2016 Annual Monitoring Report

Former Crucible Specialty Metals Landfill Site
Town of Geddes, Onondaga County, New York

EnPro Industries

GHD | One Remington Park Drive Cazenovia New York 13035

8618809| 160 | January 17, 2017, Revised: March 13, 2017

Certification Statement

I, Damian J. Vanetti, certify that I am currently a New York State registered professional engineer and that this Annual Monitoring Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10), and that all activities were performed in full accordance with the DER-approved Post-Closure Work Plan Update (S&ME Northeast, P.C., October 2011) and any DER-approved modifications.

Damian J. Vanetti
N.Y.S. Registration No. 068011

March 13, 2017
Date

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1. Introduction

This report summarizes laboratory analytical results and field observations of annual groundwater monitoring activities completed in October 2016 at the Former Crucible Specialty Metals Landfill Site (referred to as the 'Site,' Figure 1). The Site, which consists of an approximately 20-acre closed landfill, is located north of Interstate 690 and south of Onondaga Lake in the Town of Geddes, Onondaga County, New York, and is part of an approximately 252-acre parcel owned by Onondaga County (Figures 1 and 2). A Site Layout Map is included as Figure 3.

Post-closure monitoring activities are outlined in the New York State Department of Environmental Conservation (NYSDEC) approved Post-Closure Work Plan Update (S&ME Northeast, P.C., October 2011), and include annual groundwater monitoring, annual landfill integrity observations, triennial inclinometer measurements, and a triennial settlement plate survey. GHD Consulting Services Inc. (GHD) personnel conducted annual groundwater monitoring and landfill observation on October 26 and 27, 2016. Laboratory analytical services were provided by Alpha Analytical of Westborough, Massachusetts. The last round of inclinometer measurements and the last settlement plate survey were both completed in 2014, and the next scheduled event for these activities will be in October 2017, in accordance with the approved post-closure monitoring plan.

1.1 Background

EnPro is responsible for the Operations, Maintenance, and Monitoring (OM&M) of the Former Crucible Specialty Metals Landfill Site located in the Town of Geddes, Onondaga County, New York, which is a closed landfill formerly operated by Crucible Specialty Metals. According to historic documents, the landfill began receiving waste, generally consisting of hazardous and non-hazardous solid waste from the Crucible steel mill, in 1973. Disposal of hazardous waste, which reportedly consisted of caustic solids, acid pickling sludge, and electric arc furnace and argon-oxygen decarburization dusts, reportedly ceased in March 1982. Disposal of non-hazardous waste, which reportedly consisted of slag, construction and refractory debris, absorbents, miscellaneous boiler house ashes, coolant swarves, mill scale, and wastewater treatment plant dewatered sludge, reportedly ceased in 1986 when landfill closure began. Landfill closure was reportedly completed in 1989.

Previous reports indicated that Crucible Specialty Metals utilized a landfill site located on top of the abandoned Solvay Process Waste Beds, which are generally composed of waste material from the production of soda ash. The top terrace of the waste beds, where the landfill is located, is reportedly approximately 60 feet higher in elevation than Onondaga Lake. The surrounding lands are primarily occupied by Interstate 690 to the south and west; the New York State Fair Grounds overflow parking lots to the south; the Onondaga County Lakeview Amphitheater, which was constructed in 2015, adjoining the Site to the north; and Onondaga Lake to the north and east. There are no residences within 1,000 feet of the closed landfill.

The Onondaga County Lakeview Amphitheater construction during 2015 included the modification of several monitoring points in accordance with the *Monitoring Well Work Plan, Lakeview Amphitheater Project* (Gilbane Building Company, July 10, 2015), with NYSDEC approval. The

modifications were completed by others under contract with Onondaga County and included lowering eight (8) monitoring points (steel well casings and PVC risers) to surface elevations established during construction (MS-301.1, MS-301.2, MS-301.3, MS-301.4, MS-301.5, PZ-8.1, PZ-8.2, and W-201R); raising two (2) monitoring points (steel well casings and PVC risers) to accommodate areas that were filled (W-10.1 and W-10.2); replacing the steel well casing, PVC riser, and concrete pad at one (1) monitoring point that was damaged during work activities (MS-104.2); lowering the steel casing and PVC riser of one (1) inclinometer (INC-4); lowering the steel bar riser of one (1) settlement plate (PL-4); and decommissioning one (1) groundwater monitoring well (CM-108). Following final modifications, a survey of the final ground elevations and PVC riser elevations was completed by others and provided to GHD. The reference point elevations in the groundwater elevation tables were subsequently updated to reflect the modifications.

1.2 Purpose

The objectives of the current post-closure landfill monitoring program are to document water quality and contaminant concentrations following landfill closure, document landfill integrity, and document landfill settlement. Groundwater monitoring is conducted annually with groundwater elevations recorded at thirty-two (32) groundwater monitoring wells and piezometers (Table 1) and groundwater samples taken from sixteen (16) groundwater monitoring well locations (MS-104.3; MS-104.4; MS-104.5; MS-106.1; MS-106.2; MS-106.3; MS-106.4; MS-106.5; MS-301.1; MS-301.2; MS-301.3; MS-301.4; MS-301.5; W-105R; W-201R; and W-5.6 on Figure 3).

Monitoring of post-closure landfill subsidence and horizontal movement is conducted triennially by recording measurements at thirty-seven (37) settlement plates and four (4) inclinometers (Figure 3), respectively. Measurements taken during each round of monitoring are compared to historical data.

The purpose of this report is to present the sample results, findings, conclusions, and recommendations associated with the 2016 monitoring activities.

1.3 Post-Closure Monitoring Schedule

The post-closure monitoring schedule, required analysis, and required reporting are as follows:

Monitoring/Reporting Requirement	Schedule/Required Analysis
Groundwater Monitoring and Observations	Annually in the Fall Depth to Groundwater Measurements and Groundwater Elevation Calculations from 32 Groundwater Monitoring Wells and Piezometers (Table 1) Groundwater samples from 16 groundwater monitoring wells (MS-104.3; MS-104.4; MS-104.5; MS-106.1; MS-106.2; MS-106.3; MS-106.4; MS-106.5; MS-301.1; MS-301.2; MS-301.3; MS-301.4; MS-301.5; W-105R; W-201R; and W-5.6) for Phenols, Total Chromium, Total Iron, Specific Conductivity, and pH analysis Completion of Groundwater Monitoring Well and Piezometer Observation Form (Appendix A) Completion of Groundwater Field Sampling Logs (Appendix A)
Landfill Integrity Observations	Annually in the Fall Completion of Post-Closure Observation Form (Appendix A)
Landfill Mowing	Annually in the Fall Prior to Landfill Monitoring and Observations
Inclinometer Measurements	Every 3 Years (last event occurred in October 2014) Measurements taken at four (4) inclinometers (INC-1: INC-2; INC-3, and INC-4 on Figure 3)
Settlement Plate Survey	Every 3 Years (last event occurred in October 2014) Measurements taken at 37 settlement plates (P-12 through P-24 and P-26 through P-49 on Figure 3)
Monitoring and Observation Report	Annually Due by March 1 of the year following monitoring/observations

2. Landfill Observations

GHD contracted with Lorne Rudy Tractor Services of Bridgeport, New York, to mow the landfill prior to annual monitoring activities in order to allow access to the groundwater monitoring wells and piezometers and clear observation of the integrity of the landfill. An all-wheel drive tractor with a brush hog was used to clear the majority of the vegetation on the landfill area, with trimming performed in the vicinity of each groundwater monitoring well and piezometer. In addition, hand clearing of woody growth was performed near the eastern corner and along the southwestern edge of the landfill. In addition, the large fallen tree that was previously observed on the southwestern portion of the landfill, near inclinometer 1, was removed as part of the 2016 annual mowing activities.

On October 26, 2015, GHD personnel walked the landfill and completed a Post-Closure Observation Form (Appendix A), which included non-intrusive observations of:

- Erosion damage;
- Subsidence;
- Visual condition of vegetative cover;
- Functionality of run-off control systems;
- Monitoring well and piezometer condition; and
- Visual condition of the landfill cover.

The visual inspections did not identify any issues that required immediate attention or maintenance.

During the 2015 annual monitoring event, it was determined that several of the groundwater monitoring wells that were modified by others during construction activities related to the Onondaga County Lakeview Amphitheater required additional modifications in order to be functional for their intended purposes. These repairs, as well as a survey of the final elevations of the ground and PVC risers, were completed by others after the date of the 2015 field sampling activities, and the monitoring points were determined to be functional at the time of 2016 annual monitoring activities.

Representative photographs taken during landfill observations are included in Appendix B.

3. Water Levels and Groundwater Quality

3.1 Water Levels

Prior to conducting annual groundwater monitoring activities, depth to water and depth of well measurements were recorded using an electronic water level indicator at thirty-two (32) identified locations. Note that groundwater monitoring well CM-108 was decommissioned during construction of the Onondaga County Lakeview Amphitheater (as approved by the NYSDEC), and therefore is no longer included in the monitoring program. Each of the depth to water and total depth of well measurements were made in reference to the top of the polyvinyl chloride (PVC) casing. These readings were recorded on a field log (Appendix A) for use in calculating groundwater elevations at a later date. Water elevation data is summarized in Table 1, and time series plots showing the change in groundwater elevations over time at each monitoring location are included in Appendix C.

Groundwater elevation contours for the Site have historically been generated using groundwater monitoring wells MS-104.5, MS-106.5, MS-301.5, and W-5.5 since they are reportedly screened across the water table; however, during the October 2016 monitoring event, two (2) of these groundwater monitoring wells (MS-106.5 and W-5.5) were dry, which prevented creation of a groundwater elevation contour figure. It is assumed that groundwater flow direction remains similar to the radial flow away from the closed landfill that was identified in previous groundwater monitoring events. In addition, two (2) piezometers (PZ-2.2 and PZ-5.3) were dry during the October 2016 monitoring event.

3.2 Groundwater Sampling Methods

Annual groundwater quality monitoring is conducted at sixteen (16) existing groundwater monitoring wells (Figure 3), in accordance with the Updated Post-Closure Work Plan (S&ME Northeast, P.C., October 2011). During the October 2016 monitoring event, a total of thirteen (13) groundwater samples were taken for laboratory analysis from groundwater monitoring wells MS-104.3; MS-104.4; MS-104.5; MS-106.1; MS-106.2; MS-106.3; MS-301.1; MS-301.2; MS-301.3; MS-301.4; MS-301.5; W-201R, and W-5.6. In addition, for quality assurance/quality control (QA/QC) purposes a blind field duplicate sample, a matrix spike (MS) sample, a matrix spike duplicate (MSD) sample, two (2) rinse blank samples (one for each pump used), and two (2) trip blanks (one for each day of sampling) were taken and analyzed for the same analytical list as the groundwater samples. Groundwater monitoring wells MS-106.4 and MS-106.5 were dry, and groundwater monitoring well W-105R had an obstruction at approximately 35 feet below top of PVC casing that would not allow the pump to pass. As a result, groundwater samples were not taken from these three (3) ground-water monitoring wells during the October 2016 monitoring event.

The obstruction in W-105R has been historically identified since 2011 and was further evaluated during the 2016 monitoring event to determine if the well should be abandoned or can be repaired. Due to the depth of the obstruction, it was difficult to determine its exact nature; however, the obstruction allows the electronic water level meter to pass freely, but will not allow the 1.8-inch diameter monsoon pump or a 1.6-inch diameter bailer to pass. Based on the observations made during the 2016 monitoring event, it appears that groundwater monitoring well W-105R would not be usable even with a smaller diameter pump.

After recording depth to groundwater and total depth of well measurements, each of the thirteen (13) sampled wells was purged using a Proactive Stainless Steel Monsoon Pump, which was equipped with a flow controller to regulate the flow rate. Dedicated poly tubing and twine were used at each well, and the pump was decontaminated between each well by washing in an Alconox and potable water solution and rinsing with potable water.

Field parameters (i.e., temperature, pH, specific conductivity, and turbidity) were recorded after every few minutes of purging using a Horiba U52-2 multi-parameter water quality meter. Once field parameters stabilized (Table 2), the water quality meter was disconnected and groundwater samples were taken for laboratory analysis. The groundwater samples were placed directly from the dedicated tubing into laboratory provided containers, packed in ice-filled coolers, and submitted to Alpha Analytical for analysis. Each sample was analyzed for total phenols by Environmental Protection Agency (EPA) Method 420.1 and total chromium and total iron by EPA Method 200.7 with preparation by EPA Method 3005A. Field observations of the purged water, which included a description of color, turbidity, sheen, and odor, were recorded in a field book and are included on the field sampling logs in Appendix A. Specific conductivity and pH results were obtained in the field using a Horiba U52-2 multi-parameter water quality meter. Laboratory analytical results are summarized and compared to Site-specific standards on the tables included in Appendix D. Groundwater field sampling logs are included in Appendix A, time series plots are included in Appendix D, and a copy of the laboratory analytical report is included in Appendix E.

Purge water was containerized in two (2) steel 55-gallon drums, which were labeled and staged on-Site for disposal at a later date. Disposal documentation will be provided under separate cover once received. Sampling debris (i.e., poly tubing, twine, personal protective equipment, etc.) was disposed of as municipal solid waste.

3.3 Upper and Lower Confidence Levels

During review of historic reports, it was identified that the groundwater monitoring well-specific upper and lower confidence limits (UCL and LCL) appeared to have been recalculated following each groundwater monitoring event. Based on discussions with the NYSDEC, it was determined that the well-specific UCL and LCL for each groundwater monitoring well should have been calculated based on pre-closure groundwater quality data and should not have changed over time. As a result, the NYSDEC requested that GHD recalculate the UCL and LCL for each groundwater monitoring well, using the most historic data available for each location.

GHD performed a confidence calculation using a normal distribution (at the 99-percent confidence interval) for each of the sixteen (16) groundwater monitoring wells currently monitored. The calculations were performed using pre-closure groundwater monitoring data, if available, or the four (4) most historic rounds of available groundwater quality data. As a result, the well-specific UCL and LCL values were calculated based on groundwater quality data from the following dates:

Groundwater Monitoring Well ID	Dates of Historic Groundwater Quality Data Used to Calculate UCL and LCL
MS-104.3	February, May, August, and November 1987; February, May, August, and November 1988; and February, May, and August 1989
MS-104.4	February, May, August, and November 1987; February, May, August, and November 1988; and February, May, and August 1989
MS-104.5	February, May, August, and November 1987; February, May, August, and November 1988; and February, May, and August 1989
MS-106.1	June and December 1990 and June and November 1991
MS-106.2	June and December 1990 and June and November 1991
MS-106.3	June and December 1990 and June and November 1991
MS-106.4	June and December 1990 and June and November 1991
MS-106.5	June and December 1990 and June and November 1991
MS-301.1	June and December 1990 and June and November 1991
MS-301.2	June and December 1990 and June and November 1991
MS-301.3	June and December 1990 and June and November 1991
MS-301.4	June and December 1990 and June and November 1991
MS-301.5	June and December 1990 and June and November 1991
W-105R	October 1999, June and October 2000, and June 2001
W-201R	June and November 1994 and May and October 1995
W-5.6	June and December 1990 and June and November 1991

A table of the well-specific UCL and LCL values is included as Table 3. The calculated UCL values were used to compare to the laboratory analytical results for each sample location. Laboratory data that falls above the UCL are noted as exceedances, even if the results do not exceed the NYSDEC Class GA Groundwater Standards or Guidance Values (also shown on the tables in Appendix D for

reference). The field parameter results (pH and specific conductivity) are compared to the UCL and LCL values for each sample location. Field parameter results that fall outside the UCL and LCL are noted as exceedances; however, exceedances of the LCL for pH indicate that groundwater quality is heading towards a more neutral pH, which indicates an improvement for the Site.

3.4 Groundwater Analytical Results

3.4.1 Field Parameter Results

During the 2016 monitoring event, a film was observed on the water at several sample locations. The NYSDEC representative present at the time of sampling, Mr. Tracy Smith, indicated that the film was potentially related to the Solvay Waste in the area. As a result, the film was identified on the field sampling logs as a "Solvay Waste-like film" and can best be described as appearing like a thin ice-like coating on the water.

Field parameters taken during the October 2016 annual groundwater monitoring event identified the followings concentrations outside the well-specific UCL and LCL range:

- pH in five (5) of the thirteen (13) wells measured, including: MS-104.3 (above UCL); MS-106.1 (above UCL); MS-301.3 (above UCL); MS-301.4 (above UCL); and MS-301.5 (above UCL).
- Specific Conductivity in seven (7) of the thirteen (13) wells measured, including: MS-104.3 (below LCL); MS-104.4 (below LCL); MS-104.5 (above UCL); MS-106.2 (below LCL); MS-106.3 (below LCL); MS-301.4 (below LCL); and MS-301.5 (below LCL).

The identified pH and specific conductivity values are generally consistent with those historically identified.

3.4.2 Laboratory Analytical Results

Laboratory analytical results of groundwater samples taken during the October 2016 annual groundwater monitoring event identified the following concentrations detected above the laboratory reporting limits:

- Total phenols in eight (8) of the fourteen (14) samples analyzed, including MS-106.2; MS-301.1; MS-301.2; MS-301.4; MS-301.5; W-201R; W-5.6; and Duplicate (taken from MS-301.4). Identified concentrations ranged from non-detect (less than 0.004 mg/L) to 0.44 mg/L.
- Total chromium in nine (9) of the fourteen (14) samples analyzed, including MS-104.5; MS-106.2; MS-106.3; MS-301.1; MS-301.2; MS-301.3; MS-301.4; MS-301.5; and Duplicate (taken from MS-301.4). Identified concentrations ranged from non-detect (less than 0.002 mg/L) to 0.02 mg/L.
- Total iron in thirteen (13) of the fourteen (14) samples analyzed, including MS-104.3; MS-104.5; MS-106.1; MS-106.2; MS-106.3; MS-301.1; MS-301.2; MS-301.3; MS-301.4; MS-301.5; W-201R; W-5.6, and Duplicate (taken from MS-301.4). Identified concentrations ranged from non-detect (less than 0.02 mg/L) to 76.4 mg/L.

Laboratory analytical results, including available historic groundwater quality data, are compared to the well-specific UCL, as well as the Class GA groundwater standards taken from TOGS 1.1.1 (NYSDEC, June 1998), on the tables in Appendix D. Appendix D also includes time-series plots for each analyte and each groundwater monitoring well. Figure 4 summarizes groundwater analytical results that exceed the well-specific UCL.

In general, laboratory analytical results indicate that concentrations of analytes of concern in groundwater are typically below the well-specific UCLs, with the exception of:

- phenol concentrations in one (1) groundwater sample, MS-301.1
- iron concentrations in three (3) groundwater samples, including MS-106.3; MS-301.4; and Duplicate (taken from MS-301.4).

A total of seven (7) QA/QC samples were taken during the October 2016 monitoring event, one (1) blind field duplicate, one (1) matrix spike (MS) sample, one (1) matrix spike duplicate (MSD) sample, two (2) trip blanks (one for each day of groundwater sample collection), and two (2) rinse blanks (one for each pump used for sample collection). All QA/QC samples were analyzed for the same analytes as the groundwater samples. The laboratory analytical results of the blind field duplicate sample were compared to the parent sample, and relative percent differences (RPD) between the results were calculated to determine the precision of groundwater sampling and laboratory analysis techniques. The relative percent differences between the two (2) samples are:

- Total phenols – 24.00%
- Total chromium – 58.06%
- Total iron – 33.58%

The relative percent differences for each of the analytes is higher than the generally accepted 20%. One reason for the large RPDs could be due to the low concentrations of phenols and chromium detected in these samples.

Analysis of both of the trip blanks identified total iron and total chromium concentrations above laboratory detection limits. In addition, concentrations of total iron and total chromium were also detected in both of the rinse blanks prepared during this monitoring event. The detections in the trip and rinse blanks were discussed with the laboratory, and it was determined that the water provided for the trip blanks was certified organic free water, but it was not certified to be free of metals (Appendix F). The laboratory does have inorganic (metals) free water that was provided for historic trip blanks for this project; however, an oversight during this round of sampling caused this inorganic free water to not be used. The laboratory concluded that “the metals detected in the trip and rinse blanks during this round of sampling are likely a result of the organic free water used in preparation of the trip and rinse blanks.” The slightly elevated concentrations of iron identified in the rinse blank samples compared to the trip blank samples could be the result of the nitric acid pre-preserved water provided by the laboratory that was used to prepare the rinse blanks since the nitric acid present in this water could have stripped metals from the pump when it passed through it. Also, the laboratory indicated that it is “unlikely that trip blanks and rinse water provided to customers would come from the same batch,” which could also have caused the slightly different concentrations identified between the trip blanks and rinse blanks. Based on this, it is not believed

that the concentrations detected in the trip and rinse blanks are indications that the samples were contaminated as a result of sampling activities or transport to the laboratory.

4. Inclinometer Readings

Monitoring of the four (4) existing inclinometers (Figure 3) occurs once every three (3) years, as required by the Updated Post-Closure Work Plan (S&ME Northeast, P.C., October 2011). The inclinometers were last measured during the October 2014 monitoring event. As a result, the next round of inclinometer measurements will occur during the annual 2017 monitoring event. Results of the inclinometer measurements, as well as comparisons to historic measurements, will be reported at that time.

5. Settlement Plate Survey

Surveying of thirty-seven (37) of the fifty (50) existing settlement plates (Figure 3) occurs once every 3 years, as required by the Updated Post-Closure Work Plan (S&ME Northeast, P.C., October 2011). The settlement plates were last surveyed during the October 2014 monitoring event. As a result, the next round of settlement plate surveying will occur during the annual 2017 monitoring event. Results of the settlement plate survey, as well as comparisons to historic survey results, will be reported at that time.

The NYSDEC requested that the 2017 monitoring event also include settlement plates PL-1, PL-3, PL-4, and PL-11, which are not typically monitored, due to the recent construction of the amphitheater adjacent to the landfill. The NYSDEC will attempt to find historic data for these settlement plates that can be used as “baseline” measurements. If historic data cannot be located, the measurements taken during the 2017 monitoring event will be considered the new “baseline” measurements and future monitoring, if any, will be compared to those measurements.

6. Conclusions

Visual observations of the integrity of the closed landfill did not identify issues that required immediate attention. The damaged and modified groundwater monitoring wells were repaired and surveyed by others under contract with Onondaga County after completion of the 2015 monitoring event field work. Based on observations made during the 2016 annual monitoring event, it does not appear that the repairs adversely impact the functionality of the monitoring points. The surveyed elevation of the PVC riser rim has been added to the table and will be used as the reference point for measurements at the modified monitoring points from this point forward.

In general, laboratory analytical results indicate improvements in groundwater quality since the landfill was closed. Based on results from the most recent round of groundwater sampling (October 2016), exceedances of the well-specific UCLs are limited to samples taken from the following groundwater monitoring wells:

- Total Iron – MS-106.3, MS-301.4
- Total Phenols – MS-301.1
- Specific Conductivity – MS-104.5
- pH – MS-104.3, MS-106.1, MS-301.3, MS-301.4, MS-301.5

Based on recent groundwater monitoring events, EnPro requests that the NYSDEC allow for the following modifications to the monitoring program:

- Removal of the following monitoring points from groundwater sampling and/or groundwater level monitoring since they are typically dry, MS-106.5 (not sampled since 2003), W-5.5 (typically dry since 1998), PZ-2.2 (dry since 2008), PZ-2.3 (typically dry since 1998), and PZ-5.3 (typically dry since 1998), The NYSDEC has approved the decommissioning of monitoring points MS-106.5 and W-5.5, which will be conducted during the October 2017 sampling event. The other monitoring points are small diameter piezometers in a nested configuration and are not conducive to decommissioning without impacting remaining monitoring points in the cluster. Therefore, they will be left in place but will no longer be monitored.
- Removal of damaged/obstructed well W-105R from groundwater sampling, which has a blockage at approximately 35 feet below ground surface that will not allow the sampling pump or smaller diameter bailer to pass (not sampled since 2008); however, groundwater level monitoring will continue at this location as requested by the NYSDEC.

In addition, historic laboratory analytical results indicate that total chromium concentrations in samples from all monitoring points have never exceeded the well-specific UCL or the NYS Class GA groundwater standard. As a result, discussions to modify the monitoring requirements for chromium are on-going with the NYSDEC and modifications will be established prior to the October 2017 monitoring event.

Total iron concentrations occasionally exceed the well-specific UCLs; however, the identified concentrations are generally below the NYS Class GA groundwater standard with the exception of several wells. The analytical results for total iron will be evaluated further after the next round of

groundwater sampling, scheduled to occur in October 2017, and recommendations with regards to future total iron analysis will be made at that time.

Figures

CONTOUR INTERVAL: 10 FEET

MAPS TAKEN FROM: USGS 7.5 MINUTE SERIES
TOPOGRAPHIC QUADRANGLES:
SYRACUSE WEST, NY (2013) AND
CAMILLUS, NY (2013)
(U.S. GEOLOGICAL SURVEY WEBSITE)

0 1000 2000 3000 4000'

SCALE 1"=2000' AT ORIGINAL SIZE

QUADRANGLE LOCATION

N

EnPro Industries
Former Crucible Specialty Metals Landfill Site
2016 Annual Groundwater Monitoring

Site Location Map

Job Number	86-18809
Revision	A
Date	10.28.2016

Figure 1

One Remington Park Drive, Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801 **E** cazmail@ghd.com **W** www.ghd.com

Plot Date: 31 October 2016 - 4:03 PM Cad File No: G:\86\18809\Groundwater Monitoring\2016 Annual\Figures\Site Location Map.dwg

0 250' 500' 750'

SCALE 1"=500' AT ORIGINAL SIZE

N

NOTES:

1. AERIAL PHOTOGRAPHS ARE 2015 ONE FOOT RESOLUTION AND WERE OBTAINED FROM THE NEW YORK STATE GIS CLEARINGHOUSE.

EnPro Industries
Former Crucible Specialty Metals Landfill Site
2016 Annual Groundwater Monitoring

Site Vicinity Aerial

Job Number 86-18809
Revision A
Date 10.28.2016

Figure 2

One Remington Park Drive, Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801 **E** cazmail@ghd.com **W** www.ghd.com

Plot Date: 31 October 2016 - 4:06 PM Cad File No: G:\86\18809\Groundwater Monitoring\2016 Annual\Figures\Site Vicinity Aerial.dwg

LEGEND

- MONITORING WELL
- PIEZOMETER
- SETTLEMENT PLATE
- INCLINOMETER
- OUTFALL
- DROP INLET

0 150' 300' 450'

SCALE 1"=300' AT ORIGINAL SIZE

N

NOTES:

1. ALL OBJECT AND STRUCTURE LOCATIONS ARE APPROXIMATE AND WERE TAKEN FROM S&ME NORTHEAST, P.C. PROJECT NO. 4335-14-211NE FIGURE NO. 3 - SITE PLAN.
2. DEPTH MEASUREMENTS WERE TAKEN AT ALL MONITORING WELLS. ONLY WELLS WITH RED ID'S ARE PART OF ANNUAL MONITORING EVENT.
3. AERIAL PHOTOGRAPHS ARE 2015 ONE FOOT RESOLUTION AND WERE OBTAINED FROM THE NEW YORK STATE GIS CLEARINGHOUSE.

GHD

EnPro Industries
Former Crucible Specialty Metals Landfill Site
2016 Annual Groundwater Monitoring

Site Layout Map

Job Number 86-18809
Revision A
Date 10.28.2016

Figure 3

One Remington Park Drive, Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801 **E** cazmail@ghd.com **W** www.ghd.com

Plot Date: 31 October 2016 - 4:05 PM Cad File No: G:\86\18809\Groundwater Monitoring\2016 Annual\Figures\Site Layout Map.dwg

LEGEND

- MONITORING WELL
- PIEZOMETER

WELL ID
SAMPLE DATE
ANALYTE CONCENTRATION

mg/L - milligram per liter (parts per million)
S.U. - standard unit
umho/cm - micro mho per centimeter

0 150' 300' 450'
SCALE 1"=300' AT ORIGINAL SIZE

N

NOTES:
1. ONLY LABORATORY ANALYTICAL RESULTS THAT EXCEED THE WELL-SPECIFIC UPPER CONFIDENCE LIMIT ARE SHOWN HERE. FOR A COMPLETE SUMMARY OF ANALYTICAL RESULTS, REFER TO TABLES IN REPORT.
2. ALL OBJECT AND STRUCTURE LOCATIONS ARE APPROXIMATE AND WERE TAKEN FROM S&ME NORTHEAST, P.C. PROJECT NO. 4335-14-211NE FIGURE NO. 3 - SITE PLAN.
3. AERIAL PHOTOGRAPHS ARE 2015 ONE FOOT RESOLUTION AND WERE OBTAINED FROM THE NEW YORK STATE GIS CLEARINGHOUSE.

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EnPro Industries
Former Crucible Specialty Metals Landfill Site
2016 Annual Groundwater Monitoring

Groundwater Results - Exceedances of UCLs

Job Number 86-18809
Revision A
Date 11.08.2016

Figure 4

One Remington Park Drive, Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801 **E** cazmail@ghd.com **W** www.ghd.com

Plot Date: 8 November 2016 - 4:39 PM Cad File No: G:\86\18809\Groundwater Monitoring\2016 Annual\Figures\Groundwater Results.dwg

Tables

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
CM108	6/2/1998	40.9	386.3	
CM108	10/15/1998	44.3	382.9	
CM108	5/21/1999	40.5	386.7	
CM108	11/10/1999	43.1	384.1	
CM108	7/31/2000	39.2	388.0	
CM108	11/28/2000	43.9	383.3	
CM108	6/20/2001	43.1	384.2	
CM108	4/24/2002	38.4	388.8	
CM108	11/8/2002			DRY
CM108	6/11/2003	38.5	388.7	
CM108	10/24/2003			DRY
CM108	6/24/2004	37.7	389.5	
CM108	11/3/2004	42.7	384.6	
CM108	6/15/2005	42.2	385.0	
CM108	11/8/2005			DRY
CM108	6/26/2006	41.8	385.4	
CM108	11/6/2006	37.5	389.7	
CM108	4/20/2007	35.6	391.6	
CM108	9/21/2007			DRY
CM108	4/18/2008	37.0	390.2	
CM108	11/3/2008	47.0	379.5	
CM108	11/5/2011			Not Measured
CM108	10/15/2012			Not Measured
CM108	9/23/2013			Not Measured
CM108	10/20/2014			Not Measured
CM108	10/30/2015			Decommissioned
DW101	6/2/1998	60.1	372.9	
DW101	10/15/1998	62.2	370.8	
DW101	5/21/1999	59.7	373.3	
DW101	11/10/1999	60.3	372.7	
DW101	7/31/2000	58.2	374.8	
DW101	11/28/2000	59.4	373.6	
DW101	6/20/2001	59.5	373.5	
DW101	10/10/2001	60.0	373.1	
DW101	4/24/2002	58.8	374.3	
DW101	11/8/2002	59.4	373.6	
DW101	6/11/2003	58.5	374.5	
DW101	10/24/2003	59.9	373.1	
DW101	6/24/2004	58.7	374.3	
DW101	11/3/2004	59.2	373.8	
DW101	6/15/2005	59.2	373.8	
DW101	11/8/2005	58.8	374.2	
DW101	6/26/2006	59.1	373.9	
DW101	11/6/2006	58.4	374.6	
DW101	4/20/2007	57.3	375.7	
DW101	9/21/2007	59.9	373.1	
DW101	4/18/2008	58.9	374.1	
DW101	11/3/2008	59.4	373.6	
DW101	10/20/2014	59.7	373.4	
DW101	10/30/2015	59.5	373.5	
DW101	10/27/2016	59.4	373.6	

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
DW103	6/2/1998	56.6	370.5	
DW103	10/15/1998	59.0	368.1	
DW103	5/21/1999	56.9	370.2	
DW103	11/10/1999	57.5	369.6	
DW103	7/31/2000	56.8	370.3	
DW103	11/28/2000	58.6	368.3	
DW103	6/20/2001	57.0	370.0	
DW103	10/10/2001	57.4	369.7	
DW103	4/24/2002	56.4	370.6	
DW103	11/8/2002	57.1	370.0	
DW103	6/11/2003	56.6	370.5	
DW103	10/24/2003	57.7	369.4	
DW103	11/3/2004	57.6	369.5	
DW103	6/15/2005	57.8	369.3	
DW103	11/8/2005	57.6	369.5	
DW103	6/26/2006	57.8	369.3	
DW103	11/6/2006	58.4	368.7	
DW103	4/20/2007	56.1	371.1	
DW103	9/21/2007	58.6	368.5	
DW103	4/18/2008	57.5	369.6	
DW103	11/3/2008	58.1	369.0	
DW103	11/5/2011	57.9	369.1	
DW103	10/15/2012	58.7	368.4	
DW103	9/23/2013	58.1	369.0	
DW103	10/20/2014	58.4	368.7	
DW103	10/29/2015	55.1	371.9	
DW103	10/27/2016	55.2	371.8	
MS104.3	6/2/1998	29.0	399.5	
MS104.3	10/15/1998	35.7	392.9	
MS104.3	5/21/1999	30.2	398.3	
MS104.3	11/10/1999	37.5	391.0	
MS104.3	7/31/2000	28.5	400.0	
MS104.3	11/28/2000	33.2	395.3	
MS104.3	6/20/2001	32.2	396.4	
MS104.3	10/10/2001	34.8	393.7	
MS104.3	4/24/2002	27.7	400.9	
MS104.3	11/8/2002	34.9	393.6	
MS104.3	6/11/2003	28.1	400.4	
MS104.3	10/24/2003	35.0	393.5	
MS104.3	6/24/2004	26.9	401.6	
MS104.3	11/3/2004	31.2	397.3	
MS104.3	6/15/2005	30.6	397.9	
MS104.3	11/8/2005	29.4	399.1	
MS104.3	6/26/2006	30.0	398.5	
MS104.3	11/6/2006	37.1	401.4	
MS104.3	4/20/2007	23.6	404.9	
MS104.3	9/21/2007	34.6	393.9	
MS104.3	4/18/2008	26.0	402.5	
MS104.3	11/3/2008	34.6	393.9	
MS104.3	11/5/2011	29.5	399.1	
MS104.3	10/15/2012	36.6	391.9	
MS104.3	9/23/2013	31.3	397.2	
MS104.3	10/20/2014	29.8	398.7	
MS104.3	10/29/2015	28.7	399.8	
MS104.3	10/27/2016	28.8	399.7	

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
MS104.4	6/2/1998	27.9	400.3	
MS104.4	10/15/1998	32.4	395.8	
MS104.4	5/21/1999	28.7	399.5	
MS104.4	11/10/1999	36.5	391.7	
MS104.4	7/31/2000	28.5	399.7	
MS104.4	11/28/2000	32.3	395.9	
MS104.4	6/20/2001	29.1	399.1	
MS104.4	10/10/2001	33.6	394.6	
MS104.4	4/24/2002	26.0	402.2	
MS104.4	11/8/2002	33.8	394.4	
MS104.4	6/11/2003	26.8	401.4	
MS104.4	10/24/2003	33.8	394.4	
MS104.4	6/24/2004	25.8	402.4	
MS104.4	11/3/2004	30.0	398.2	
MS104.4	6/15/2005	28.4	399.8	
MS104.4	11/8/2005	27.9	400.3	
MS104.4	6/26/2006	28.7	399.5	
MS104.4	11/6/2006	25.8	402.4	
MS104.4	4/20/2007	22.6	405.6	
MS104.4	9/21/2007	33.1	395.1	
MS104.4	4/18/2008	24.9	403.3	
MS104.4	11/3/2008	33.7	394.5	
MS104.4	11/5/2011	28.1	400.1	
MS104.4	10/15/2012	35.4	392.8	
MS104.4	9/23/2013	30.0	398.2	
MS104.4	10/20/2014	27.7	400.5	
MS104.4	10/29/2015	27.4	400.9	
MS104.4	10/27/2016	27.0	401.2	
MS104.5	6/2/1998	24.8	403.8	
MS104.5	10/15/1998	32.4	396.2	
MS104.5	5/21/1999	26.1	402.5	
MS104.5	11/10/1999			DRY
MS104.5	7/31/2000	24.5	404.1	
MS104.5	11/28/2000	30.8	397.8	
MS104.5	6/20/2001	26.7	401.9	
MS104.5	10/10/2001	32.6	396.0	
MS104.5	4/24/2002	23.6	405.0	
MS104.5	11/8/2002	32.5	396.1	
MS104.5	6/11/2003	24.1	404.5	
MS104.5	10/24/2003	32.5	396.1	
MS104.5	6/24/2004	23.9	404.7	
MS104.5	11/3/2004	27.6	401.0	
MS104.5	6/15/2005	25.8	402.8	
MS104.5	11/8/2005	25.9	402.7	
MS104.5	6/26/2006	26.1	402.5	
MS104.5	11/6/2006	23.4	405.2	
MS104.5	4/20/2007	20.8	407.8	
MS104.5	9/21/2007	32.2	396.4	
MS104.5	4/18/2008	23.1	405.5	
MS104.5	11/3/2008	32.8	395.8	
MS104.5	11/5/2011	26.0	400.1	
MS104.5	10/15/2012	34.7	392.8	
MS104.5	9/23/2013	27.8	398.2	
MS104.5	10/20/2014	23.1	400.5	
MS104.5	10/29/2015	24.7	403.9	
MS104.5	10/27/2016	23.9	404.7	

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
MS106.1	6/2/1998	55.5	380.5	
MS106.1	10/15/1998	60.8	375.2	
MS106.1	5/21/1999	57.1	378.9	
MS106.1	11/10/1999	63.5	372.5	
MS106.1	7/31/2000	55.3	380.7	
MS106.1	11/28/2000	60.1	375.9	
MS106.1	6/20/2001	57.6	378.4	
MS106.1	10/10/2001	61.6	374.4	
MS106.1	4/24/2002	55.7	380.3	
MS106.1	11/8/2002	61.4	374.6	
MS106.1	6/11/2003	54.8	381.2	
MS106.1	10/24/2003	61.4	374.6	
MS106.1	6/24/2004	54.0	382.0	
MS106.1	11/3/2004	58.0	378.0	
MS106.1	6/15/2005	57.1	378.9	
MS106.1	11/8/2005	59.4	376.6	
MS106.1	6/26/2006	59.1	376.9	
MS106.1	11/6/2006	54.8	381.2	
MS106.1	4/20/2007	51.5	384.5	
MS106.1	9/21/2007	61.2	374.8	
MS106.1	4/18/2008	52.9	383.1	
MS106.1	11/3/2008	60.1	375.9	
MS106.1	11/5/2011	57.8	378.2	
MS106.1	10/15/2012	62.9	373.1	
MS106.1	9/23/2013	60.7	375.3	
MS106.1	10/20/2014	63.4	372.6	
MS106.1	10/30/2015	60.0	376.1	
MS106.1	10/26/2016	60.7	375.3	
MS106.2	6/2/1998	52.3	384.1	
MS106.2	10/15/1998	58.9	377.5	
MS106.2	5/21/1999	56.7	379.7	
MS106.2	11/10/1999	61.0	375.4	
MS106.2	7/31/2000	52.0	384.4	
MS106.2	11/28/2000	57.3	379.1	
MS106.2	6/20/2001	54.4	382.0	
MS106.2	10/10/2001	28.8	407.6	
MS106.2	4/24/2002	52.4	384.0	
MS106.2	11/8/2002	58.7	377.7	
MS106.2	6/11/2003	51.3	385.1	
MS106.2	10/24/2003	58.2	378.2	
MS106.2	6/24/2004	50.0	386.4	
MS106.2	11/3/2004	54.7	381.7	
MS106.2	6/15/2005	53.2	383.2	
MS106.2	11/8/2005	57.1	379.3	
MS106.2	6/26/2006	53.5	382.9	
MS106.2	11/6/2006	51.2	385.2	
MS106.2	4/20/2007	47.0	389.4	
MS106.2	9/21/2007	57.6	378.8	
MS106.2	4/18/2008	48.4	388.0	
MS106.2	11/3/2008	57.6	378.8	
MS106.2	11/5/2011	54.4	382.0	
MS106.2	10/15/2012	59.7	376.6	
MS106.2	9/23/2013	57.1	379.2	
MS106.2	10/20/2014	60.0	376.4	
MS106.2	10/30/2015	57.0	379.4	
MS106.2	10/26/2016	59.1	377.3	

