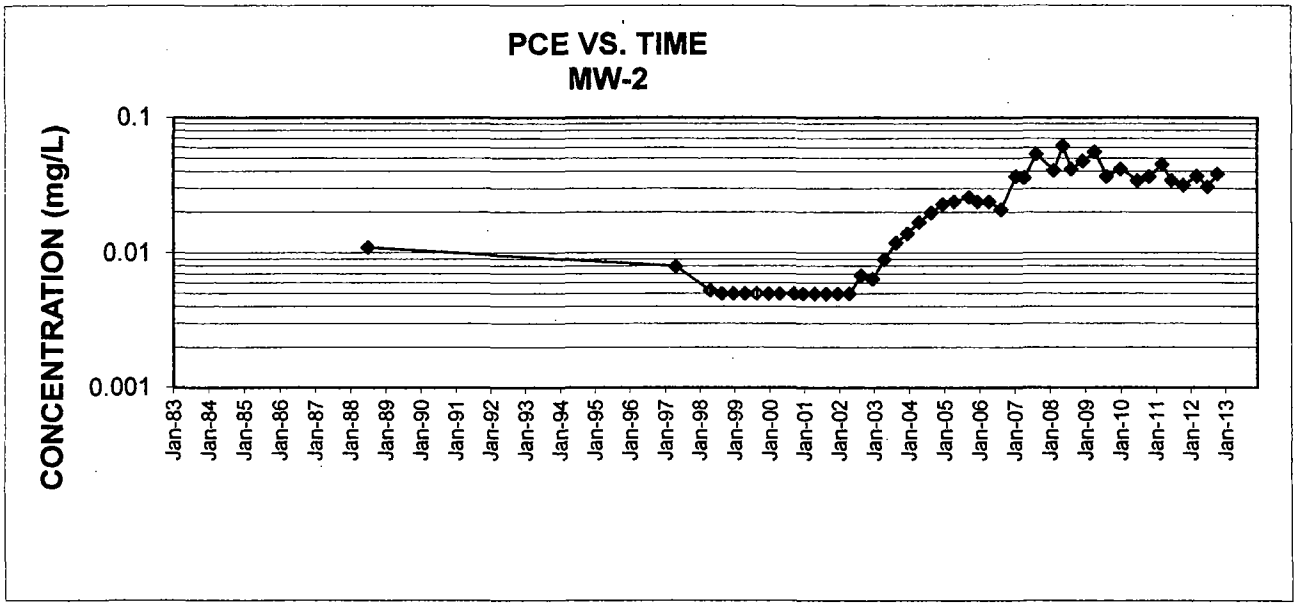
Jan-10
Jan-11
Jan-12
Jan-13

APPENDIX D-8

TETRACHLOROETHENE


PCE VS. TIME
MW-2
CONCENTRATION (mg/L)
0.1
0.01
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
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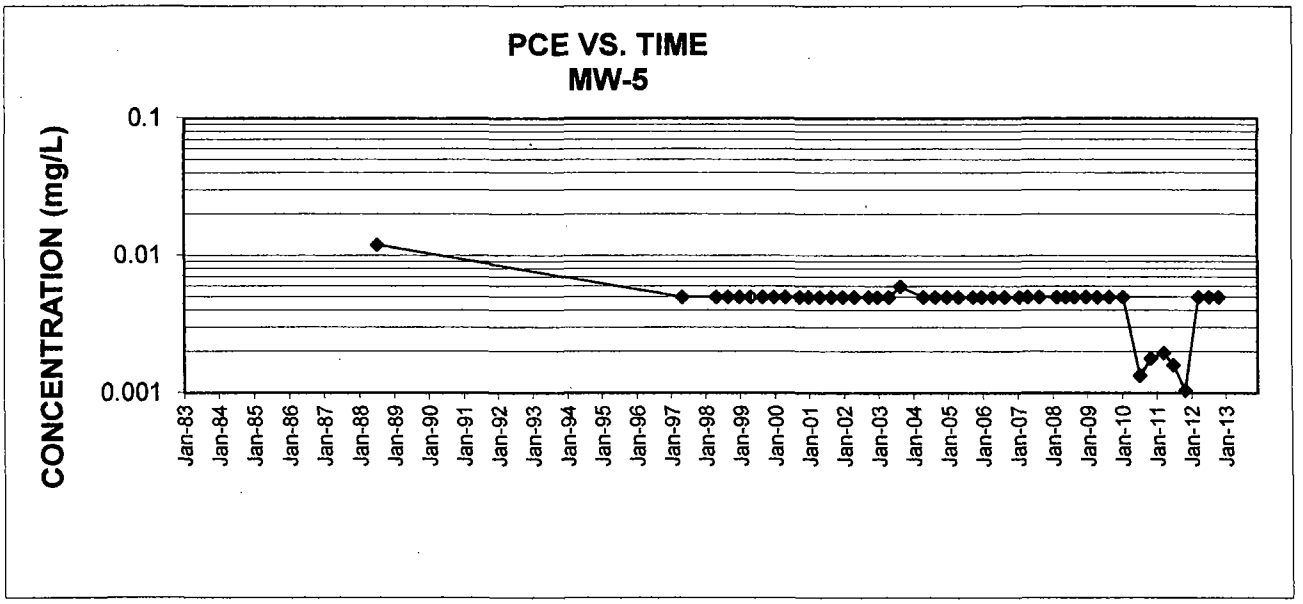
Jan-10
Jan-11
Jan-12
Jan-13


PCE VS. TIME
MW-5
CONCENTRATION (mg/L)
0.1
0.01
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
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Jan-00
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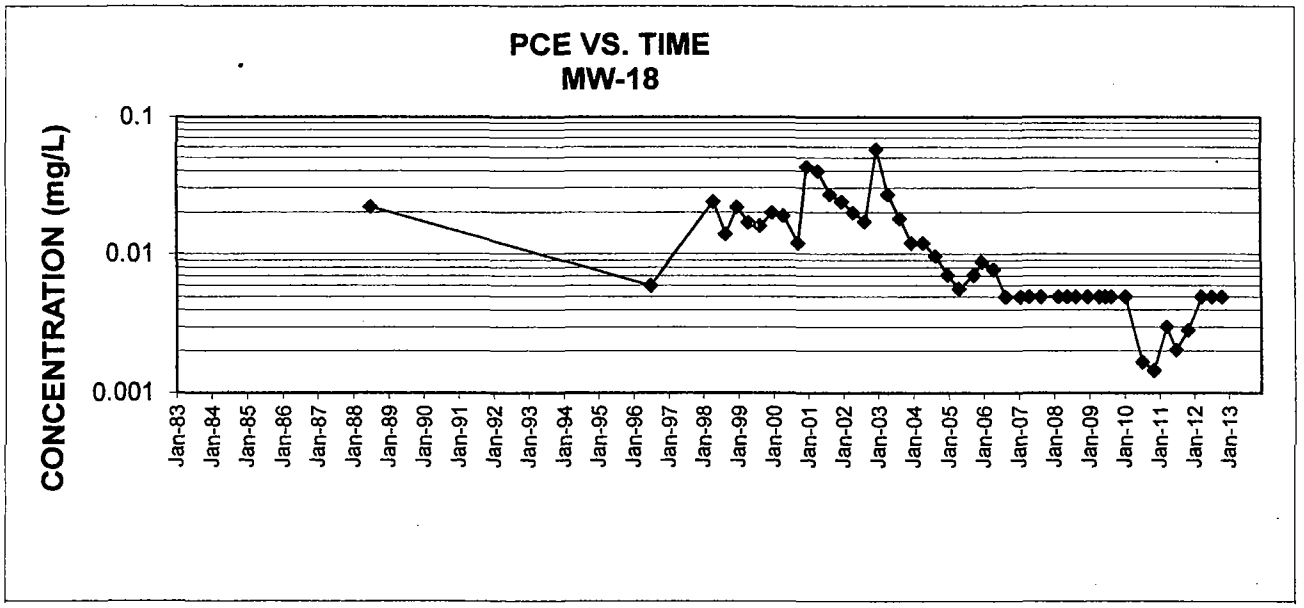
Jan-13


PCE VS. TIME
MW-18
CONCENTRATION (mg/L)
0.1
0.01
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
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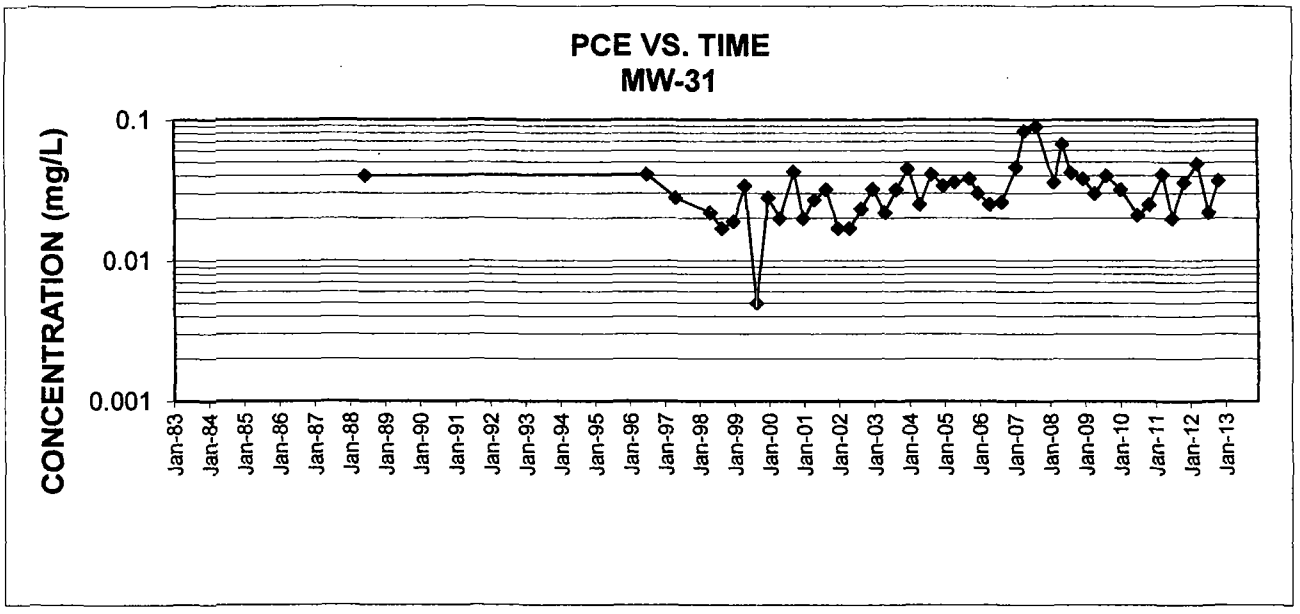
Jan-12
Jan-13