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
MS106.3	6/2/1998	41.8	392.1	
MS106.3	10/15/1998	53.3	380.6	
MS106.3	5/21/1999	45.2	388.7	
MS106.3	11/10/1999	56.5	377.4	
MS106.3	7/31/2000	40.6	393.3	
MS106.3	11/28/2000	51.5	382.4	
MS106.3	6/20/2001	46.1	387.8	
MS106.3	10/10/2001	54.1	379.8	
MS106.3	4/24/2002	40.6	393.3	
MS106.3	11/8/2002	53.7	380.2	
MS106.3	6/11/2003	40.2	393.7	
MS106.3	10/24/2003	52.7	381.2	
MS106.3	6/24/2004	39.1	394.8	
MS106.3	11/3/2004	47.7	386.2	
MS106.3	6/15/2005	43.7	390.2	
MS106.3	11/8/2005	52.5	381.4	
MS106.3	6/26/2006	44.8	389.1	
MS106.3	11/6/2006	40.6	393.3	
MS106.3	4/20/2007	35.2	398.7	
MS106.3	9/21/2007	51.2	382.7	
MS106.3	4/18/2008	37.1	396.8	
MS106.3	11/3/2008	53.0	380.9	
MS106.3	11/5/2011	47.7	386.3	
MS106.3	10/15/2012	55.4	378.6	
MS106.3	9/23/2013	50.9	383.0	
MS106.3	10/20/2014	55.3	378.7	
MS106.3	10/30/2015	51.7	382.2	
MS106.3	10/26/2016	55.4	378.6	
MS106.4	6/2/1998	42.2	392.8	
MS106.4	10/15/1998			DRY
MS106.4	5/21/1999	44.1	390.9	
MS106.4	11/10/1999			DRY
MS106.4	7/31/2000	41.4	393.6	
MS106.4	11/28/2000	50.1	384.9	
MS106.4	6/20/2001	44.6	390.4	
MS106.4	10/10/2001			DRY
MS106.4	4/24/2002	41.4	393.6	
MS106.4	11/8/2002	51.0	384.0	
MS106.4	6/11/2003	40.9	394.1	
MS106.4	10/24/2003	50.6	384.4	
MS106.4	6/24/2004	39.7	395.3	
MS106.4	11/3/2004	45.9	389.1	
MS106.4	6/15/2005	43.3	391.7	
MS106.4	11/8/2005	50.7	384.3	
MS106.4	6/26/2006	43.9	391.1	
MS106.4	11/6/2006	40.5	394.5	
MS106.4	4/20/2007	34.8	400.2	
MS106.4	9/21/2007	49.3	385.7	
MS106.4	4/18/2008	37.1	397.9	
MS106.4	11/3/2008	49.9	385.1	
MS106.4	11/5/2011	45.3	389.7	
MS106.4	10/15/2012			DRY
MS106.4	9/23/2013	49.3	385.8	
MS106.4	10/20/2014			DRY
MS106.4	10/30/2015	50.3	384.7	
MS106.4	10/26/2016			DRY

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
MS106.5	6/2/1998	40.4	395.5	
MS106.5	10/15/1998			DRY
MS106.5	5/21/1999			DRY
MS106.5	11/10/1999			DRY
MS106.5	7/31/2000			DRY
MS106.5	11/28/2000			DRY
MS106.5	6/20/2001			DRY
MS106.5	10/10/2001			DRY
MS106.5	4/24/2002			DRY
MS106.5	11/8/2002			DRY
MS106.5	6/11/2003	38.0	397.9	
MS106.5	10/24/2003			DRY
MS106.5	6/24/2004	37.5	398.4	
MS106.5	11/3/2004			DRY
MS106.5	6/15/2005	41.7	394.2	
MS106.5	11/8/2005			DRY
MS106.5	6/26/2006			DRY
MS106.5	11/6/2006	36.3	399.6	
MS106.5	4/20/2007	29.9	406.0	
MS106.5	9/21/2007			DRY
MS106.5	4/18/2008	34.1	401.8	
MS106.5	11/3/2008			DRY
MS106.5	11/5/2011	40.1	395.8	
MS106.5	10/15/2012			DRY
MS106.5	9/23/2013			DRY
MS106.5	10/20/2014			DRY
MS106.5	10/30/2015			DRY
MS106.5	10/26/2016			DRY
MS301.1	6/2/1998	57.4	370.2	
MS301.1	10/15/1998	58.2	369.4	
MS301.1	5/21/1999	58.0	369.6	
MS301.1	11/10/1999	58.3	369.3	
MS301.1	7/31/2000	57.9	369.7	
MS301.1	11/28/2000	58.1	369.5	
MS301.1	6/20/2001	58.0	369.6	
MS301.1	10/10/2001	58.6	369.0	
MS301.1	4/24/2002	57.6	370.0	
MS301.1	11/8/2002	58.1	369.5	
MS301.1	6/11/2003	57.4	370.2	
MS301.1	10/24/2003	59.0	368.6	
MS301.1	6/24/2004	57.7	369.9	
MS301.1	11/3/2004	58.1	369.5	
MS301.1	6/15/2005	58.1	369.5	
MS301.1	11/8/2005	57.8	369.8	
MS301.1	6/26/2006	58.0	369.6	
MS301.1	11/6/2006	57.6	370.0	
MS301.1	4/20/2007	56.4	371.2	
MS301.1	9/21/2007	58.8	368.8	
MS301.1	4/18/2008	57.9	369.7	
MS301.1	11/3/2008	58.4	369.2	
MS301.1	11/5/2011	58.2	369.4	
MS301.1	10/15/2012	59.0	368.7	
MS301.1	9/23/2013	58.4	369.2	
MS301.1	10/20/2014	58.6	369.0	
MS301.1	10/29/2015	56.7	370.9	
MS301.1	10/26/2016	53.8	371.0	

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
MS301.2	6/2/1998	56.1	371.1	
MS301.2	10/15/1998	58.7	368.5	
MS301.2	5/21/1999	56.7	370.5	
MS301.2	11/10/1999	60.3	366.9	
MS301.2	7/31/2000	55.7	371.5	
MS301.2	11/28/2000	58.5	368.7	
MS301.2	6/20/2001	57.4	369.8	
MS301.2	10/10/2001	59.7	367.5	
MS301.2	4/24/2002	55.4	371.8	
MS301.2	11/8/2002	59.3	367.9	
MS301.2	6/11/2003	55.5	371.7	
MS301.2	10/24/2003	60.1	367.1	
MS301.2	6/24/2004	55.0	372.2	
MS301.2	11/3/2004	57.5	369.7	
MS301.2	6/15/2005	57.3	369.9	
MS301.2	11/8/2005	58.2	369.0	
MS301.2	6/26/2006	57.1	370.1	
MS301.2	11/6/2006	54.9	372.3	
MS301.2	4/20/2007	53.0	374.2	
MS301.2	9/21/2007	60.0	367.2	
MS301.2	4/18/2008	53.9	373.3	
MS301.2	11/3/2008	58.6	368.6	
MS301.2	11/5/2011	57.1	370.1	
MS301.2	10/15/2012	60.1	367.1	
MS301.2	9/23/2013	59.6	367.6	
MS301.2	10/20/2014	62.4	364.8	
MS301.2	10/29/2015	57.9	369.3	
MS301.2	10/26/2016	57.5	367.2	
MS301.3	6/2/1998	55.6	371.8	
MS301.3	10/15/1998	58.4	369.0	
MS301.3	5/21/1999	56.6	370.8	
MS301.3	11/10/1999	60.1	367.3	
MS301.3	7/31/2000	55.3	372.1	
MS301.3	11/28/2000	58.2	369.2	
MS301.3	6/20/2001	57.0	370.4	
MS301.3	10/10/2001	59.4	368.0	
MS301.3	4/24/2002	55.0	372.4	
MS301.3	11/8/2002	58.9	368.5	
MS301.3	6/11/2003	55.1	372.3	
MS301.3	10/24/2003	59.9	367.5	
MS301.3	6/24/2004	54.4	373.0	
MS301.3	11/3/2004	57.1	370.3	
MS301.3	6/15/2005	56.8	370.6	
MS301.3	11/8/2005	57.3	370.1	
MS301.3	6/26/2006	56.5	370.9	
MS301.3	11/6/2006	54.4	373.0	
MS301.3	4/20/2007	52.0	375.4	
MS301.3	9/21/2007	59.4	368.0	
MS301.3	4/18/2008	53.0	374.4	
MS301.3	11/3/2008	58.1	369.3	
MS301.3	11/5/2011	56.2	371.2	
MS301.3	10/15/2012	59.4	368.0	
MS301.3	9/23/2013	58.8	368.6	
MS301.3	10/20/2014	61.9	365.5	
MS301.3	10/29/2015	57.2	370.2	
MS301.3	10/26/2016	54.8	370.1	

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
MS301.4	6/2/1998	49.5	377.8	
MS301.4	10/15/1998	53.2	374.1	
MS301.4	5/21/1999	50.1	377.2	
MS301.4	11/10/1999	55.5	371.8	
MS301.4	7/31/2000	48.8	378.5	
MS301.4	11/28/2000	53.0	374.3	
MS301.4	6/20/2001	51.1	376.2	
MS301.4	10/10/2001	54.3	373.0	
MS301.4	4/24/2002	48.6	378.7	
MS301.4	11/8/2002	54.2	373.1	
MS301.4	6/11/2003	48.7	378.6	
MS301.4	10/24/2003	54.7	372.6	
MS301.4	6/24/2004	47.9	379.4	
MS301.4	11/3/2004	51.5	375.8	
MS301.4	6/15/2005	50.7	376.6	
MS301.4	11/8/2005	52.2	375.1	
MS301.4	6/26/2006	50.5	376.8	
MS301.4	11/6/2006	48.2	379.1	
MS301.4	4/20/2007	45.0	382.3	
MS301.4	9/21/2007	54.2	373.1	
MS301.4	4/18/2008	46.3	381.0	
MS301.4	11/3/2008	52.9	374.4	
MS301.4	11/5/2011	50.8	376.5	
MS301.4	10/15/2012	54.5	372.7	
MS301.4	9/23/2013	53.1	374.2	
MS301.4	10/20/2014	55.9	371.3	
MS301.4	10/29/2015	50.2	377.1	
MS301.4	10/26/2016	50.9	373.5	
MS301.5	6/2/1998	38.9	388.4	
MS301.5	10/15/1998	45.5	381.8	
MS301.5	5/21/1999	39.9	387.4	
MS301.5	11/10/1999	46.4	380.9	
MS301.5	7/31/2000	38.3	389.0	
MS301.5	11/28/2000	44.7	382.6	
MS301.5	6/20/2001	41.2	386.1	
MS301.5	10/10/2001	45.3	382.0	
MS301.5	4/24/2002	36.5	390.8	
MS301.5	11/8/2002	45.1	382.2	
MS301.5	6/11/2003	37.2	390.1	
MS301.5	10/24/2003	45.3	382.0	
MS301.5	6/24/2004	37.4	389.9	
MS301.5	11/3/2004	41.9	385.4	
MS301.5	6/15/2005	40.5	386.8	
MS301.5	11/8/2005	43.4	383.9	
MS301.5	6/26/2006	40.4	386.9	
MS301.5	11/6/2006	36.8	390.5	
MS301.5	4/20/2007	31.7	395.6	
MS301.5	9/21/2007	44.7	382.6	
MS301.5	4/18/2008	35.2	392.1	
MS301.5	11/3/2008	43.1	384.2	
MS301.5	11/5/2011	40.5	386.9	
MS301.5	10/15/2012	46.0	381.3	
MS301.5	9/23/2013	43.2	384.1	
MS301.5	10/20/2014	45.5	381.8	
MS301.5	10/29/2015	39.6	387.8	
MS301.5	10/26/2016	39.6	385.2	

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
PZ101.1	6/2/1998	50.9	382.5	
PZ101.1	11/28/2000	47.9	385.5	
PZ101.1	6/20/2001	46.3	387.1	
PZ101.1	10/10/2001	49.0	384.4	
PZ101.1	4/24/2002	45.0	388.4	
PZ101.1	11/8/2002	48.7	384.7	
PZ101.1	6/11/2003	44.7	388.7	
PZ101.1	10/24/2003	49.0	384.4	
PZ101.1	6/24/2004	43.8	389.6	
PZ101.1	11/3/2004	46.6	386.8	
PZ101.1	6/15/2005	46.0	387.4	
PZ101.1	11/8/2005	47.1	386.3	
PZ101.1	6/26/2006	46.0	387.4	
PZ101.1	11/6/2006	44.7	388.7	
PZ101.1	4/20/2007	41.8	391.6	
PZ101.1	9/21/2007	49.0	384.4	
PZ101.1	4/18/2008	43.5	389.9	
PZ101.1	11/3/2008	48.7	384.8	
PZ101.1	10/20/2014	48.3	385.1	
PZ101.1	10/30/2015	47.5	385.9	
PZ101.1	10/27/2016	49.3	384.1	
PZ101.2	6/2/1998	39.9	394.0	
PZ101.2	11/28/2000	40.2	393.7	
PZ101.2	6/20/2001	37.7	396.2	
PZ101.2	10/10/2001	41.2	392.7	
PZ101.2	4/24/2002	36.1	397.9	
PZ101.2	11/8/2002	41.3	392.6	
PZ101.2	6/11/2003	35.9	398.0	
PZ101.2	10/24/2003	41.6	392.3	
PZ101.2	6/24/2004	34.6	399.3	
PZ101.2	11/3/2004	38.4	395.5	
PZ101.2	6/15/2005	37.4	396.5	
PZ101.2	11/8/2005	39.2	394.7	
PZ101.2	6/26/2006	37.6	396.3	
PZ101.2	11/6/2006	35.9	398.0	
PZ101.2	4/20/2007	32.5	401.4	
PZ101.2	9/21/2007	41.8	392.1	
PZ101.2	4/18/2008	34.4	399.5	
PZ101.2	11/3/2008	41.5	392.4	
PZ101.2	10/20/2014	41.0	392.9	
PZ101.2	10/27/2016	42.5	391.4	
PZ101.3	6/2/1998	36.8	396.5	
PZ101.3	11/28/2000	39.5	393.8	
PZ101.3	6/20/2001	37.0	396.3	
PZ101.3	10/10/2001	40.5	392.7	
PZ101.3	4/24/2002	35.0	398.3	
PZ101.3	11/8/2002	40.5	392.8	
PZ101.3	6/11/2003	34.9	398.4	
PZ101.3	10/24/2003	41.0	392.3	
PZ101.3	6/24/2004	33.6	399.7	
PZ101.3	11/3/2004	37.7	395.6	
PZ101.3	6/15/2005	36.7	396.6	
PZ101.3	11/8/2005	38.3	395.0	
PZ101.3	6/26/2006	36.8	396.5	
PZ101.3	11/6/2006	34.7	398.6	
PZ101.3	4/20/2007	31.6	401.7	
PZ101.3	9/21/2007	41.3	392.0	
PZ101.3	4/18/2008	33.3	400.0	
PZ101.3	11/3/2008	40.8	392.5	
PZ101.3	10/20/2014	40.5	392.8	
PZ101.3	10/27/2016	41.9	391.4	

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
PZ2.1	6/2/1998	51.2	377.4	
PZ2.1	10/15/1998	51.4	377.2	
PZ2.1	5/21/1999	51.7	376.9	
PZ2.1	11/10/1999	54.1	374.5	
PZ2.1	7/31/2000	46.8	381.8	
PZ2.1	11/28/2000	50.1	378.5	
PZ2.1	6/20/2001	47.0	381.5	
PZ2.1	10/10/2001	50.3	378.3	
PZ2.1	4/24/2002	47.2	381.4	
PZ2.1	11/8/2002	50.3	378.3	
PZ2.1	6/11/2003	45.5	383.1	
PZ2.1	10/24/2003	50.3	378.3	
PZ2.1	6/24/2004	43.8	384.8	
PZ2.1	11/3/2004	47.9	380.7	
PZ2.1	6/15/2005	46.3	382.3	
PZ2.1	11/8/2005	48.3	380.3	
PZ2.1	6/26/2006	47.2	381.4	
PZ2.1	11/6/2006	46.4	382.2	
PZ2.1	4/20/2007	41.3	387.3	
PZ2.1	9/21/2007	49.6	379.0	
PZ2.1	4/18/2008	43.2	385.4	
PZ2.1	11/3/2008	50.1	378.5	
PZ2.1	11/5/2011			DRY
PZ2.1	10/15/2012	50.9	377.6	
PZ2.1	9/23/2013	49.0	379.6	
PZ2.1	10/20/2014	49.9	378.7	
PZ2.1	10/29/2015	48.0	380.6	
PZ2.1	10/27/2016	49.6	379.0	
PZ2.2	6/2/1998	41.8	386.7	
PZ2.2	10/15/1998	41.9	386.5	
PZ2.2	5/21/1999	42.1	386.4	
PZ2.2	11/10/1999	1.0	1.0	Probe Stop
PZ2.2	7/31/2000	1.0	1.0	Probe Stop
PZ2.2	11/28/2000	1.0	1.0	Probe Stop
PZ2.2	6/20/2001	1.0	1.0	Probe Stop
PZ2.2	10/10/2001	1.0	1.0	Probe Stop
PZ2.2	4/24/2002	35.5	392.9	
PZ2.2	11/8/2002	1.0	1.0	Probe Stop
PZ2.2	6/11/2003	1.0	1.0	Probe Stop
PZ2.2	10/24/2003	1.0	1.0	Probe Stop
PZ2.2	6/24/2004	33.3	395.1	
PZ2.2	11/3/2004			DRY
PZ2.2	6/15/2005	36.9	391.5	
PZ2.2	11/8/2005	1.0	1.0	Probe Stop
PZ2.2	6/26/2006	1.0	1.0	Probe Stop
PZ2.2	11/6/2006	1.0	1.0	Probe Stop
PZ2.2	4/20/2007	26.9	401.5	
PZ2.2	9/21/2007	37.3	391.1	
PZ2.2	4/18/2008	31.2	397.2	
PZ2.2	11/3/2008			DRY
PZ2.2	11/5/2011			DRY
PZ2.2	10/15/2012			DRY
PZ2.2	9/23/2013			DRY
PZ2.2	10/20/2014			DRY
PZ2.2	10/29/2015			DRY
PZ2.2	10/27/2016			DRY

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
PZ2.3	6/2/1998			DRY
PZ2.3	10/15/1998			DRY
PZ2.3	5/21/1999			DRY
PZ2.3	11/10/1999			DRY
PZ2.3	7/31/2000			DRY
PZ2.3	11/28/2000			DRY
PZ2.3	6/20/2001			DRY
PZ2.3	10/10/2001			DRY
PZ2.3	4/24/2002			DRY
PZ2.3	11/8/2002			DRY
PZ2.3	6/11/2003			DRY
PZ2.3	10/24/2003			DRY
PZ2.3	6/24/2004			DRY
PZ2.3	11/3/2004			DRY
PZ2.3	6/15/2005			DRY
PZ2.3	11/8/2005			DRY
PZ2.3	6/26/2006			DRY
PZ2.3	11/6/2006			DRY
PZ2.3	4/20/2007	22.5	406.0	
PZ2.3	9/21/2007			DRY
PZ2.3	4/18/2008	26.8	401.7	
PZ2.3	11/3/2008			DRY
PZ2.3	11/5/2011			DRY
PZ2.3	10/15/2012			DRY
PZ2.3	9/23/2013			DRY
PZ2.3	10/20/2014			DRY
PZ2.3	10/29/2015			DRY
PZ2.3	10/27/2016	35.8	392.7	
PZ5.1	6/2/1998	44.7	381.9	
PZ5.1	10/15/1998	49.6	376.9	
PZ5.1	5/21/1999	45.5	381.1	
PZ5.1	11/10/1999	52.5	374.0	
PZ5.1	7/31/2000	45.5	381.0	
PZ5.1	11/28/2000	48.8	377.8	
PZ5.1	6/20/2001	46.3	380.2	
PZ5.1	10/10/2001	50.6	375.9	
PZ5.1	4/24/2002	44.9	381.6	
PZ5.1	11/8/2002	50.6	375.9	
PZ5.1	6/11/2003	44.1	382.4	
PZ5.1	10/24/2003	50.1	376.4	
PZ5.1	6/24/2004	43.0	383.5	
PZ5.1	11/3/2004	46.5	380.0	
PZ5.1	6/15/2005	45.6	380.9	
PZ5.1	11/8/2005	48.0	378.5	
PZ5.1	6/26/2006	45.9	380.6	
PZ5.1	11/6/2006	44.4	382.1	
PZ5.1	4/20/2007	40.3	386.2	
PZ5.1	9/21/2007	50.3	376.2	
PZ5.1	4/18/2008	41.9	384.6	
PZ5.1	11/3/2008	48.6	377.9	
PZ5.1	11/5/2011	1.0	1.0	Obstructed
PZ5.1	10/15/2012	52.3	374.2	
PZ5.1	9/23/2013	49.0	377.5	
PZ5.1	10/20/2014	51.8	374.7	
PZ5.1	10/29/2015	47.8	378.7	
PZ5.1	10/26/2016	48.8	377.7	

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
PZ5.2	6/2/1998	40.7	385.8	
PZ5.2	10/15/1998	47.4	379.1	
PZ5.2	5/21/1999	41.6	384.9	
PZ5.2	11/10/1999	51.1	375.4	
PZ5.2	7/31/2000	41.9	384.6	
PZ5.2	11/28/2000	46.3	380.2	
PZ5.2	6/20/2001	42.9	383.6	
PZ5.2	10/10/2001	48.3	378.2	
PZ5.2	4/24/2002	41.2	385.3	
PZ5.2	11/8/2002	48.4	378.2	
PZ5.2	6/11/2003	39.8	386.7	
PZ5.2	10/24/2003	47.5	379.0	
PZ5.2	6/24/2004	38.6	387.9	
PZ5.2	11/3/2004	43.2	383.3	
PZ5.2	6/15/2005	41.2	385.3	
PZ5.2	11/8/2005	45.6	380.9	
PZ5.2	6/26/2006	41.8	384.7	
PZ5.2	11/6/2006	40.7	385.8	
PZ5.2	4/20/2007	35.1	391.4	
PZ5.2	9/21/2007	47.5	379.0	
PZ5.2	4/18/2008	37.3	389.2	
PZ5.2	11/3/2008	46.1	380.4	
PZ5.2	11/5/2011	1.0	1.0	Obstructed
PZ5.2	10/15/2012	50.7	375.8	
PZ5.2	9/23/2013	45.8	380.7	
PZ5.2	10/20/2014	49.6	376.9	
PZ5.2	10/29/2015	45.2	381.4	
PZ5.2	10/26/2016	46.6	379.9	
PZ5.3	6/2/1998			DRY
PZ5.3	10/15/1998			DRY
PZ5.3	5/21/1999			DRY
PZ5.3	11/10/1999			DRY
PZ5.3	7/31/2000			DRY
PZ5.3	11/28/2000			DRY
PZ5.3	6/20/2001			DRY
PZ5.3	10/10/2001			DRY
PZ5.3	4/24/2002			DRY
PZ5.3	11/8/2002			DRY
PZ5.3	6/11/2003			DRY
PZ5.3	10/24/2003			DRY
PZ5.3	6/24/2004	1.0	1.0	Probe Stop
PZ5.3	11/3/2004	1.0	1.0	Probe Stop
PZ5.3	6/15/2005	1.0	1.0	Probe Stop
PZ5.3	11/8/2005	1.0	1.0	Probe Stop
PZ5.3	6/26/2006	1.0	1.0	Probe Stop
PZ5.3	11/6/2006	1.0	1.0	Probe Stop
PZ5.3	4/20/2007	19.8	406.7	
PZ5.3	9/21/2007			DRY
PZ5.3	4/18/2008	21.3	405.2	
PZ5.3	11/3/2008			DRY
PZ5.3	11/5/2011	1.0	1.0	Probe Stop
PZ5.3	10/15/2012			DRY
PZ5.3	9/23/2013			DRY
PZ5.3	10/20/2014			DRY
PZ5.3	10/29/2015			DRY
PZ5.3	10/26/2016			DRY

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
PZ8.1	6/2/1998	50.2	377.1	
PZ8.1	10/15/1998	52.5	374.8	
PZ8.1	5/21/1999	51.0	376.3	
PZ8.1	11/10/1999	53.5	373.8	
PZ8.1	7/31/2000	46.8	380.5	
PZ8.1	11/28/2000	51.4	375.9	
PZ8.1	6/20/2001	50.2	377.1	
PZ8.1	10/10/2001	53.2	374.1	
PZ8.1	4/24/2002	45.3	382.0	
PZ8.1	11/8/2002	52.6	374.7	
PZ8.1	6/11/2003	47.8	379.5	
PZ8.1	10/24/2003	53.0	374.3	
PZ8.1	6/24/2004	47.2	380.1	
PZ8.1	11/3/2004	50.1	377.2	
PZ8.1	6/15/2005	51.5	375.8	
PZ8.1	11/8/2005	51.1	376.2	
PZ8.1	6/26/2006	50.0	377.3	
PZ8.1	11/6/2006	46.6	380.7	
PZ8.1	4/20/2007	43.6	383.7	
PZ8.1	9/21/2007	53.2	374.1	
PZ8.1	4/18/2008	45.5	381.8	
PZ8.1	11/3/2008	51.0	376.4	
PZ8.1	11/5/2011	48.8	378.6	
PZ8.1	10/15/2012	53.9	373.5	
PZ8.1	9/23/2013	52.2	375.1	
PZ8.1	10/20/2014	47.8	379.5	
PZ8.1	10/29/2015	49.4	378.0	
PZ8.1	10/26/2016	49.6	376.7	
PZ8.2	6/2/1998	40.9	386.4	
PZ8.2	10/15/1998	46.4	380.9	
PZ8.2	5/21/1999	42.1	385.2	
PZ8.2	11/10/1999	48.6	378.7	
PZ8.2	7/31/2000	40.8	386.6	
PZ8.2	11/28/2000	44.7	382.7	
PZ8.2	6/20/2001	41.8	385.5	
PZ8.2	10/10/2001	47.1	380.3	
PZ8.2	4/24/2002	39.5	387.8	
PZ8.2	11/8/2002	46.8	380.5	
PZ8.2	6/11/2003	36.8	390.5	
PZ8.2	10/24/2003	46.7	380.6	
PZ8.2	6/24/2004	36.9	390.4	
PZ8.2	11/3/2004	42.6	384.7	
PZ8.2	6/15/2005	43.4	384.0	
PZ8.2	11/8/2005	46.4	380.9	
PZ8.2	6/26/2006	41.1	386.2	
PZ8.2	11/6/2006	42.6	384.7	
PZ8.2	4/20/2007	30.0	397.3	
PZ8.2	9/21/2007	47.1	380.2	
PZ8.2	4/18/2008	34.9	392.4	
PZ8.2	11/3/2008	43.3	384.0	
PZ8.2	11/5/2011	40.3	387.0	
PZ8.2	10/15/2012	48.6	378.8	
PZ8.2	9/23/2013	44.7	382.6	
PZ8.2	10/20/2014	54.0	373.4	
PZ8.2	10/29/2015	41.0	386.3	
PZ8.2	10/26/2016	39.5	386.9	

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
W10.1	6/2/1998	33.5	390.8	
W10.1	10/15/1998	39.9	384.4	
W10.1	5/21/1999	34.7	389.7	
W10.1	11/10/1999	42.2	382.1	
W10.1	7/31/2000	34.5	389.9	
W10.1	11/28/2000	38.7	385.6	
W10.1	6/20/2001	35.9	388.4	
W10.1	10/10/2001	40.4	383.9	
W10.1	4/24/2002	32.5	391.8	
W10.1	11/8/2002	40.9	383.5	
W10.1	6/11/2003	32.6	391.7	
W10.1	10/24/2003	40.4	383.9	
W10.1	6/24/2004	32.3	392.0	
W10.1	11/3/2004	36.6	387.7	
W10.1	6/15/2005	35.7	388.6	
W10.1	11/8/2005	37.9	386.4	
W10.1	6/26/2006	35.6	388.7	
W10.1	11/6/2006	31.8	392.5	
W10.1	4/20/2007	26.8	397.5	
W10.1	9/21/2007	40.8	383.5	
W10.1	4/18/2008	30.2	394.1	
W10.1	11/3/2008	39.1	385.3	
W10.1	11/5/2011	34.9	389.4	
W10.1	10/15/2012	42.4	382.0	
W10.1	9/23/2013	38.4	385.9	
W10.1	10/20/2014	40.5	383.8	
W10.1	10/29/2015	36.4	387.9	
W10.1	10/27/2016	35.7	388.4	
W10.2	6/2/1998	25.4	398.6	
W10.2	10/15/1998	31.5	392.5	
W10.2	5/21/1999	26.3	397.7	
W10.2	11/10/1999	34.5	389.5	
W10.2	7/31/2000	26.4	397.6	
W10.2	11/28/2000	30.1	393.9	
W10.2	6/20/2001	27.5	396.5	
W10.2	10/10/2001	32.1	391.8	
W10.2	4/24/2002	24.7	399.3	
W10.2	11/8/2002	36.2	387.8	
W10.2	6/11/2003	24.5	399.5	
W10.2	10/24/2003	31.8	392.2	
W10.2	6/24/2004	24.5	399.5	
W10.2	11/3/2004	27.9	396.1	
W10.2	6/15/2005	27.3	396.7	
W10.2	11/8/2005	29.9	394.1	
W10.2	6/26/2006	27.2	396.8	
W10.2	11/6/2006	24.0	400.0	
W10.2	4/20/2007	19.0	405.0	
W10.2	9/21/2007	32.4	391.6	
W10.2	4/18/2008	22.5	401.5	
W10.2	11/3/2008	39.1	384.9	
W10.2	11/5/2011	26.0	398.0	
W10.2	10/15/2012	34.2	389.7	
W10.2	9/23/2013	29.6	394.3	
W10.2	10/20/2014	31.3	392.7	
W10.2	10/29/2015	27.6	396.1	
W10.2	10/27/2016	27.3	397.0	

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
W105R	11/10/1999	49.3	378.9	
W105R	7/31/2000	40.0	388.2	
W105R	11/28/2000	45.9	382.3	
W105R	6/20/2001	40.4	387.7	
W105R	10/10/2001	46.4	381.8	
W105R	4/24/2002	40.7	387.5	
W105R	11/8/2002	47.6	380.6	
W105R	6/11/2003	38.3	389.9	
W105R	10/24/2003	46.6	381.6	
W105R	11/3/2004	42.3	385.9	
W105R	11/8/2005	43.9	384.3	
W105R	6/26/2006	40.6	387.6	
W105R	11/6/2006	39.4	388.8	
W105R	4/20/2007	29.8	398.4	
W105R	9/21/2007	43.3	384.9	
W105R	4/18/2008	32.9	395.3	
W105R	11/3/2008	46.0	382.2	
W105R	11/5/2011			DRY
W105R	10/15/2012	47.3	380.9	
W105R	9/23/2013	43.9	384.3	
W105R	10/20/2014	44.7	383.5	
W105R	10/30/2015	44.1	384.1	
W105R	10/27/2016	47.3	380.9	
W201R	6/2/1998	36.8	389.7	
W201R	10/15/1998	44.2	382.3	
W201R	5/21/1999	37.7	388.8	
W201R	11/10/1999	45.9	380.6	
W201R	7/31/2000	35.7	390.8	
W201R	11/28/2000	42.3	384.2	
W201R	6/20/2001	38.9	387.6	
W201R	10/10/2001	43.7	382.8	
W201R	4/24/2002	35.6	390.9	
W201R	11/8/2002	44.1	382.4	
W201R	6/11/2003	36.0	390.5	
W201R	10/24/2003	43.3	383.2	
W201R	6/24/2004	35.0	391.5	
W201R	11/3/2004	39.5	387.0	
W201R	6/15/2005	35.9	390.6	
W201R	11/8/2005	43.4	383.1	
W201R	6/26/2006	37.9	388.6	
W201R	11/6/2006	35.6	390.9	
W201R	4/20/2007	31.6	394.9	
W201R	9/21/2007	43.0	383.5	
W201R	4/18/2008	33.4	393.1	
W201R	11/3/2008	42.9	383.6	
W201R	11/5/2011	38.8	387.7	
W201R	10/15/2012	44.8	381.7	
W201R	9/23/2013	41.9	384.6	
W201R	10/20/2014	44.4	382.1	
W201R	10/26/2016	45.3	381.2	

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
W5.5	6/2/1998	23.2	403.1	
W5.5	10/15/1998			DRY
W5.5	5/21/1999	23.0	403.3	
W5.5	11/10/1999			DRY
W5.5	7/31/2000			DRY
W5.5	11/28/2000			DRY
W5.5	6/20/2001	23.5	402.8	
W5.5	10/10/2001			DRY
W5.5	4/24/2002	21.8	404.5	
W5.5	11/8/2002			DRY
W5.5	6/11/2003	22.2	404.1	
W5.5	10/24/2003			DRY
W5.5	6/24/2004	22.5	403.8	
W5.5	11/3/2004	23.2	403.1	
W5.5	6/15/2005			DRY
W5.5	11/8/2005			DRY
W5.5	6/26/2006	22.9	403.4	
W5.5	11/6/2006	21.4	404.9	
W5.5	4/20/2007	19.7	406.6	
W5.5	9/21/2007			DRY
W5.5	4/18/2008	21.2	405.1	
W5.5	11/3/2008	22.6	403.7	
W5.5	11/5/2011	22.6	403.7	
W5.5	10/15/2012			DRY
W5.5	9/23/2013			DRY
W5.5	10/20/2014			DRY
W5.5	10/29/2015			DRY
W5.5	10/26/2016			DRY
W5.6	6/2/1998	43.5	382.9	
W5.6	10/15/1998	48.4	378.0	
W5.6	5/21/1999	44.5	381.1	
W5.6	11/10/1999	53.0	373.3	
W5.6	7/31/2000	43.4	382.9	
W5.6	11/28/2000	47.5	378.8	
W5.6	6/20/2001	45.0	381.3	
W5.6	10/10/2001	49.9	376.4	
W5.6	4/24/2002	43.9	382.4	
W5.6	11/8/2002	49.8	376.5	
W5.6	6/11/2003	42.5	383.8	
W5.6	10/24/2003	48.9	377.4	
W5.6	6/24/2004	41.6	384.7	
W5.6	11/3/2004	45.4	380.9	
W5.6	6/15/2005	44.3	382.0	
W5.6	11/8/2005	46.7	379.6	
W5.6	6/26/2006	44.6	381.7	
W5.6	11/6/2006	42.3	384.0	
W5.6	4/20/2007	32.2	394.1	
W5.6	9/21/2007	49.1	377.2	
W5.6	4/18/2008	41.5	384.8	
W5.6	11/3/2008	47.3	379.0	
W5.6	11/5/2011	44.7	381.7	
W5.6	10/15/2012	51.3	375.1	
W5.6	9/23/2013	47.7	378.6	
W5.6	10/20/2014	50.7	375.7	
W5.6	10/29/2015	46.4	379.9	
W5.6	10/26/2016	47.5	378.9	

Table 2
Summary of Groundwater Field Parameters
2016 Annual Monitoring Event

Well I.D.	Date and Time	Temp (°C)	pH (units)	Conductivity (mS/cm)	Turbidity (NTU)	Amount Purged (gal)	Comments
MS104.3	10/27/16 11:30	9.99	11.90	12.5	15.1	4.0	Rainbow blocky sheen, clear, potential Solvay waste film
	10/27/16 11:34	10.39	12.27	12.5	17.8		
	10/27/16 11:39	10.15	12.53	12.4	7.1		
	10/27/16 11:43	10.06	12.62	12.1	2.2		
	10/27/16 11:48	9.94	12.67	12.3	1.1		
	10/27/16 11:52	9.74	12.70	12.4	0.9		
MS104.4	10/27/16 9:52	9.77	12.80	11.0	20.4	5.0	Clear blocky sheen, potential Solvay waste film
	10/27/16 9:57	10.64	12.78	10.7	24.7		
	10/27/16 10:01	10.45	12.78	10.4	22.4		
	10/27/16 10:05	12.22	12.77	10.2	11.0		
	10/27/16 10:10	11.43	12.69	8.68	6.9		
	10/27/16 10:15	11.35	12.74	10.1	1.8		
	10/27/16 10:19	11.24	12.76	10.8	0.0		
	10/27/16 10:25	11.31	12.77	10.7	0.0		
MS104.5	10/27/16 10:56	9.98	12.82	10.5	6.1	3.5	Clear blocky sheen, potential Solvay waste film
	10/27/16 11:01	10.30	12.81	10.2	7.0		
	10/27/16 11:05	10.52	12.80	10.4	3.2		
	10/27/16 11:10	10.63	12.80	10.4	1.2		
	10/27/16 11:15	10.53	12.80	10.4	0.6		
MS106.1	10/26/16 15:17	11.08	12.58	9.51	7.8	3.5	Brownish clear, blocky sheen, potential Solvay film, minimal sewer odor
	10/26/16 15:21	11.59	12.61	9.54	3.0		
	10/26/16 15:25	11.82	12.63	9.53	0.1		
	10/26/16 15:30	12.09	12.61	9.65	0.0		
	10/26/16 15:34	12.23	12.59	9.75	0.0		
	10/26/16 15:39	12.11	12.62	9.70	0.0		
MS106.2	10/26/16 14:17	10.97	12.69	13.4	12.4	3.5	Petrol sheen, potential Solvay waste film, clear, no odor
	10/26/16 14:22	11.32	12.70	13.2	13.1		
	10/26/16 14:26	11.58	12.71	12.8	10.1		
	10/26/16 14:31	12.09	12.70	12.5	6.7		
	10/26/16 14:35	12.68	12.69	12.1	4.9		
	10/26/16 14:39	13.28	12.67	11.7	4.8		
	10/26/16 14:43	12.59	12.69	12.2	3.5		
	10/26/16 14:46	12.52	12.69	12.5	2.9		
MS106.3	10/26/16 14:17	10.30	12.66	9.78	1.8	1.5	Brownish, brown floaters, potential Solvay waste film, mild sewer odor, blocky sheen
	10/26/16 14:26	11.41	12.60	9.64	78.1		
	10/26/16 14:30	12.67	12.60	9.59	46.5		
	10/26/16 14:35	13.20	12.58	9.60	5.9		
MS106.4	10/26/16 16:00	-	-	-	-	-	Well was dry. No sample taken.
MS106.5	10/26/16 14:15	-	-	-	-	-	Well was dry. No sample taken.