PCE VS. TIME
MW-31
CONCENTRATION (mg/L)
0.1
0.01
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
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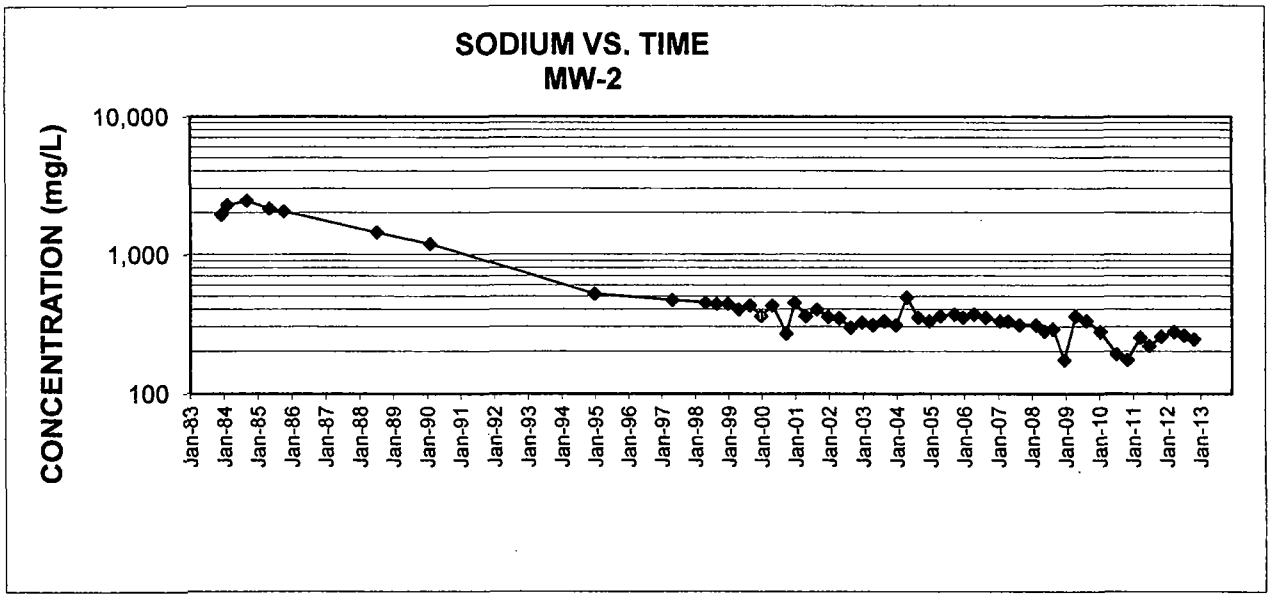
Jan-11
Jan-12
Jan-13

APPENDIX D-9

SODIUM


SODIUM VS. TIME
MW-2
CONCENTRATION (mg/L)
10,000
1,000
100
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
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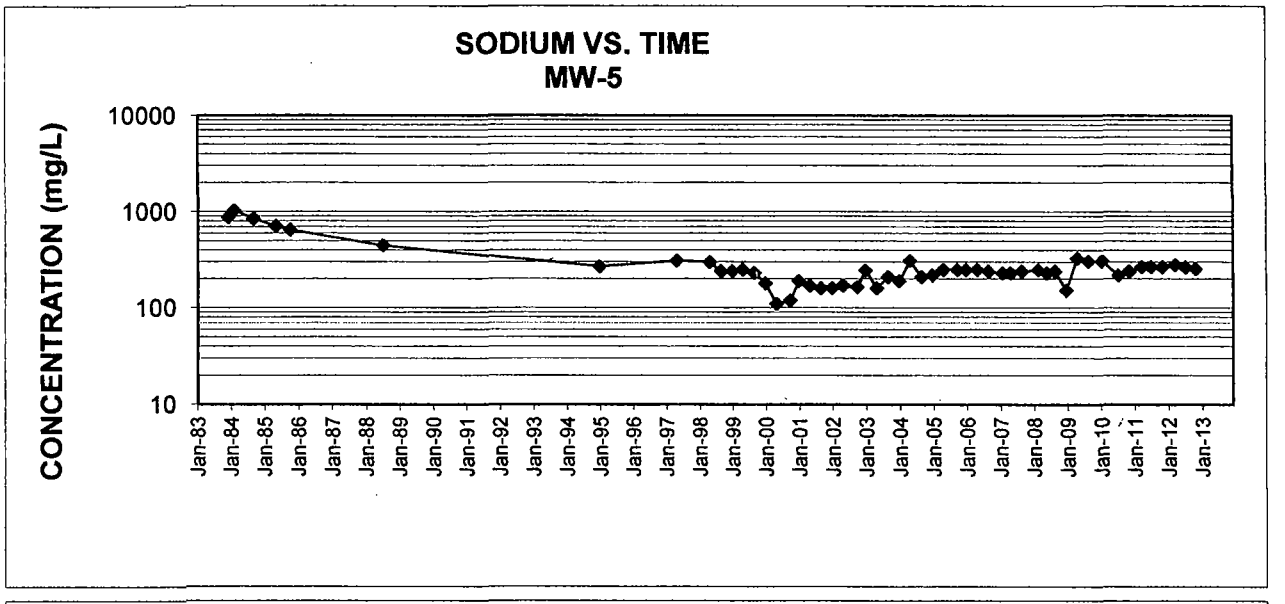
Jan-10
Jan-11
Jan-12
Jan-13


SODIUM VS. TIME
MW-5
CONCENTRATION (mg/L)
10000
1000
100
10
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
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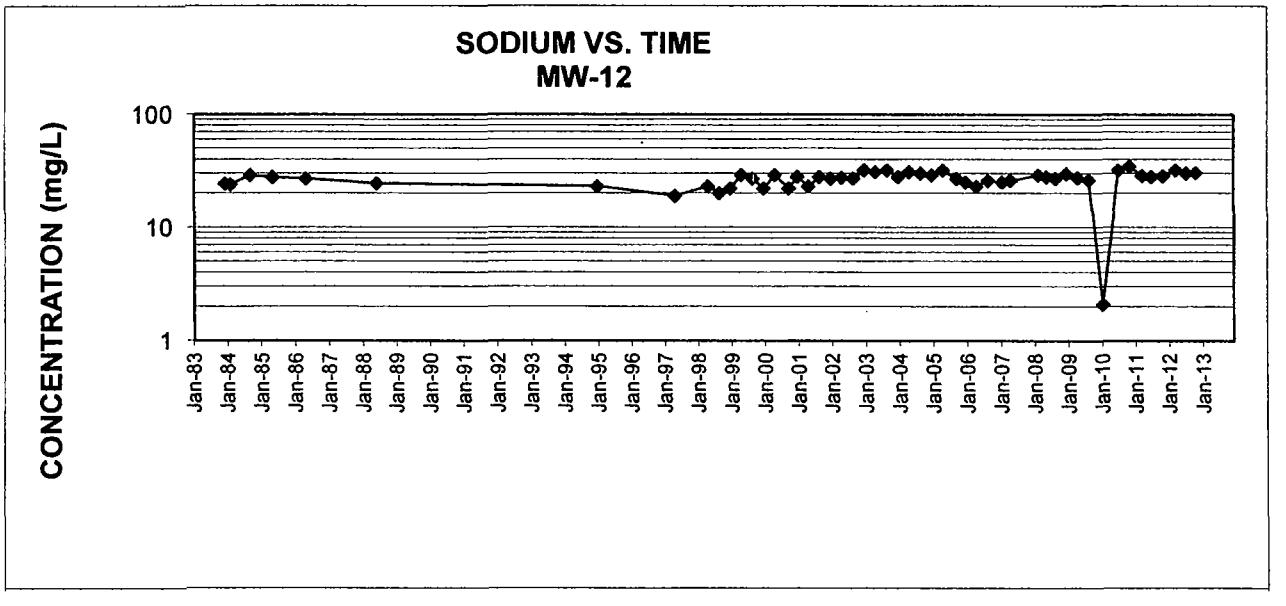
Jan-11
Jan-12
Jan-13


SODIUM VS. TIME
MW-12
CONCENTRATION (mg/L)
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
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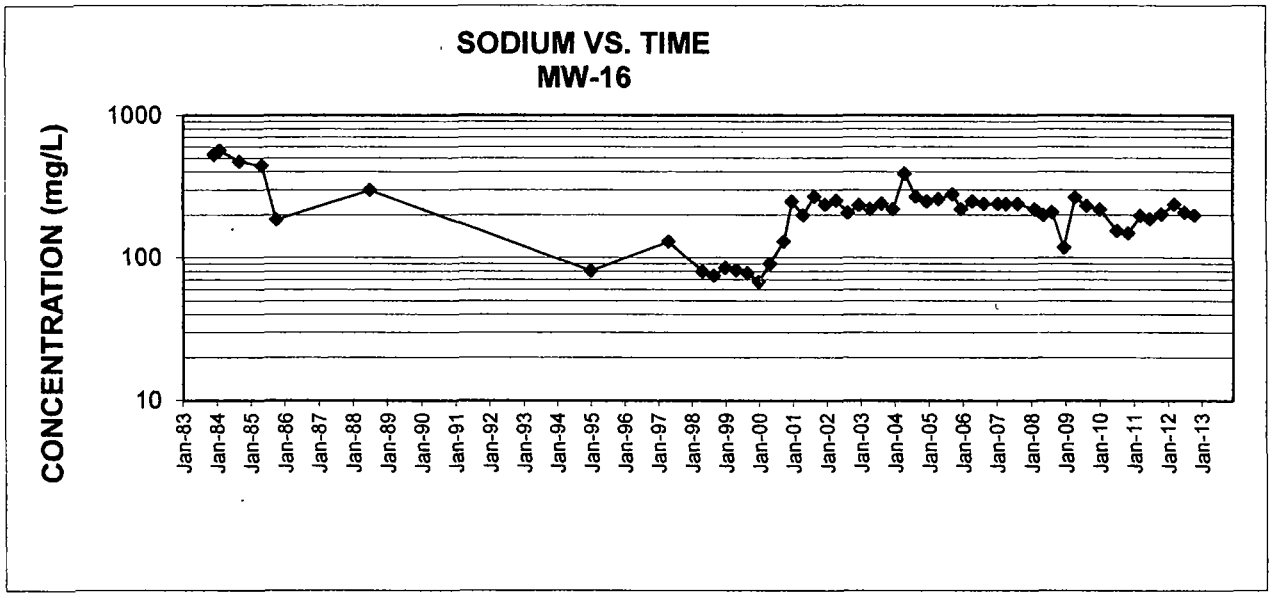
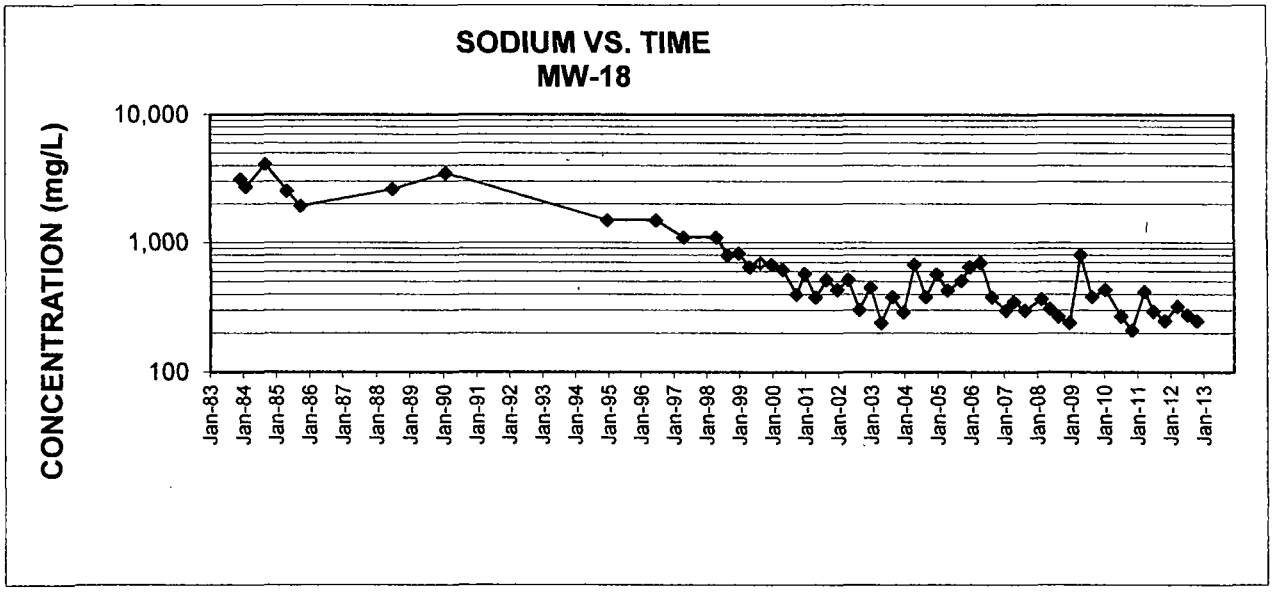
Jan-12
Jan-13


SODIUM VS. TIME
MW-16
CONCENTRATION (mg/L)
1000
100
10
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
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13