Table 2
Summary of Groundwater Field Parameters
2016 Annual Monitoring Event

Well I.D.	Date and Time	Temp (°C)	pH (units)	Conductivity (mS/cm)	Turbidity (NTU)	Amount Purged (gal)	Comments
MS301.1	10/26/16 8:45	11.30	6.04	> 100	0.0	5.0	Clear, strong sewer odor, no sheen
	10/26/16 8:50	11.66	6.14	> 100	0.0		
	10/26/16 8:53	1.66	6.14	> 100	0.0		
	10/26/16 8:55	11.59	6.19	> 100	0.0		
	10/26/16 8:57	11.55	6.20	> 100	0.0		
	10/26/16 9:00	11.51	6.21	> 100	0.0		
MS301.2	10/26/16 9:47	11.46	6.11	> 100	298.0	7.0	Clear, no sheen, strong sewer odor
	10/26/16 9:51	11.54	6.15	> 100	77.3		
	10/26/16 9:55	11.67	6.16	> 100	60.2		
	10/26/16 9:58	11.74	6.17	> 100	15.4		
	10/26/16 10:04	11.88	6.17	> 100	1.2		
	10/26/16 10:08	11.90	6.18	> 100	0.0		
	10/26/16 10:12	11.95	6.18	> 100	0.0		
MS301.3	10/26/16 8:47	9.14	6.73	> 100	11.3	5.0	Clear, strong sewer odor, no sheen
	10/26/16 8:52	10.29	6.66	97.7	2.3		
	10/26/16 8:55	11.37	6.61	95.9	0.2		
	10/26/16 8:58	11.39	6.59	95.8	0.0		
	10/26/16 9:03	11.45	6.57	96.9	0.0		
MS301.4	10/26/16 9:33	9.09	10.85	35.9	4.5	3.0	Yellowish, slight sewer odor, slight blocky sheen
	10/26/16 9:37	9.56	11.34	36.0	8.5		
	10/26/16 9:40	9.56	11.52	36.1	8.7		
	10/26/16 9:45	9.48	11.64	36.1	9.1		
	10/26/16 9:49	9.89	11.67	36.4	9.4		
	10/26/16 9:56	10.27	11.67	36.8	6.2		
	10/26/16 10:01	11.36	11.64	36.8	4.2		
MS301.5	10/26/16 10:41	10.62	12.69	11.8	17.8	3.0	Yellowish, slight sewer odor, petrol sheen
	10/26/16 10:45	11.17	12.68	11.7	22.4		
	10/26/16 10:50	11.89	12.65	11.5	14.2		
	10/26/16 10:54	11.82	12.66	11.5	5.7		
W5.6	10/26/16 12:54	9.71	12.67	14.1	14.1	3.5	Blocky sheen, sulfur odor, potential Solvay waste film
	10/26/16 12:58	10.36	12.65	13.9	0.1		
	10/26/16 13:02	10.68	12.67	13.5	0.1		
	10/26/16 13:06	10.85	12.70	13.1	0.0		
	10/26/16 13:10	11.64	12.70	12.7	0.5		
	10/26/16 13:14	12.35	12.69	12.3	0.8		
	10/26/16 13:18	12.26	12.69	12.9	0.0		
	10/26/16 13:22	12.28	12.68	13.1	0.0		
W105R	10/26/16 9:00	-	-	-	-	-	Well had an obstruction at ~35' below top of PVC casing which prevent pump from reaching water. No sample taken.
W201R	10/26/16 11:30	9.76	12.68	13.2	7.3	2.5	Slight sewer odor, clear, blocky/rainbow/petrol sheen
	10/26/16 11:34	10.69	12.74	13.0	3.7		
	10/26/16 11:38	10.82	12.75	13.0	2.7		
	10/26/16 11:43	11.22	12.75	12.9	1.6		
	10/26/16 11:47	11.36	12.74	12.9	0.8		
	10/26/16 11:50	11.38	12.74	12.9	0.5		

Table 3
Summary of Well-Specific Upper and Lower Confidence Limits

Well ID	Confidence Limits	Sp. Cond. (mS/cm)	pH (S.U.)	Phenols (mg/L)	Chromium (mg/L)	Iron (mg/L)
MS-104.3	UCL	47.52	12.56	0.646	0.05	0.053
	LCL	26.30	11.44	0.262	0.05	0.049
MS-104.4	UCL	13.01	12.85	0.045	0.05	0.050
	LCL	11.17	11.66	0.028	0.05	0.050
MS-104.5	UCL	10.17	12.94	0.045	0.05	0.050
	LCL	9.00	11.61	0.003	0.05	0.050
MS-106.1	UCL	17.77	12.55	0.101	0.05	0.050
	LCL	9.36	12.43	-0.012	0.05	0.050
MS-106.2	UCL	34.31	12.85	0.363	0.05	0.050
	LCL	21.55	11.98	0.221	0.05	0.050
MS-106.3	UCL	17.22	12.96	0.086	0.05	0.050
	LCL	10.12	12.27	-0.006	0.05	0.050
MS-106.4	UCL	14.41	13.14	0.015	0.05	0.050
	LCL	7.19	12.26	0.015	0.05	0.050
MS-106.5	UCL	8.90	13.28	0.010	0.05	0.050
	LCL	8.90	12.33	0.010	0.05	0.050
MS-301.1	UCL	103.35	7.29	0.010	0.05	113.258
	LCL	68.05	4.70	0.010	0.05	66.792
MS-301.2	UCL	128.74	6.36	5.846	0.05	89.551
	LCL	85.12	5.15	2.634	0.05	39.149
MS-301.3	UCL	112.09	6.53	5.336	0.05	38.177
	LCL	76.98	5.20	3.164	0.05	18.373
MS-301.4	UCL	95.03	11.20	3.849	0.05	0.204
	LCL	66.50	9.62	3.005	0.05	0.019
MS-301.5	UCL	34.74	12.59	0.435	0.05	0.114
	LCL	28.39	12.15	0.195	0.05	0.022
W-5.6	UCL	18.35	12.79	0.110	0.05	0.050
	LCL	7.98	12.19	-0.032	0.05	0.050
W-105R	UCL	13.06	12.77	0.135	0.05	0.073
	LCL	8.08	11.66	-0.003	0.05	0.040
W-201R	UCL	20.12	12.79	0.161	0.05	0.213
	LCL	3.37	11.74	0.111	0.05	-0.010

UCL - Upper Confidence Limit

LCL - Lower Confidence Limit

UCL and LCL derived from a confidence calculation using a normal distribution based on historic data available for each monitoring well, as described in more detail in the text

Appendices

Appendix A
Site Observation Forms and Groundwater Sampling Logs

WELL OBSERVATION FORM
FORMER CRUCIBLE SPECIALTY METALS LANDFILL - GEDDES, NY

DATE: 10-26 & 10-27-2016

Well ID	Depth to Water (feet)	Depth of Well (feet)	Condition - well cap, casing, well cover, pad, etc.	Actions
CM-108	—	—	WELL DECOMMISSIONED IN 2015	
DW-101	59.40	125.39	GOOD	N/A
DW-103	55.24	~160.00	GOOD	N/A
MS-104.1	33.24	53.20	GOOD	N/A
MS-104.2	28.98	53.81	GOOD	N/A
MS-104.3	28.78	54.20	GOOD	N/A
MS-104.4	27.00	40.51	GOOD	N/A
MS-104.5	23.86	34.60	GOOD	N/A
MS-106.1	60.72	82.21	GOOD	N/A
MS-106.2	59.08	74.15	GOOD	N/A
MS-106.3	55.37	61.20	GOOD	N/A
MS-106.4	DRY	51.20	GOOD	N/A
MS-106.5	DRY	41.65	GOOD	N/A
MS-301.1	~~53.81~~ ~~23.81~~	171.55	GOOD	N/A
MS-301.2	57.48	96.56	GOOD	N/A
MS-301.3	54.83	82.92	GOOD	N/A
MS-301.4	50.90	67.71	GOOD	N/A
MS-301.5	39.63	50.91	GOOD	N/A
PZ-101.1	49.30	73.82	GOOD	N/A
PZ-101.2	42.50	58.91	GOOD	N/A
PZ-101.3	41.86	43.64	GOOD	N/A
PZ-2.1	49.58	57.35	GOOD	N/A
PZ-2.2	DRY	26.56	GOOD	N/A
PZ-2.3	35.77	37.10	GOOD	N/A
PZ-5.1	48.80	50.14	GOOD	N/A
PZ-5.2	46.60	58.00	GOOD	N/A
PZ-5.3	DRY	21.20	GOOD	N/A
PZ-8.1	39.48	55.65	GOOD	N/A
PZ-8.2	49.63	61.70	GOOD	N/A
W-10.1	35.65	63.15	GOOD	N/A
W-10.2	27.34	47.52	GOOD	N/A
W-105R	47.30	49.20	GOOD	N/A
W-201R	45.34	59.59	GOOD	N/A
W-5.5	DRY	24.60	GOOD	N/A
W-5.6	47.45	63.97	GOOD	N/A

All depths recorded from top of PVC well casing.

POST-CLOSURE OBSERVATION FORM
FORMER CRUCIBLE SPECIALTY METALS LANDFILL – GEDDES, NY

DATE: 10-26-16

PERSONNEL: IEM, TJF

OBSERVATION CHECKLIST:

1. Is there evidence of erosion:

   On the landfill cap? NO

   On top of the landfill? NO

   On side slopes? NO

   In drainage ditches? SOME (RUTS FROM MOWING)

   On the surrounding Solvay Waste Beds? NO

2. If erosion has occurred, is it severe enough to warrant:

   Immediate action? NO

   Action prior to next scheduled observation? NO

3. Is there evidence of settlement and subsidence:

   On the landfill? NO

   On the surrounding Solvay Waste Beds? NO

   Adjacent to the groundwater monitoring well? NO

4. If settlement and subsidence have occurred, is it severe enough to warrant:

   Immediate action? N/A

   Action prior to next scheduled observation? N/A

5. Is the vegetative cover in good condition?

   YES, HEALTHY AND GROWING

6. If not in good condition, describe condition, possible causes, and possible remedies.

   N/A

7. Are there dead or brown spots in the vegetative cover?

   NO

8. Does the cover appear to be periodically mowed? YES, ANNUALLY

9. Are tress or bushes growing on site with roots that could penetrate the synthetic liner in the cap?
NO

10. Does the vegetative cover appear to have adequate water?
YES

11. Is there evidence of decomposition gases forming on the site?
NO

12. Is there evidence of vectors, dust, or odors present?
NO

13. Is the landfill security system (access fence to Fair Grounds parking lot) intact?
YES, BUT GATE NOT CLOSED AND LOCKED

14. Was the landfill entrance gate locked upon arrival?
NO

15. Is there evidence of trespassing or vandalism on the site?
NO

16. Does the drainage system appear to be functioning properly?
YES

17. Are the following clear of dirt and debris?

Drainage ditches? YES

Catch basin grates? YES

Catch basin sumps? YES, AS FAR AS WE CAN TELL, WATER COLLECTING WELL

Storm sewer pipes? UNKNOWN CATCH BASIN TO CATCH BASIN, CULVERT CLEAR

Storm water outfall? COULDN'T LOCATE

18. With regard to monitoring wells on site, do any have damage?
NO, W-105R HAS BLOCKAGE THAT PREVENTS SAMPLING

19. Does the survey benchmark for the site appear to be undisturbed? UNKNOWN

20. What is the condition of the four manholes?
GOOD

21. Is there indication of possible rupture, puncture, or other damage that might puncture the synthetic liner in the cap?

NO

22. Is the taking of samples from the synthetic liner scheduled for this event?

NO, NO LONGER REQUIRED

23. If scheduled, were samples from the synthetic liner taken as specified?

N/A

24. Do the above items appear to need immediate attention?

NO

25. Additional comments and observations.

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill | **Date:** 10/27/2016 | **Project #:** 86-18809

Sampler(s): IEM, TJF, AB | **Sample ID:** MS104.3 | **Sample Time:** 11:50

Well Information:

Depth of Well (ft., Top of PVC):	54.2
Initial Static Water Level (ft., Top of PVC):	28.78
Depth to LNAPL/DNAPL (Top of PVC):	
LNAPL/DNAPL Thickness (inches):	

Well Volume Calculation:

1 in. Casing:		ft. of water x .04 =	gallons
2 in. Casing:	25.42	ft. of water x .16 =	4.07 gallons
3 in. Casing:		ft. of water x .36 =	gallons
4 in. Casing:		ft. of water x .64 =	gallons

Evacuation Method:

Submersible:		Centrifugal:	
Airlift:		Pos. Displ.:	X
Bailer:		Ded. Pump:	

Volume of Water Removed: 4 gallons

Dry: yes | no

Field Tests:

		Units:			Units:
Temperature:	9.74	°C	pH:	12.7	units
Salinity:		%	ORP:		mV
Spec. Cond.:	12.4	mS/cm	Turbidity:	0.9	NTU
Diss. Oxygen:		mg/L			

Sampling Method:

Stainless Bailer:	
Teflon Bailer:	
Pos. Disp. Pump:	X
Dis. Bailer:	
Ded. Pump:	
Other:	

Analysis: Total Iron; Total Chromium; Phenols

Observations:

Weather: 35°F, Rain, heavy at times

Physical Appearance and Odor of Sample: Water clear, minor sheens and potential solvay waste-like film

Additional Comments:

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill | **Date:** 10/27/2016 | **Project #:** 86-18809

Sampler(s): IEM, TJF, AB | **Sample ID:** MS104.4 | **Sample Time:** 10:30

Well Information:

Depth of Well (ft., Top of PVC):	40.51
Initial Static Water Level (ft., Top of PVC):	27
Depth to LNAPL/DNAPL (Top of PVC):	
LNAPL/DNAPL Thickness (inches):	

Well Volume Calculation:

1 in. Casing:		ft. of water x .04 =	gallons
2 in. Casing:	13.51	ft. of water x .16 =	2.16 gallons
3 in. Casing:		ft. of water x .36 =	gallons
4 in. Casing:		ft. of water x .64 =	gallons

Evacuation Method:

Submersible:		Centrifugal:	
Airlift:		Pos. Displ.:	X
Bailer:		Ded. Pump:	

Volume of Water Removed: 5 gallons

Dry: yes | no

Field Tests:

		Units:			Units:
Temperature:	11.31	°C	pH:	12.77	units
Salinity:		%	ORP:		mV
Spec. Cond.:	10.7	mS/cm	Turbidity:	0.0	NTU
Diss. Oxygen:		mg/L			

Sampling Method:

Stainless Bailer:	
Teflon Bailer:	
Pos. Disp. Pump:	X
Dis. Bailer:	
Ded. Pump:	
Other:	

Analysis: Total Iron; Total Chromium; Phenols

Observations:

Weather: 35°F, Rain, heavy at times

Physical Appearance and Odor of Sample: Water clear, blocky sheen and potential solvay waste-like film

Additional Comments:

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill | **Date:** 10/27/2016 | **Project #:** 86-18809

Sampler(s): IEM, TJF, AB | **Sample ID:** MS104.5 | **Sample Time:** 11:15

Well Information:

Depth of Well (ft., Top of PVC):	34.6
Initial Static Water Level (ft., Top of PVC):	23.86
Depth to LNAPL/DNAPL (Top of PVC):	
LNAPL/DNAPL Thickness (inches):	

Well Volume Calculation:

1 in. Casing:		ft. of water x .04 =	gallons
2 in. Casing:	10.74	ft. of water x .16 =	1.72 gallons
3 in. Casing:		ft. of water x .36 =	gallons
4 in. Casing:		ft. of water x .64 =	gallons

Evacuation Method:

Submersible:		Centrifugal:	
Airlift:		Pos. Displ.:	X
Bailer:		Ded. Pump:	

Volume of Water Removed: 3.5 gallons

Dry: yes | no

Field Tests:

		Units:			Units:
Temperature:	10.53	°C	pH:	12.8	units
Salinity:		%	ORP:		mV
Spec. Cond.:	10.4	mS/cm	Turbidity:	0.6	NTU
Diss. Oxygen:		mg/L			

Sampling Method:

Stainless Bailer:	
Teflon Bailer:	
Pos. Disp. Pump:	X
Dis. Bailer:	
Ded. Pump:	
Other:	

Analysis: Total Iron; Total Chromium; Phenols

Observations:

Weather: 35°F, Rain, heavy at times

Physical Appearance and Odor of Sample: Water clear, blocky sheen and potential solvay waste-like film

Additional Comments:

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill | **Date:** 10/26/2016 | **Project #:** 86-18809

Sampler(s): IEM, TJF, AB | **Sample ID:** MS106.1 | **Sample Time:** 15:40

Well Information:

Depth of Well (ft., Top of PVC):	82.21
Initial Static Water Level (ft., Top of PVC):	60.72
Depth to LNAPL/DNAPL (Top of PVC):	
LNAPL/DNAPL Thickness (inches):	

Well Volume Calculation:

1 in. Casing:		ft. of water x .04 =	gallons
2 in. Casing:	21.49	ft. of water x .16 =	3.44 gallons
3 in. Casing:		ft. of water x .36 =	gallons
4 in. Casing:		ft. of water x .64 =	gallons

Evacuation Method:

Submersible:		Centrifugal:	
Airlift:		Pos. Displ.:	X
Bailer:		Ded. Pump:	

Volume of Water Removed: 3.5 gallons

Dry: yes | no

Field Tests:

		Units:			Units:
Temperature:	12.11	°C	pH:	12.62	units
Salinity:		%	ORP:		mV
Spec. Cond.:	9.7	mS/cm	Turbidity:	0.0	NTU
Diss. Oxygen:		mg/L			

Sampling Method:

Stainless Bailer:	
Teflon Bailer:	
Pos. Disp. Pump:	X
Dis. Bailer:	
Ded. Pump:	
Other:	

Analysis: Total Iron; Total Chromium; Phenols

Observations:

Weather: 35 - 40°F, Partly Cloudy

Physical Appearance and Odor of Sample: Water brownish tint, blocky sheen and potential solvay waste-like film, minor sewer odor

Additional Comments:

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill | **Date:** 10/26/2016 | **Project #:** 86-18809

Sampler(s): IEM, TJF, AB | **Sample ID:** MS106.2 | **Sample Time:** 14:45

Well Information:

Depth of Well (ft., Top of PVC):	74.15
Initial Static Water Level (ft., Top of PVC):	59.08
Depth to LNAPL/DNAPL (Top of PVC):	
LNAPL/DNAPL Thickness (inches):	

Well Volume Calculation:

1 in. Casing:		ft. of water x .04 =	gallons
2 in. Casing:	15.07	ft. of water x .16 =	2.41 gallons
3 in. Casing:		ft. of water x .36 =	gallons
4 in. Casing:		ft. of water x .64 =	gallons

Evacuation Method:

Submersible:		Centrifugal:	
Airlift:		Pos. Displ.:	X
Bailer:		Ded. Pump:	

Volume of Water Removed: 3.5 gallons

Dry: yes | no

Field Tests:

		Units:			Units:
Temperature:	12.52	°C	pH:	12.69	units
Salinity:		%	ORP:		mV
Spec. Cond.:	12.5	mS/cm	Turbidity:	2.9	NTU
Diss. Oxygen:		mg/L			

Sampling Method:

Stainless Bailer:	
Teflon Bailer:	
Pos. Disp. Pump:	X
Dis. Bailer:	
Ded. Pump:	
Other:	

Analysis: Total Iron; Total Chromium; Phenols

Observations:

Weather: 35 - 40°F, Partly Cloudy

Physical Appearance and Odor of Sample: Water clear, no odor, minor sheen and potential solvay waste-like film

Additional Comments:

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill | **Date:** 10/26/2016 | **Project #:** 86-18809

Sampler(s): IEM, TJF, AB | **Sample ID:** MS106.3 | **Sample Time:** 14:50

Well Information:

Depth of Well (ft., Top of PVC):	61.2
Initial Static Water Level (ft., Top of PVC):	55.37
Depth to LNAPL/DNAPL (Top of PVC):	
LNAPL/DNAPL Thickness (inches):	

Well Volume Calculation:

1 in. Casing:		ft. of water x .04 =	gallons
2 in. Casing:	5.83	ft. of water x .16 =	0.93 gallons
3 in. Casing:		ft. of water x .36 =	gallons
4 in. Casing:		ft. of water x .64 =	gallons

Evacuation Method:

Submersible:		Centrifugal:	
Airlift:		Pos. Displ.:	X
Bailer:		Ded. Pump:	

Volume of Water Removed: 1.5 gallons

Dry: yes no

Field Tests:

		Units:			Units:
Temperature:	13.20	°C	pH:	12.58	units
Salinity:		%	ORP:		mV
Spec. Cond.:	9.6	mS/cm	Turbidity:	5.9	NTU
Diss. Oxygen:		mg/L			

Sampling Method:

Stainless Bailer:	
Teflon Bailer:	
Pos. Disp. Pump:	X
Dis. Bailer:	
Ded. Pump:	
Other:	

Analysis: Total Iron; Total Chromium; Phenols

Observations:

Weather: 35 - 40°F, Partly Cloudy

Physical Appearance and Odor of Sample: Water brownish tint with brown floaters, blocky sheen and potential solvay waste-like film, mild sewer odor

Additional Comments: Well went dry after 1.5 gallons purged, let recharge approximately 10-minutes before sampling

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill **Date:** 10/26/2016 **Project #:** 86-18809

Sampler(s): IEM, TJF, AB **Sample ID:** MS106.4 **Sample Time:** N/A

Well Information:

Depth of Well (ft., Top of PVC): 51.2
Initial Static Water Level (ft., Top of PVC): -
Depth to LNAPL/DNAPL (Top of PVC):
LNAPL/DNAPL Thickness (inches):

Well Volume Calculation:

1 in. Casing: ft. of water x .04 = gallons
2 in. Casing: ft. of water x .16 = gallons
3 in. Casing: ft. of water x .36 = gallons
4 in. Casing: ft. of water x .64 = gallons

Evacuation Method:

Submersible: Centrifugal:
Airlift: Pos. Displ.:
Bailer: Ded. Pump:

Volume of Water Removed: gallons
Dry: yes no

Field Tests:

	Units:		Units:
Temperature:	°C	pH:	units
Salinity:	%	ORP:	mV
Spec. Cond.:	mS/cm	Turbidity:	NTU
Diss. Oxygen:	mg/L		

Sampling Method:

Stainless Bailer:
Teflon Bailer:
Pos. Disp. Pump:
Dis. Bailer:
Ded. Pump:
Other:

Analysis: Total Iron, Total Chromium, Phenols

Observations:

Weather: 35 - 40°F, Partly Cloudy

Physical Appearance and Odor of Sample:

Additional Comments: Well was dry, no sample taken

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill **Date:** 10/26/2016 **Project #:** 86-18809

Sampler(s): IEM, TJF, AB **Sample ID:** MS106.5 **Sample Time:** N/A

Well Information:

Depth of Well (ft., Top of PVC): 41.65
Initial Static Water Level (ft., Top of PVC): -
Depth to LNAPL/DNAPL (Top of PVC):
LNAPL/DNAPL Thickness (inches):

Well Volume Calculation:

1 in. Casing: ft. of water x .04 = gallons
2 in. Casing: ft. of water x .16 = gallons
3 in. Casing: ft. of water x .36 = gallons
4 in. Casing: ft. of water x .64 = gallons

Evacuation Method:

Submersible: Centrifugal:
Airlift: Pos. Displ.:
Bailer: Ded. Pump:

Volume of Water Removed: gallons
Dry: yes no

Field Tests:

	Units:		Units:
Temperature:	°C	pH:	units
Salinity:	%	ORP:	mV
Spec. Cond.:	mS/cm	Turbidity:	NTU
Diss. Oxygen:	mg/L		

Sampling Method:

Stainless Bailer:
Teflon Bailer:
Pos. Disp. Pump:
Dis. Bailer:
Ded. Pump:
Other:

Analysis: Total Iron, Total Chromium, Phenols

Observations:

Weather: 35 - 40°F, Partly Cloudy

Physical Appearance and Odor of Sample:

Additional Comments: Well was dry, no sample taken

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill | **Date:** 10/26/2016 | **Project #:** 86-18809

Sampler(s): IEM, TJF, AB | **Sample ID:** MS301.1 | **Sample Time:** 9:00

Well Information:

Depth of Well (ft., Top of PVC):	171.55
Initial Static Water Level (ft., Top of PVC):	53.81
Depth to LNAPL/DNAPL (Top of PVC):	
LNAPL/DNAPL Thickness (inches):	

Well Volume Calculation:

1 in. Casing:		ft. of water x .04 =	gallons
2 in. Casing:	117.74	ft. of water x .16 =	18.84 gallons
3 in. Casing:		ft. of water x .36 =	gallons
4 in. Casing:		ft. of water x .64 =	gallons

Evacuation Method:

Submersible:		Centrifugal:	
Airlift:		Pos. Displ.:	X
Bailer:		Ded. Pump:	

Volume of Water Removed: 5 gallons

Dry: yes | no

Field Tests:

		Units:			Units:
Temperature:	11.51	°C	pH:	6.21	units
Salinity:		%	ORP:		mV
Spec. Cond.:	>100.0	mS/cm	Turbidity:	0.0	NTU
Diss. Oxygen:		mg/L			

Sampling Method:

Stainless Bailer:	
Teflon Bailer:	
Pos. Disp. Pump:	X
Dis. Bailer:	
Ded. Pump:	
Other:	

Analysis: Total Iron; Total Chromium; Phenols

Observations:

Weather: 35 - 40°F, Partly Cloudy

Physical Appearance and Odor of Sample: Water clear, strong sewer odor, no sheen

Additional Comments:

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill | **Date:** 10/26/2016 | **Project #:** 86-18809

Sampler(s): IEM, TJF, AB | **Sample ID:** MS301.2 | **Sample Time:** 10:15

Well Information:

Depth of Well (ft., Top of PVC):	96.56
Initial Static Water Level (ft., Top of PVC):	57.48
Depth to LNAPL/DNAPL (Top of PVC):	
LNAPL/DNAPL Thickness (inches):	

Well Volume Calculation:

1 in. Casing:		ft. of water x .04 =	gallons
2 in. Casing:	39.08	ft. of water x .16 =	6.25 gallons
3 in. Casing:		ft. of water x .36 =	gallons
4 in. Casing:		ft. of water x .64 =	gallons

Evacuation Method:

Submersible:		Centrifugal:	
Airlift:		Pos. Displ.:	X
Bailer:		Ded. Pump:	

Volume of Water Removed: 7 gallons

Dry: yes | no

Field Tests:

		Units:			Units:
Temperature:	11.95	°C	pH:	6.18	units
Salinity:		%	ORP:		mV
Spec. Cond.:	>100.0	mS/cm	Turbidity:	0.0	NTU
Diss. Oxygen:		mg/L			

Sampling Method:

Stainless Bailer:	
Teflon Bailer:	
Pos. Disp. Pump:	X
Dis. Bailer:	
Ded. Pump:	
Other:	

Analysis:
- Total Iron
- Total Chromium
- Phenols

Observations:

Weather: 35 - 40°F, Partly Cloudy

Physical Appearance and Odor of Sample: Water clear, no sheen, strong sewer odor

Additional Comments: MS/MSD sample taken here at 10:15

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill | **Date:** 10/26/2016 | **Project #:** 86-18809

Sampler(s): IEM, TJF, AB | **Sample ID:** MS301.3 | **Sample Time:** 9:05

Well Information:

Depth of Well (ft., Top of PVC):	82.92
Initial Static Water Level (ft., Top of PVC):	54.83
Depth to LNAPL/DNAPL (Top of PVC):	
LNAPL/DNAPL Thickness (inches):	

Well Volume Calculation:

1 in. Casing:		ft. of water x .04 =	gallons
2 in. Casing:	28.09	ft. of water x .16 =	4.49 gallons
3 in. Casing:		ft. of water x .36 =	gallons
4 in. Casing:		ft. of water x .64 =	gallons

Evacuation Method:

Submersible:		Centrifugal:	
Airlift:		Pos. Displ.:	X
Bailer:		Ded. Pump:	

Volume of Water Removed: 5 gallons

Dry: yes | no

Field Tests:

		Units:			Units:
Temperature:	11.45	°C	pH:	6.57	units
Salinity:		%	ORP:		mV
Spec. Cond.:	96.9	mS/cm	Turbidity:	0.0	NTU
Diss. Oxygen:		mg/L			

Sampling Method:

Stainless Bailer:	
Teflon Bailer:	
Pos. Disp. Pump:	X
Dis. Bailer:	
Ded. Pump:	
Other:	

Analysis: Total Iron; Total Chromium; Phenols

Observations:

Weather: 35 - 40°F, Partly Cloudy

Physical Appearance and Odor of Sample: Water clear, strong sewer odor, no sheen

Additional Comments:

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill **Date:** 10/26/2016 **Project #:** 86-18809

Sampler(s): IEM, TJF, AB **Sample ID:** MS301.4 **Sample Time:** 10:10

Well Information:

Depth of Well (ft., Top of PVC):	67.71
Initial Static Water Level (ft., Top of PVC):	50.9
Depth to LNAPL/DNAPL (Top of PVC):	
LNAPL/DNAPL Thickness (inches):	

Well Volume Calculation:

1 in. Casing:		ft. of water x .04 =	gallons
2 in. Casing:	16.81	ft. of water x .16 =	2.69 gallons
3 in. Casing:		ft. of water x .36 =	gallons
4 in. Casing:		ft. of water x .64 =	gallons

Evacuation Method:

Submersible:		Centrifugal:	
Airlift:		Pos. Displ.:	X
Bailer:		Ded. Pump:	

Volume of Water Removed: 3 gallons

Dry: yes no

Field Tests:

		Units:			Units:
Temperature:	11.36	°C	pH:	11.64	units
Salinity:		%	ORP:		mV
Spec. Cond.:	36.8	mS/cm	Turbidity:	4.2	NTU
Diss. Oxygen:		mg/L			

Sampling Method:

Stainless Bailer:	
Teflon Bailer:	
Pos. Disp. Pump:	
Dis. Bailer:	X
Ded. Pump:	
Other:	

Analysis: Total Iron; Total Chromium; Phenols

Observations:

Weather: 35 - 40°F, Partly Cloudy

Physical Appearance and Odor of Sample: Water yellowish tint, slight sewer odor, slight blocky sheen

Additional Comments: Duplicate sample taken here at 10:10

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill | **Date:** 10/26/2016 | **Project #:** 86-18809

Sampler(s): IEM, TJF, AB | **Sample ID:** MS301.5 | **Sample Time:** 11:10

Well Information:

Depth of Well (ft., Top of PVC):	50.91
Initial Static Water Level (ft., Top of PVC):	39.63
Depth to LNAPL/DNAPL (Top of PVC):	
LNAPL/DNAPL Thickness (inches):	

Well Volume Calculation:

1 in. Casing:		ft. of water x .04 =	gallons
2 in. Casing:	11.28	ft. of water x .16 =	1.80 gallons
3 in. Casing:		ft. of water x .36 =	gallons
4 in. Casing:		ft. of water x .64 =	gallons

Evacuation Method:

Submersible:		Centrifugal:	
Airlift:		Pos. Displ.:	X
Bailer:		Ded. Pump:	

Volume of Water Removed: 3 gallons

Dry: yes no

Field Tests:

		Units:			Units:
Temperature:	11.82	°C	pH:	12.66	units
Salinity:		%	ORP:		mV
Spec. Cond.:	11.5	mS/cm	Turbidity:	5.7	NTU
Diss. Oxygen:		mg/L			

Sampling Method:

Stainless Bailer:	
Teflon Bailer:	
Pos. Disp. Pump:	X
Dis. Bailer:	
Ded. Pump:	
Other:	

Analysis: Total Iron; Total Chromium; Phenols

Observations:

Weather: 35 - 40°F, Partly Cloudy

Physical Appearance and Odor of Sample: Water yellowish tint, slight sewer odor, minor sheen

Additional Comments: Well purged dry, allowed to recover approximately 10-minutes before sampling

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill | **Date:** 10/26/2016 | **Project #:** 86-18809

Sampler(s): IEM, TJF, AB | **Sample ID:** W5.6 | **Sample Time:** 13:25

Well Information:

Depth of Well (ft., Top of PVC):	63.97
Initial Static Water Level (ft., Top of PVC):	47.45
Depth to LNAPL/DNAPL (Top of PVC):	
LNAPL/DNAPL Thickness (inches):	

Well Volume Calculation:

1 in. Casing:		ft. of water x .04 =	gallons
2 in. Casing:	16.52	ft. of water x .16 =	2.64 gallons
3 in. Casing:		ft. of water x .36 =	gallons
4 in. Casing:		ft. of water x .64 =	gallons

Evacuation Method:

Submersible:		Centrifugal:	
Airlift:		Pos. Displ.:	X
Bailer:		Ded. Pump:	

Volume of Water Removed: 3.5 gallons

Dry: yes | no

Field Tests:

		Units:			Units:
Temperature:	12.28	°C	pH:	12.68	units
Salinity:		%	ORP:		mV
Spec. Cond.:	13.1	mS/cm	Turbidity:	0.0	NTU
Diss. Oxygen:		mg/L			

Sampling Method:

Stainless Bailer:	
Teflon Bailer:	
Pos. Disp. Pump:	X
Dis. Bailer:	
Ded. Pump:	
Other:	

Analysis:
- Total Iron
- Total Chromium
- Phenols

Observations:

Weather: 35 - 40°F, Partly Cloudy

Physical Appearance and Odor of Sample: Water clear, sulfur odor, blocky sheen and potential solvay waste-like film

Additional Comments:

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill **Date:** 10/27/2016 **Project #:** 86-18809

Sampler(s): IEM, TJF, AB **Sample ID:** W105R **Sample Time:** N/A

Well Information:

Depth of Well (ft., Top of PVC): 49.2
Initial Static Water Level (ft., Top of PVC): 47.3
Depth to LNAPL/DNAPL (Top of PVC):
LNAPL/DNAPL Thickness (inches):

Well Volume Calculation:

1 in. Casing:		ft. of water x .04 =		gallons
2 in. Casing:	1.9	ft. of water x .16 =	0.30	gallons
3 in. Casing:		ft. of water x .36 =		gallons
4 in. Casing:		ft. of water x .64 =		gallons

Evacuation Method:

Submersible: Centrifugal:
Airlift: Pos. Displ.:
Bailer: Ded. Pump:

Volume of Water Removed: gallons
Dry: yes no

Field Tests:

	Units:		Units:
Temperature:	°C	pH:	units
Salinity:	%	ORP:	mV
Spec. Cond.:	mS/cm	Turbidity:	NTU
Diss. Oxygen:	mg/L		

Sampling Method:

Stainless Bailer:
Teflon Bailer:
Pos. Disp. Pump:
Dis. Bailer:
Ded. Pump:
Other:

Analysis: Total Iron, Total Chromium, Phenols

Observations:

Weather: 35°F, Rain, heavy at times

Physical Appearance and Odor of Sample:

Additional Comments: Blockage in well at ~35 feet below top of casing will not allow pump to pass. Tried to get smaller diameter bailer down well and that would not clear blockage either.
No sample taken.

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill | **Date:** 10/26/2016 | **Project #:** 86-18809

Sampler(s): IEM, TJF, AB | **Sample ID:** W201R | **Sample Time:** 11:50

Well Information:

Depth of Well (ft., Top of PVC):	59.59
Initial Static Water Level (ft., Top of PVC):	45.34
Depth to LNAPL/DNAPL (Top of PVC):	
LNAPL/DNAPL Thickness (inches):	

Well Volume Calculation:

1 in. Casing:		ft. of water x .04 =	gallons
2 in. Casing:	14.25	ft. of water x .16 =	2.28 gallons
3 in. Casing:		ft. of water x .36 =	gallons
4 in. Casing:		ft. of water x .64 =	gallons

Evacuation Method:

Submersible:		Centrifugal:	
Airlift:		Pos. Displ.:	X
Bailer:		Ded. Pump:	

Volume of Water Removed: 2.5 gallons

Dry: yes | no

Field Tests:

		Units:			Units:
Temperature:	11.38	°C	pH:	12.74	units
Salinity:		%	ORP:		mV
Spec. Cond.:	12.9	mS/cm	Turbidity:	0.5	NTU
Diss. Oxygen:		mg/L			

Sampling Method:

Stainless Bailer:	
Teflon Bailer:	
Pos. Disp. Pump:	X
Dis. Bailer:	
Ded. Pump:	
Other:	

Analysis: Total Iron; Total Chromium; Phenols

Observations:

Weather: 35 - 40°F, Partly Cloudy

Physical Appearance and Odor of Sample: Water clear, slight sewer odor, minor sheens and potential solvay waste-like film

Additional Comments:

Appendix B
Representative Photographs

Photograph Number 1: Looking north from near south corner of landfill.

Photograph Number 2: Looking northeast along eastern edge of landfill.

One Remington Park Drive Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801

Photograph Number 3: Looking west along northern edge of landfill.

Photograph Number 4: Looking south along western edge of landfill.

One Remington Park Drive Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801

Photograph Number 5: Representative view of stormwater catch basin after annual mowing.

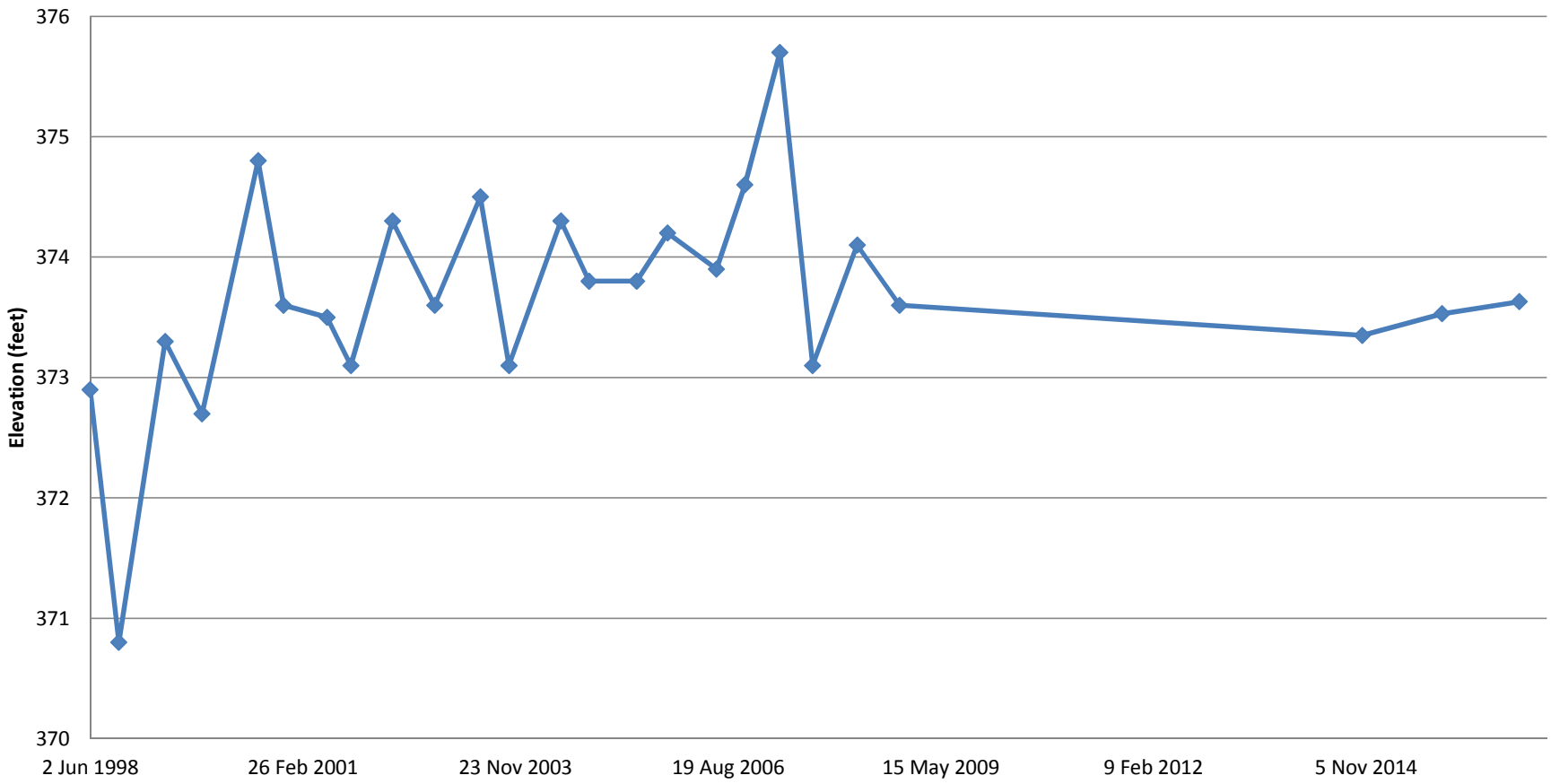
Photograph Number 6: Containerized groundwater staged near entrance to site awaiting off-site transport and disposal.

One Remington Park Drive Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801

Photograph Number 7: Representative view of rutting in low wet areas following annual mowing. Soil did not appear to be transported away from areas via water flow.