SODIUM VS. TIME
MW-18
CONCENTRATION (mg/L)
10,000
1,000
100
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
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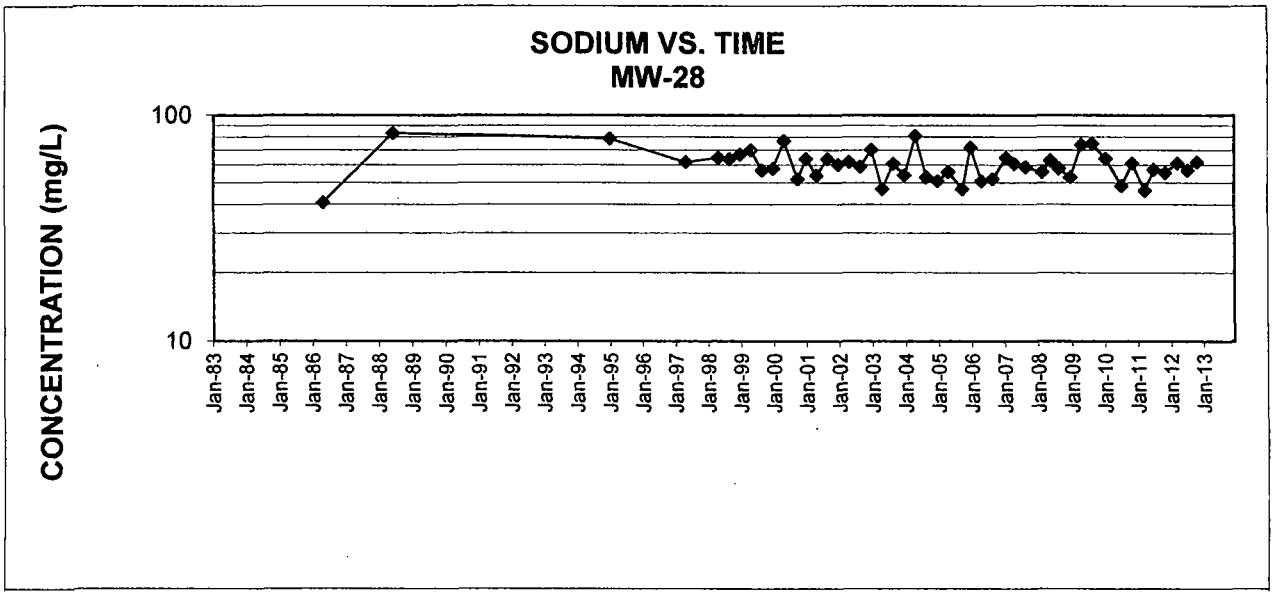
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13


SODIUM VS. TIME
MW-28
CONCENTRATION (mg/L)
100
10
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
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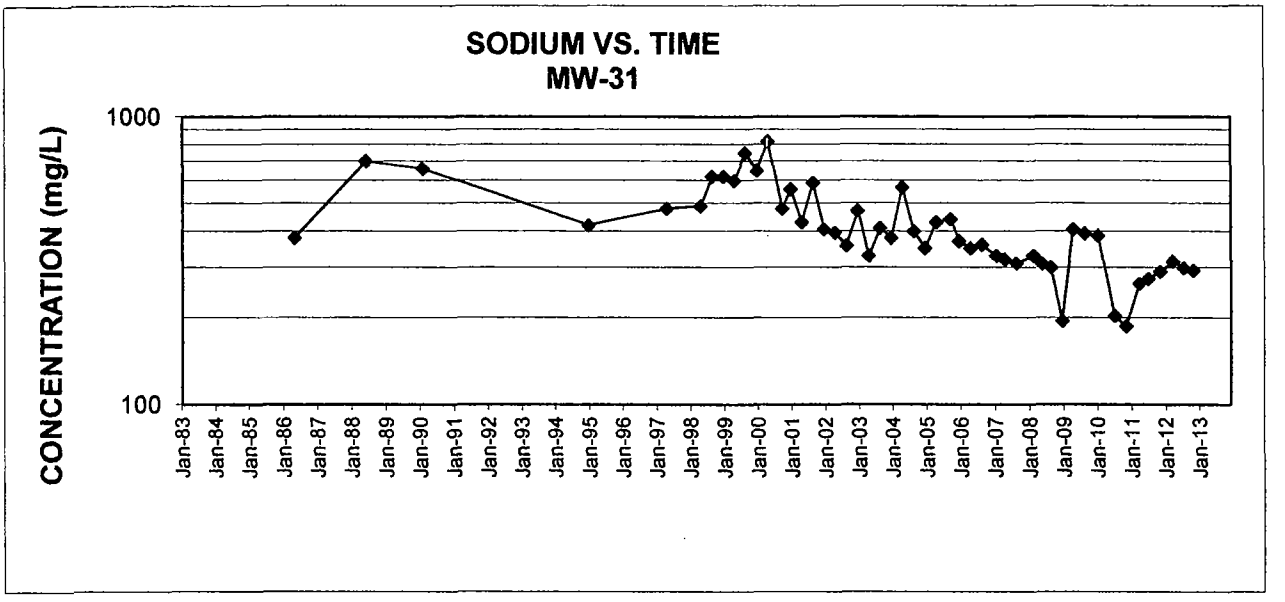
Jan-10
Jan-11
Jan-12
Jan-13


SODIUM VS. TIME
MW-31
CONCENTRATION (mg/L)
1000
100
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
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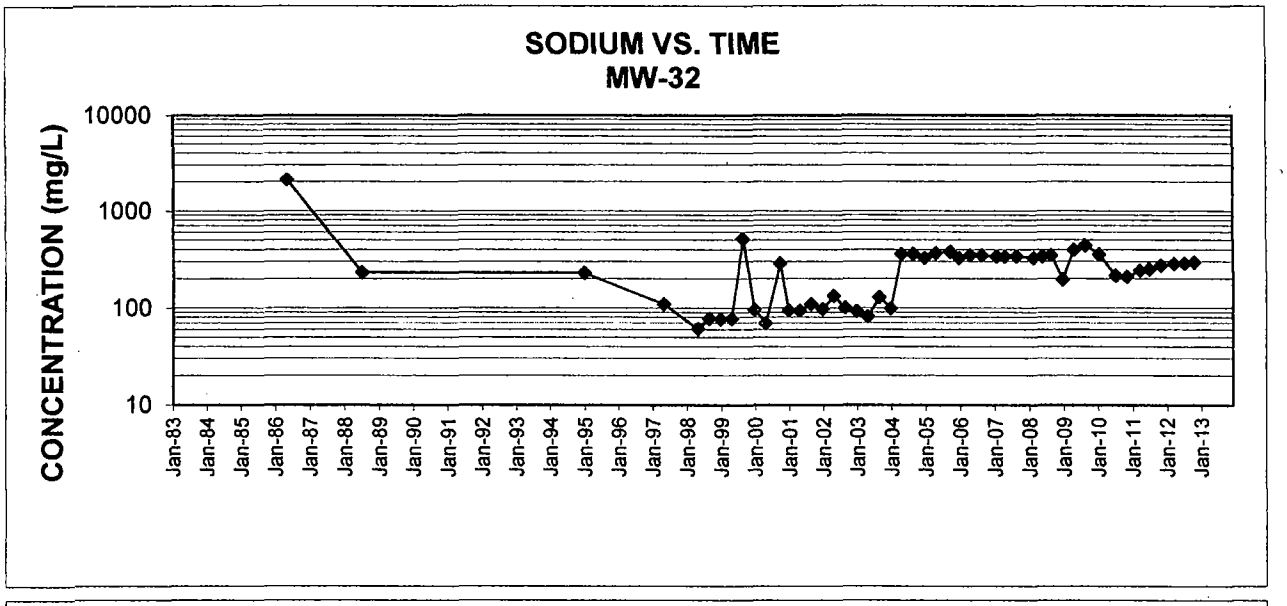
Jan-10
Jan-11
Jan-12
Jan-13


SODIUM VS. TIME
MW-32
CONCENTRATION (mg/L)
10000
1000
100
10
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
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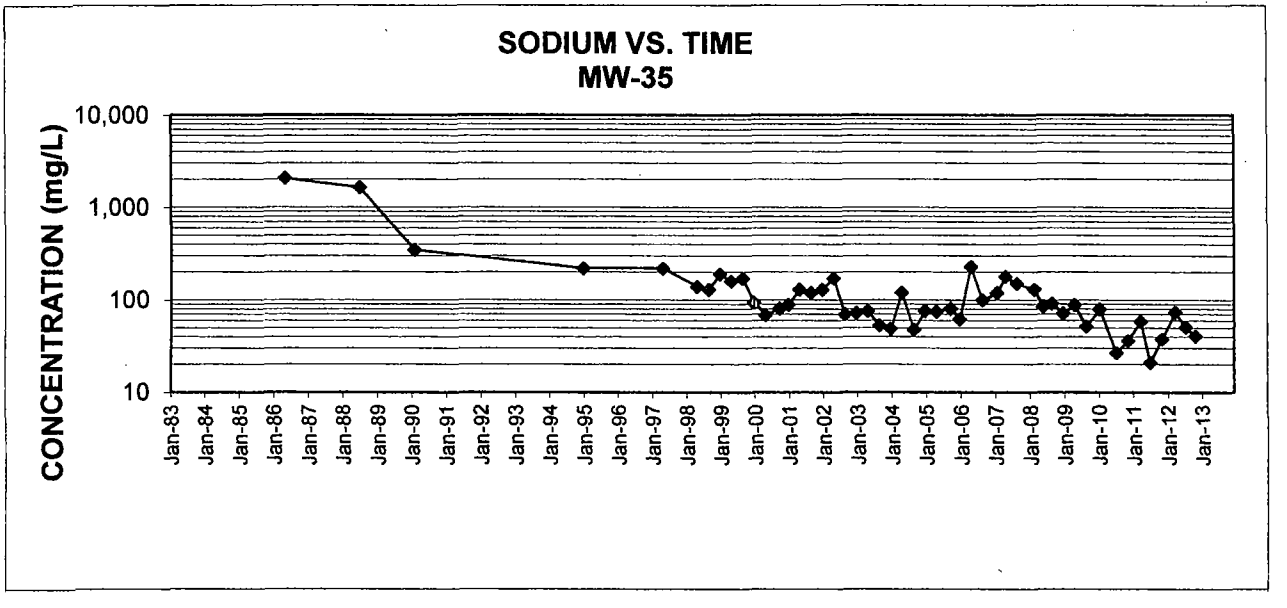
Jan-10
Jan-11
Jan-12
Jan-13