One Remington Park Drive Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801

Appendix C
Groundwater Elevation Data Plots

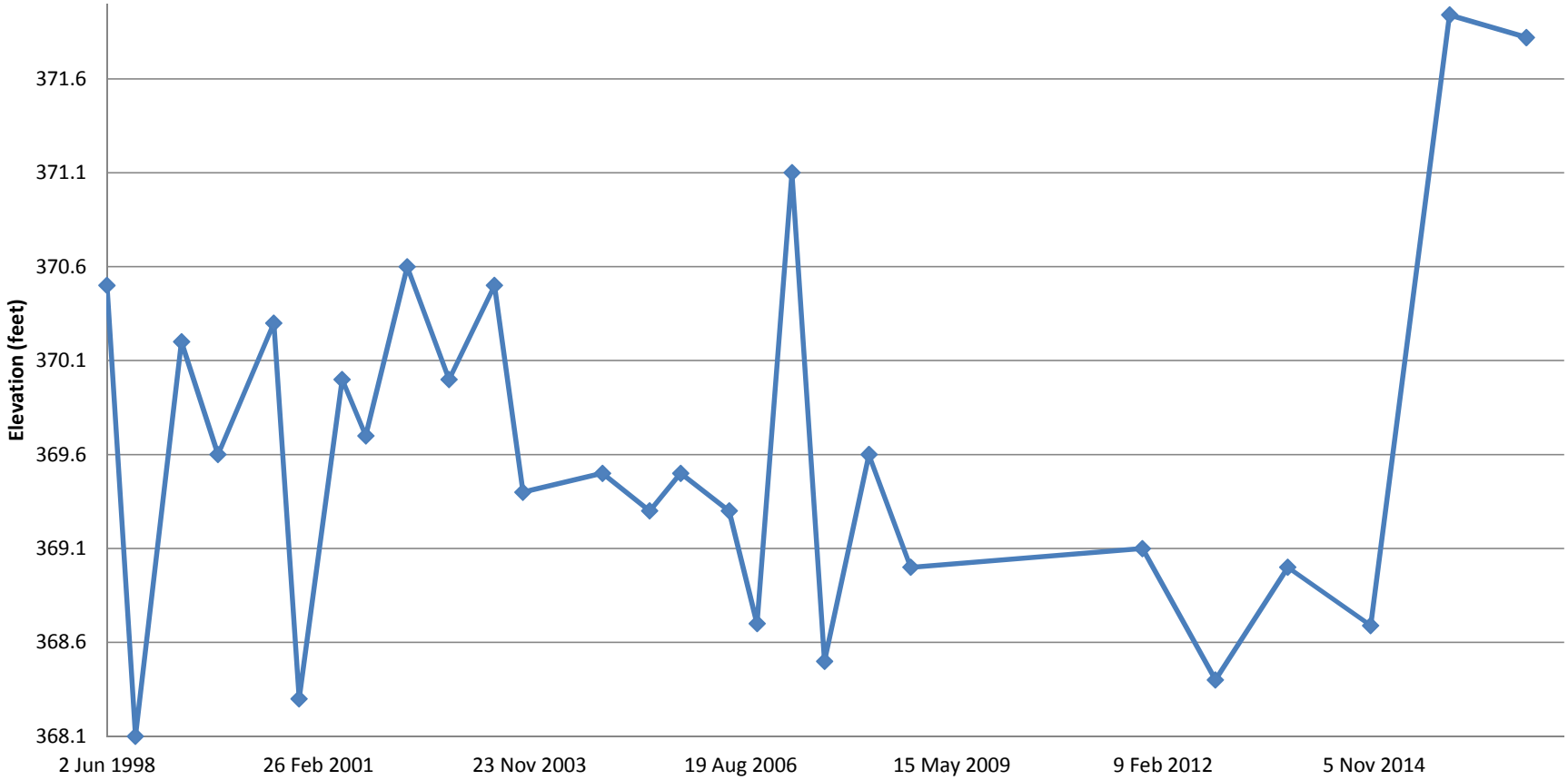


Appendix C

DW-101 - Groundwater Elevation

□or□er □r□□i□le □pe□ialt□Metal□ □□□□ □ □ere□□□ □□□□□ ater□evel□□□□□□□□in□□□i□e□erie□□□□□□□□□o□□ode□□ □□□ □□□□□□

Date: Nov 16	Drawn:	
Scale: nts	Chk'd:	
Original:	Rev:	
File Reference:		

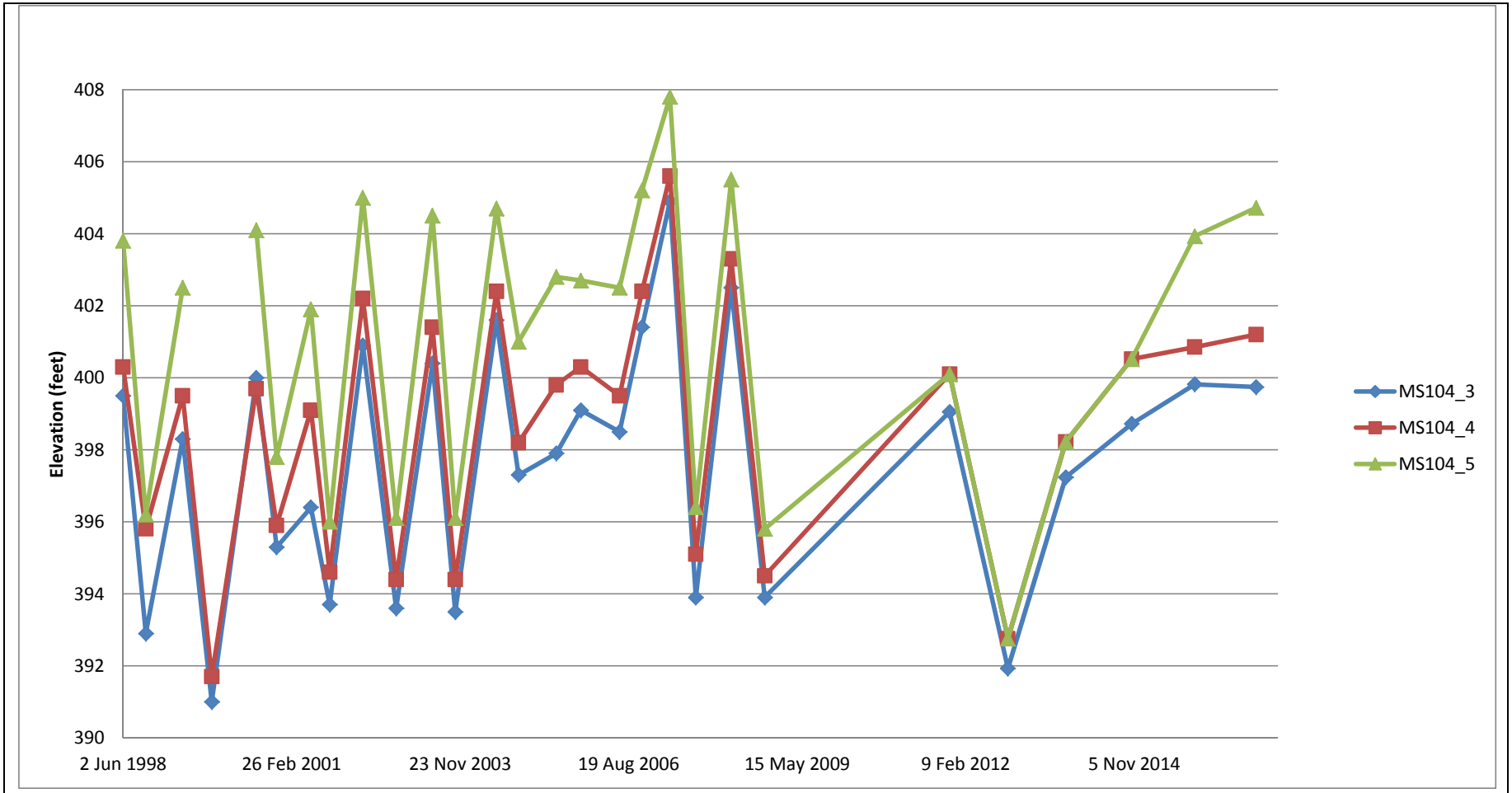


Appendix C

DW-103 - Groundwater Elevation

□or□er □r□i□le □pe□ialt□Metal□ □□□ □ □ere□□□ □□□□ ater□evel□□□□□□□□in□□□i□e□erie□□□□□□□□o□□ode□□ □□□ □□□□□

Date: Nov 16	Drawn:	
Scale: nts	Chk'd:	
Original:	Rev:	
File Reference:		

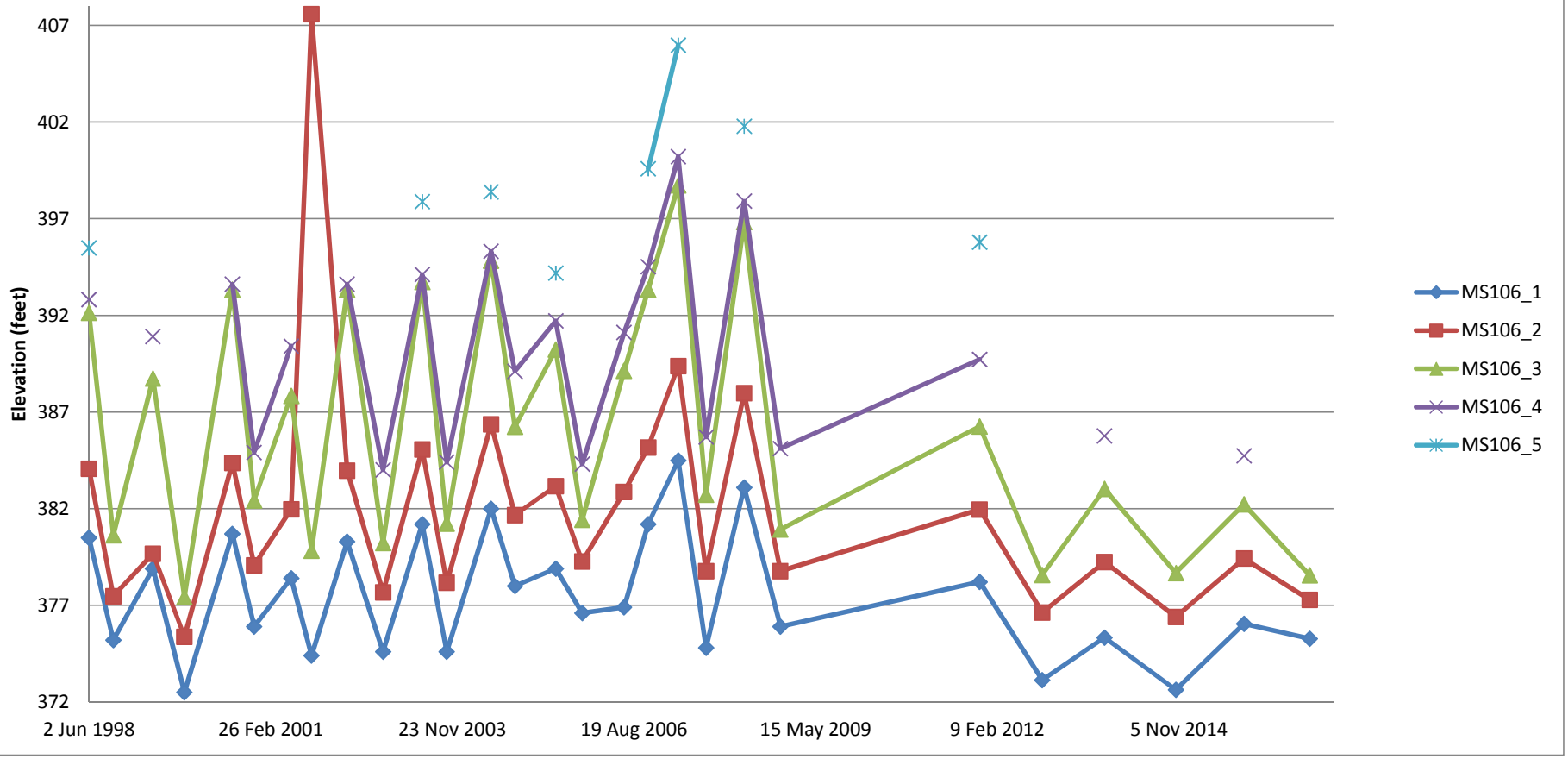


Appendix C

MS-104 Cluster - Groundwater Elevation

□or□ er □r□□i□le □pe□ialt□Metal□ □□□ □ □ere□□□ □□□□ ater□evel□□□□ □ □□□in□□□i□ e□erie□□□□ □ □□□o□□ode□n□M□□□□□□□□ M□□□□□□□□ M□□□□□□□□□

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

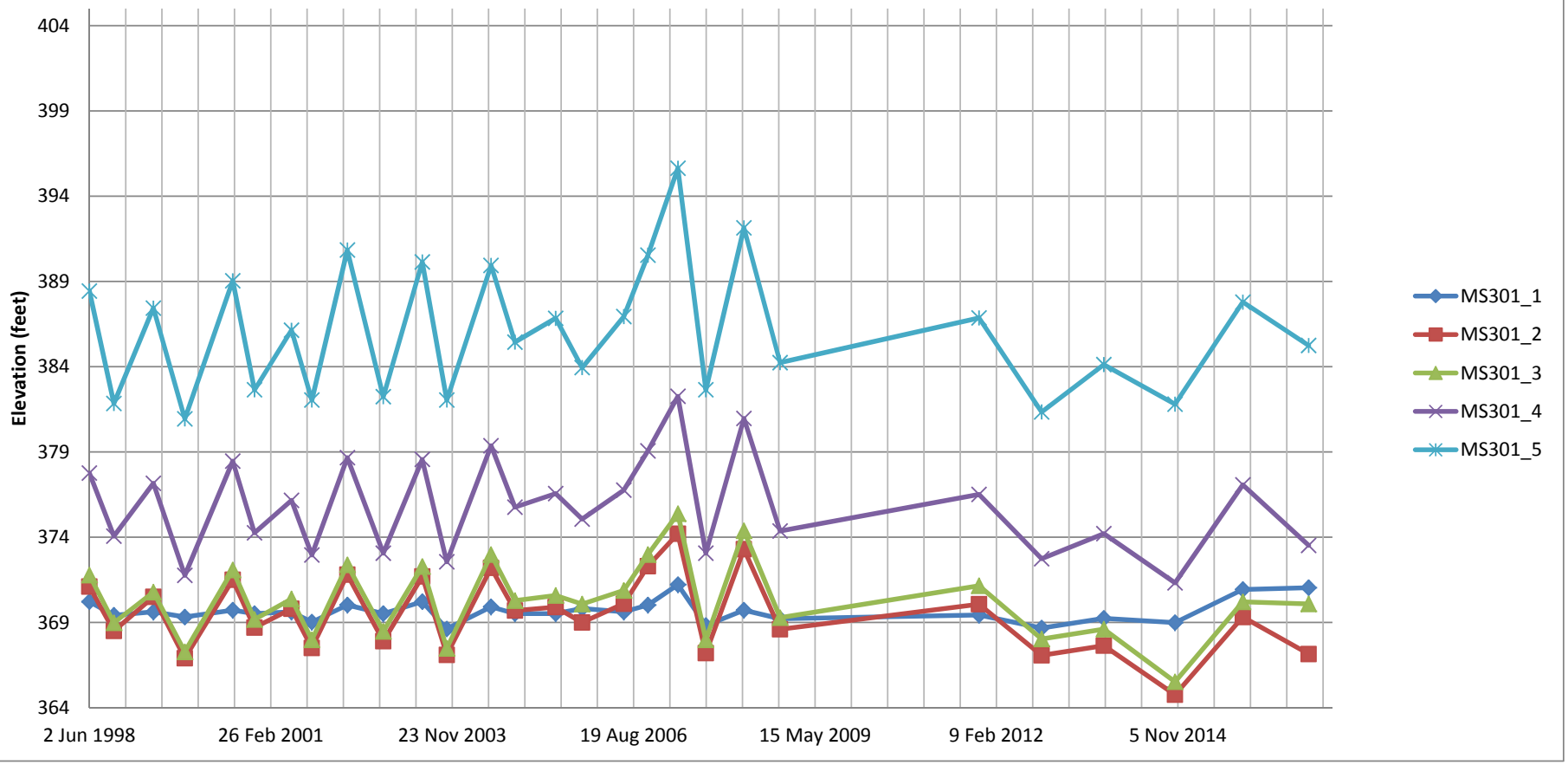


Appendix C

MS-106 Cluster - Groundwater Elevation

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

□or□er □r□□i□le □pe□ialt□Metal□ □□□ □ □ere□□□ □□□□ ater□evel□□□□□□□□in□□□i□e□erie□□□□ □ □□□o□□ode□□n□M□□□□□□□□ M□□□□□□□□ M□□□□□□□□ M□□□□□□□□ M□□□□□□□□



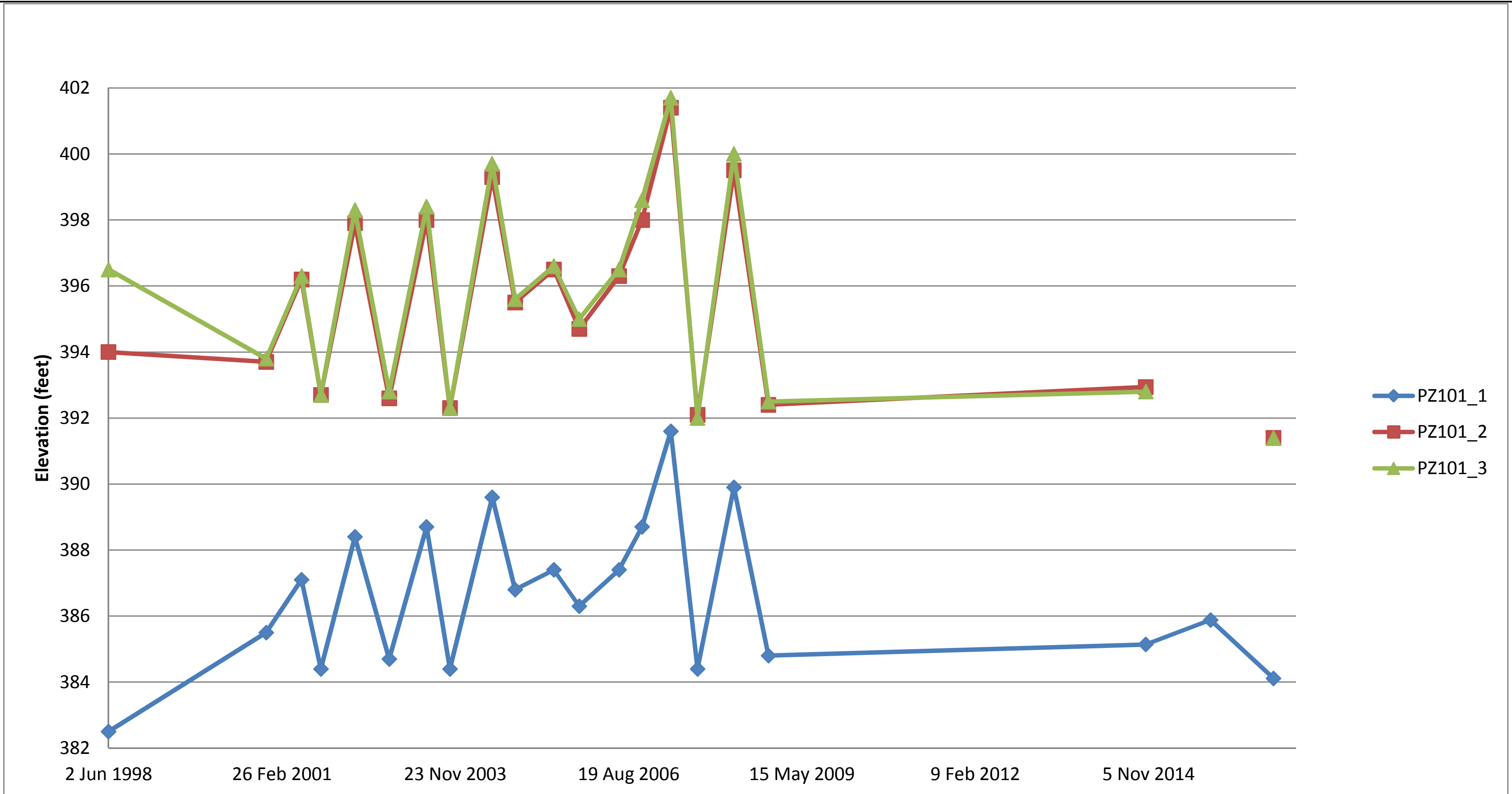
Appendix C

MS-301 Cluster - Groundwater Elevation

Former Crucible Specialty Metals LF, Where([WL1_WaterLevels_AHD_Using_Timeseries_TOC].[LocCode] In('MS301.1' , 'MS301.2' , 'MS301.3' , 'MS301.4' , 'MS301.5'))

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD

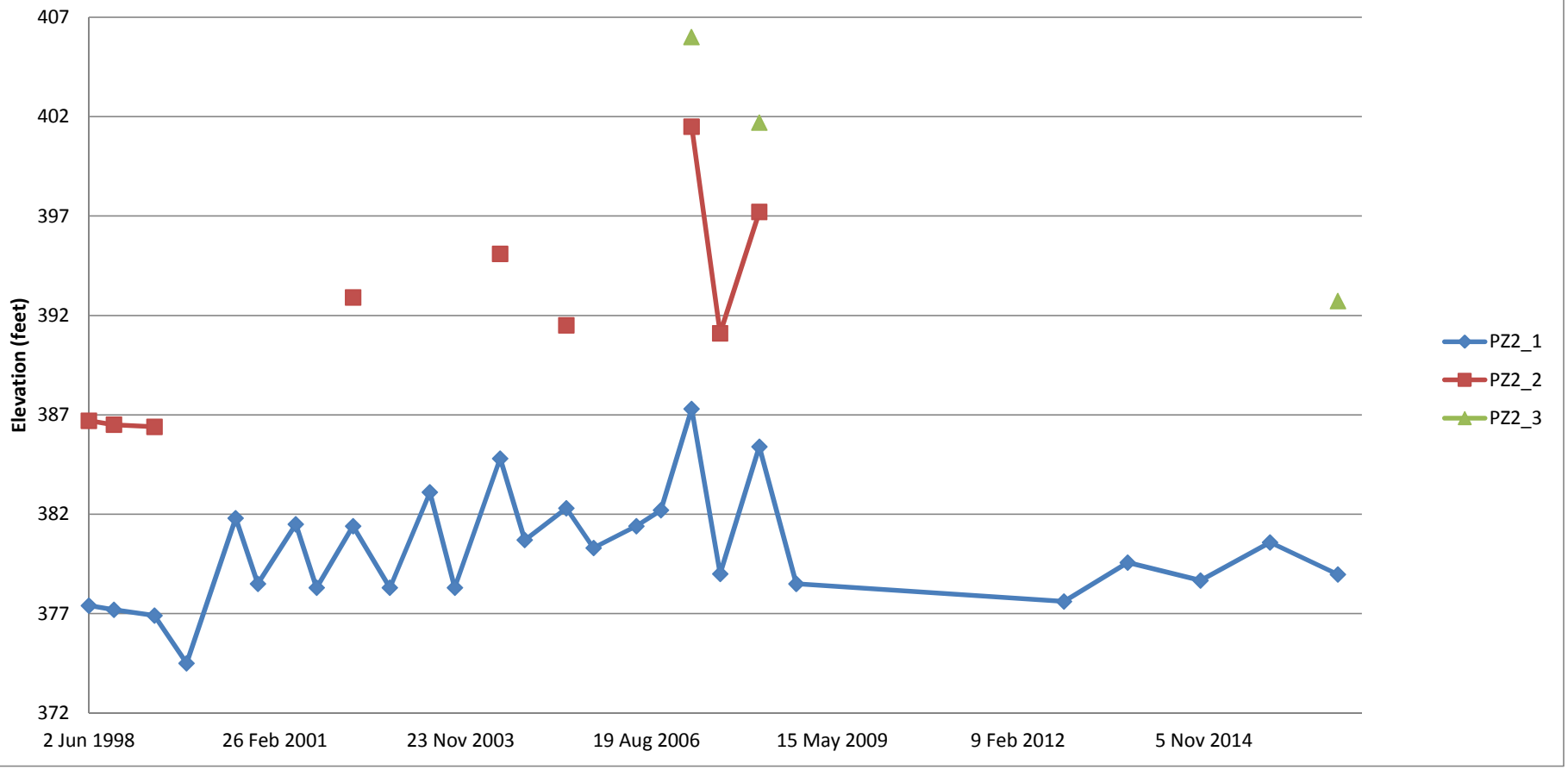


Appendix C

PZ-101 Cluster - Groundwater Elevation

□or□er □r□□i□le □pe□ialt□Metal□ □□□ □ □ere□□ □□□□ ater□evel□□□□ □ □□ □in□□□i□ e□erie□□□□ □ □□o□ode□n□□ □□□□□□□□ □□□□□□□□ □□□□□□□□
□□

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

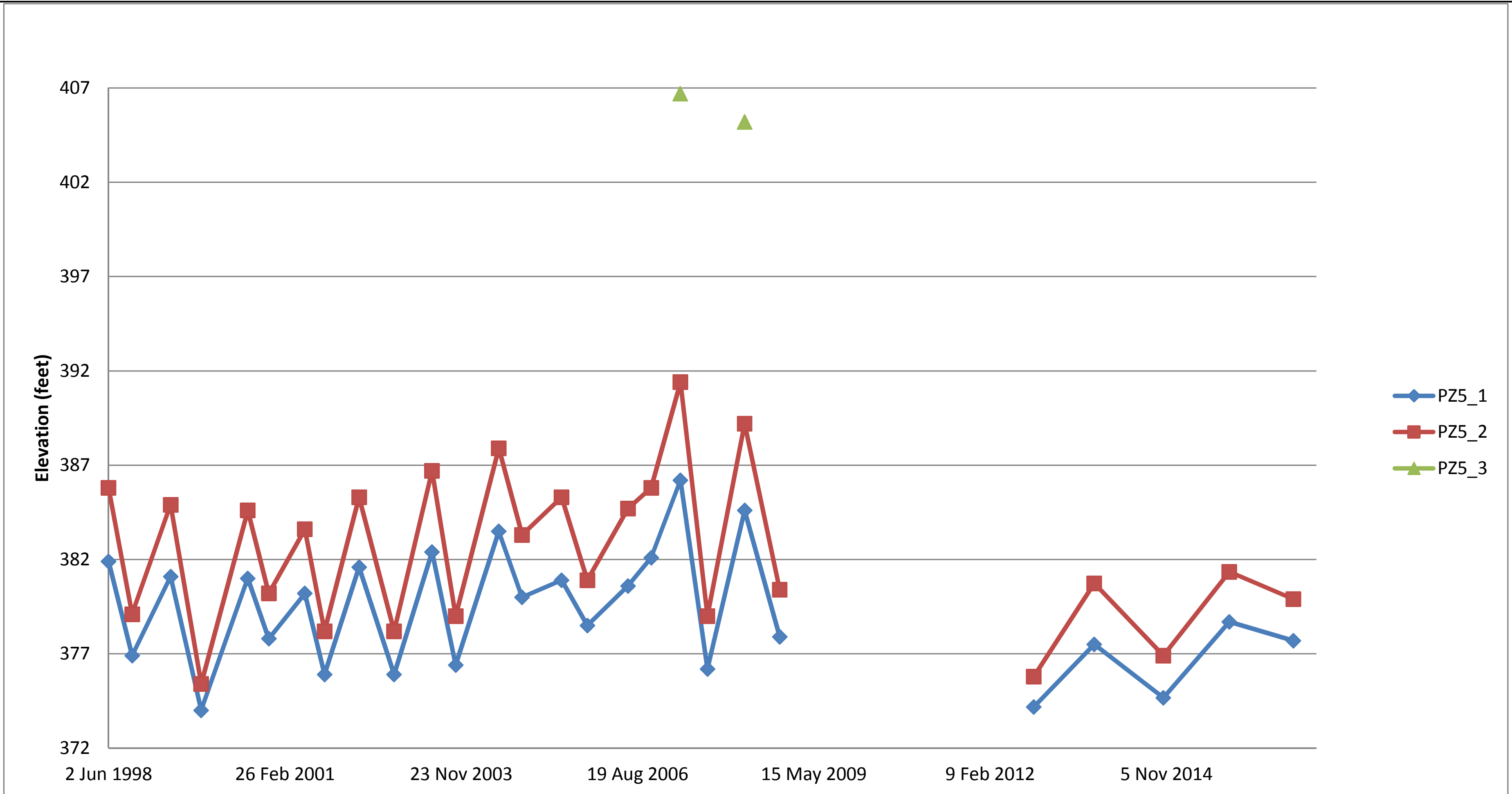


Appendix C

PZ-2 Cluster - Groundwater Elevation

□or□er □r□□i□le □pe□ialt□Metal□ □□□ □ □ere□□□ □□□□ ater□evel□□□□□□□□in□□□i□e□erie□□□□ □ □□□o□□ode□n□□ □□□□□□□ □□□□□□□□ □□□□□□□□

Date: Nov 16		Drawn:	
Scale: nts		Chk'd:	
Original:		Rev:	
File Reference:			

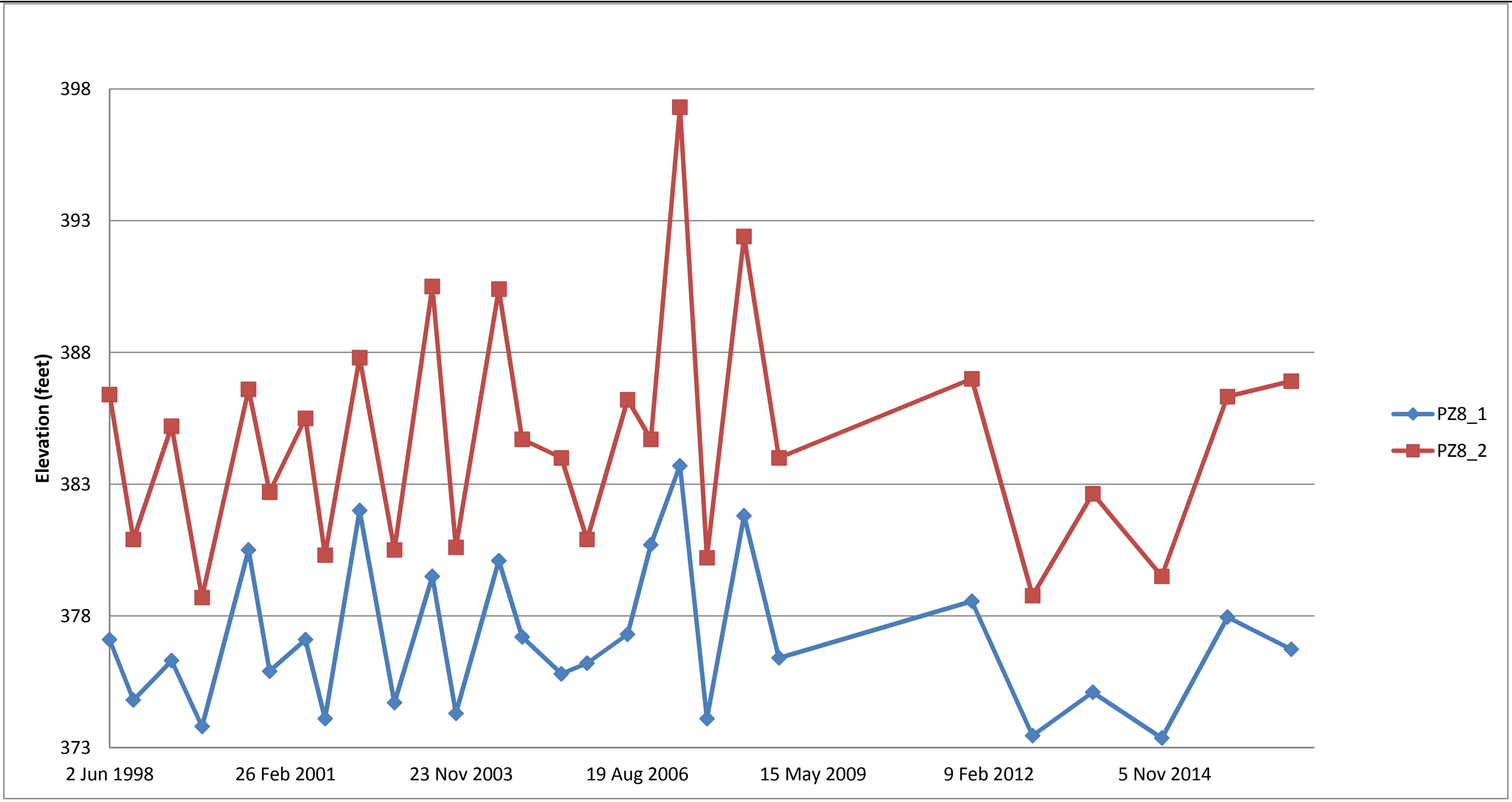


Appendix C

PZ-5 Cluster - Groundwater Elevation

□or□er □r□□i□le □pe□ialt□Metal□ □□□ □ □ere□□ □□□□ ater□evel□□□□ □□ □□in□□□i□ e□erie□□□□ □□□o□□ode□n□□□□□□□ □□□□□□ □□□□□□

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

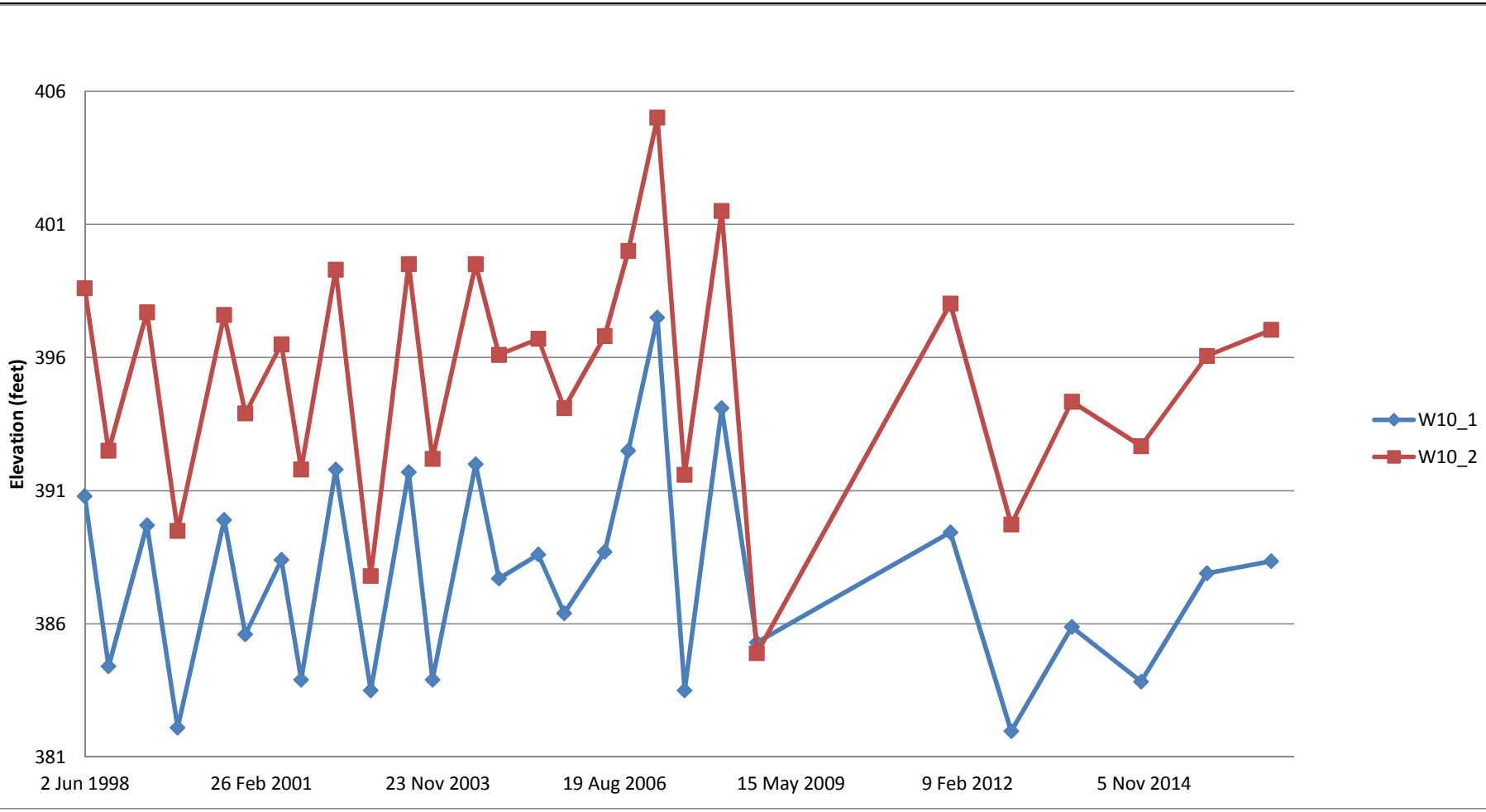


Appendix C

PZ-8 Cluster - Groundwater Elevation

or er r i le pe ialt Metal ere ater evel in i e erie o ode n

Date:	Drawn:
Nov 16	
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

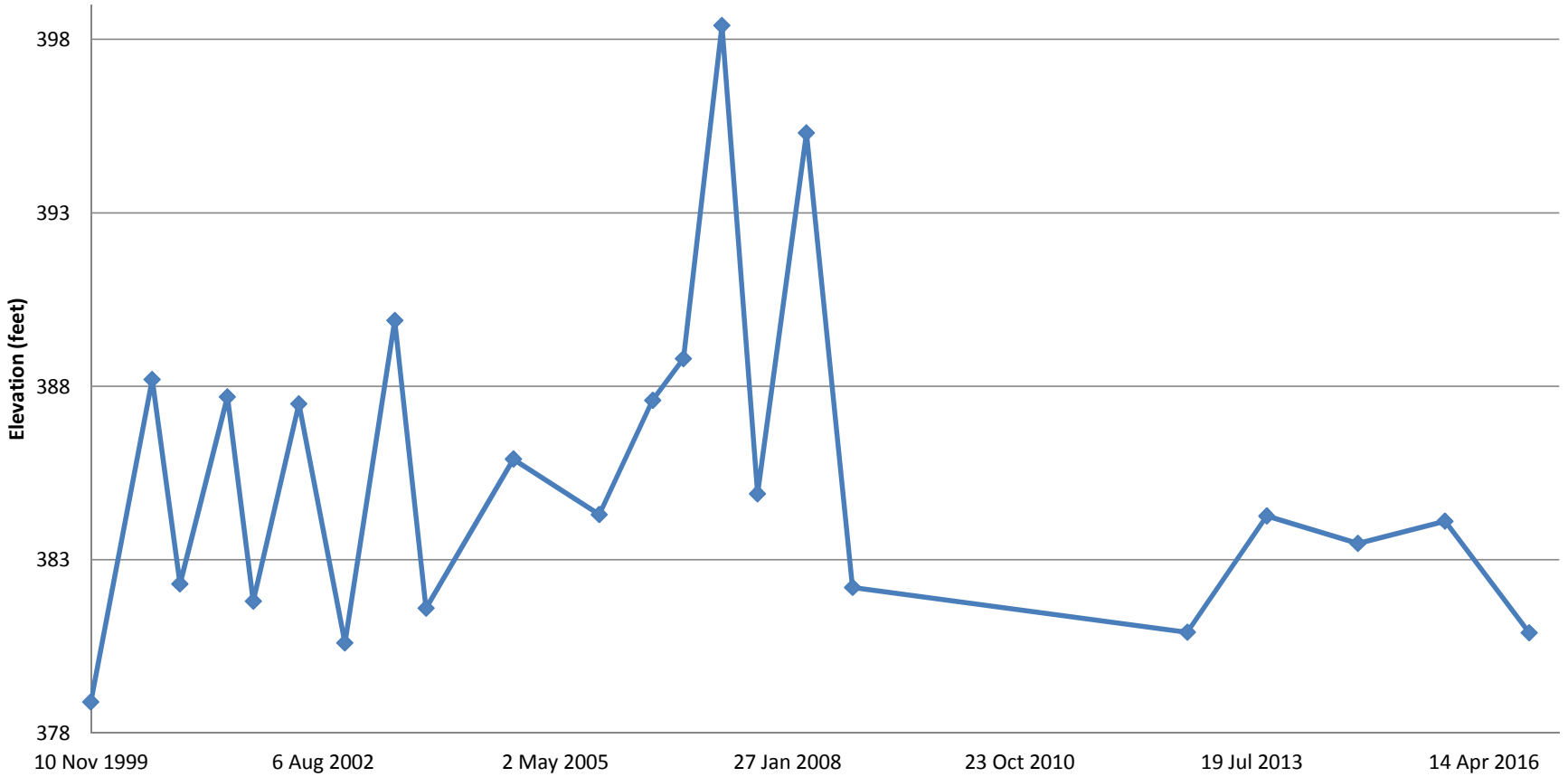


Appendix C

W-10 Cluster - Groundwater Elevation

□or□ er □r□□i□le □pe□ialt□Metal□ □□□ □ □ere□□□ □□□□ ater□evel□□□□ □ □□□in□□□i□ e□erie□□□□ □ □□□o□□ode□n□□□ □□□□□□ □□ □□□□□□□

Date: Nov 16		Drawn:	
Scale: nts		Chk'd:	
Original:		Rev:	
File Reference:			

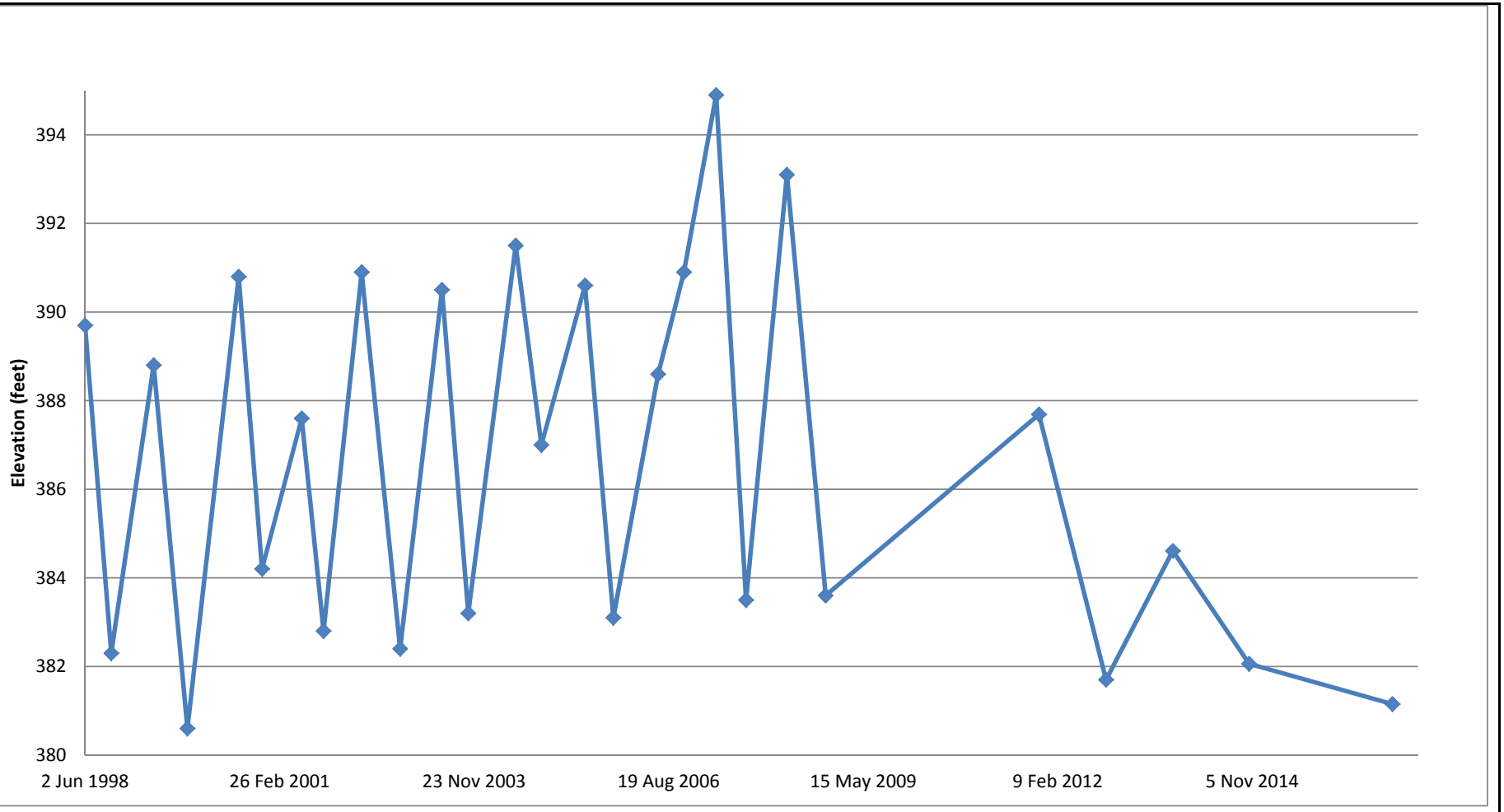


Appendix C

W-105R - Groundwater Elevation

□or□er □r□□i□le □pe□ialt□Metal□ □□□□ □ □ere□□□ □□□□□ ater□evel□□□□□□□□in□□□i□e□erie□□□□□□□□□o□□ode□□ □□ □□□□□□□