SODIUM VS. TIME
MW-35
CONCENTRATION (mg/L)
10,000
1,000
100
10
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
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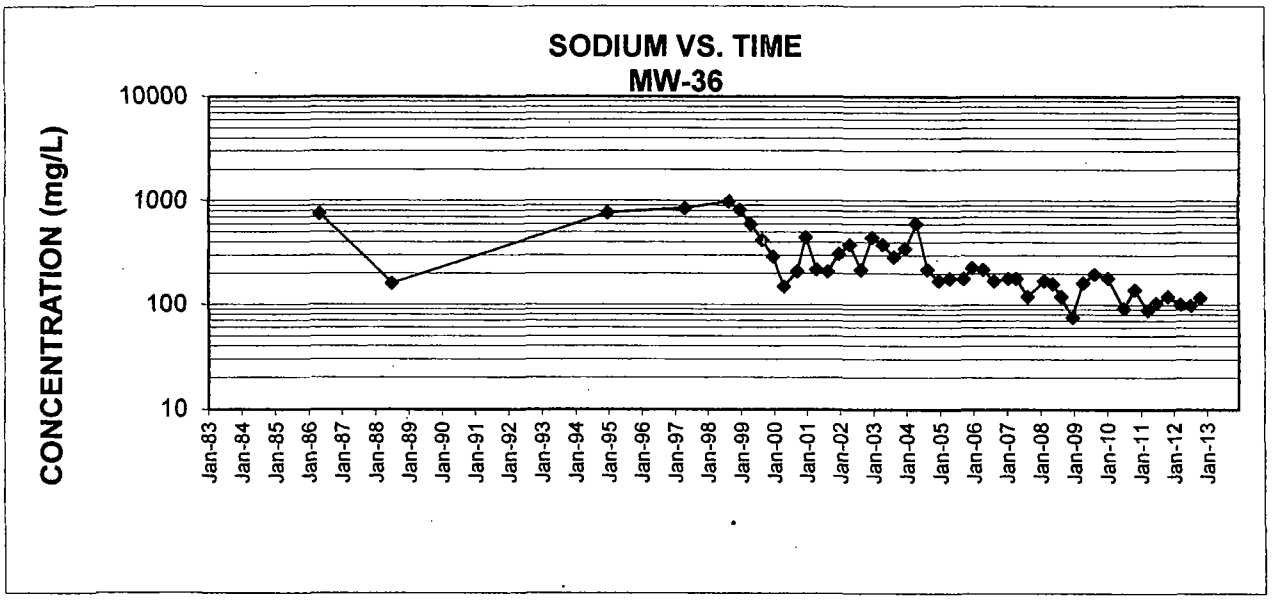
Jan-10
Jan-11
Jan-12
Jan-13


SODIUM VS. TIME
MW-36
CONCENTRATION (mg/L)
10000
1000
100
10
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
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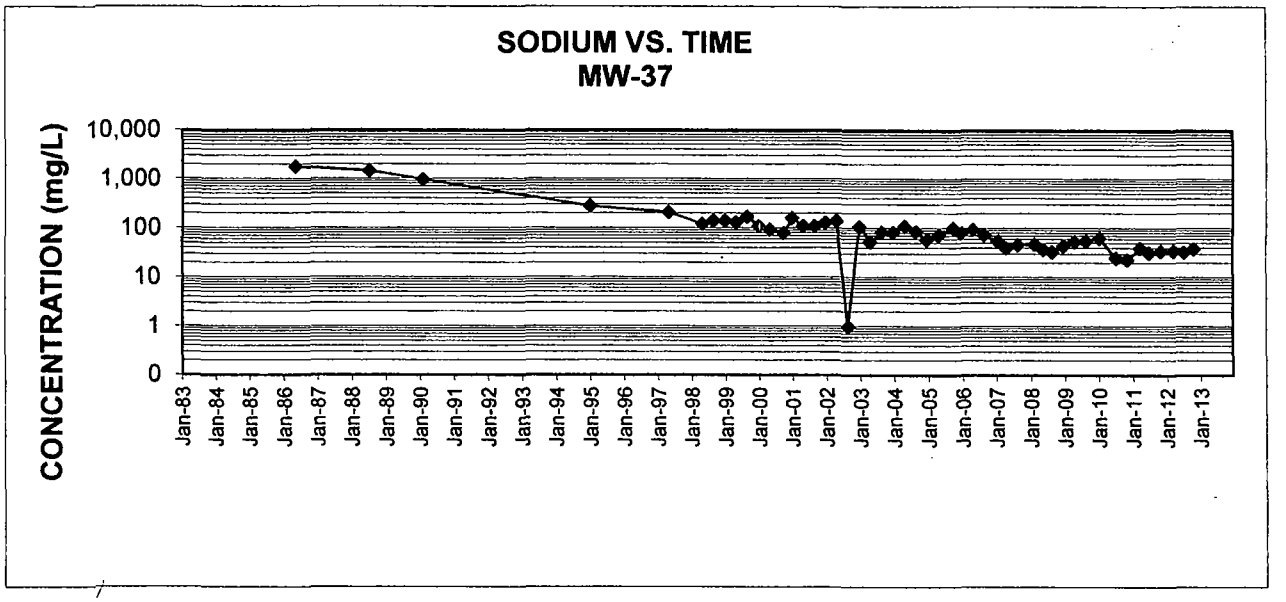
Jan-10
Jan-11
Jan-12
Jan-13


SODIUM VS. TIME
MW-37
CONCENTRATION (mg/L)
10,000
1,000
100
10
1
0
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
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Jan-07
Jan-08
Jan-09
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Jan-11
Jan-12
Jan-13

APPENDIX E

CONTAMINANT MASS-IN-PLACE ESTIMATION AND SUPPORTING DATA BASED ON JULY 2012 MONITORING EVENT

Hydrosystems Management, Inc.

APPENDIX E
ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES
COLLECTED JULY 2012

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	0.007	7.5	4.8	0.006	0.64/0.72	0.009	NS	0.006	0.021	4.2	4.2	2.4/2.1
Fluoride	0.160	32.8	27.4	0.180	6.5/6.9	0.230	NS	0.740	3.20	19.7	33.0	10.9/11.2

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	10.6	<0.005	<0.005	2.9	0.32	3.2/4.7	5.6	6.0	4.2	9.3	2.2	0.66
Fluoride	104	0.840	0.340	33.8	4.0	6.8/12.3	55	48.6	23.5	19.1	4.6	15.6

SAMPLE I.D.:	MW-37	MW-39S	MW-39D	MW-40S	MW-40D	MW-42S	MW-42D
Cyanide, Total	<0.005	5.1	3.5	6.2	7.9/6.5	3.1	0.84
Fluoride	2.3	173	17.2	38	28.0/28.6	48.2	34.0

NOTE: All results in mg/L.

5.9/6.2 - Primary sample and duplicate sample.