Date: Nov 16	Drawn:		
Scale: nts	Chk'd:		
Original:	Rev:		
File Reference:			



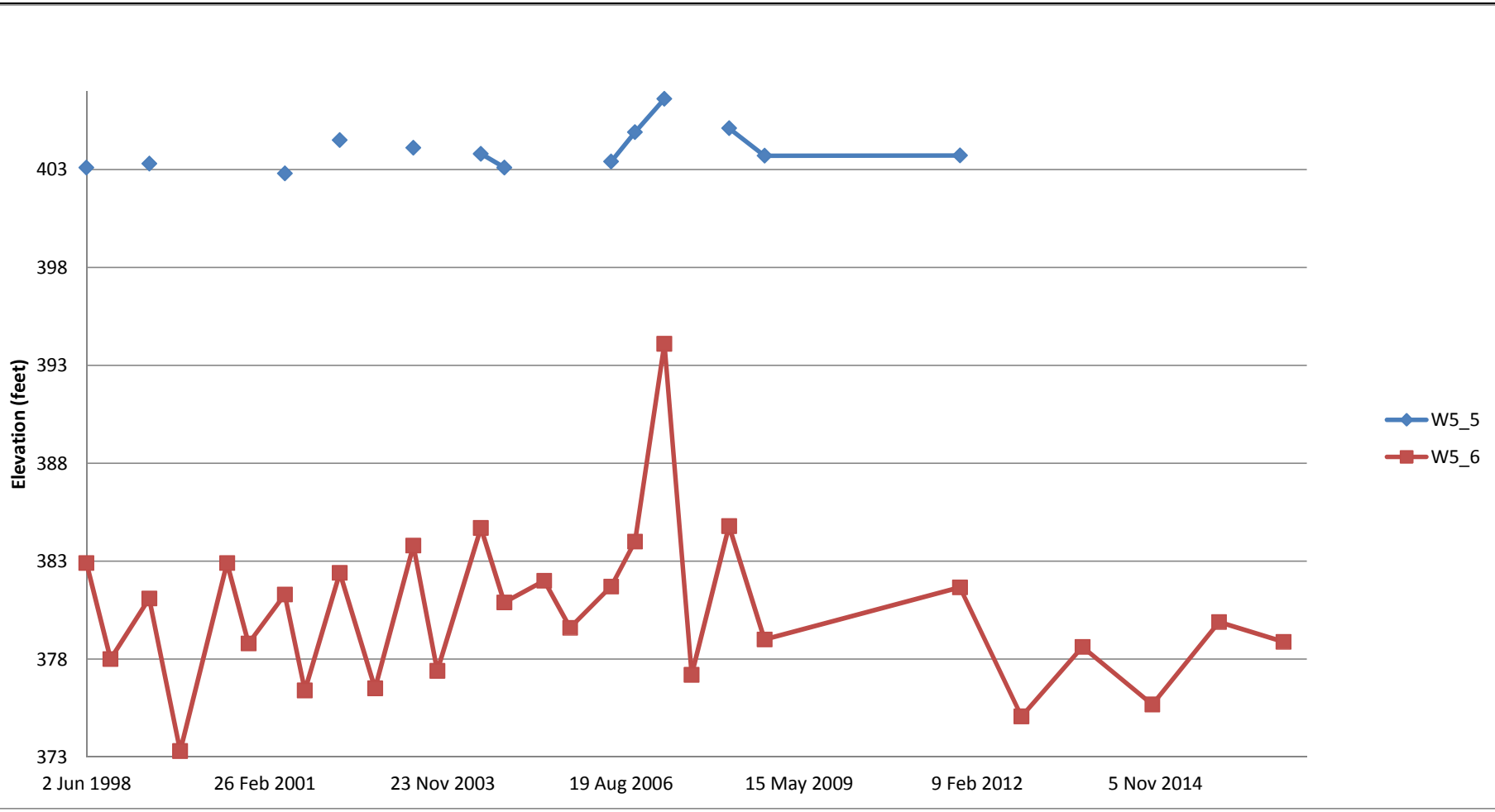
Appendix C

W-201R - Groundwater Elevation

Former Crucible Specialty Metals LF, Where([WL1_WaterLevels_AHD_Using_Timeseries_TOC].[LocCode] = 'W201R')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



Appendix C

W-5 Cluster - Groundwater Elevation

□or□er □r□□i□le □pe□ialt□Metal□ □□□□ □ □ere□□□ □□□□□ ater□evel□□□□□□□□in□□□i□e□erie□□□□□□□□□o□□ode□n□□□ □□□□□□ □□ □□□□□□

Date: Nov 16	Drawn:	
Scale: nts	Chk'd:	
Original:	Rev:	
File Reference:		

Appendix D
Groundwater Results Plots

Appendix D

Summary of Field Parameter Results
October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	47.52	12.56
LCL	26.30	11.44

Sample Date	Sample ID		
2/4/1987	MS104.3	-	11.9
5/19/1987	MS104.3	40	12.2
8/11/1987	MS104.3	46	11.9
11/17/1987	MS104.3	**52**	11.8
2/16/1988	MS104.3	**23**	**12.7**
5/24/1988	MS104.3	**16**	**12.6**
8/16/1988	MS104.3	44	12.1
11/16/1988	MS104.3	43	12.2
2/14/1989	MS104.3	43	12.3
5/9/1989	MS104.3	**16**	**10**
8/8/1989	MS104.3	29	12.3
6/26/1990	MS104.3	>10	**13.19**
12/19/1990	MS104.3	**20**	**12.68**
6/26/1991	MS104.3	26.8	**12.7**
11/20/1991	MS104.3	31.9	12.39
12/15/1992	MS104.3	46.3	12.18
8/24/1993	MS104.3	**26**	12.23
9/30/1993	MS104.3	**23.6**	12.46
6/27/1994	MS104.3	27.2	12.33
11/2/1994	MS104.3	**7.81**	**12.62**
5/4/1995	MS104.3	**7.24**	11.59
10/25/1995	MS104.3	**16.5**	12.07
5/24/1996	MS104.3	**24.87**	11.88
10/29/1996	MS104.3	**20.6**	11.51
7/1/1997	MS104.3	**17.5**	11.95
10/30/1997	MS104.3	**18.09**	11.44
6/29/1998	MS104.3	**18.09**	11.94
11/15/1998	MS104.3	**16.62**	**12.59**
5/27/1999	MS104.3	**15**	12.5
10/13/1999	MS104.3	**13.53**	11.8
6/30/2000	MS104.3	**21.44**	11.9
10/26/2000	MS104.3	**18**	12.1
6/20/2001	MS104.3	**13.6**	12.09
10/11/2001	MS104.3	**13.78**	12.15
4/24/2002	MS104.3	**17.07**	12.32
10/22/2002	MS104.3	**11.33**	12.29
6/17/2003	MS104.3	**14.1**	12.14
10/28/2003	MS104.3	**19.3**	12.3
5/25/2004	MS104.3	**16.7**	12.45
10/26/2004	MS104.3	**16**	**10.14**
5/4/2005	MS104.3	**15.4**	**13.15**
11/16/2005	MS104.3	**15.3**	12.25
4/25/2006	MS104.3	**14.1**	12.12
10/17/2006	MS104.3	**13.4**	12.43
5/8/2007	MS104.3	**8.2**	12.4
10/10/2007	MS104.3	**9.1**	12.3
6/3/2008	MS104.3	**11.4**	12.2
10/7/2008	MS104.3	**10.8**	12.4
11/8/2011	MS104.3	**11.1**	**14.67**
10/18/2012	MS104.3	**13.4**	12.26
9/25/2013	MS104.3	**12.2**	12.47
10/22/2014	MS104.3	**11.83**	**13.04**
10/29/2015	MS104.3	**12.5**	12.25
10/27/2016	MS104.3	**12.4**	**12.7**

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	13.01	12.85
LCL	11.17	11.66

Sample Date	Sample ID		
2/4/1987	MS104.4	12.5	12.4
5/19/1987	MS104.4	11.5	12.2
8/11/1987	MS104.4	**13.5**	12.4
11/17/1987	MS104.4	12	12.3
2/16/1988	MS104.4	13	12.5
5/24/1988	MS104.4	**10**	12.6
8/16/1988	MS104.4	**14**	12.3
11/16/1988	MS104.4	**11**	12.8
2/14/1989	MS104.4	12	12.7
5/9/1989	MS104.4	**11**	**10**
8/8/1989	MS104.4	12.5	12.6
6/26/1990	MS104.4	>10	**13.1**
12/19/1990	MS104.4	**10**	**12.87**
6/26/1991	MS104.4	13	12.81
11/20/1991	MS104.4	12.8	12.77
12/15/1992	MS104.4	**10.75**	12.41
8/24/1993	MS104.4	**9.2**	12.76
9/30/1993	MS104.4	**9.7**	**12.86**
6/27/1994	MS104.4	11.19	12.59
11/2/1994	MS104.4	**5.49**	**12.86**
5/4/1995	MS104.4	**5.05**	11.92
10/25/1995	MS104.4	**9.8**	12.38
5/24/1996	MS104.4	**10.85**	12.21
10/29/1996	MS104.4	**11**	12.03
7/1/1997	MS104.4	**9.95**	12.23
10/30/1997	MS104.4	**10.17**	**11.44**
6/29/1998	MS104.4	**9.721**	12.43
11/15/1998	MS104.4	**9.495**	12.85
5/27/1999	MS104.4	**10**	12.8
10/13/1999	MS104.4	**13.41**	11.9
6/30/2000	MS104.4	**10.27**	11.8
10/26/2000	MS104.4	**10.63**	12.1
6/20/2001	MS104.4	**7.4**	12.04
10/11/2001	MS104.4	**9.891**	12.48
4/24/2002	MS104.4	**9.891**	**13.55**
10/22/2002	MS104.4	11.25	12.29
6/17/2003	MS104.4	**8.7**	12.22
10/28/2003	MS104.4	12.8	12.1
5/25/2004	MS104.4	12	12
10/26/2004	MS104.4	**11**	**10.7**
5/4/2005	MS104.4	**10.7**	**13.2**
11/16/2005	MS104.4	**13.9**	12.3
4/25/2006	MS104.4	11.3	12.6
10/17/2006	MS104.4	**10**	12.4
5/8/2007	MS104.4	**4.1**	12.5
10/10/2007	MS104.4	**7.8**	12.4
6/3/2008	MS104.4	**8.9**	12.4
10/7/2008	MS104.4	**8.5**	11.8
11/8/2011	MS104.4	**8.9**	**14.5**
10/18/2012	MS104.4	-	-
9/25/2013	MS104.4	**10.9**	12.46
10/22/2014	MS104.4	**10.3**	**13.12**
10/29/2015	MS104.4	**9.7**	12.25
10/27/2016	MS104.4	**10.7**	12.77

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	10.17	12.94
LCL	9.00	11.61

Sample Date	Sample ID		
2/4/1987	MS104.5	9.2	12.5
5/19/1987	MS104.5	9.2	12
8/11/1987	MS104.5	**10.5**	12.5
11/17/1987	MS104.5	9.8	12.2
2/16/1988	MS104.5	10	12.7
5/24/1988	MS104.5	**8.4**	12.7
8/16/1988	MS104.5	9.2	12.4
11/16/1988	MS104.5	9.1	12.9
2/14/1989	MS104.5	10	12.7
5/9/1989	MS104.5	9	**9.8**
8/8/1989	MS104.5	**11**	12.6
6/26/1990	MS104.5	>10	**13.04**
12/19/1990	MS104.5	9.4	12.9
6/26/1991	MS104.5	**11**	12.8
11/20/1991	MS104.5	-	-
12/15/1992	MS104.5	9.37	12.79
8/24/1993	MS104.5	**8.8**	12.72
9/30/1993	MS104.5	**8.31**	12.8
6/27/1994	MS104.5	**10.32**	12.54
11/2/1994	MS104.5	**5.02**	12.84
5/4/1995	MS104.5	**4.74**	11.95
10/25/1995	MS104.5	**8.2**	11.92
5/24/1996	MS104.5	9.721	12.13
10/29/1996	MS104.5	9.73	12.18
7/1/1997	MS104.5	**8.48**	12.28
10/30/1997	MS104.5	9.269	**11.48**
6/29/1998	MS104.5	9.043	12.59
11/15/1998	MS104.5	10.09	**13.04**
5/27/1999	MS104.5	9.8	12.7
10/13/1999	MS104.5	-	-
6/30/2000	MS104.5	9.42	12
10/26/2000	MS104.5	9.782	12
6/20/2001	MS104.5	**7.2**	12.07
10/11/2001	MS104.5	**8.949**	12.59
4/24/2002	MS104.5	9.185	12.64
10/22/2002	MS104.5	**10.32**	12.56
6/17/2003	MS104.5	**8.2**	12.36
10/28/2003	MS104.5	**12.7**	12.52
5/25/2004	MS104.5	9.2	12.42
10/26/2004	MS104.5	**10.7**	**11.17**
5/4/2005	MS104.5	9.2	**13.65**
11/16/2005	MS104.5	**10.6**	12.49
4/25/2006	MS104.5	9.1	12.4
10/17/2006	MS104.5	**10.2**	12.54
5/8/2007	MS104.5	**0.5**	12.31
10/10/2007	MS104.5	**6.5**	12.1
6/3/2008	MS104.5	**8**	12.5
10/7/2008	MS104.5	**7.9**	12.4
11/8/2011	MS104.5	10	**14.73**
10/18/2012	MS104.5	-	-
9/25/2013	MS104.5	**10.5**	12.49
10/22/2014	MS104.5	9.6	**13.1**
10/29/2015	MS104.5	**10.6**	12.32
10/27/2016	MS104.5	**10.4**	12.8

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	17.77	12.55
LCL	9.36	12.43

Sample Date	Sample ID		
6/26/1990	MS106.1	>10	12.54
12/19/1990	MS106.1	11	12.5
6/26/1991	MS106.1	13.1	12.5
11/20/1991	MS106.1	16.6	**12.42**
12/15/1992	MS106.1	11.18	**12.88**
8/24/1993	MS106.1	11	**12.33**
9/30/1993	MS106.1	11	**12.93**
6/27/1994	MS106.1	10.69	**12.63**
11/2/1994	MS106.1	**5.89**	12.53
5/4/1995	MS106.1	**5.5**	**11.83**
10/25/1995	MS106.1	16.4	**12.26**
5/24/1996	MS106.1	9.948	**12.58**
10/29/1996	MS106.1	13.2	**12.02**
7/1/1997	MS106.1	10.3	**12.13**
10/30/1997	MS106.1	13.9	**11.81**
6/29/1998	MS106.1	**8.139**	**12.42**
11/15/1998	MS106.1	13.06	**12.98**
5/27/1999	MS106.1	9.5	**12.6**
10/13/1999	MS106.1	13.53	**11.9**
6/30/2000	MS106.1	9.42	**12**
10/26/2000	MS106.1	11.72	**12**
6/20/2001	MS106.1	**7.9**	**12.23**
10/11/2001	MS106.1	12.36	**12.74**
4/24/2002	MS106.1	**9.067**	**13.08**
10/22/2002	MS106.1	12.15	**12.28**
6/17/2003	MS106.1	**8**	**11.89**
10/28/2003	MS106.1	13.9	**10.57**
5/25/2004	MS106.1	10.4	12.48
10/26/2004	MS106.1	11	**11.06**
5/4/2005	MS106.1	10.4	**13.33**
11/16/2005	MS106.1	14.2	12.52
4/25/2006	MS106.1	14	**12.25**
10/17/2006	MS106.1	10.2	**12.64**
5/8/2007	MS106.1	11.6	**12.24**
10/10/2007	MS106.1	**8.1**	**12.2**
6/3/2008	MS106.1	**8.1**	**12.3**
10/7/2008	MS106.1	**8.5**	**12.4**
11/8/2011	MS106.1	**9.1**	**14.5**
10/18/2012	MS106.1	11.7	**13.09**
9/25/2013	MS106.1	10.7	12.48
10/22/2014	MS106.1	**8.84**	**13.27**
10/30/2015	MS106.1	13.7	**12.76**
10/26/2016	MS106.1	9.7	**12.62**

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	34.31	12.85
LCL	21.55	12.43

Sample Date	Sample ID		
6/26/1990	MS106.2	-	**12.18**
12/19/1990	MS106.2	23	12.71
6/26/1991	MS106.2	30	12.7
11/20/1991	MS106.2	30.8	**12.07**
12/15/1992	MS106.2	**44.8**	12.64
8/24/1993	MS106.2	22	**12.06**
9/30/1993	MS106.2	**42.1**	12.66
6/27/1994	MS106.2	22.3	**12.41**
11/2/1994	MS106.2	**7.27**	12.44
5/4/1995	MS106.2	**6.98**	**11.59**
10/25/1995	MS106.2	**19.5**	**12.15**
5/24/1996	MS106.2	23.23	**11.26**
10/29/1996	MS106.2	21.9	**11.82**
7/1/1997	MS106.2	**20.3**	**11.93**
10/30/1997	MS106.2	**21.48**	**11.77**
6/29/1998	MS106.2	**19.22**	**12.01**
11/15/1998	MS106.2	**19.58**	12.76
5/27/1999	MS106.2	**17**	**12.3**
10/13/1999	MS106.2	**10.87**	**11.9**
6/30/2000	MS106.2	**18**	**12**
10/26/2000	MS106.2	**19.02**	**11.9**
6/20/2001	MS106.2	**14**	**11.87**
10/11/2001	MS106.2	**17.19**	12.44
4/24/2002	MS106.2	**17.66**	**12.87**
10/22/2002	MS106.2	**18.79**	**11.97**
6/17/2003	MS106.2	**14.8**	**11.44**
10/28/2003	MS106.2	**19.8**	**10.66**
5/25/2004	MS106.2	**20**	**12.41**
10/26/2004	MS106.2	**17.6**	**10.7**
5/4/2005	MS106.2	**15**	**13.01**
11/16/2005	MS106.2	**17.7**	12.76
4/25/2006	MS106.2	**14.8**	**12.18**
10/17/2006	MS106.2	**15.2**	12.66
5/8/2007	MS106.2	**12.4**	**11.6**
10/10/2007	MS106.2	**8.2**	**12.1**
6/3/2008	MS106.2	**12.6**	**12**
10/7/2008	MS106.2	**9.9**	**12.4**
11/8/2011	MS106.2	**10.4**	**14.51**
10/18/2012	MS106.2	**14.2**	**12.94**
9/25/2013	MS106.2	**10.1**	**12.27**
10/22/2014	MS106.2	**11.1**	12.85
10/30/2015	MS106.2	**11.5**	**12.27**
10/26/2016	MS106.2	**12.5**	12.69

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	17.22	12.96
LCL	10.12	12.27

Sample Date	Sample ID		
6/26/1990	MS106.3	>10	12.54
12/19/1990	MS106.3	11	**13.01**
6/26/1991	MS106.3	14.4	12.5
11/20/1991	MS106.3	15.6	12.41
12/15/1992	MS106.3	**28.1**	**11.95**
8/24/1993	MS106.3	11	12.39
9/30/1993	MS106.3	11.3	12.87
6/27/1994	MS106.3	10.73	12.73
11/2/1994	MS106.3	**5.68**	12.62
5/4/1995	MS106.3	**5.32**	**11.86**
10/25/1995	MS106.3	**10**	12.31
5/24/1996	MS106.3	**9.518**	**11.36**
10/29/1996	MS106.3	11.3	**12.1**
7/1/1997	MS106.3	10.6	**12.07**
10/30/1997	MS106.3	10.85	**11.52**
6/29/1998	MS106.3	**9.269**	12.41
11/15/1998	MS106.3	10.68	12.83
5/27/1999	MS106.3	**9.9**	12.5
10/13/1999	MS106.3	11.11	**12.2**
6/30/2000	MS106.3	**9.782**	**12**
10/26/2000	MS106.3	11.11	**12**
6/20/2001	MS106.3	**7.6**	**12.15**
10/11/2001	MS106.3	**10.01**	12.63
4/24/2002	MS106.3	**8.949**	12.91
10/22/2002	MS106.3	12.16	**12.18**
6/17/2003	MS106.3	**9.1**	**11.85**
10/28/2003	MS106.3	13.2	**10.98**
5/25/2004	MS106.3	**9.2**	12.6
10/26/2004	MS106.3	11.3	**11.3**
5/4/2005	MS106.3	**7.8**	**13.35**
11/16/2005	MS106.3	13.8	12.7
4/25/2006	MS106.3	13.2	**12**
10/17/2006	MS106.3	10.9	12.9
5/8/2007	MS106.3	**9.2**	12.8
10/10/2007	MS106.3	**7.5**	**12**
6/3/2008	MS106.3	**8.3**	**12.2**
10/7/2008	MS106.3	**9.3**	12.4
11/8/2011	MS106.3	10.5	**14.65**
10/18/2012	MS106.3	12.1	**13.02**
9/25/2013	MS106.3	11.3	12.51
10/22/2014	MS106.3	**9.03**	12.6
10/30/2015	MS106.3	11.5	12.33
10/26/2016	MS106.3	**9.6**	12.58

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	14.41	13.14
LCL	7.19	12.26

Sample Date	Sample ID		
6/26/1990	MS106.4	>10	12.47
12/19/1990	MS106.4	9.4	13.03
6/26/1991	MS106.4	12.2	12.6
11/20/1991	MS106.4	-	-
12/15/1992	MS106.4	10.61	**12.02**
8/24/1993	MS106.4	10	12.39
9/30/1993	MS106.4	9.8	**19.97**
6/27/1994	MS106.4	10.38	12.68
11/2/1994	MS106.4	-	-
5/4/1995	MS106.4	**4.85**	**11.96**
10/25/1995	MS106.4	-	-
5/24/1996	MS106.4	10.17	12.75
10/29/1996	MS106.4	-	-
7/1/1997	MS106.4	9.95	**12.06**
10/30/1997	MS106.4	-	-
6/29/1998	MS106.4	9.156	12.49
11/15/1998	MS106.4	-	-
5/27/1999	MS106.4	9.85	12.5
10/13/1999	MS106.4	-	-
6/30/2000	MS106.4	9.782	**12.1**
10/26/2000	MS106.4	10.27	**11.9**
6/20/2001	MS106.4	8	12.26
10/11/2001	MS106.4	-	-
4/24/2002	MS106.4	8.949	13
10/22/2002	MS106.4	-	-
6/17/2003	MS106.4	8	**11.94**
10/28/2003	MS106.4	-	-
5/25/2004	MS106.4	10.8	12.56
10/26/2004	MS106.4	11.1	**11.7**
5/4/2005	MS106.4	9.6	**13.17**
11/16/2005	MS106.4	-	-
4/25/2006	MS106.4	13.4	**12.14**
10/17/2006	MS106.4	11.8	12.83
5/8/2007	MS106.4	9.3	12.46
10/10/2007	MS106.4	-	-
6/3/2008	MS106.4	11.9	**12.1**
10/7/2008	MS106.4	8.7	12.5
11/8/2011	MS106.4	10.2	**14.48**
10/18/2012	MS106.4	-	-
9/25/2013	MS106.4	-	-
10/22/2014	MS106.4	-	-
10/30/2015	MS106.4	-	-
10/26/2016	MS106.4	-	-

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	8.9	13.28
LCL	8.9	12.33

Sample Date	Sample ID		
6/26/1990	MS106.5	>10	12.62
12/19/1990	MS106.5	8.9	12.99
6/26/1991	MS106.5	-	-
11/20/1991	MS106.5	-	-
12/15/1992	MS106.5	-	-
8/24/1993	MS106.5	-	-
9/30/1993	MS106.5	-	-
6/27/1994	MS106.5	-	-
11/2/1994	MS106.5	-	-
5/4/1995	MS106.5	-	-
10/25/1995	MS106.5	-	-
5/24/1996	MS106.5	**9.043**	**12.27**
10/29/1996	MS106.5	-	-
7/1/1997	MS106.5	-	-
10/30/1997	MS106.5	-	-
6/29/1998	MS106.5	**5.313**	12.4
11/15/1998	MS106.5	-	-
5/27/1999	MS106.5	-	-
10/13/1999	MS106.5	-	-
6/30/2000	MS106.5	-	-
10/26/2000	MS106.5	-	-
6/20/2001	MS106.5	-	-
10/11/2001	MS106.5	-	-
4/24/2002	MS106.5	-	-
10/22/2002	MS106.5	-	-
6/17/2003	MS106.5	**8**	**11.93**
10/28/2003	MS106.5	-	-
5/25/2004	MS106.5	-	-
10/26/2004	MS106.5	-	-
5/4/2005	MS106.5	-	-
11/16/2005	MS106.5	-	-
4/25/2006	MS106.5	-	-
10/17/2006	MS106.5	-	-
5/8/2007	MS106.5	-	-
10/10/2007	MS106.5	-	-
6/3/2008	MS106.5	-	-
10/7/2008	MS106.5	-	-
11/8/2011	MS106.5	-	-
10/18/2012	MS106.5	-	-
9/25/2013	MS106.5	-	-
10/22/2014	MS106.5	-	-
10/30/2015	MS106.5	-	-
10/26/2016	MS106.5	-	-

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	103.35	7.29
LCL	68.05	4.7

Sample Date	Sample ID		
6/26/1990	MS301.1	>10	6.97
12/19/1990	MS301.1	72	**4.58**
6/26/1991	MS301.1	92.3	6.2
11/20/1991	MS301.1	92.8	6.23
12/15/1992	MS301.1	**130.4**	7.06
8/24/1993	MS301.1	71	6.43
9/30/1993	MS301.1	71.5	7.26
6/27/1994	MS301.1	83.3	6.71
11/2/1994	MS301.1	**8.26**	6.64
5/4/1995	MS301.1	**6.69**	6.33
10/25/1995	MS301.1	**8.4**	6.69
5/24/1996	MS301.1	80.82	5.83
10/29/1996	MS301.1	85.9	6.33
7/1/1997	MS301.1	70.1	7.07
10/30/1997	MS301.1	82.52	6.44
6/29/1998	MS301.1	80.26	7.03
11/15/1998	MS301.1	85.46	**7.8**
5/27/1999	MS301.1	97.5	6.3
10/13/1999	MS301.1	79.71	6.8
6/30/2000	MS301.1	96.62	6.36
10/26/2000	MS301.1	94.2	5.57
6/20/2001	MS301.1	78	6.21
10/11/2001	MS301.1	84.87	6.56
4/24/2002	MS301.1	88.31	6.94
10/22/2002	MS301.1	**118.4**	6.75
6/17/2003	MS301.1	86.8	6.77
10/28/2003	MS301.1	**132.8**	6.8
5/25/2004	MS301.1	**126.4**	6.84
10/26/2004	MS301.1	**116.2**	5.36
5/4/2005	MS301.1	**107.5**	7.25
11/16/2005	MS301.1	**132.7**	7.1
4/25/2006	MS301.1	**117.8**	6.64
10/17/2006	MS301.1	**114.8**	6.33
5/8/2007	MS301.1	79.1	6.28
10/10/2007	MS301.1	80.6	6.6
6/3/2008	MS301.1	96.7	**8**
10/7/2008	MS301.1	99.7	6.3
11/8/2011	MS301.1	99.9	6.51
10/18/2012	MS301.1	99.9	**7.32**
9/25/2013	MS301.1	**11.8**	6.26
10/22/2014	MS301.1	>10	6.59
10/29/2015	MS301.1	>100	6.34
10/26/2016	MS301.1	>100	6.21

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	128.74	6.36
LCL	85.12	5.15

Sample Date	Sample ID		
6/26/1990	MS301.2	>10	6.2
12/19/1990	MS301.2	90	**5.1**
6/26/1991	MS301.2	115.5	5.9
11/20/1991	MS301.2	115.3	5.82
12/15/1992	MS301.2	**161.2**	**6.7**
8/24/1993	MS301.2	92	6.16
9/30/1993	MS301.2	**140**	**6.92**
6/27/1994	MS301.2	102.1	**6.44**
11/2/1994	MS301.2	**6.57**	6.11
5/4/1995	MS301.2	**7.85**	**6.49**
10/25/1995	MS301.2	102	**7.23**
5/24/1996	MS301.2	100.6	5.8
10/29/1996	MS301.2	110	6.25
7/1/1997	MS301.2	93.8	6.24
10/30/1997	MS301.2	106.8	6.1
6/29/1998	MS301.2	97.21	**7.08**
11/15/1998	MS301.2	104.4	**8.8**
5/27/1999	MS301.2	99	6.2
10/13/1999	MS301.2	108.7	**6.5**
6/30/2000	MS301.2	122	6.34
10/26/2000	MS301.2	119.6	5.85
6/20/2001	MS301.2	86	**6.44**
10/11/2001	MS301.2	**11.3**	6.33
4/24/2002	MS301.2	108.3	6.29
10/22/2002	MS301.2	**148.6**	6.27
6/17/2003	MS301.2	110.2	**6.77**
10/28/2003	MS301.2	**168.7**	**6.47**
5/25/2004	MS301.2	**158.9**	**6.77**
10/26/2004	MS301.2	**145.2**	6.13
5/4/2005	MS301.2	104.7	**7.11**
11/16/2005	MS301.2	**169.7**	**6.52**
4/25/2006	MS301.2	**144.4**	6.36
10/17/2006	MS301.2	**138.4**	**6.62**
5/8/2007	MS301.2	101.1	6.29
10/10/2007	MS301.2	101.3	**6.4**
6/3/2008	MS301.2	123.2	**7.7**
10/7/2008	MS301.2	122.2	6.14
11/8/2011	MS301.2	99.9	**6.55**
10/18/2012	MS301.2	99.9	**6.46**
9/25/2013	MS301.2	-	6.3
10/22/2014	MS301.2	>10	**6.48**
10/29/2015	MS301.2	>100	5.95
10/26/2016	MS301.2	>100	6.18

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	112.09	6.53
LCL	76.98	5.2

Sample Date	Sample ID		
6/26/1990	MS301.3	>10	6.24
12/19/1990	MS301.3	81	**5.1**
6/26/1991	MS301.3	102.7	6.1
11/20/1991	MS301.3	99.9	6.02
12/15/1992	MS301.3	**122.4**	6.52
8/24/1993	MS301.3	**76**	6.04
9/30/1993	MS301.3	**72.1**	**6.56**
6/27/1994	MS301.3	84.1	6.45
11/2/1994	MS301.3	**6.06**	6.21
5/4/1995	MS301.3	**7.11**	6.51
10/25/1995	MS301.3	86	**6.94**
5/24/1996	MS301.3	84.22	5.98
10/29/1996	MS301.3	91.6	6.52
7/1/1997	MS301.3	78	**6.67**
10/30/1997	MS301.3	83.65	6.35
6/29/1998	MS301.3	85.91	**6.79**
11/15/1998	MS301.3	85.46	**7.2**
5/27/1999	MS301.3	97	**7.5**
10/13/1999	MS301.3	94.2	**7.1**
6/30/2000	MS301.3	92.99	6.48
10/26/2000	MS301.3	94.2	6.36
6/20/2001	MS301.3	**70**	6.15
10/11/2001	MS301.3	90.69	6.42
4/24/2002	MS301.3	88.31	6.25
10/22/2002	MS301.3	**115.5**	6.19
6/17/2003	MS301.3	88.2	6.46
10/28/2003	MS301.3	**132.3**	**6.56**
5/25/2004	MS301.3	**128.5**	**6.83**
10/26/2004	MS301.3	111.6	6.18
5/4/2005	MS301.3	110.1	**7.09**
11/16/2005	MS301.3	**115.6**	**6.96**
4/25/2006	MS301.3	109.3	**6.56**
10/17/2006	MS301.3	104.8	**6.65**
5/8/2007	MS301.3	**63.1**	6.52
10/10/2007	MS301.3	**72.9**	6.4
6/3/2008	MS301.3	89.2	**8**
10/7/2008	MS301.3	91.6	**6.7**
11/8/2011	MS301.3	99	**6.67**
10/18/2012	MS301.3	78.2	**6.65**
9/25/2013	MS301.3	-	**6.56**
10/22/2014	MS301.3	96.6	**6.59**
10/29/2015	MS301.3	91.6	6.44
10/26/2016	MS301.3	96.9	**6.57**

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	95.03	11.2
LCL	66.5	9.62

Sample Date	Sample ID		
6/26/1990	MS301.4	>10	9.62
12/19/1990	MS301.4	70	10.36
6/26/1991	MS301.4	88.4	11.1
11/20/1991	MS301.4	83.9	10.55
12/15/1992	MS301.4	**108.9**	11.03
8/24/1993	MS301.4	**66**	11.14
9/30/1993	MS301.4	**62**	10.24
6/27/1994	MS301.4	68	10.28
11/2/1994	MS301.4	**8.97**	10.84
5/4/1995	MS301.4	**7.76**	10.53
10/25/1995	MS301.4	**64**	10.39
5/24/1996	MS301.4	67.82	**9.27**
10/29/1996	MS301.4	70.3	10.53
7/1/1997	MS301.4	**62.2**	9.74
10/30/1997	MS301.4	**61.04**	10.56
6/29/1998	MS301.4	**57.65**	10.41
11/15/1998	MS301.4	**64.09**	**11.44**
5/27/1999	MS301.4	**96**	10.8
10/13/1999	MS301.4	**54.35**	10.2
6/30/2000	MS301.4	**66.42**	10.1
10/26/2000	MS301.4	**66.42**	10.1
6/20/2001	MS301.4	**45**	9.95
10/11/2001	MS301.4	**57.7**	10.75
4/24/2002	MS301.4	**56.52**	**11.61**
10/22/2002	MS301.4	71.7	**11.78**
6/17/2003	MS301.4	**54.5**	10.71
10/28/2003	MS301.4	79.3	9.62
5/25/2004	MS301.4	74.5	10.68
10/26/2004	MS301.4	**65.1**	10.2
5/4/2005	MS301.4	**63.5**	**12.21**
11/16/2005	MS301.4	**66.1**	**11.32**
4/25/2006	MS301.4	**61.4**	10.95
10/17/2006	MS301.4	**60.1**	11
5/8/2007	MS301.4	**44.1**	10.98
10/10/2007	MS301.4	**36.7**	11.2
6/3/2008	MS301.4	**47.5**	10.7
10/7/2008	MS301.4	**47.4**	**11.55**
11/8/2011	MS301.4	**45.9**	**12.99**
10/18/2012	MS301.4	**45.7**	**11.38**
9/25/2013	MS301.4	**42.4**	**11.92**
10/22/2014	MS301.4	**3.5**	**11.97**
10/29/2015	MS301.4	**38.3**	**11.28**
10/26/2016	MS301.4	**36.8**	**11.64**

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	34.74	12.59
LCL	28.39	12.15

Sample Date	Sample ID		
6/26/1990	MS301.5	>10	12.33
12/19/1990	MS301.5	30	**12.61**
6/26/1991	MS301.5	34	12.2
11/20/1991	MS301.5	30.7	12.35
12/15/1992	MS301.5	**37.1**	12.49
8/24/1993	MS301.5	**21**	**12.64**
9/30/1993	MS301.5	**21**	**12.1**
6/27/1994	MS301.5	**23.5**	12.41
11/2/1994	MS301.5	**7.46**	12.47
5/4/1995	MS301.5	**6.71**	12.59
10/25/1995	MS301.5	**19.5**	12.44
5/24/1996	MS301.5	**23.74**	12.41
10/29/1996	MS301.5	**16.1**	**11.86**
7/1/1997	MS301.5	**17**	**11.75**
10/30/1997	MS301.5	**19.44**	**11.88**
6/29/1998	MS301.5	**17.25**	12.16
11/15/1998	MS301.5	**17.8**	**9.63**
5/27/1999	MS301.5	**15**	**12.7**
10/13/1999	MS301.5	**13.65**	**11.9**
6/30/2000	MS301.5	**18**	**11.8**
10/26/2000	MS301.5	**15.94**	**12**
6/20/2001	MS301.5	**13.5**	**11.82**
10/11/2001	MS301.5	**14.72**	12.18
4/24/2002	MS301.5	**16.6**	12.29
10/22/2002	MS301.5	**17.1**	12.33
6/17/2003	MS301.5	**12.6**	**11.41**
10/28/2003	MS301.5	**19.3**	**10.55**
5/25/2004	MS301.5	**16.5**	12.3
10/26/2004	MS301.5	**15.8**	**12.03**
5/4/2005	MS301.5	**15.1**	**12.79**
11/16/2005	MS301.5	**15.5**	12.54
4/25/2006	MS301.5	**17.6**	12.44
10/17/2006	MS301.5	**17**	**12.68**
5/8/2007	MS301.5	**11.7**	12.28
10/10/2007	MS301.5	**9.6**	**12.6**
6/3/2008	MS301.5	**12.1**	12.4
10/7/2008	MS301.5	**11.7**	12.3
11/8/2011	MS301.5	**14.7**	**14.13**
10/18/2012	MS301.5	**15.6**	**12.03**
9/25/2013	MS301.5	**13.9**	12.48
10/22/2014	MS301.5	**10.8**	**10.48**
10/29/2015	MS301.5	**12.2**	**12.74**
10/26/2016	MS301.5	**11.5**	**12.66**

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	13.06	12.77
LCL	8.08	11.66

Sample Date	Sample ID		
10/13/1999	W105R	10.91	**12.8**
6/30/2000	W105R	10.69	11.8
10/26/2000	W105R	12.68	12
6/20/2001	W105R	**8**	12.26
10/12/2001	W105R	11.78	12.74
4/25/2002	W105R	9.656	**13.01**
10/22/2002	W105R	-	-
4/25/2006	W105R	10.9	12.19
10/18/2006	W105R	11.3	12.59
5/8/2007	W105R	**7**	12.35
10/10/2007	W105R	8.5	12.2
6/3/2008	W105R	9.2	12
10/7/2008	W105R	10.1	**11.6**
11/9/2011	W105R	-	-
10/15/2012	W105R	-	-
9/23/2013	W105R	-	-
10/22/2014	W105R	-	-
10/30/2015	W105R	-	-
10/27/2016	W105R	-	-

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	20.12	12.79
LCL	3.37	11.74

Sample Date	Sample ID		
6/27/1994	W201R	18.43	12.57
11/2/1994	W201R	6.61	12.62
5/4/1995	W201R	5.75	11.75
10/25/1995	W201R	16.2	12.12
5/24/1996	W201R	16.73	12.49
10/29/1996	W201R	**21.5**	11.97
7/1/1997	W201R	14.2	11.92
10/30/1997	W201R	17.07	**11.67**
6/29/1998	W201R	11.76	12.59
11/15/1998	W201R	15.43	**12.95**
5/27/1999	W201R	10	12.6
10/13/1999	W201R	**23.67**	**11.5**
6/30/2000	W201R	12.32	12.2
10/26/2000	W201R	12.32	11.9
6/20/2001	W201R	10	12.17
10/11/2001	W201R	13.19	12.61
4/24/2002	W201R	11.42	**12.92**
10/22/2002	W201R	15.87	12.28
6/17/2003	W201R	10.4	12.49
10/28/2003	W201R	17	12.3
5/25/2004	W201R	14.9	12.48
10/26/2004	W201R	13.1	**11.3**
5/4/2005	W201R	15	**13.27**
11/16/2005	W201R	18	**13.21**
4/25/2006	W201R	12.5	12.09
10/17/2006	W201R	12.3	12.61
5/8/2007	W201R	9.8	12.3
10/10/2007	W201R	9.4	12.3
6/3/2008	W201R	10.3	12.2
10/7/2008	W201R	10.4	11.8
11/8/2011	W201R	12.4	**14.68**
10/18/2012	W201R	15.8	**12.91**
9/25/2013	W201R	13.1	12.54
10/22/2014	W201R	12.6	**13.09**
10/29/2015	W201R	-	-
10/26/2016	W201R	12.9	12.74

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Field Parameter Results

October 2016 Annual Monitoring Event

	Field Parameters	
	Specific Conductivity	pH
	mS/cm	pH_Units
UCL	18.35	12.79
LCL	7.98	12.19

Sample Date	Sample ID		
6/26/1990	W5.6	>10	12.46
12/19/1990	W5.6	10	**12.82**
6/26/1991	W5.6	12.6	12.3
11/20/1991	W5.6	16.9	12.38
12/15/1992	W5.6	13.05	12.57
8/24/1993	W5.6	16	12.42
9/30/1993	W5.6	17.8	12.26
6/27/1994	W5.6	16.3	12.56
11/2/1994	W5.6	**7.61**	12.5
5/4/1995	W5.6	**5.86**	**11.74**
10/25/1995	W5.6	**24.4**	**12.06**
5/24/1996	W5.6	14.24	12.53
10/29/1996	W5.6	**25.4**	**11.81**
7/1/1997	W5.6	**19.5**	**11.84**
10/30/1997	W5.6	**26**	**11.72**
6/29/1998	W5.6	11.64	12.36
11/15/1998	W5.6	**21.72**	**12.81**
5/27/1999	W5.6	10.15	12.4
10/13/1999	W5.6	14.25	**11.7**
6/30/2000	W5.6	10.63	**11.8**
10/26/2000	W5.6	**21.74**	**11.8**
6/20/2001	W5.6	15	**12.08**
10/11/2001	W5.6	**23.26**	12.74
4/24/2002	W5.6	9.42	**12.84**
10/22/2002	W5.6	17.78	12.38
6/17/2003	W5.6	9.3	**12.11**
10/28/2003	W5.6	**22.4**	**12.17**
5/25/2004	W5.6	10.8	12.55
10/26/2004	W5.6	16.4	**11.38**
5/4/2005	W5.6	9.6	**13.52**
11/16/2005	W5.6	15.3	12.6
4/25/2006	W5.6	10.4	**12.1**
10/17/2006	W5.6	15.3	12.43
5/8/2007	W5.6	**7.4**	12.38
10/10/2007	W5.6	11.4	**11.9**
6/3/2008	W5.6	10.5	**12.1**
10/7/2008	W5.6	15.2	**11.7**
11/8/2011	W5.6	9.9	**14.7**
10/18/2012	W5.6	14.1	**12.86**
9/25/2013	W5.6	**4.93**	**13.5**
10/22/2014	W5.6	12.2	**13.07**
10/29/2015	W5.6	13.5	12.39
10/26/2016	W5.6	13.1	12.68

Bold and yellow highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

Bold and orange highlighted cells indicate an exceedance of Well Specific Lower Confidence Limit

(-) - Indicates field parameter was not measured

Appendix D

Summary of Laboratory Analytical Results
October 2016 Annual Monitoring Event

		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**0.646**	**0.05**	**0.053**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
MS104.3	2/4/1987	1,530	24,800	**0.74**	<0.05U	<0.05U
MS104.3	5/19/1987	1,660	25,800	0.61	<0.05U	0.05
MS104.3	8/11/1987	1,100	22,200	0.55	<0.05U	**0.06**
MS104.3	11/17/1987	2,540	25,700	**0.74**	<0.05U	<0.05U
MS104.3	2/16/1988	1,650	10,000	0.095	<0.05U	<0.05U
MS104.3	5/24/1988	1,900	9,000	0.13	<0.05U	<0.05U
MS104.3	8/16/1988	1,200	21,000	0.56	<0.05U	<0.05U
MS104.3	11/16/1988	1,800	31,000	**0.65**	<0.05U	<0.05U
MS104.3	2/14/1989	1,840	20,000	0.497	<0.05U	<0.05U
MS104.3	5/9/1989	1,740	8,000	0.145	<0.05U	<0.05U
MS104.3	8/8/1989	970	22,000	0.273	<0.05U	<0.05U
MS104.3	6/26/1990	2,188	1,350	0.278	<0.05U	<0.05U
MS104.3	12/19/1990	1,740	7,340	0.153	<0.05U	<0.05U
MS104.3	6/26/1991	1,740	8,740	0.252	<0.05U	<0.05U
MS104.3	11/20/1991	1,580	13,750	0.232	<0.05U	**0.056**
MS104.3	12/15/1992	1,690	16,500	0.425	<0.05U	**0.08**
MS104.3	8/24/1993	1,600	11,600	0.315	<0.05U	**0.079**
MS104.3	9/30/1993	1,636	11,500	0.344	<0.05U	0.05
MS104.3	6/27/1994	1,540	9,497	0.24	<0.05U	**0.146**
MS104.3	11/2/1994	1,724	6,498	0.19	<0.05U	<0.05U
MS104.3	5/4/1995	1,732	7,000	0.25	<0.05U	0.052
MS104.3	10/25/1995	1,647	4,300	0.211	<0.05U	**0.81**
MS104.3	5/24/1996	1,620	13,000	0.222	<0.05U	**0.059**
MS104.3	10/29/1996	1,700	6,700	0.17	<0.05U	<0.05U
MS104.3	7/1/1997	1,825	6,198	0.146	<0.05U	**0.23**
MS104.3	10/30/1997	1,607	6,398	0.144	<0.05U	<0.05
MS104.3	6/29/1998	1,557	6,198	0.158	<0.05U	<0.05
MS104.3	11/15/1998	1,696	4,499	0.105	<0.05U	**0.96**
MS104.3	5/27/1999	1,740	5,400	0.139	<0.05U	<0.05
MS104.3	10/13/1999	1,730	4,150	0.089	<0.05U	<0.05
MS104.3	6/30/2000	1,475	7,450	0.166	<0.05U	<0.05
MS104.3	10/26/2000	1,593	4,399	0.138	<0.05U	**0.099**
MS104.3	6/20/2001	1,590	4,898	0.099	<0.05U	<0.05U
MS104.3	10/11/2001	1,640	3,522	0.074	<0.05U	<0.05U
MS104.3	4/24/2002	1,690	4,901	0.112	<0.05U	**0.093**
MS104.3	10/22/2002	2,120	1,799	0.098	<0.05U	**0.086**
MS104.3	6/17/2003	1,770	4,249	0.083	<0.05U	**0.132**
MS104.3	10/28/2003	1,720	3,921	0.085	<0.05U	**0.104**
MS104.3	5/25/2004	1,670	3,399	0.075	<0.05U	<0.05U
MS104.3	10/26/2004	1,753	3,375	0.043	<0.05U	<0.05U
MS104.3	5/4/2005	1,765	3,497	0.062	<0.05U	<0.05U
MS104.3	11/16/2005	1,810	2,978	0.069	<0.05U	<0.05U
MS104.3	4/25/2006	1,840	2,999	0.063	<0.05U	<0.05U
MS104.3	10/17/2006	1,820	2,878	0.059	<0.05U	<0.05U
MS104.3	5/8/2007	1,890	2,869	0.056	<0.05U	<0.02U
MS104.3	10/10/2007	1,910	2,350	0.051	<0.05U	<0.02U
MS104.3	6/3/2008	1,880	2,316	0.066	<0.05U	<0.05U
MS104.3	10/7/2008	2,060	2,428	0.036	<0.05U	<0.05U
MS104.3	11/8/2011	-	-	0.074	<0.00556U	<0.0556U
MS104.3	10/18/2012	-	-	0.089	<0.005U	**0.0982**
MS104.3	9/25/2013	-	-	0.09	<0.05U	<0.5U
MS104.3	10/22/2014	-	-	<0.005U	<0.01U	**0.15**
MS104.3	10/29/2015	-	-	0.062	0.0082J	0.046J
MS104.3	10/27/2016	-	-	<0.03U	<0.01U	0.029J

Regulatory Standard - Class GA Groundwater Quality Standard or Guidance Value from NYSDEC Division of Water TOGS 1.1.1 (June 1998)

(-) - Indicates analyte was not analyzed for during this monitoring round

U - Analyzed for but not detected above laboratory detection limit identified

J - Indicates an estimated value

Bold and highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**0.045**	**0.05**	**0.05**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
MS104.4	2/4/1987	1,150	2,750	0.039	<0.05U	<0.05U
MS104.4	5/19/1987	1,750	5,100	0.038	<0.05U	<0.05U
MS104.4	8/11/1987	1,100	2,780	0.038	<0.05U	<0.05U
MS104.4	11/17/1987	2,060	2,250	**0.055**	<0.05U	<0.05U
MS104.4	2/16/1988	1,570	2,100	0.041	<0.05U	<0.05U
MS104.4	5/24/1988	2,300	3,700	**0.049**	<0.05U	<0.05U
MS104.4	8/16/1988	1,400	2,000	0.039	<0.05U	<0.05U
MS104.4	11/16/1988	1,900	2,100	0.018	<0.05U	<0.05U
MS104.4	2/14/1989	2,080	2,300	0.036	<0.05U	<0.05U
MS104.4	5/9/1989	1,360	4,000	0.025	<0.05U	<0.05U
MS104.4	8/8/1989	1,040	7,000	0.025	<0.05U	<0.05U
MS104.4	6/26/1990	2,013	3,150	0.034	<0.05U	<0.05U
MS104.4	12/19/1990	2,000	1,760	**0.045**	<0.05U	<0.05U
MS104.4	6/26/1991	1,740	2,250	**0.062**	<0.05U	<0.05U
MS104.4	11/20/1991	1,940	2,499	0.032	<0.05U	<0.05U
MS104.4	12/15/1992	1,880	1,650	**0.056**	<0.05U	0.049
MS104.4	8/24/1993	1,928	1,475	**0.047**	<0.05U	<0.05U
MS104.4	9/30/1993	1,904	1,500	**0.05**	<0.05U	**0.05**
MS104.4	6/27/1994	1,916	1,263	0.029	<0.05U	**0.2**
MS104.4	11/2/1994	2,015	1,000	0.035	<0.05U	<0.05U
MS104.4	5/4/1995	2,132	1,300	**0.053**	<0.05U	**0.05**
MS104.4	10/25/1995	2,032	1,700	**0.063**	<0.05U	**0.073**
MS104.4	5/24/1996	1,960	2,000	0.04	<0.05U	<0.05U
MS104.4	10/29/1996	2,100	1,300	0.036	<0.05U	**0.058**
MS104.4	7/1/1997	2,103	1,600	**0.055**	<0.05U	<0.05U
MS104.4	10/30/1997	1,934	1,500	0.023	<0.05U	<0.05U
MS104.4	6/29/1998	2,083	1,050	0.038	<0.05U	**0.488**
MS104.4	11/15/1998	2,034	1,150	0.036	<0.05U	**0.45**
MS104.4	5/27/1999	2,010	1,050	**0.064**	<0.05U	<0.05U
MS104.4	10/13/1999	2,120	1,450	0.032	<0.05U	<0.05U
MS104.4	6/30/2000	1,725	1,400	0.043	<0.05U	<0.05U
MS104.4	10/26/2000	1,940	1,075	**0.068**	<0.05U	**0.071**
MS104.4	6/20/2001	2,090	1,225	0.022	<0.05U	<0.05U
MS104.4	10/11/2001	2,040	817	0.039	<0.05U	<0.05U
MS104.4	4/24/2002	2,090	970	0.043	<0.05U	**0.05**
MS104.4	10/22/2002	2,090	1,150	0.038	<0.05U	<0.05U
MS104.4	6/17/2003	2,010	1,075	0.038	<0.05U	<0.05U
MS104.4	10/28/2003	2,030	1,042	0.043	<0.05U	<0.05U
MS104.4	5/25/2004	2,020	900	0.042	<0.05U	<0.05U
MS104.4	10/26/2004	2,073	1,012	0.01	<0.05U	<0.05U
MS104.4	5/4/2005	2,070	996	0.031	<0.05U	<0.05U
MS104.4	11/16/2005	2,090	1,092	**0.045**	<0.05U	<0.05U
MS104.4	4/25/2006	2,200	1,250	0.036	<0.05U	<0.05U
MS104.4	10/17/2006	2,170	1,340	0.032	<0.05U	<0.05U
MS104.4	5/8/2007	2,170	982	0.022	<0.05U	<0.002U
MS104.4	10/10/2007	2,210	925	0.026	<0.05U	<0.002U
MS104.4	6/3/2008	2,250	956	**0.059**	<0.05U	<0.05U
MS104.4	10/7/2008	2,329	947	0.025	<0.05U	<0.05U
MS104.4	11/8/2011	-	-	<0.05U	<0.00556U	**0.137**
MS104.4	10/18/2012	-	-	-	-	-
MS104.4	9/25/2013	-	-	**0.11**	<0.05U	<0.5U
MS104.4	10/22/2014	-	-	0.0249	0.013	**0.29**
MS104.4	10/29/2015	-	-	**0.084**	0.0036J	**0.09**
MS104.4	10/27/2016	-	-	<0.03U	<0.01U	<0.05U

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Bold and highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**0.045**	**0.05**	**0.05**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
MS104.5	2/4/1987	1,100	1,130	0.013	<0.05U	<0.05U
MS104.5	5/19/1987	1,940	1,250	**0.105**	<0.05U	<0.05U
MS104.5	8/11/1987	1,140	1,400	0.012	<0.05U	<0.05U
MS104.5	11/17/1987	2,030	1,050	0.02	<0.05U	<0.05U
MS104.5	2/16/1988	1,770	1,250	0.016	<0.05U	<0.05U
MS104.5	5/24/1988	2,200	1,800	0.015	<0.05U	<0.05U
MS104.5	8/16/1988	1,500	1,000	<0.02U	<0.05U	<0.05U
MS104.5	11/16/1988	2,050	1,150	0.02	<0.05U	<0.05U
MS104.5	2/14/1989	1,800	1,400	0.013	<0.05U	<0.05U
MS104.5	5/9/1989	1,920	1,600	0.014	<0.05U	<0.05U
MS104.5	8/8/1989	1,180	1,100	0.012	<0.05U	<0.05U
MS104.5	6/26/1990	2,061	950	0.015	<0.05U	<0.05U
MS104.5	12/19/1990	1,985	1,080	0.013	<0.05U	<0.05U
MS104.5	6/26/1991	1,880	993	**0.086**	<0.05U	<0.05U
MS104.5	11/20/1991	-	-	-	-	-
MS104.5	12/15/1992	1,960	1,100	0.02	<0.05U	**0.089**
MS104.5	8/24/1993	2,045	925	0.035	<0.05U	<0.05U
MS104.5	9/30/1993	2,048	975	**0.046**	<0.05U	**0.05**
MS104.5	6/27/1994	1,980	775	0.041	<0.05U	<0.05U
MS104.5	11/2/1994	2,047	750	0.039	<0.05U	<0.05U
MS104.5	5/4/1995	2,205	550	**0.048**	<0.05U	<0.05U
MS104.5	10/25/1995	1,972	1,050	**0.046**	<0.05U	**0.12**
MS104.5	5/24/1996	2,360	1,100	0.033	<0.05U	**0.055**
MS104.5	10/29/1996	2,000	950	**0.105**	<0.05U	<0.05U
MS104.5	7/1/1997	2,103	750	0.035	<0.05U	**0.14**
MS104.5	10/30/1997	1,999	1,050	0.033	<0.05U	<0.05U
MS104.5	6/29/1998	2,093	675	0.031	<0.05U	<0.05U
MS104.5	11/15/1998	1,924	1,100	0.033	<0.05U	**0.36**
MS104.5	5/27/1999	2,030	1,130	0.032	<0.05U	<0.05U
MS104.5	10/13/1999	-	-	-	-	-
MS104.5	6/30/2000	2,185	1,910	0.025	<0.05U	<0.05U
MS104.5	10/26/2000	1,933	800	**0.065**	<0.05U	**0.084**
MS104.5	6/20/2001	2,030	1,050	0.022	<0.05U	<0.05U
MS104.5	10/11/2001	1,950	893	0.039	<0.05U	<0.05U
MS104.5	4/24/2002	2,030	642	0.039	<0.05U	<0.05U
MS104.5	10/22/2002	2,070	1,025	0.031	<0.05U	<0.05U
MS104.5	6/17/2003	2,060	675	<0.01U	<0.05U	**0.052**
MS104.5	10/28/2003	2,040	946	0.032	<0.05U	**0.53**
MS104.5	5/25/2004	1,000	1,562	0.032	<0.05U	**0.342**
MS104.5	10/26/2004	2,047	699	0.012	<0.05U	<0.05U
MS104.5	5/4/2005	1,940	607	0.01	<0.05U	**0.11**
MS104.5	11/16/2005	2,130	794	**0.051**	<0.05U	<0.05U
MS104.5	4/25/2006	1,990	500	0.026	<0.05U	<0.05U
MS104.5	10/17/2006	2,220	1,224	0.028	<0.05U	<0.05U
MS104.5	5/8/2007	2,130	638	0.018	<0.05U	<0.02U
MS104.5	10/10/2007	2,230	900	0.023	<0.05U	<0.02U
MS104.5	6/3/2008	2,210	654	**0.053**	<0.05U	<0.05U
MS104.5	10/7/2008	2,300	680	<0.01U	<0.05U	<0.05U
MS104.5	11/8/2011	-	-	<0.05U	<0.00556U	<0.0556U
MS104.5	10/18/2012	-	-	-	-	-
MS104.5	9/25/2013	-	-	**0.07**	<0.05U	<0.5U
MS104.5	10/22/2014	-	-	0.025	<0.01U	<0.1U
MS104.5	10/29/2015	-	-	0.02J	0.0046J	0.03J
MS104.5	10/27/2016	-	-	<0.03U	0.005J	0.039J

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		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**0.101**	**0.05**	**0.05**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
MS106.1	6/26/1990	1,870	1,100	0.025	<0.05U	<0.05U
MS106.1	12/19/1990	1,930	1,090	0.02	<0.05U	<0.05U
MS106.1	6/26/1991	1,820	2,280	-	<0.05U	<0.05U
MS106.1	11/20/1991	1,810	3,099	0.088	<0.05U	<0.05U
MS106.1	12/15/1992	1,720	1,200	0.02	<0.05U	**0.067**
MS106.1	8/24/1993	1,902	2,349	0.016	<0.05U	<0.05U
MS106.1	9/30/1993	1,792	2,399	0.011	<0.05U	**0.286**
MS106.1	6/27/1994	1,872	1,250	0.041	<0.05U	**0.228**
MS106.1	11/2/1994	2,035	2,949	0.097	<0.05U	<0.05U
MS106.1	5/4/1995	1,983	2,400	**0.11**	<0.05U	<0.05U
MS106.1	10/25/1995	1,972	5,500	**0.156**	<0.05U	<0.05U
MS106.1	5/24/1996	2,140	1,100	0.022	<0.05U	<0.05U
MS106.1	10/29/1996	1,900	3,000	0.078	<0.05U	<0.05U
MS106.1	7/1/1997	2,301	1,600	0.038	<0.05U	**0.19**
MS106.1	10/30/1997	1,880	3,349	0.075	<0.05U	**0.074**
MS106.1	6/29/1998	2,083	900	0.01	<0.05U	<0.05U
MS106.1	11/15/1998	1,895	2,449	**0.191**	<0.05U	**0.13**
MS106.1	5/27/1999	1,880	1,320	0.05	<0.05U	<0.05U
MS106.1	10/13/1999	2,030	3,700	**0.103**	<0.05U	<0.05U
MS106.1	6/30/2000	1,940	2,020	<0.01U	<0.05U	<0.05U
MS106.1	10/26/2000	1,873	1,550	<0.068U	<0.05U	**0.094**
MS106.1	6/20/2001	1,940	1,150	0.025	<0.05U	<0.05U
MS106.1	10/11/2001	2,010	2,629	0.074	<0.05U	<0.05U
MS106.1	4/24/2002	2,180	779	0.011	<0.05U	**0.052**
MS106.1	10/22/2002	2,060	1,749	0.042	<0.05U	<0.05U
MS106.1	6/17/2003	2,040	875	0.035	<0.05U	<0.05U
MS106.1	10/28/2003	1,930	1,936	0.043	<0.05U	**0.12**
MS106.1	5/25/2004	2,055	650	<0.01U	<0.05U	<0.05U
MS106.1	10/26/2004	1,960	964	0.025	<0.05U	<0.05U
MS106.1	5/4/2005	2,190	583	<0.01U	<0.05U	<0.05U
MS106.1	11/16/2005	2,020	1,340	0.045	<0.05U	**0.08**
MS106.1	4/25/2006	2,190	500	<0.01U	<0.05U	<0.05U
MS106.1	10/17/2006	2,140	968	0.018	<0.05U	**0.32**
MS106.1	5/8/2007	1,810	671	<0.01	<0.05U	<0.02U
MS106.1	10/10/2007	2,210	800	0.012	<0.05U	<0.02U
MS106.1	6/3/2008	2,150	654	0.018	<0.05U	<0.05U
MS106.1	10/7/2008	2,410	874	<0.01U	<0.05U	<0.05U
MS106.1	11/8/2011	-	-	<0.05U	<0.005U	<0.05U
MS106.1	10/18/2012	-	-	<0.05U	<0.005U	**0.0939**
MS106.1	9/25/2013	-	-	<0.5U	<0.05U	<0.5U
MS106.1	10/22/2014	-	-	<0.005U	<0.01U	<0.1U
MS106.1	10/30/2015	-	-	0.01J	0.01	**0.27**
MS106.1	10/26/2016	-	-	<0.03U	<0.01U	0.034J

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		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**0.363**	**0.05**	**0.05**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
MS106.2	6/26/1990	1,490	11,000	0.275	<0.05U	<0.05U
MS106.2	12/19/1990	1,690	9,380	0.255	<0.05U	<0.05U
MS106.2	6/26/1991	1,630	10,650	-	<0.05U	<0.05U
MS106.2	11/20/1991	2,080	11,250	0.346	<0.05U	<0.05U
MS106.2	12/15/1992	1,660	8,400	**0.4**	<0.05U	**0.085**
MS106.2	8/24/1993	1,720	9,047	0.231	<0.05U	<0.05U
MS106.2	9/30/1993	1,572	9,397	0.248	<0.05U	**0.25**
MS106.2	6/27/1994	1,520	6,348	0.208	<0.05U	**0.24**
MS106.2	11/2/1994	1,740	6,748	0.224	<0.05U	**0.051**
MS106.2	5/4/1995	1,773	7,300	0.24	<0.05U	<0.05U
MS106.2	10/25/1995	1,762	6,500	0.227	<0.05U	<0.05U
MS106.2	5/24/1996	1,800	12,000	0.239	<0.05U	<0.05U
MS106.2	10/29/1996	1,800	8,100	0.19	<0.05U	<0.05U
MS106.2	7/1/1997	1,825	7,298	0.181	<0.05U	**0.1**
MS106.2	10/30/1997	1,672	7,198	0.178	<0.05U	<0.05U
MS106.2	6/29/1998	1,905	5,998	0.147	<0.05U	**0.405**
MS106.2	11/15/1998	1,468	5,998	0.143	<0.05U	**0.12**
MS106.2	5/27/1999	1,660	6,800	0.139	<0.05U	<0.05U
MS106.2	10/13/1999	1,740	6,050	0.134	<0.05U	<0.05U
MS106.2	6/30/2000	1,900	5,400	0.103	<0.05U	<0.05U
MS106.2	10/26/2000	1,653	5,098	0.169	<0.05U	**0.2**
MS106.2	6/20/2001	1,820	5,498	0.136	<0.05U	<0.05U
MS106.2	10/11/2001	1,790	5,003	0.127	<0.05U	<0.05U
MS106.2	4/24/2002	1,990	5,513	0.133	<0.05U	**0.12**
MS106.2	10/22/2002	1,860	5,098	0.126	<0.05U	**0.065**
MS106.2	6/17/2003	1,790	4,799	0.087	<0.05U	**0.117**
MS106.2	10/28/2003	1,750	4,467	0.102	<0.05U	**0.31**
MS106.2	5/25/2004	1,770	3,999	0.092	<0.05U	<0.05U
MS106.2	10/26/2004	1,773	376	0.107	<0.05U	**0.12**
MS106.2	5/4/2005	1,880	3,982	0.073	<0.05U	<0.05U
MS106.2	11/16/2005	1,850	4,268	0.086	<0.05U	<0.05U
MS106.2	4/25/2006	1,860	3,599	0.069	<0.05U	<0.05U
MS106.2	10/17/2006	1,940	3,722	0.066	<0.05U	<0.05U
MS106.2	5/8/2007	1,930	2,769	0.048	<0.05U	<0.02U
MS106.2	10/10/2007	1,920	3,500	0.061	<0.05U	<0.02U
MS106.2	6/3/2008	1,970	3,171	0.059	<0.05U	<0.05U
MS106.2	10/7/2008	2,080	2,283	0.036	<0.05U	<0.05U
MS106.2	11/8/2011	-	-	0.095	<0.005U	**0.127**
MS106.2	10/18/2012	-	-	<0.05U	<0.005U	<0.05U
MS106.2	9/25/2013	-	-	<0.05U	<0.05U	<0.5U
MS106.2	10/22/2014	-	-	0.055	<0.01U	**0.13**
MS106.2	10/30/2015	-	-	0.035	0.0043J	**0.05**
MS106.2	10/26/2016	-	-	0.029J	0.002J	0.04J

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		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**0.086**	**0.05**	**0.05**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
MS106.3	6/26/1990	1,980	1,350	0.02	<0.05U	<0.05U
MS106.3	12/19/1990	1,840	2,280	0.024	<0.05U	<0.05U
MS106.3	6/26/1991	1,740	2,880	-	<0.05U	<0.05U
MS106.3	11/20/1991	1,850	2,949	0.076	<0.05U	<0.05U
MS106.3	12/15/1992	1,990	2,150	0.056	<0.05U	**0.094**
MS106.3	8/24/1993	1,860	2,699	**0.16**	<0.05U	**0.164**
MS106.3	9/30/1993	1,768	2,349	0.059	<0.05U	**0.05**
MS106.3	6/27/1994	1,808	1,300	0.009	<0.05U	**0.054**
MS106.3	11/2/1994	1,995	1,500	0.076	<0.05U	<0.05U
MS106.3	5/4/1995	1,999	1,800	0.072	<0.05U	<0.05U
MS106.3	10/25/1995	2,040	1,900	0.063	<0.05U	**0.055**
MS106.3	5/24/1996	2,130	1,300	0.037	<0.05U	<0.05U
MS106.3	10/29/1996	2,000	1,900	0.04	<0.05U	<0.05U
MS106.3	7/1/1997	2,063	1,999	0.038	<0.05U	**0.15**
MS106.3	10/30/1997	1,929	1,550	0.016	<0.05U	<0.05U
MS106.3	6/29/1998	2,044	1,055	<0.01U	<0.05U	<0.05U
MS106.3	11/15/1998	1,944	1,649	0.035	<0.05U	**1.6**
MS106.3	5/27/1999	1,900	1,300	0.061	<0.05U	<0.05U
MS106.3	10/13/1999	2,220	1,350	0.023	<0.05U	<0.05U
MS106.3	6/30/2000	1,115	1,200	<0.01U	<0.05U	<0.05U
MS106.3	10/26/2000	1,927	1,450	<0.065U	<0.05U	**0.15**
MS106.3	6/20/2001	2,000	1,200	0.025	<0.05U	<0.05U
MS106.3	10/11/2001	2,060	1,404	0.039	<0.05U	<0.05U
MS106.3	4/24/2002	1,930	855	0.015	<0.05U	<0.05U
MS106.3	10/22/2002	2,130	1,150	0.021	<0.05U	<0.05U
MS106.3	6/17/2003	2,005	950	0.028	<0.05U	<0.05U
MS106.3	10/28/2003	1,970	1,241	0.025	<0.05U	<0.05U
MS106.3	5/25/2004	2,020	725	0.012	<0.05U	**0.204**
MS106.3	10/26/2004	1,947	1,157	0.015	<0.05U	<0.05U
MS106.3	5/4/2005	2,190	631	<0.01U	<0.05U	<0.05U
MS106.3	11/16/2005	2,085	1,042	0.031	<0.05U	<0.05U
MS106.3	4/25/2006	2,110	600	<0.01U	<0.05U	<0.05U
MS106.3	10/17/2006	2,090	1,166	0.018	<0.05U	<0.5U
MS106.3	5/8/2007	2,280	579	<0.01U	<0.05U	<0.02U
MS106.3	10/10/2007	2,250	1,000	<0.01U	<0.05U	<0.02U
MS106.3	6/3/2008	2,230	755	<0.01U	<0.05U	<0.05U
MS106.3	10/7/2008	2,360	996	<0.01U	<0.05U	<0.05U
MS106.3	11/8/2011	-	-	<0.05U	<0.005U	<0.0524U
MS106.3	10/18/2012	-	-	<0.05U	<0.005U	**0.179**
MS106.3	9/25/2013	-	-	<0.5U	<0.05U	<0.5U
MS106.3	10/22/2014	-	-	0.0076	<0.01U	**0.19**
MS106.3	10/30/2015	-	-	0.007J	<0.002	<0.02
MS106.3	10/26/2016	-	-	<0.03U	0.007J	**0.683**

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		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**0.015**	**0.05**	**0.05**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
MS106.4	6/26/1990	1,960	1,250	**0.015**	<0.05U	<0.05U
MS106.4	12/19/1990	1,950	1,140	**0.015**	<0.05U	<0.05U
MS106.4	6/26/1991	1,840	1,730	-	<0.05U	<0.05U
MS106.4	11/20/1991	-	-	-	-	-
MS106.4	12/15/1992	1,830	950	**0.02**	<0.05U	0.006
MS106.4	8/24/1993	2,033	1,600	**0.16**	<0.05U	<0.05U
MS106.4	9/30/1993	1,848	1,425	**0.078**	<0.05U	**0.05**
MS106.4	6/27/1994	1,944	1,450	**0.041**	<0.05U	**0.072**
MS106.4	11/2/1994	-	-	-	-	-
MS106.4	5/4/1995	2,063	950	**0.039**	<0.05U	<0.05U
MS106.4	10/25/1995	-	-	-	-	-
MS106.4	5/24/1996	2,170	1,200	**0.019**	<0.05U	**0.16**
MS106.4	10/29/1996	-	-	-	-	-
MS106.4	7/1/1997	2,103	1,499	**0.194**	<0.05U	<0.05U
MS106.4	10/30/1997	-	-	-	-	-
MS106.4	6/29/1998	2,044	850	0.013	<0.05U	<0.05U
MS106.4	11/15/1998	-	-	-	-	-
MS106.4	5/27/1999	1,960	1,120	**0.032**	<0.05U	<0.05U
MS106.4	10/13/1999	-	-	-	-	-
MS106.4	6/30/2000	1,945	1,350	0.01	<0.05U	**0.11**
MS106.4	10/26/2000	1,913	1,025	**0.051**	<0.05U	<0.05U
MS106.4	6/20/2001	1,900	1,125	**0.025**	<0.05U	<0.05U
MS106.4	10/11/2001	-	-	-	-	-
MS106.4	4/24/2002	2,200	842	**0.015**	<0.05U	<0.05U
MS106.4	10/22/2002	-	-	-	-	-
MS106.4	6/17/2003	2,020	925	<0.01U	<0.05U	<0.05U
MS106.4	10/28/2003	-	-	-	-	-
MS106.4	5/25/2004	2,025	625	<0.01U	<0.05U	<0.05U
MS106.4	10/26/2004	2,047	1,036	**0.018**	<0.05U	<0.05U
MS106.4	5/4/2005	2,150	728	<0.01U	<0.05U	<0.05U
MS106.4	11/16/2005	-	-	-	-	-
MS106.4	4/25/2006	2,080	600	<0.01U	<0.05U	<0.05U
MS106.4	10/17/2006	2,140	1,067	<0.01U	<0.05U	**0.1**
MS106.4	5/8/2007	2,330	629	**0.025**	<0.05U	<0.02U
MS106.4	10/10/2007	-	-	-	-	-
MS106.4	6/3/2008	2,220	680	**0.015**	<0.05U	<0.05U
MS106.4	10/7/2008	2,230	1,068	<0.01U	<0.05U	<0.05U
MS106.4	11/8/2011	-	-	<0.05U	<0.005U	**0.0688**
MS106.4	10/18/2012	-	-	-	-	-
MS106.4	9/25/2013	-	-	-	-	-
MS106.4	10/22/2014	-	-	-	-	-
MS106.4	10/30/2015	-	-	-	-	-
MS106.4	10/26/2016	-	-	-	-	-

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		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**0.01**	**0.05**	**0.05**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
MS106.5	6/26/1990	2,050	750	**0.01**	<0.05U	<0.05U
MS106.5	12/19/1990	1,950	744	<0.01U	<0.05U	<0.05U
MS106.5	6/26/1991	-	-	-	-	-
MS106.5	11/20/1991	-	-	-	-	-
MS106.5	12/15/1992	-	-	-	-	-
MS106.5	8/24/1993	-	-	-	-	-
MS106.5	9/30/1993	-	-	-	-	-
MS106.5	6/27/1994	-	-	-	-	-
MS106.5	11/2/1994	-	-	-	-	-
MS106.5	5/4/1995	-	-	-	-	-
MS106.5	10/25/1995	-	-	-	-	-
MS106.5	5/24/1996	2,250	1,000	**0.03**	<0.05U	<0.05U
MS106.5	10/29/1996	-	-	-	-	-
MS106.5	7/1/1997	-	-	-	-	-
MS106.5	10/30/1997	-	-	-	-	-
MS106.5	6/29/1998	2,044	550	<0.01U	<0.05U	<0.05U
MS106.5	11/15/1998	-	-	-	-	-
MS106.5	5/27/1999	-	-	-	-	-
MS106.5	10/13/1999	-	-	-	-	-
MS106.5	6/30/2000	-	-	-	-	-
MS106.5	10/26/2000	-	-	-	-	-
MS106.5	6/20/2001	-	-	-	-	-
MS106.5	10/11/2001	-	-	-	-	-
MS106.5	4/24/2002	-	-	-	-	-
MS106.5	10/22/2002	-	-	-	-	-
MS106.5	6/17/2003	2,060	1,300	**0.01**	<0.05U	<0.05U
MS106.5	10/28/2003	-	-	-	-	-
MS106.5	5/25/2004	-	-	-	-	-
MS106.5	10/26/2004	-	-	-	-	-
MS106.5	5/4/2005	-	-	-	-	-
MS106.5	11/16/2005	-	-	-	-	-
MS106.5	4/25/2006	-	-	-	-	-
MS106.5	10/17/2006	-	-	-	-	-
MS106.5	5/8/2007	-	-	-	-	-
MS106.5	10/10/2007	-	-	-	-	-
MS106.5	6/3/2008	-	-	-	-	-
MS106.5	10/7/2008	-	-	-	-	-
MS106.5	11/8/2011	-	-	-	-	-
MS106.5	10/18/2012	-	-	-	-	-
MS106.5	9/25/2013	-	-	-	-	-
MS106.5	10/22/2014	-	-	-	-	-
MS106.5	10/30/2015	-	-	-	-	-
MS106.5	10/26/2016	-	-	-	-	-

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		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**0.01**	**0.05**	**113.258**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
MS301.1	6/26/1990	23	45,000	<0.01U	<0.05U	80
MS301.1	12/19/1990	23	28,300	**0.01**	<0.05U	84
MS301.1	6/26/1991	22	54,800	-	<0.05U	79.2
MS301.1	11/20/1991	20	64,480	<0.01U	<0.05U	**116.9**
MS301.1	12/15/1992	128	1,900	<0.01U	<0.05U	**114**
MS301.1	8/24/1993	3	51,860	**0.17**	<0.05U	**192**
MS301.1	9/30/1993	10	55,360	**0.545**	<0.05U	**115**
MS301.1	6/27/1994	12	46,790	**1.19**	<0.05U	**142**
MS301.1	11/2/1994	21	53,000	**0.025**	<0.05U	72
MS301.1	5/4/1995	29	37,500	<0.02U	<0.05U	47
MS301.1	10/25/1995	25	53,000	**0.068**	<0.05U	110
MS301.1	5/24/1996	26	60,000	**0.015**	<0.05U	**134**
MS301.1	10/29/1996	18	60,000	**0.016**	<0.05U	99
MS301.1	7/1/1997	18	54,000	<0.01U	<0.05U	**158**
MS301.1	10/30/1997	26	61,980	**0.01**	<0.05U	105.5
MS301.1	6/29/1998	32	48,990	<0.01U	<0.05U	73.6
MS301.1	11/15/1998	30	54,980	**0.029**	<0.05U	**130**
MS301.1	5/27/1999	38	58,980	**0.032**	<0.05U	101
MS301.1	10/13/1999	50	55,480	**0.015**	<0.05U	97
MS301.1	6/30/2000	35	60,980	**0.01**	<0.05U	16
MS301.1	10/26/2000	29	53,000	**0.04**	<0.05U	66.7
MS301.1	6/20/2001	24	51,980	**0.029**	<0.05U	53.2
MS301.1	10/11/2001	33	50,030	**0.039**	<0.05U	69.6
MS301.1	4/24/2002	32	58,200	**0.015**	<0.05U	105
MS301.1	10/22/2002	29	57,480	**0.014**	<0.05U	99
MS301.1	6/17/2003	37	47,990	**0.015**	<0.05U	**136**
MS301.1	10/28/2003	46	54,590	**0.025**	<0.05U	106
MS301.1	5/25/2004	19	51,650	**0.012**	<0.05U	**209**
MS301.1	10/26/2004	44	48,210	**0.012**	<0.05U	89.5
MS301.1	5/4/2005	45	53,430	<0.01U	<0.05U	**120**
MS301.1	11/16/2005	35	53,600	**0.014**	<0.05U	94.8
MS301.1	4/25/2006	40	57,980	<0.01U	<0.05U	95.9
MS301.1	10/17/2006	37	53,600	**0.011**	<0.05U	104
MS301.1	5/8/2007	36	54,370	<0.01U	<0.05U	99.4
MS301.1	10/10/2007	41	70,000	<0.01U	<0.05U	86.6
MS301.1	6/3/2008	45	55,370	**0.023**	<0.05U	83.1
MS301.1	10/7/2008	37	51,000	<0.01U	<0.05U	94
MS301.1	11/8/2011	-	-	<0.05U	<0.00556U	**127**
MS301.1	10/18/2012	-	-	<0.05U	0.00822	87.9
MS301.1	9/25/2013	-	-	<0.05U	<0.1U	103
MS301.1	10/22/2014	-	-	**0.0212**	<0.01U	98
MS301.1	10/29/2015	-	-	<0.004	0.01	77
MS301.1	10/26/2016	-	-	**0.02J**	0.013	70.1

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		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**5.846**	**0.05**	**89.551**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
MS301.2	6/26/1990	102	69,000	3.3	<0.05U	77
MS301.2	12/19/1990	98	71,950	4	<0.05U	48
MS301.2	6/26/1991	102	80,000	-	<0.05U	47.3
MS301.2	11/20/1991	136	90,970	5.42	<0.05U	85.1
MS301.2	12/15/1992	148	73,000	5.29	<0.05U	77.8
MS301.2	8/24/1993	71	82,730	5.11	<0.05U	63.9
MS301.2	9/30/1993	88	86,470	**7.98**	<0.05U	**91.1**
MS301.2	6/27/1994	90	70,880	**7.38**	<0.05U	**100**
MS301.2	11/2/1994	127	65,000	4.35	<0.05U	42.4
MS301.2	5/4/1995	133	77,000	4.71	<0.05U	33.2
MS301.2	10/25/1995	162	82,000	4.34	<0.05U	83
MS301.2	5/24/1996	94	88,000	3.92	<0.05U	88.6
MS301.2	10/29/1996	127	300,000	4.18	<0.05U	58.2
MS301.2	7/1/1997	125	80,000	3.86	<0.05U	68
MS301.2	10/30/1997	123	80,980	3.82	<0.05U	88.8
MS301.2	6/29/1998	-	-	4.04	<0.05U	44.8
MS301.2	11/15/1998	143	79,980	4.07	<0.05U	64
MS301.2	5/27/1999	118	77,000	4.29	<0.05U	74.3
MS301.2	10/13/1999	164	55,980	3.8	<0.05U	66
MS301.2	6/30/2000	140	97,970	3.89	<0.05U	33.6
MS301.2	10/26/2000	136	76,000	4.13	<0.05U	60.1
MS301.2	6/20/2001	150	73,980	3.8	<0.05U	41.6
MS301.2	10/11/2001	144	80,150	3.91	<0.05U	71.6
MS301.2	4/24/2002	126	86,780	3.77	<0.05U	84
MS301.2	10/22/2002	118	82,470	3.79	<0.05U	74.4
MS301.2	6/17/2003	130	77,480	3.89	<0.05U	**107**
MS301.2	10/28/2003	146	72,790	4.05	<0.05U	80.5
MS301.2	5/25/2004	123	68,310	3.77	<0.05U	**179**
MS301.2	10/26/2004	144	64,120	1.51	<0.05U	76.5
MS301.2	5/4/2005	147	74,790	3.55	<0.05U	**89.8**
MS301.2	11/16/2005	130	73,540	3.88	<0.05U	71.6
MS301.2	4/25/2006	145	78,980	3.67	<0.05U	88.9
MS301.2	10/17/2006	137	68,490	3.72	<0.05U	**93.4**
MS301.2	5/8/2007	133	72,150	3.78	<0.05U	74.8
MS301.2	10/10/2007	140	75,000	3.77	<0.05U	74.8
MS301.2	6/3/2008	140	80,540	3.83	<0.05U	86
MS301.2	10/7/2008	112	75,280	3.76	<0.05U	80
MS301.2	11/8/2011	-	-	-	<0.00556U	**113**
MS301.2	10/18/2012	-	-	<0.05U	0.00609	84.4
MS301.2	9/25/2013	-	-	4.9	<0.25U	**97.4**
MS301.2	10/22/2014	-	-	2.32	<0.01U	77
MS301.2	10/29/2015	-	-	3.9	0.01	88
MS301.2	10/26/2016	-	-	0.047	0.014	76.4