APPENDIX E (CONT.)
PLUME CONTOUR AREA CALCULATIONS
FOR TOTAL CYANIDE AND FLUORIDE
BASED ON RESULTS OF SAMPLING CONDUCTED JULY 2012

ORMET CORPORATION
HANNIBAL, OHIO

TOTAL CYANIDE	CONTOUR INTERVAL (from Figure 4)	CONTOUR AREA in sqare feet (estimated using CAD* software)
	0.2 - 1 mg/L	364,540
	1 - 5 mg/L	731,905
	5-10 mg/L	831,888
	10 mg/L	156,929

TOTAL FLUORIDE	CONTOUR INTERVAL (from Figure 3)	CONTOUR AREA in sqare feet (estimated using CAD* software)
	4 - 10 mg/L	316,625
	10 - 15 mg/L	278,540
	15 - 25 mg/L	406,134
	25 - 50 mg/L	753,572
	50-100 mg/L	257,963
	100 mg/L	8,779

* CAD - Computer Aided Drafting

APPENDIX E (CONT.)
AVERAGE AQUIFER THICKNESS CALCULATIONS
WITHIN EACH PLUME CONTOUR INTERVAL
BASED ON RESULTS OF SAMPLING CONDUCTED JULY 2012

ORMET CORPORATION
HANNIBAL, OHIO

TOTAL CYANIDE

CONTOUR INTERVAL (from Figure 4)	MONITORING WELL ID	REPORTED CONCENTRATION (mg/L)	AQUIFER THICKNESS (in feet)	AVERAGE AQUIFER THICKNESS (b, in feet)
0.2 - 1 mg/L	MW-8	0.72	49.20	34.27
	MW-36	0.66	19.33	
1 - 5 mg/L	MW-5	4.8	42.64	37.31
	MW-15	4.2	24.73	
	MW-16	4.2	42.89	
	MW-17	2.4	46.68	
	MW-29S&D	1.6*	51.23	
	MW-30	4.7	16.41	
	MW-35	2.2	11.85	
	MW-39S&D	4.3*	46.24	
	MW-42S&D	1.97*	53.11	
5 - 10 mg/L	MW-2	7.5	38.20	35.14
	MW-31	5.6	28.88	
	MW-32	6	24.05	
	MW-34S&D	6.8*	37.35	
	MW-40S&D	7.1*	47.20	
10 mg/L	MW-18	10.6	20.15	22.10
	[MW-32]	NA	24.05	

NOTE: In preparing the above-referenced isopleth map (i.e., Figure 4), the higher of the values reported for a primary and a duplicate sample, and the average of values for the shallow well and the deep well of a well cluster were used to draw contour lines.

* - Denotes average of the values for the shallow well and the deep well of a well cluster.

[ ] - Denotes use of a surrogate well for determination of a representative aquifer thickness.

NA - Not applicable.

APPENDIX E (CONT.)
AVERAGE AQUIFER THICKNESS CALCULATIONS
WITHIN EACH PLUME CONTOUR INTERVAL
BASED ON RESULTS OF SAMPLING CONDUCTED JULY 2012

ORMET CORPORATION
HANNIBAL, OHIO

FLUORIDE

CONTOUR INTERVAL (from Figure 3)	MONITORING WELL ID	REPORTED CONCENTRATION (mg/L)	AQUIFER THICKNESS (in feet)	AVERAGE AQUIFER THICKNESS (b, in feet)
4 - 10 mg/L	MW-8 MW-35	6.9 4.6	49.20 11.85	30.53
10 - 15 mg/L	[MW-5] MW-17 MW-30 [MW-36]	NA 11.20 12.30 NA	42.64 46.68 16.41 19.33	31.27
15 - 25 mg/L	[MW-5] MW-15 MW-29S&D MW-34S&D MW-36	NA 19.7 18.9* 21.3* 5.6	42.64 24.73 51.23 37.35 19.33	35.06
25 - 50 mg/L	MW-2 MW-5 MW-16 MW-32 MW-40S&D MW-42S&D	32.8 27.4 33.0 48.6 33.3* 41.1	38.20 42.64 42.89 24.05 47.20 53.11	41.35
50-100 mg/L	[MW-18] MW-31 MW-39S&D	NA 55.0 95.1	20.15 28.88 46.24	31.76
100 mg/L	MW-18	104	20.15	20.15

NOTE: In preparing the above-referenced isopleth map (i.e., Figure 3), the higher of the values reported for a primary and a duplicate sample, and the average of values for the shallow well and the deep well of a well cluster were used to draw contour lines.

* - Denotes average of the values for the shallow well and the deep well of a well cluster.

[ ] - Denotes use of a surrogate well for determination of a representative aquifer thickness.

NA - Not applicable.

APPENDIX E (CONT.)
TOTAL CYANIDE AND FLUORIDE MASS-IN-PLACE
CALCULATION WORKSHEET
BASED ON RESULTS OF SAMPLING CONDUCTED JULY 2012

ORMET CORPORATION
HANNIBAL, OHIO

	Contour Interval	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
	(from Figure 4)									
TOTAL CYANIDE	0.2 - 1 mg/L	364,540	34.27	12,492,786	0.25	3,123,196	88,448,923	0.6	53,069,354	117
	1 - 5 mg/L	731,905	37.31	27,307,376	0.25	6,826,844	193,336,219	3.0	580,008,657	1,279
	5 - 10 mg/L	831,888	35.14	29,232,544	0.25	7,308,136	206,966,414	7.5	1,552,248,103	3,423
	10 mg/L	156,929	22.10	3,468,131	0.25	867,033	24,554,367	10.6	260,276,288	574
									Total Cyanide Mw:	5,393
	(From Figure 3)									
FLUORIDE	4 - 10 mg/L	316,625	30.53	9,666,561	0.25	2,416,640	68,439,254	7.0	479,074,776	1,056
	10 - 15 mg/L	278,540	31.27	8,709,946	0.25	2,177,486	61,666,416	12.5	770,830,203	1,700
	15 - 25 mg/L	406,134	35.06	14,239,058	0.25	3,559,765	100,812,531	20.0	2,016,250,618	4,446
	25 - 50 mg/L	753,572	41.35	31,160,202	0.25	7,790,051	220,614,232	37.5	8,273,033,684	18,242
	50 - 100 mg/L	257,963	31.76	8,192,905	0.25	2,048,226	58,005,767	75.0	4,350,432,491	9,593
	100 mg/L	8,779	20.15	176,897	0.25	44,224	1,252,430	104.0	130,252,689	287
									Total Fluoride Mw:	35,324

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