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		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**5.336**	**0.05**	**38.177**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
MS301.3	6/26/1990	127	59,000	4.39	<0.05U	23
MS301.3	12/19/1990	155	35,200	3.46	<0.05U	25
MS301.3	6/26/1991	134	65,800	-	<0.05U	25.4
MS301.3	11/20/1991	162	86,470	4.9	<0.05U	**39.7**
MS301.3	12/15/1992	152	13,000	4.43	<0.05U	**41.1**
MS301.3	8/24/1993	124	56,730	2.65	<0.05U	**52.3**
MS301.3	9/30/1993	172	66,850	3.61	<0.05U	36
MS301.3	6/27/1994	176	66,380	2.34	<0.05U	**49**
MS301.3	11/2/1994	222	47,500	2.63	<0.05U	35.4
MS301.3	5/4/1995	180	59,000	2.89	<0.05U	17.6
MS301.3	10/25/1995	202	61,000	2.63	<0.05U	35.4
MS301.3	5/24/1996	218	67,000	2.57	<0.05U	29.7
MS301.3	10/29/1996	202	65,000	2.16	<0.05U	28.7
MS301.3	7/1/1997	214	64,000	2.88	<0.05U	**102**
MS301.3	10/30/1997	169	68,980	3.33	<0.05U	36.2
MS301.3	6/29/1998	210	55,980	3.13	<0.05U	19
MS301.3	11/15/1998	230	56,980	4.14	<0.05U	**48.6**
MS301.3	5/27/1999	180	63,980	3.58	<0.05U	31
MS301.3	10/13/1999	200	59,480	3.28	<0.05U	26
MS301.3	6/30/2000	195	74,980	3.89	<0.05U	1.36
MS301.3	10/26/2000	189	55,000	3.4	<0.05U	26.6
MS301.3	6/20/2001	194	54,980	3.24	<0.05U	11.6
MS301.3	10/11/2001	196	56,150	3.56	<0.05U	36.4
MS301.3	4/24/2002	174	53,150	3.77	<0.05U	32
MS301.3	10/22/2002	168	55,980	3.47	<0.05U	23.9
MS301.3	6/17/2003	175	53,320	3.93	<0.05U	**38.6**
MS301.3	10/28/2003	190	54,590	3.53	<0.05U	**44.8**
MS301.3	5/25/2004	148	48,320	3.64	<0.05U	**41.9**
MS301.3	10/26/2004	186	50,140	3.37	<0.05U	30.3
MS301.3	5/4/2005	160	45,650	3.5	<0.05U	30
MS301.3	11/16/2005	175	54,590	3.47	<0.05U	34.9
MS301.3	4/25/2006	172	26,660	3.27	<0.05U	28.9
MS301.3	10/17/2006	180	50,620	3.38	<0.05U	34.6
MS301.3	5/8/2007	170	47,320	3.13	<0.05U	**39.3**
MS301.3	10/10/2007	174	42,200	3.24	<0.05U	30.2
MS301.3	6/3/2008	172	54,120	3.46	<0.05U	29.7
MS301.3	10/7/2008	156	55,370	3.08	<0.05U	30
MS301.3	11/8/2011	-	-	3.9	<0.00556U	**41.7**
MS301.3	10/18/2012	-	-	<5U	0.00506	21.1
MS301.3	9/25/2013	-	-	**5.4**	<0.1U	29.5
MS301.3	10/22/2014	-	-	2.06	<0.01U	31
MS301.3	10/29/2015	-	-	4	0.0083J	29
MS301.3	10/26/2016	-	-	<0.03U	0.015	18.8

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		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**3.849**	**0.05**	**0.204**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
MS301.4	6/26/1990	150	48,500	3.68	<0.05U	0.16
MS301.4	12/19/1990	209	50,100	3.12	<0.05U	<0.05U
MS301.4	6/26/1991	412	52,200	-	<0.05U	<0.05U
MS301.4	11/20/1991	262	60,480	3.48	<0.05U	0.186
MS301.4	12/15/1992	393	50,000	**4**	<0.05U	0.105
MS301.4	8/24/1993	408	53,360	2.03	<0.05U	0.161
MS301.4	9/30/1993	204	49,360	2.98	<0.05U	**0.261**
MS301.4	6/27/1994	184	44,090	2.66	<0.05U	0.105
MS301.4	11/2/1994	262	32,500	2.67	<0.05U	<0.05U
MS301.4	5/4/1995	232	46,000	3.33	<0.05U	0.14
MS301.4	10/25/1995	254	40,000	2.67	<0.05U	0.14
MS301.4	5/24/1996	158	50,000	2.98	<0.05U	**0.27**
MS301.4	10/29/1996	377	43,000	2.43	<0.05U	0.066
MS301.4	7/1/1997	218	40,000	2.62	<0.05U	**51.5**
MS301.4	10/30/1997	262	50,480	2.51	<0.05U	0.064
MS301.4	6/29/1998	274	34,990	2.14	<0.05U	0.057
MS301.4	11/15/1998	341	37,990	2.29	<0.05U	0.12
MS301.4	5/27/1999	260	40,990	2.43	<0.05U	0.097
MS301.4	10/13/1999	235	36,990	2.3	<0.05U	<0.05U
MS301.4	6/30/2000	185	39,490	2.26	<0.05U	<0.05U
MS301.4	10/26/2000	216	32,000	2.35	<0.05U	**17.5**
MS301.4	6/20/2001	226	32,990	2.21	<0.05U	**0.27**
MS301.4	10/11/2001	323	22,460	1.87	<0.05U	0.062
MS301.4	4/24/2002	340	33,690	1.72	<0.05U	**0.47**
MS301.4	10/22/2002	342	31,990	1.79	<0.05U	**0.313**
MS301.4	6/17/2003	246	28,990	1.91	<0.05U	**0.538**
MS301.4	10/28/2003	310	30,770	1.75	<0.05U	<0.05U
MS301.4	5/25/2004	240	32,490	1.59	<0.05U	0.105
MS301.4	10/26/2004	298	26,030	1.49	<0.05U	0.05
MS301.4	5/4/2005	312	27,200	1.39	<0.05U	<0.05U
MS301.4	11/16/2005	200	25,810	1.65	<0.05U	<0.05U
MS301.4	4/25/2006	294	24,990	1.25	<0.05U	<0.05U
MS301.4	10/17/2006	268	25,310	2.07	<0.05U	<0.05U
MS301.4	5/8/2007	384	22,650	0.998	<0.05U	<0.02U
MS301.4	10/10/2007	283	21,100	0.9	<0.05U	<0.02U
MS301.4	6/3/2008	250	23,160	1.22	<0.05U	<0.05U
MS301.4	10/7/2008	280	23,310	0.98	<0.05U	<0.05U
MS301.4	11/8/2011	-	-	0.67	<0.00556U	0.19
MS301.4	10/18/2012	-	-	<0.05U	0.0115	**23.6**
MS301.4	9/25/2013	-	-	0.8	<1.1U	**3.11**
MS301.4	10/22/2014	-	-	0.79	0.034	**1.8**
MS301.4	10/29/2015	-	-	0.56	0.006J	**2.7**
MS301.4	10/26/2016	-	-	0.44	0.02	**4.66**

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Bold and highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**0.435**	**0.05**	**0.114**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
MS301.5	6/26/1990	1,790	11,500	0.38	<0.05U	0.05
MS301.5	12/19/1990	1,650	13,400	0.34	<0.05U	0.05
MS301.5	6/26/1991	1,630	12,900	-	<0.05U	<0.05U
MS301.5	11/20/1991	2,056	11,200	0.225	<0.05U	**0.122**
MS301.5	12/15/1992	1,730	8,450	0.314	<0.05U	**0.249**
MS301.5	8/24/1993	1,673	9,747	0.231	<0.05U	0.106
MS301.5	9/30/1993	1,652	9,272	0.304	<0.05U	0.059
MS301.5	6/27/1994	1,644	8,739	0.234	<0.05U	0.063
MS301.5	11/2/1994	1,789	6,748	0.264	<0.05U	<0.05U
MS301.5	5/4/1995	1,890	9,000	0.24	<0.05U	0.079
MS301.5	10/25/1995	1,809	3,900	0.186	<0.05U	<0.05U
MS301.5	5/24/1996	1,930	5,000	0.193	<0.05U	<0.05U
MS301.5	10/29/1996	1,800	6,900	0.163	<0.05U	<0.05U
MS301.5	7/1/1997	2,262	6,198	0.146	<0.05U	<0.05U
MS301.5	10/30/1997	1,721	5,598	0.12	<0.05U	<0.05U
MS301.5	6/29/1998	1,716	5,698	0.108	<0.05U	<0.05U
MS301.5	11/15/1998	1,796	5,498	0.112	<0.05U	<0.05U
MS301.5	5/27/1999	1,710	5,300	0.132	<0.05U	<0.05U
MS301.5	10/13/1999	1,800	5,100	0.105	<0.05U	<0.05U
MS301.5	6/30/2000	1,740	5,300	0.11	<0.05U	<0.05U
MS301.5	10/26/2000	1,787	4,097	0.11	<0.05U	<0.05U
MS301.5	6/20/2001	1,790	4,199	**0.995**	<0.05U	0.077
MS301.5	10/11/2001	1,740	3,931	0.193	<0.05U	<0.05U
MS301.5	4/24/2002	1,750	4,799	0.106	<0.05U	**0.13**
MS301.5	10/22/2002	1,835	3,499	0.091	<0.05U	0.059
MS301.5	6/17/2003	1,825	3,849	0.087	<0.05U	**0.118**
MS301.5	10/28/2003	1,750	3,573	0.078	<0.05U	**0.641**
MS301.5	5/25/2004	1,785	3,349	0.075	<0.05U	<0.05U
MS301.5	10/26/2004	1,860	3,471	0.076	<0.05U	<0.05U
MS301.5	5/4/2005	1,900	3,400	0.048	<0.05U	<0.05U
MS301.5	11/16/2005	1,840	2,978	0.065	<0.05U	**0.2**
MS301.5	4/25/2006	1,855	3,199	0.069	<0.05U	<0.05U
MS301.5	10/17/2006	1,960	2,630	0.055	<0.05U	<0.05U
MS301.5	5/8/2007	1,980	3,524	0.049	<0.05U	<0.02U
MS301.5	10/10/2007	2,020	2,581	0.038	<0.05U	<0.02U
MS301.5	6/3/2008	2,030	2,718	0.056	<0.05U	<0.05U
MS301.5	10/7/2008	2,160	2,720	0.032	<0.05U	<0.05U
MS301.5	11/8/2011	-	-	<0.05U	<0.00556U	**0.159**
MS301.5	10/18/2012	-	-	0.054	<0.005U	<0.05U
MS301.5	9/25/2013	-	-	0.086	<0.1U	<1U
MS301.5	10/22/2014	-	-	0.094	<0.01U	**0.2**
MS301.5	10/29/2015	-	-	0.031	0.01	**0.61**
MS301.5	10/26/2016	-	-	0.011J	0.003J	0.064

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Bold and highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**0.135**	**0.05**	**0.073**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
W105R	10/13/1999	1,510	2,450	**0.142**	<0.05U	**0.076**
W105R	6/30/2000	1,915	2,390	0.032	<0.05U	<0.05U
W105R	10/26/2000	1,820	2,274	0.065	<0.05U	<0.05U
W105R	6/20/2001	1,980	1,550	0.025	<0.05U	<0.05U
W105R	10/12/2001	2,020	2,348	0.039	<0.05U	<0.05U
W105R	4/25/2002	2,100	1,378	0.018	<0.05U	<0.05U
W105R	10/22/2002	-	-	-	-	-
W105R	4/25/2006	2,110	1,674	0.017	<0.05U	0.06
W105R	10/18/2006	2,070	1,712	0.018	<0.05U	**0.18**
W105R	5/8/2007	2,170	956	<0.01U	<0.05U	<0.02U
W105R	10/10/2007	2,160	1,800	0.026	<0.05U	<0.02U
W105R	6/3/2008	2,150	1,183	0.012	<0.05U	<0.05U
W105R	10/7/2008	2,340	1,651	<0.01U	<0.05U	<0.05U
W105R	11/9/2011	-	-	-	-	-
W105R	10/15/2012	-	-	-	-	-
W105R	9/23/2013	-	-	-	-	-
W105R	10/22/2014	-	-	-	-	-
W105R	10/30/2015	-	-	-	-	-
W105R	10/27/2016	-	-	-	-	-

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Bold and highlighted cells indicate an exceedance of Well Specific Upper Confidence Limit

		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**0.161**	**0.05**	**0.213**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
W201R	6/27/1994	1,652	4,549	0.119	<0.05U	**0.231**
W201R	11/2/1994	1,845	3,749	0.149	<0.05U	<0.05U
W201R	5/4/1995	1,821	3,700	0.12	<0.05U	0.064
W201R	10/25/1995	1,897	5,500	0.156	<0.05U	0.06
W201R	5/24/1996	1,940	4,700	0.108	<0.05U	<0.05U
W201R	10/29/1996	1,900	4,200	0.081	<0.05U	<0.05U
W201R	7/1/1997	1,984	3,799	0.076	<0.05U	0.1
W201R	10/30/1997	1,771	4,499	0.082	<0.05U	<0.05U
W201R	6/29/1998	1,835	2,399	0.041	<0.05U	<0.05U
W201R	11/15/1998	1,875	3,899	0.108	<0.05U	**1**
W201R	5/27/1999	1,710	2,900	0.057	<0.05U	<0.05U
W201R	10/13/1999	1,800	4,000	0.081	<0.05U	<0.05U
W201R	6/30/2000	1,845	3,450	0.064	<0.05U	<0.05U
W201R	10/26/2000	1,847	2,349	0.085	<0.05U	<0.05U
W201R	6/20/2001	1,880	2,249	0.062	<0.05U	<0.05U
W201R	10/11/2001	1,960	2,910	0.074	<0.05U	<0.05U
W201R	4/24/2002	1,950	2,297	0.043	<0.05U	0.058
W201R	10/22/2002	1,960	3,049	0.059	<0.05U	<0.05U
W201R	6/17/2003	1,925	2,149	0.035	<0.05U	0.078
W201R	10/28/2003	1,910	3,077	0.064	<0.05U	<0.05U
W201R	5/25/2004	1,615	2,299	0.022	<0.05U	0.107
W201R	10/26/2004	1,947	1,736	0.029	<0.05U	0.09
W201R	5/4/2005	2,010	2,088	0.021	<0.05U	0.05
W201R	11/16/2005	1,930	2,730	0.051	<0.05U	0.05
W201R	4/25/2006	1,960	2,049	0.036	<0.05U	<0.05U
W201R	10/17/2006	1,990	2,035	0.035	<0.05U	<0.05U
W201R	5/8/2007	2,100	1,762	0.025	<0.05U	<0.02U
W201R	10/10/2007	2,090	2,900	0.04	<0.05U	<0.02U
W201R	6/3/2008	2,070	1,863	0.029	<0.05U	<0.05U
W201R	10/7/2008	2,270	1,651	0.029	<0.05U	<0.05U
W201R	11/8/2011	-	-	<0.05U	<0.005U	<0.05U
W201R	10/18/2012	-	-	<0.05U	<0.005U	<0.05U
W201R	9/25/2013	-	-	<0.05U	<0.05U	<0.5U
W201R	10/22/2014	-	-	0.0217	<0.01U	<0.1U
W201R	10/29/2015	-	-	-	-	-
W201R	10/26/2016	-	-	0.023J	<0.01U	0.028J

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		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total)	Chloride	Phenols	Chromium (III+VI)	Iron
		mg/L	mg/L	mg/L	mg/L	mg/L
UCL				**0.11**	**0.05**	**0.05**
Regulatory Standard			250	0.001	0.05	0.3
Sample ID	**Sample Date**					
W5.6	6/26/1990	1,940	1,600	0.013	<0.05U	<0.05U
W5.6	12/19/1990	1,830	1,490	<0.01U	<0.05U	<0.05U
W5.6	6/26/1991	1,590	2,360	-	<0.05U	<0.05U
W5.6	11/20/1991	1,520	3,699	0.094	<0.05U	<0.05U
W5.6	12/15/1992	1,590	2,600	0.049	<0.05U	**0.076**
W5.6	8/24/1993	1,620	5,673	**0.114**	<0.05U	<0.05U
W5.6	9/30/1993	1,732	6,373	**0.178**	<0.05U	**0.099**
W5.6	6/27/1994	1,584	4,062	0.093	<0.05U	<0.05U
W5.6	11/2/1994	1,809	6,248	**0.207**	<0.05U	<0.05U
W5.6	5/4/1995	1,942	3,900	**0.11**	<0.05U	<0.05U
W5.6	10/25/1995	1,829	9,900	**0.227**	<0.05U	**0.074**
W5.6	5/24/1996	1,870	3,700	0.079	<0.05U	<0.05U
W5.6	10/29/1996	1,800	9,500	**0.185**	<0.05U	<0.05U
W5.6	7/1/1997	1,825	6,998	**0.153**	<0.05U	**0.12**
W5.6	10/30/1997	1,721	10,200	**0.223**	<0.05U	<0.05U
W5.6	6/29/1998	1,944	2,399	0.045	<0.05U	<0.05U
W5.6	11/15/1998	1,538	8,497	**0.163**	<0.05U	**0.62**
W5.6	5/27/1999	1,860	2,700	0.05	<0.05U	<0.05U
W5.6	10/13/1999	1,720	7,200	**0.149**	<0.05U	<0.05U
W5.6	6/30/2000	1,620	1,320	0.014	<0.05U	<0.05U
W5.6	10/26/2000	1,640	7,000	**0.186**	<0.05U	<0.05U
W5.6	6/20/2001	1,580	4,599	0.099	<0.05U	<0.05U
W5.6	10/11/2001	1,760	7,963	**0.176**	<0.05U	<0.05U
W5.6	4/24/2002	1,880	970	0.015	<0.05U	**0.052**
W5.6	10/22/2002	1,650	5,198	0.102	<0.05U	**0.068**
W5.6	6/17/2003	1,900	1,649	0.017	<0.05U	<0.05U
W5.6	10/28/2003	1,670	5,360	**0.112**	<0.05U	<0.05U
W5.6	5/25/2004	1,605	925	0.012	<0.05U	**0.219**
W5.6	10/26/2004	1,633	3,519	0.086	<0.05U	<0.05U
W5.6	5/4/2005	2,130	935	<0.01U	<0.05U	**0.05**
W5.6	11/16/2005	1,680	3,176	0.069	<0.05U	**0.13**
W5.6	4/25/2006	2,070	1,150	0.017	<0.05U	<0.05U
W5.6	10/17/2006	1,760	4,020	0.055	<0.05U	**0.27**
W5.6	5/8/2007	2,210	856	<0.01U	<0.05U	<0.02U
W5.6	10/10/2007	1,830	3,900	0.061	<0.05U	<0.02U
W5.6	6/3/2008	1,990	2,014	0.032	<0.05U	<0.05U
W5.6	10/7/2008	2,090	4,371	0.06	<0.05U	**0.23**
W5.6	11/8/2011	-	-	<0.05U	<0.005U	<0.106U
W5.6	10/18/2012	-	-	0.051	<0.005U	<0.05U
W5.6	9/25/2013	-	-	<0.5U	<0.05U	<0.5U
W5.6	10/22/2014	-	-	0.0604	<0.01U	<0.1U
W5.6	10/29/2015	-	-	0.016J	0.0068J	**0.99**
W5.6	10/26/2016	-	-	0.023J	<0.01U	0.013J

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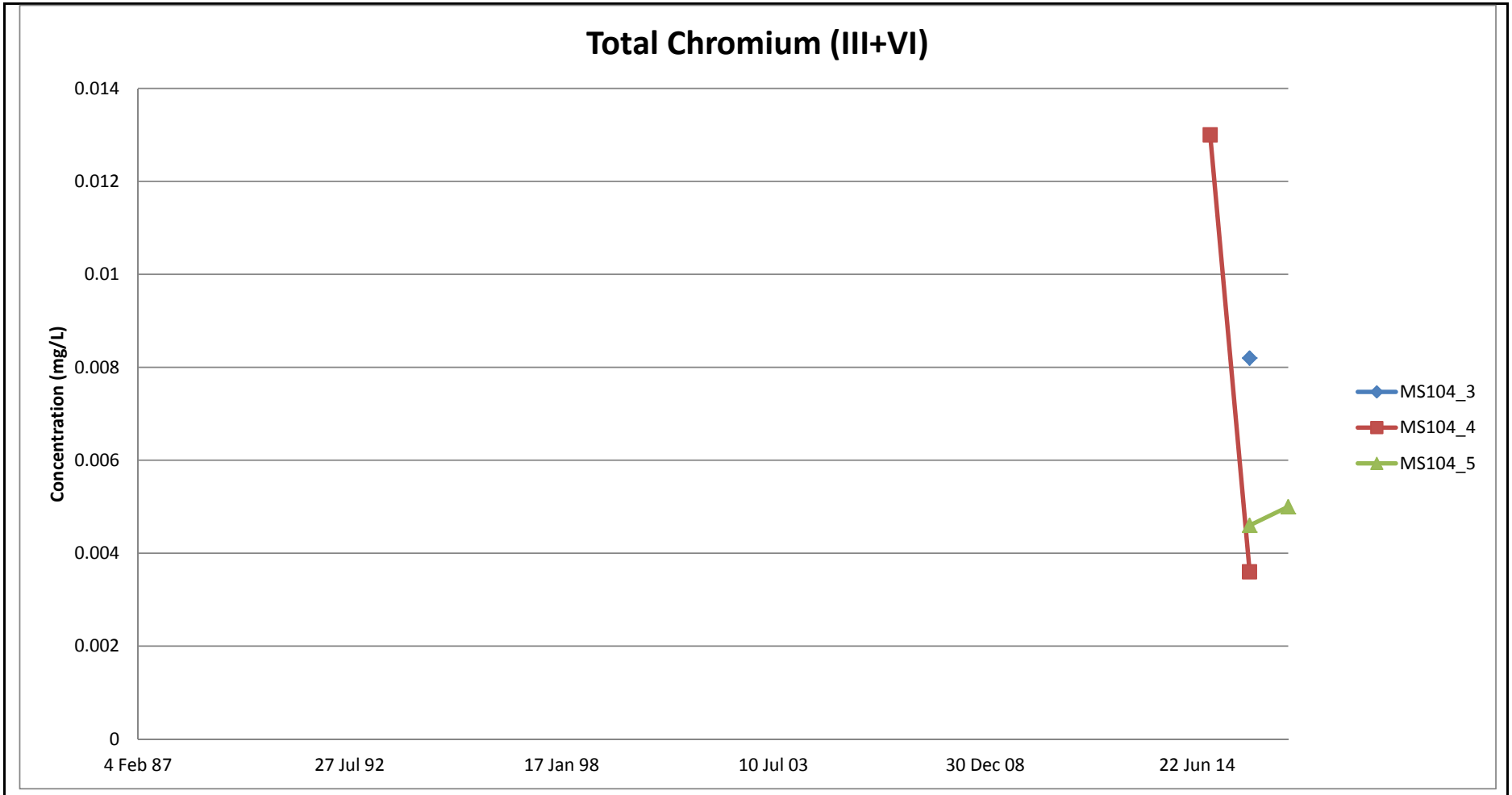

Appendix D

MS-104 Cluster - Chromium Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID In('MS104.3' , 'MS104.4' , 'MS104.5') AND ChemName = 'Chromium (III+VI)')

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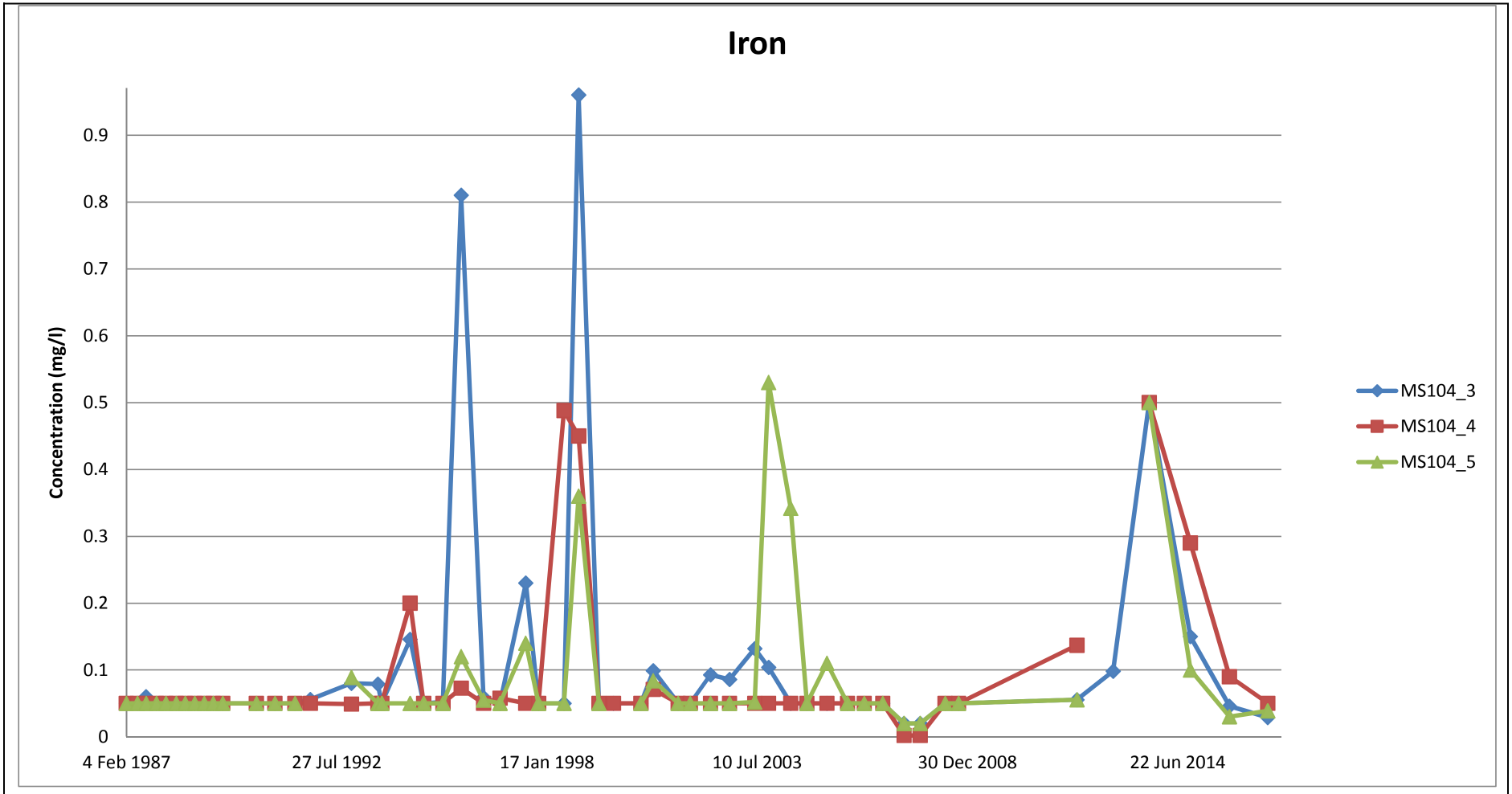
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD

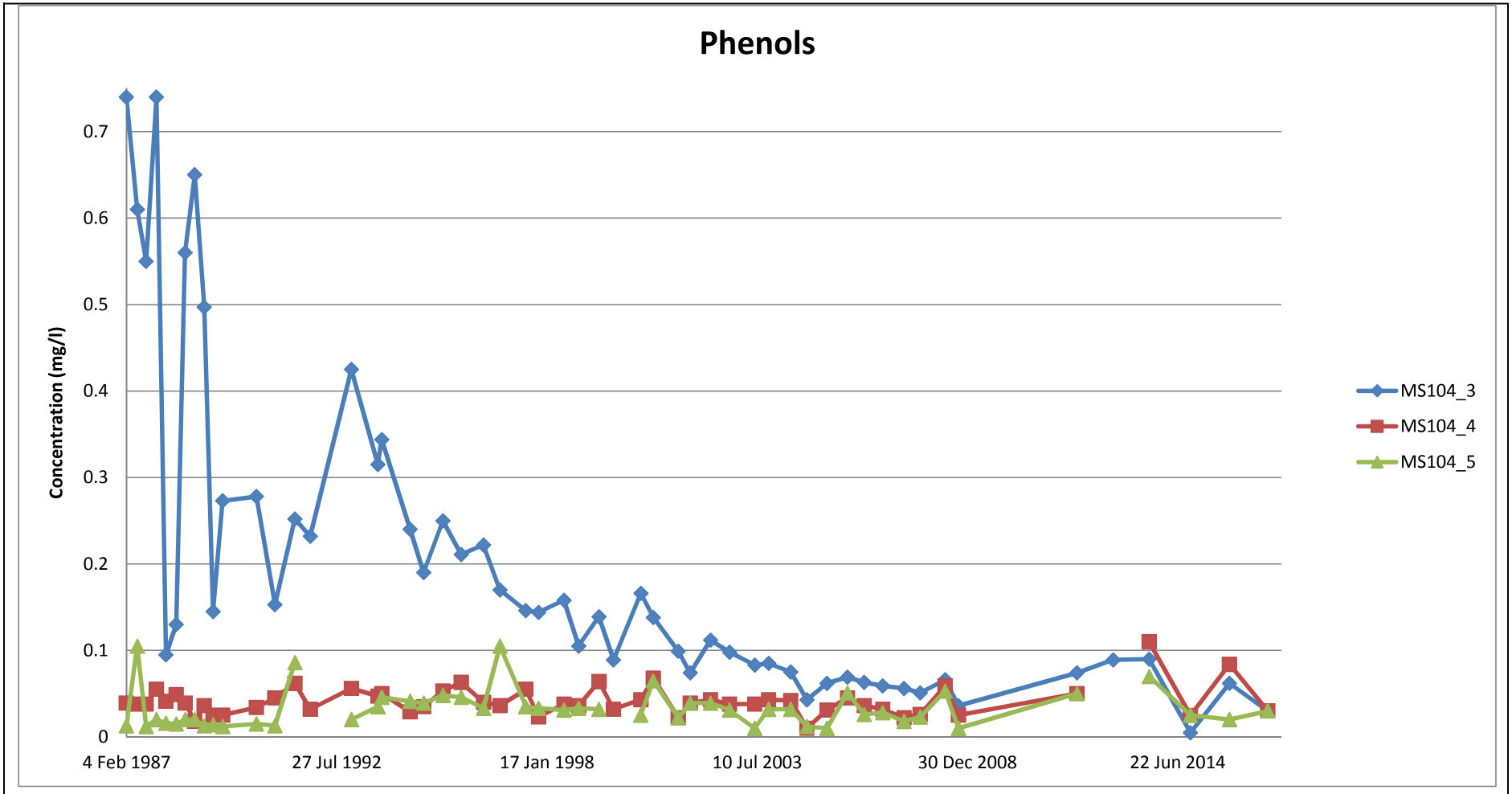


Appendix D

MS-104 Cluster - Iron Time Series Plot

□or□er □r□i□le □pe□ialt□Metal□LF, □ □ere□□e□ □□2_ □□e□i□tr□□□a□ple□_□it□_□a□_□e□□lt□□□□o□□ode] □n(□M□104.3', □M□104.4', □M□104.5') AND □ ell□ode □□□□ll AND □□e□□a□e = □ron')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	



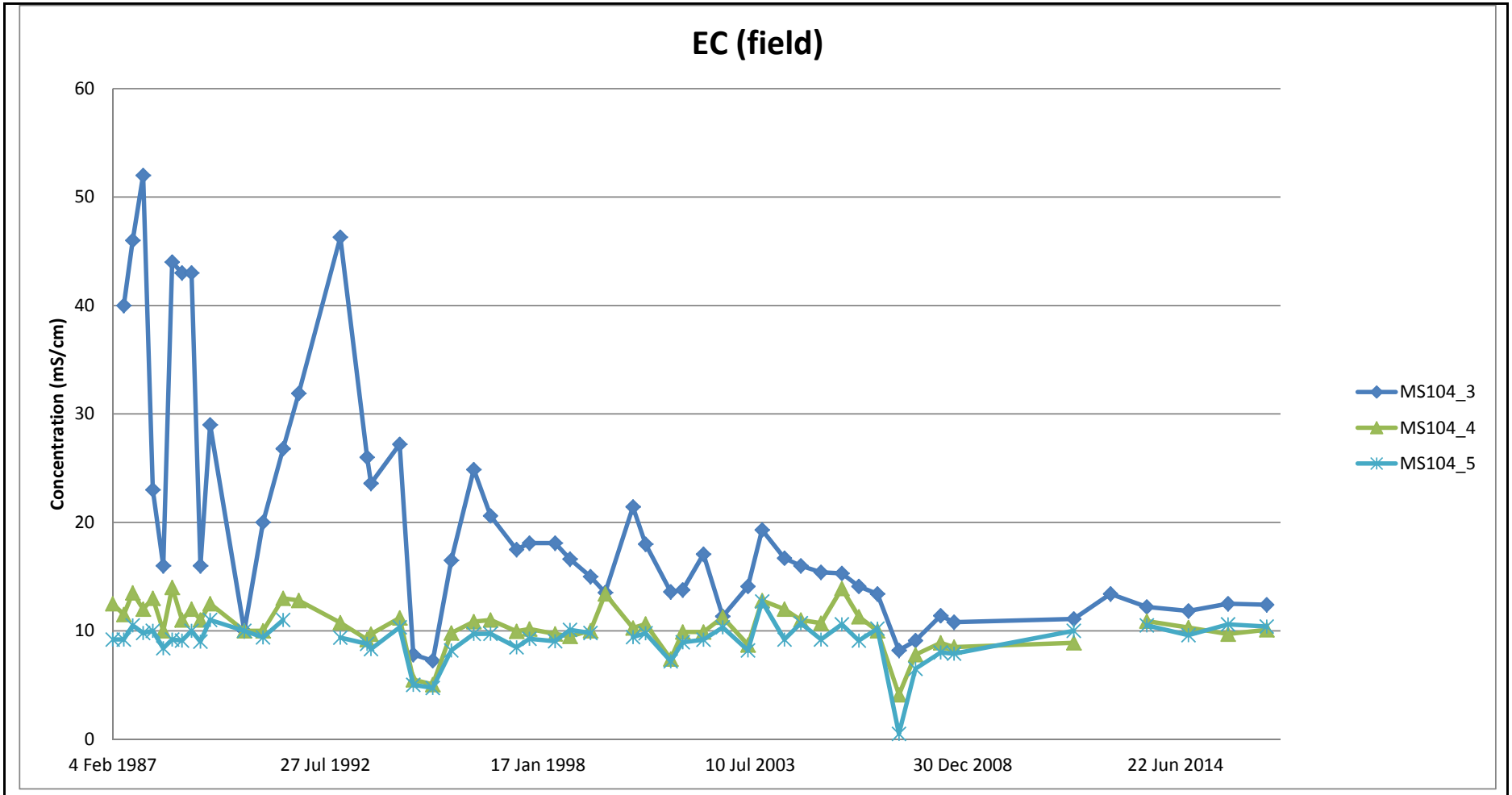
Appendix D

MS-104 Cluster - Phenols Time Series Plot

□or□er □r□i□le □pe□ialt□Metal□LF, □ □ere□□□e□ □□2_ □□e□i□tr□□□a□ple□_ □it□_ □a□_□e□□lt□□□□o□□ode] □n(□M□104.3', □M□104.4', □M□104.5') AND □ ell□ode □□ □□ll AND □□e□ □a□e = □□enol□' □

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



Appendix D

MS-104 Cluster - Conductivity Time Series Plot

Former Crucible Specialty Metals LF, Where(ChemName = 'EC (field)' AND [ChemQA2_Chemistry_Samples_with_Raw_Results].[LocCode] In('MS104.3' , 'MS104.4' , 'MS104.5'))

Date: Nov 16		Drawn:	
Scale: nts		Chk'd:	
Original:		Rev:	
File Reference:			

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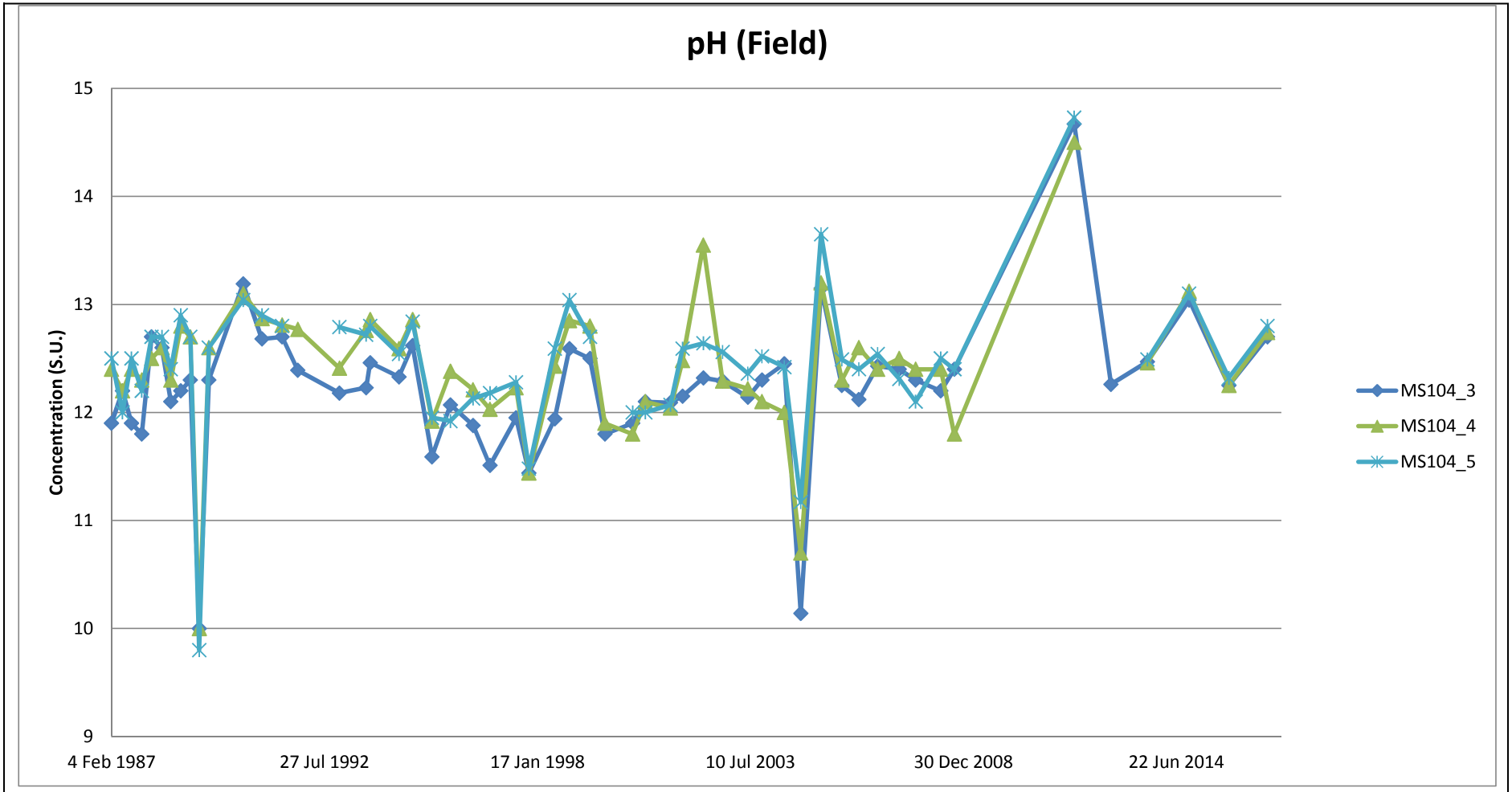


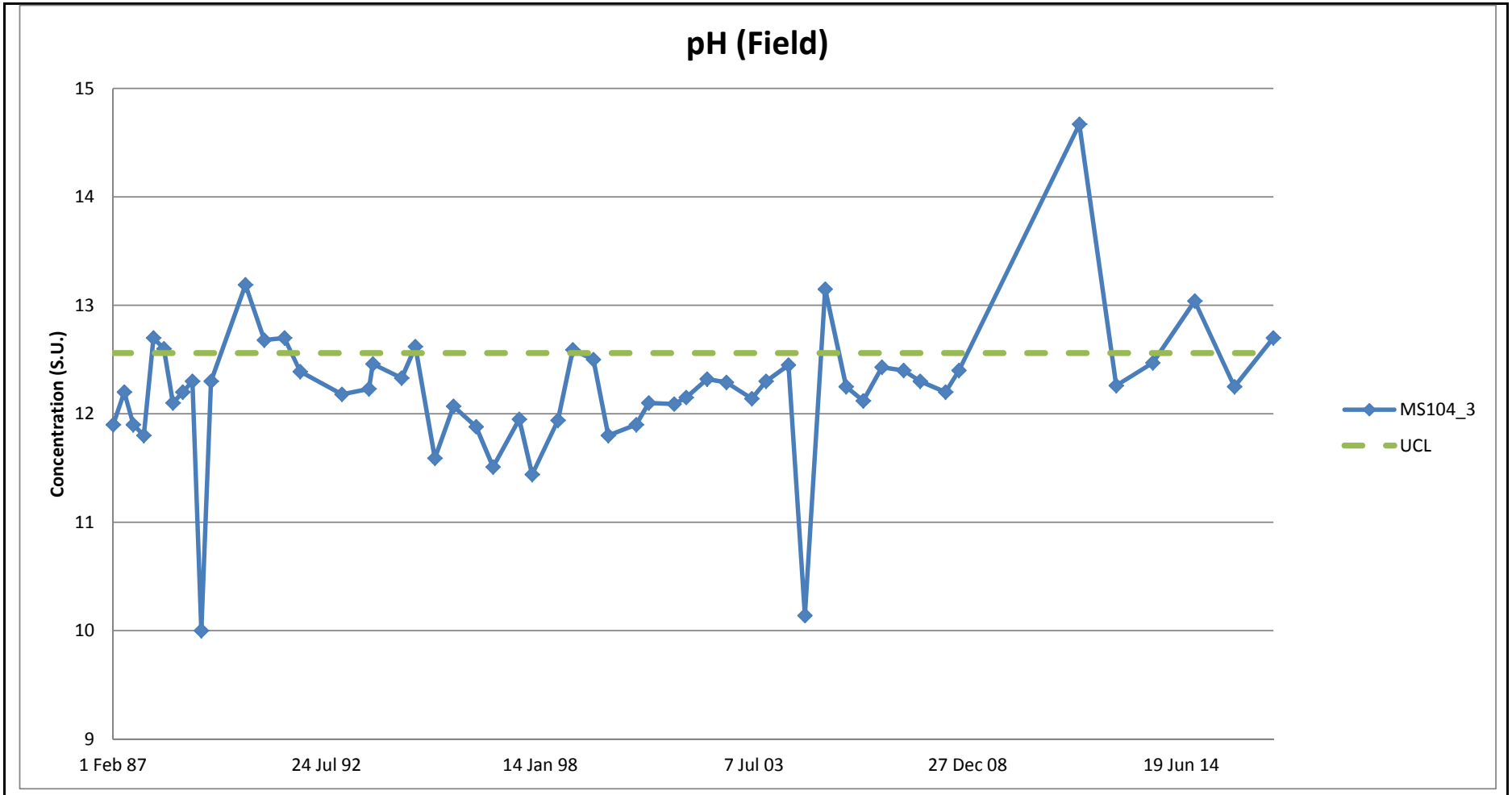
Appendix D

MS-104 Cluster - pH Time Series Plot

□or□er □r□□i□le □pe□ialt□Metal□LF, □ □ere□□□e□ □□2_ □□e□i□tr□□□a□ple□_ □it□_ □a□_□e□□lt□□□□o□□ode] □n(□M□104.3', □M□104.4', □M□104.5') AND □□e□□a□e = □p□ □□ield□□□

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



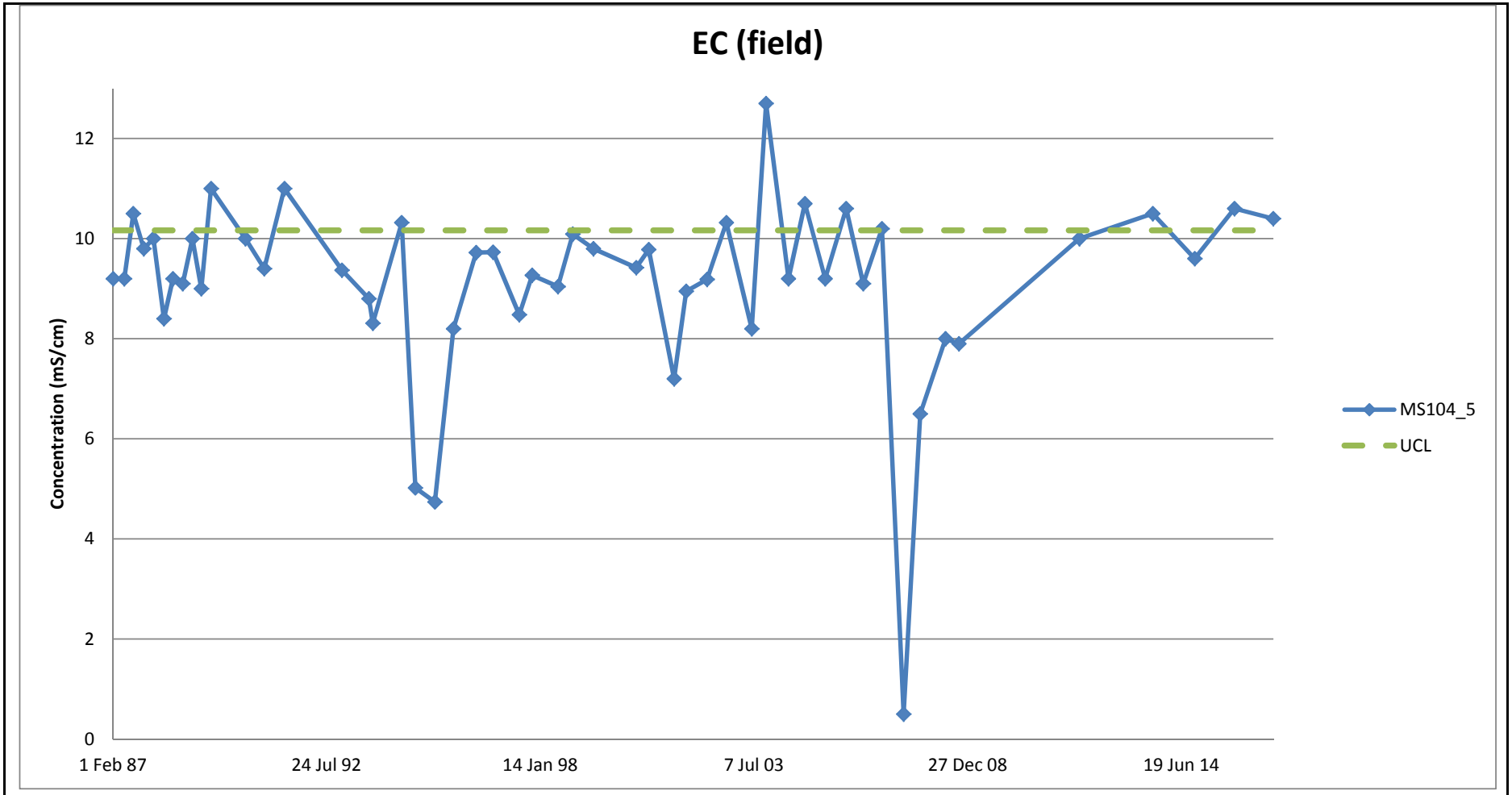
Appendix D

MS-104.3 - pH Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'MS104.3' AND ChemName = 'pH (field)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



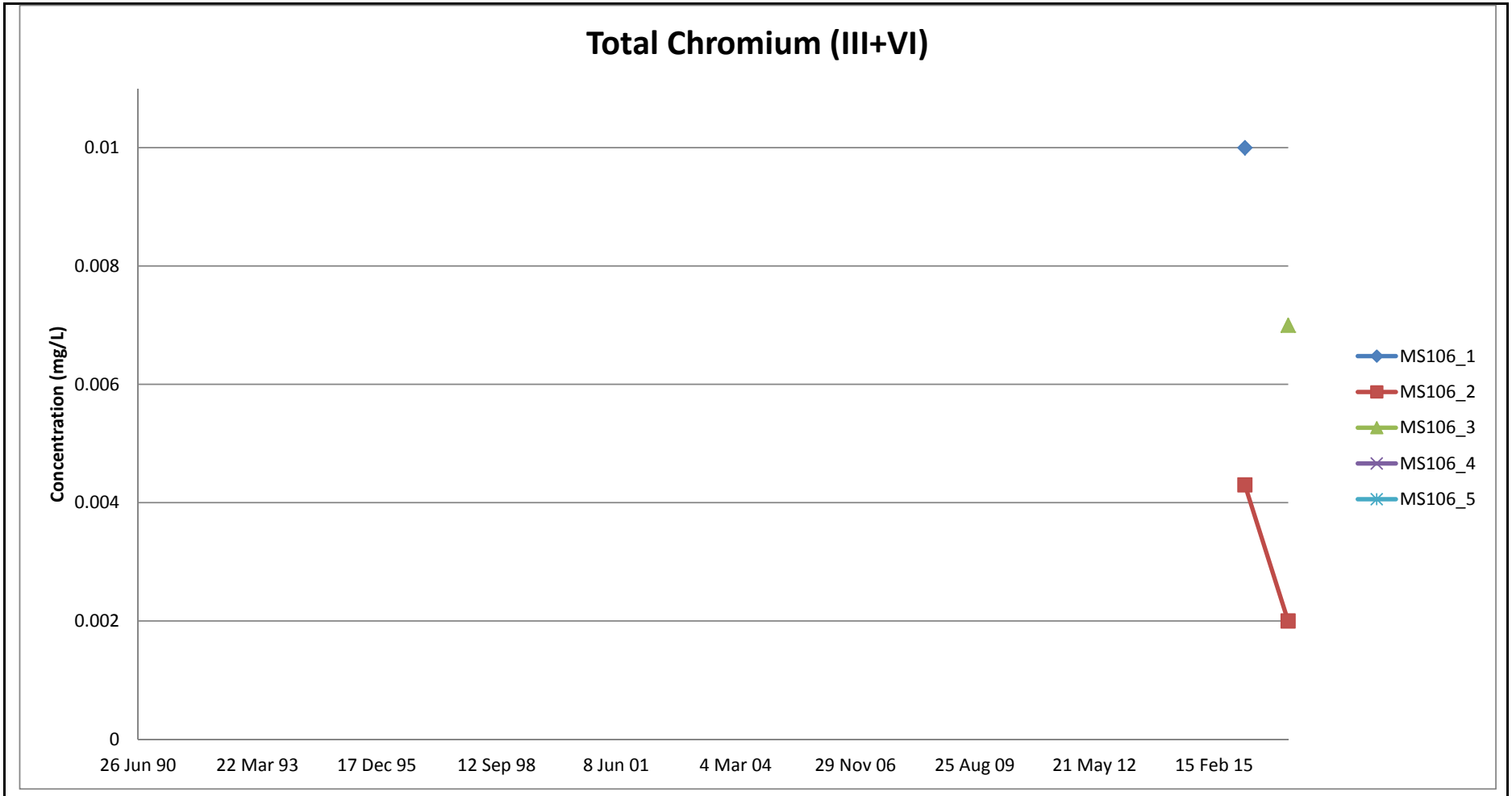
Appendix D

MS-104.5 - Conductivity Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'MS104.5' AND ChemName = 'EC (field)')

Date: Nov 16		Drawn:	
Scale: nts		Chk'd:	
Original:		Rev:	
File Reference:			

GHD



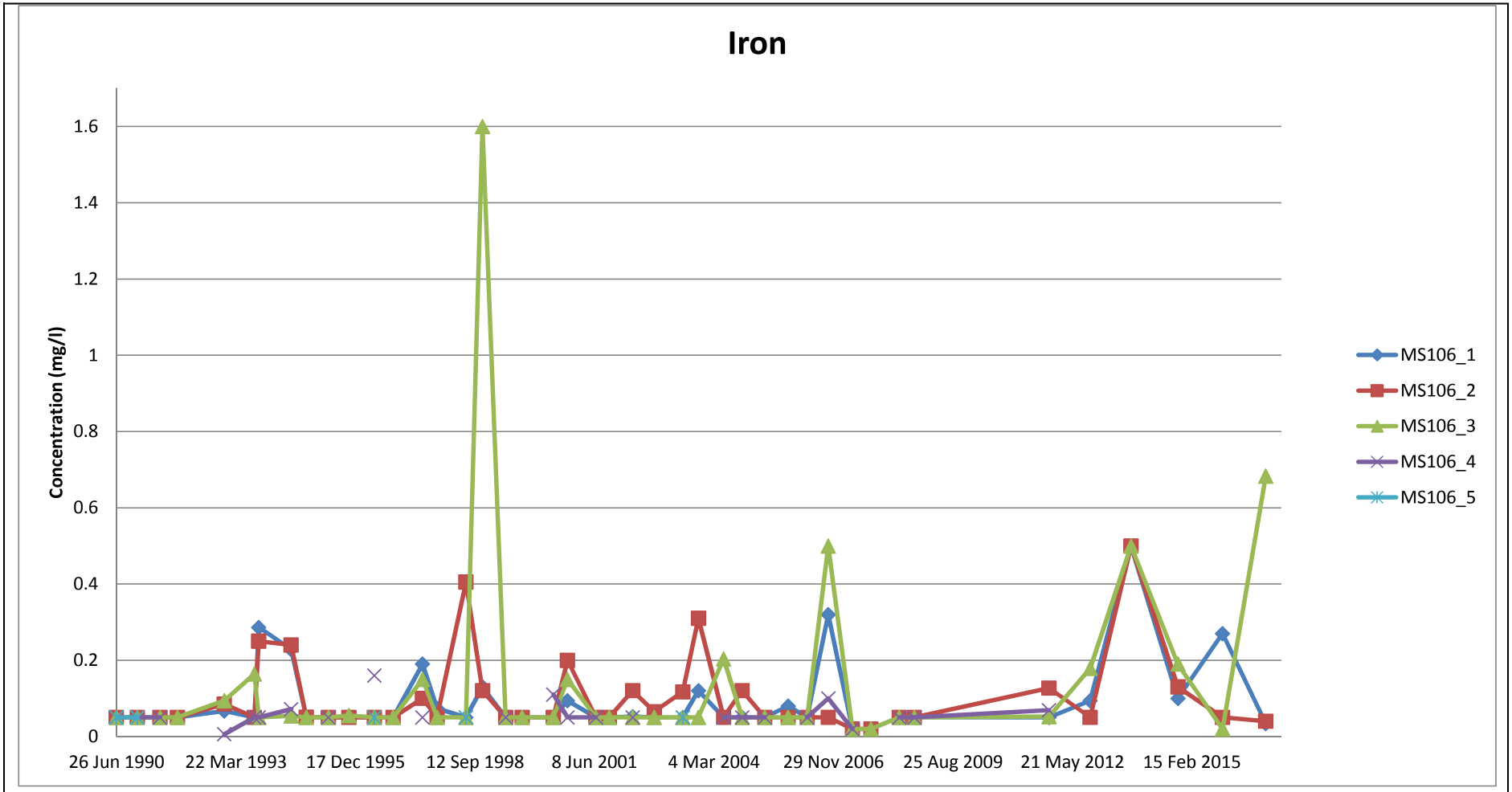
Appendix D

MS-106 Cluster - Chromium Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID In('MS106.1' , 'MS106.2' , 'MS106.3' , 'MS106.4' , 'MS106.5') AND ChemName = 'Chromium (III+VI)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



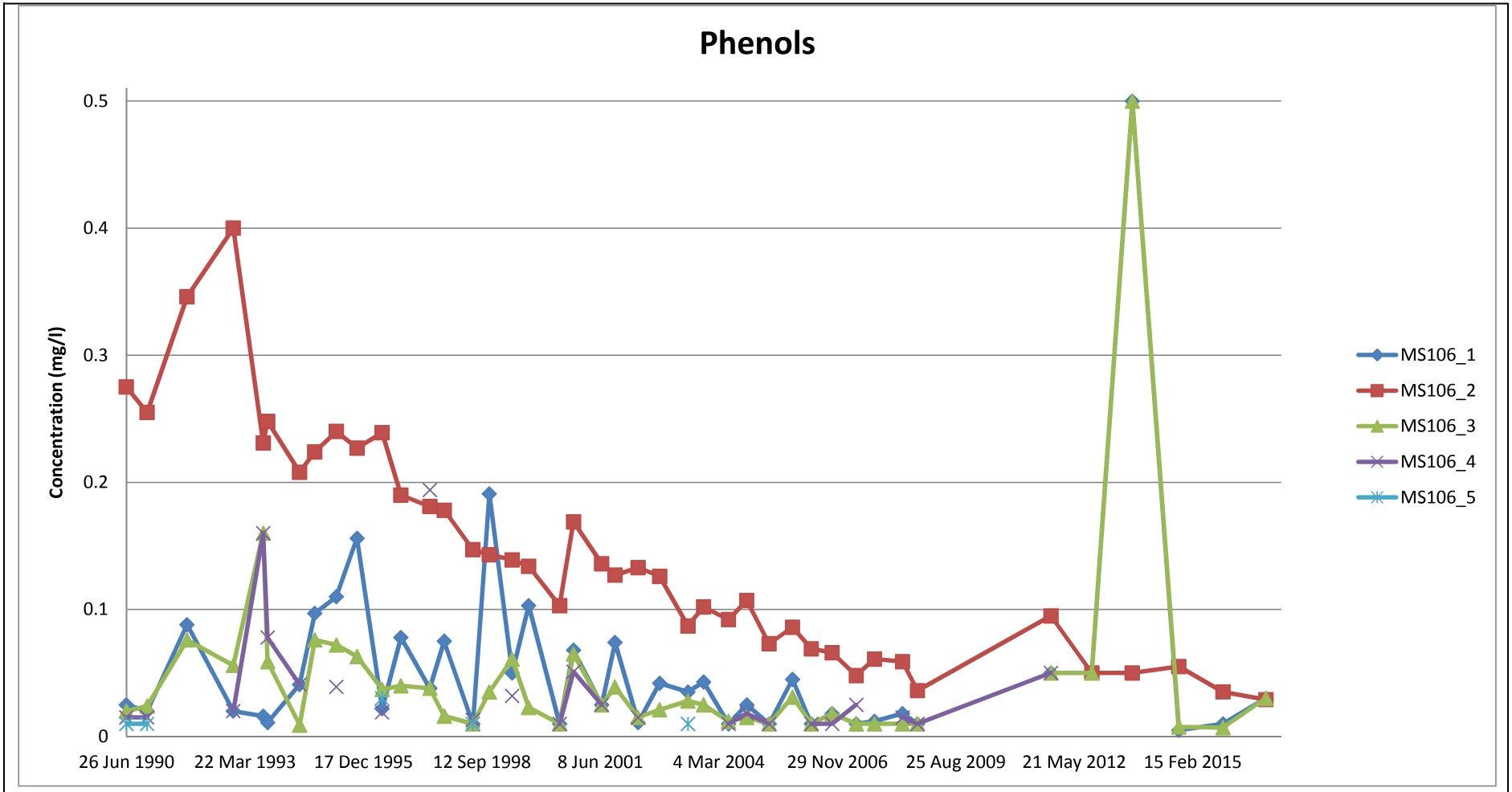
Appendix D

MS-106 Cluster - Iron Time Series Plot

□or□er □r□i□le □pe□ialt□Metal□LF, □ □ere□□□e□ □□2_ □□e□i□tr□□□a□ple□_□it□_□a□_□e□□lt□□□□o□□ode] □n(□M□106.1', □M□106.2', □M□106.3', □M□106.4', □M□106□5') AND □ell□ode □□□□ll AND □□e□□a□e = □ron')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD

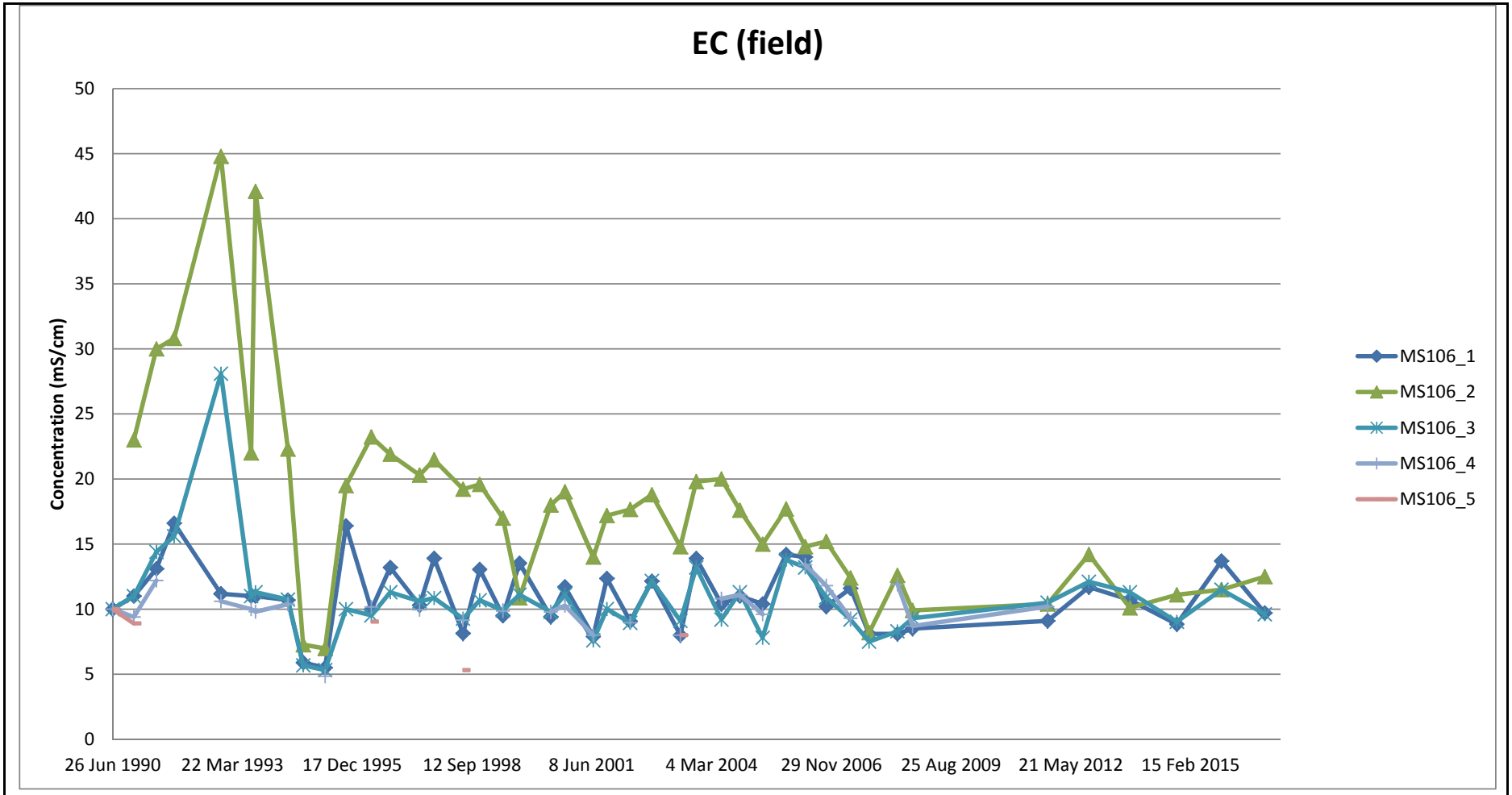


Appendix D

MS-106 Cluster - Phenols Time Series Plot

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

□or□er □r□i□le □pe□ialt□Metal□LF, □ □ere□□□e□ □□2_ □□e□i□tr□□□a□ple□_ □it□_ □a□_ □e□□lt□□□□o□□ode] □n(□M□106.1', □M□106.2', □M□106.3', □M□106.4', □M□106□5') AND □ ell□ode □□ □□ll AND □□e□ □a□e = □□enol□' □



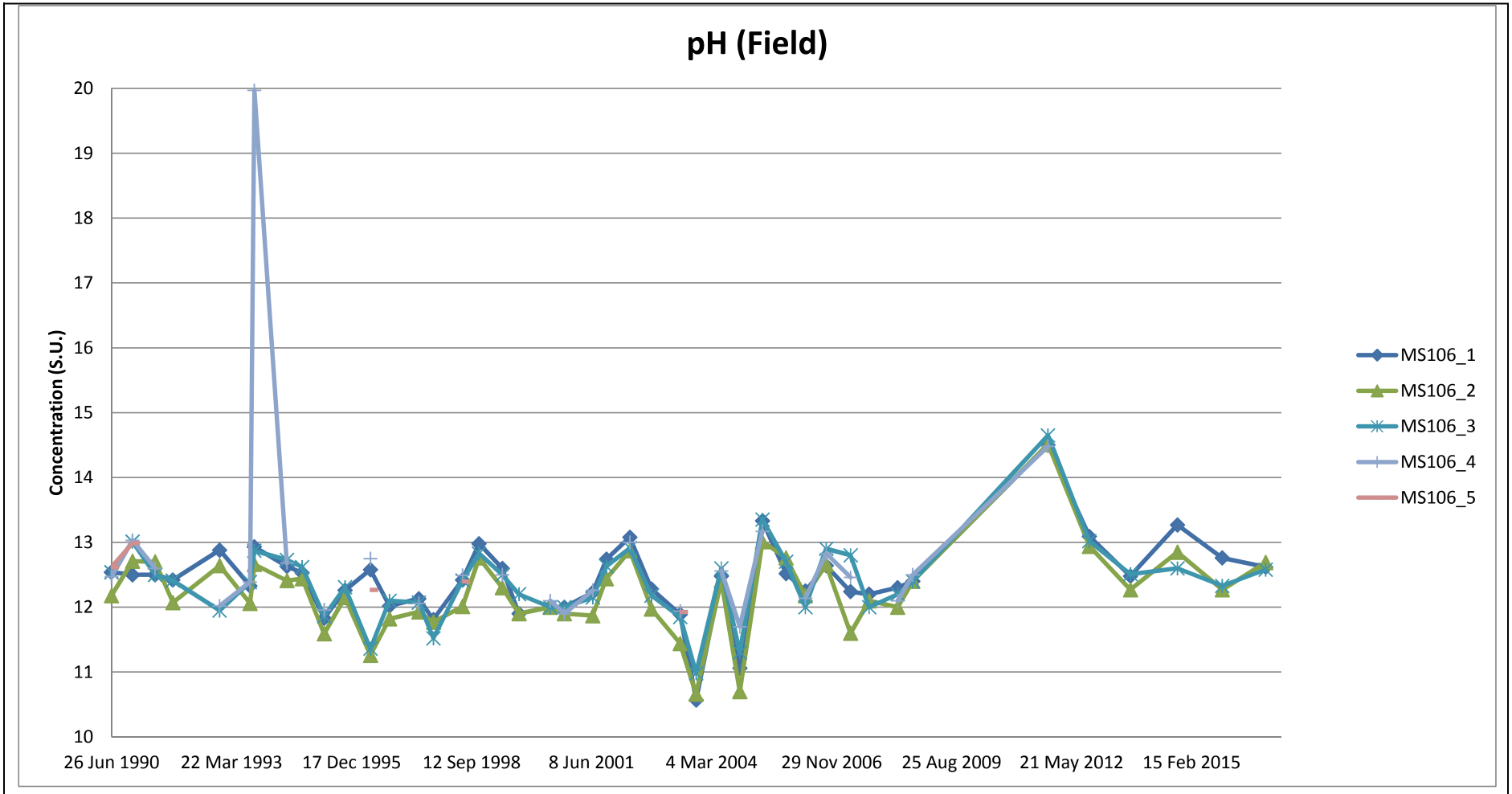
Appendix D

MS-106 Cluster - Conductivity Time Series Plot

Former Crucible Specialty Metals LF, Where(ChemName = 'EC (field)' AND [ChemQA2_Chemistry_Samples_with_Raw_Results].[LocCode] In('MS106.1' , 'MS106.2' , 'MS106.3' , 'MS106.4' , 'MS106.5'))

Date: Nov 16		Drawn:	
Scale: nts		Chk'd:	
Original:		Rev:	
File Reference:			

GHD



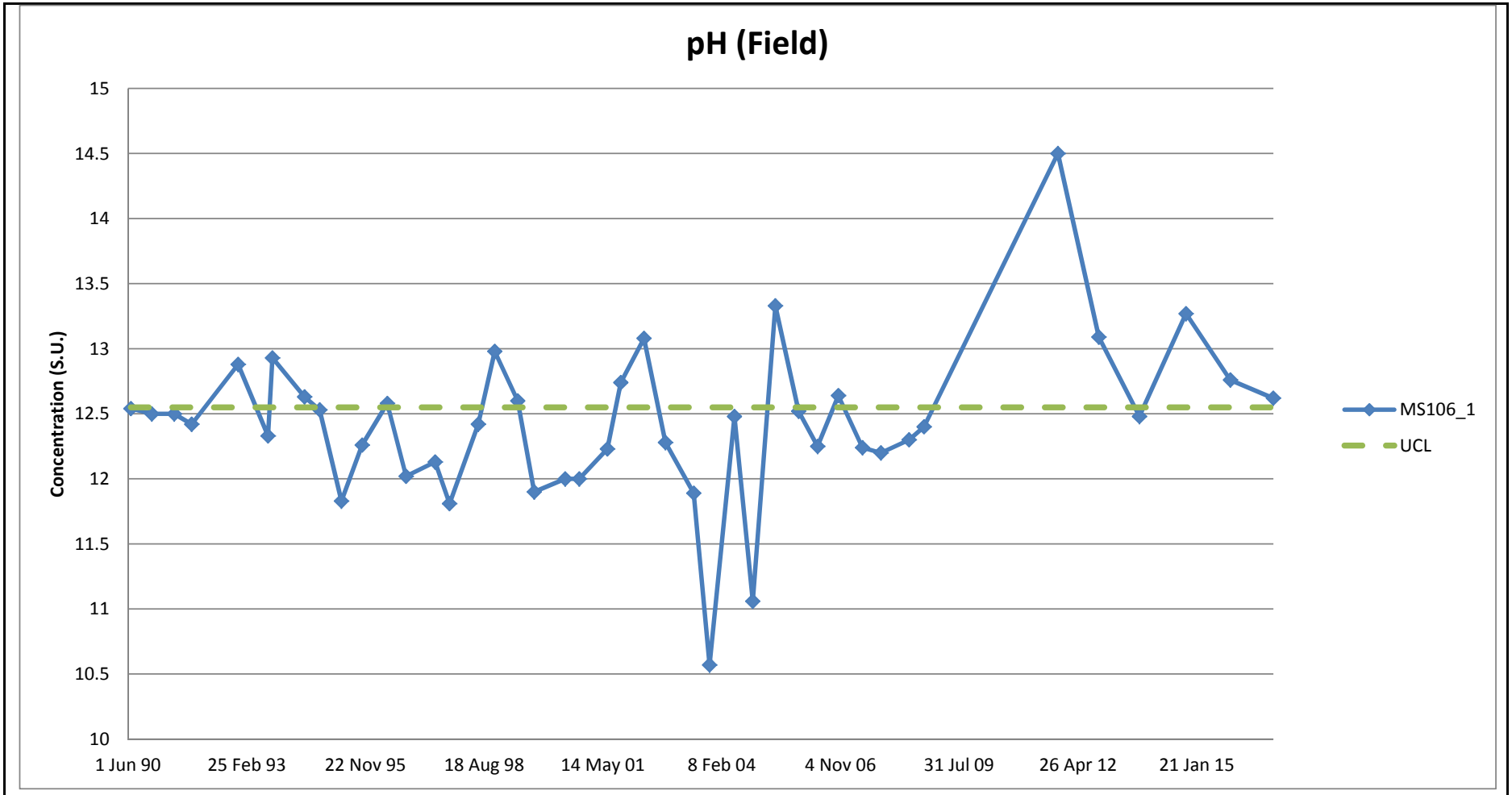
Appendix D

MS-106 Cluster - pH Time Series Plot

□or□er □r□i□le □pe□ialt□Metal□LF, □ □ere□□□e□ □□2_ □□e□i□tr□□□a□ple□_ □it□_ □a□_ □e□□lt□□□□o□□ode] □n(□M□106.1', □M□106.2', □M□106.3', □M□106.4', □M□106.5') AND □□e□□a□e = □p□ □ield)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



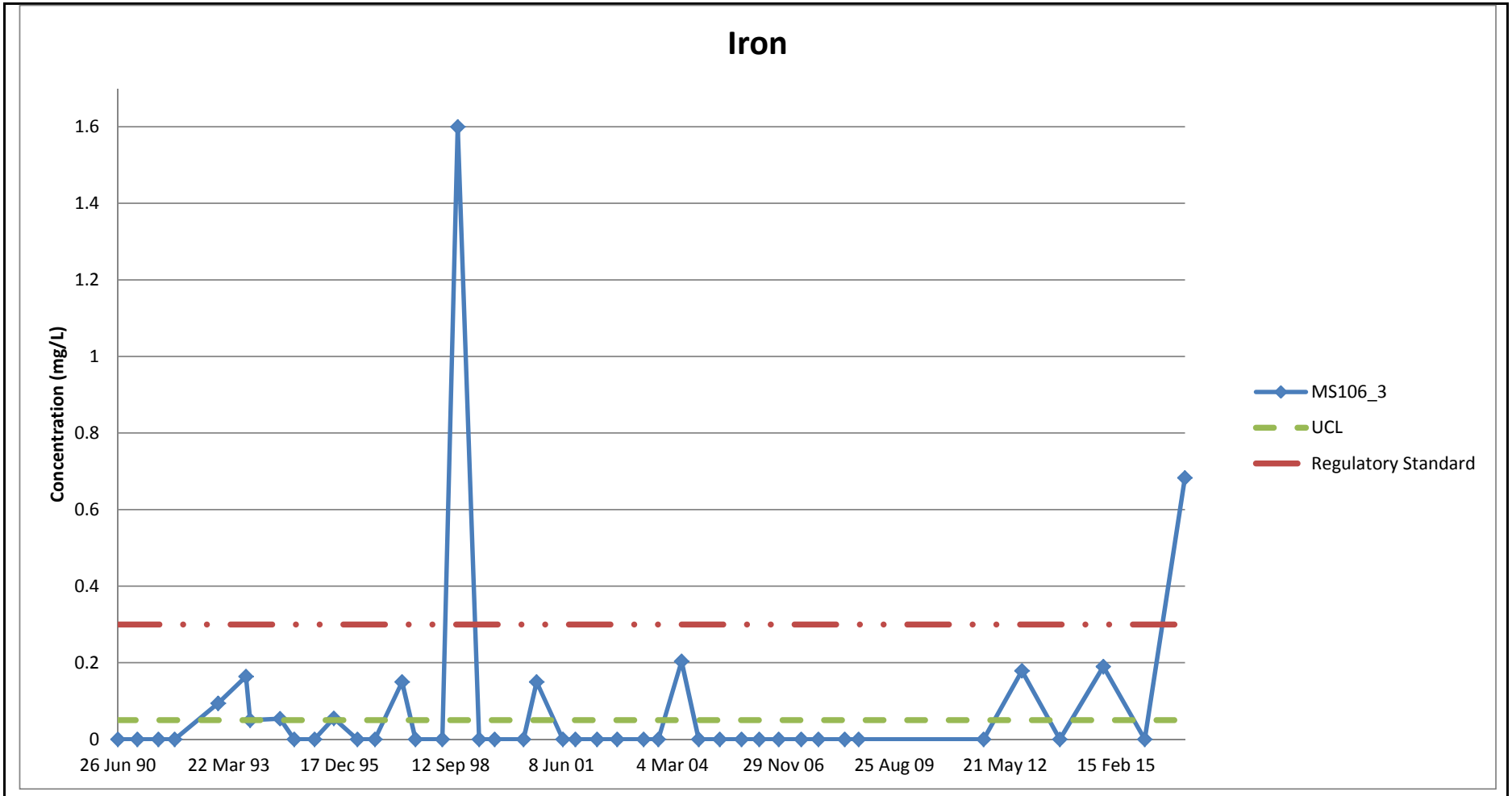
Appendix D

MS-106.1 - pH Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'MS106.1' AND ChemName = 'pH (field)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



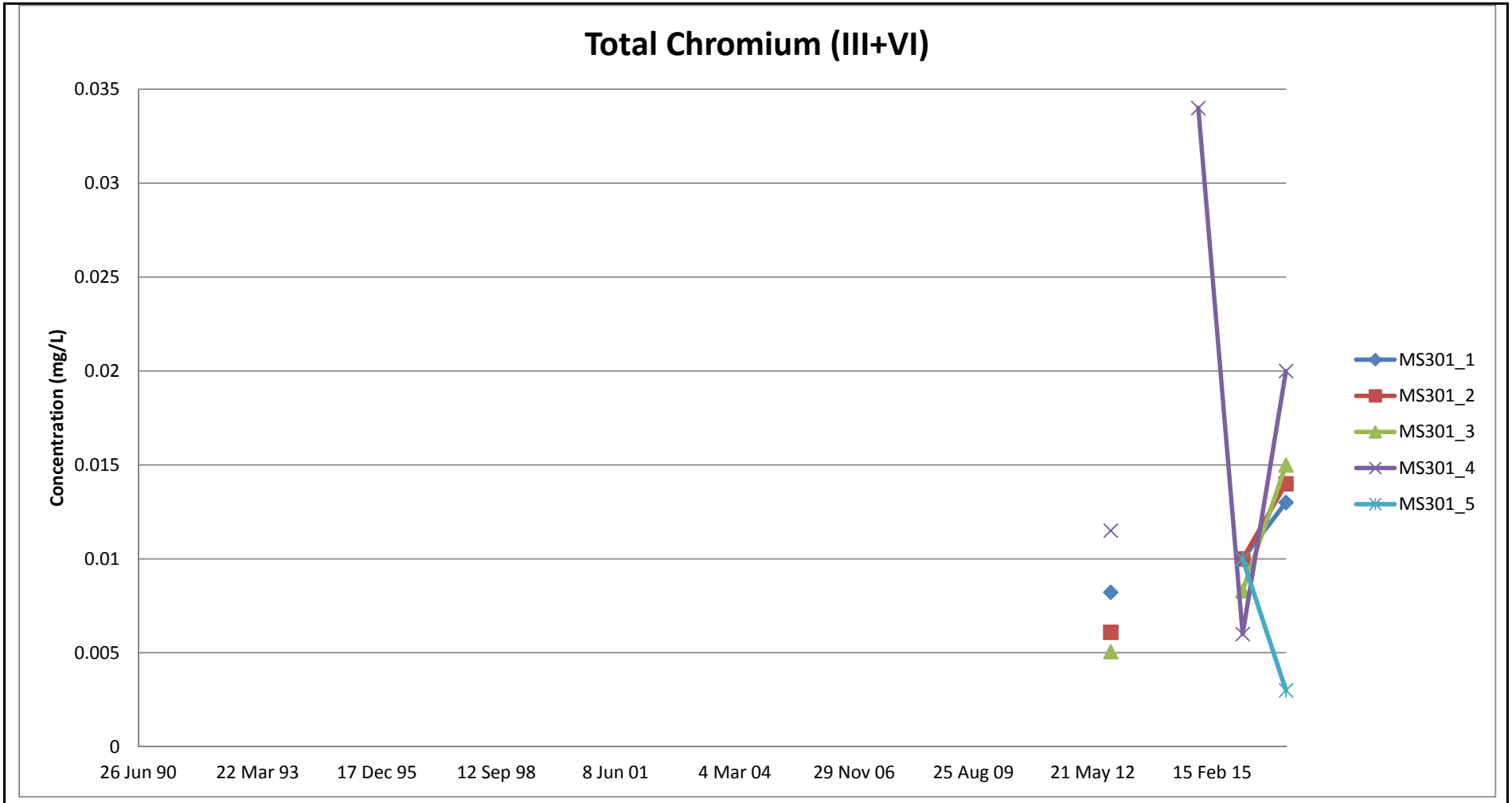
Appendix D

MS-106.3 - Iron Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'MS106.3' AND ChemName = 'Iron')

Date: Nov 16		Drawn:	
Scale: nts		Chk'd:	
Original:		Rev:	
File Reference:			

GHD



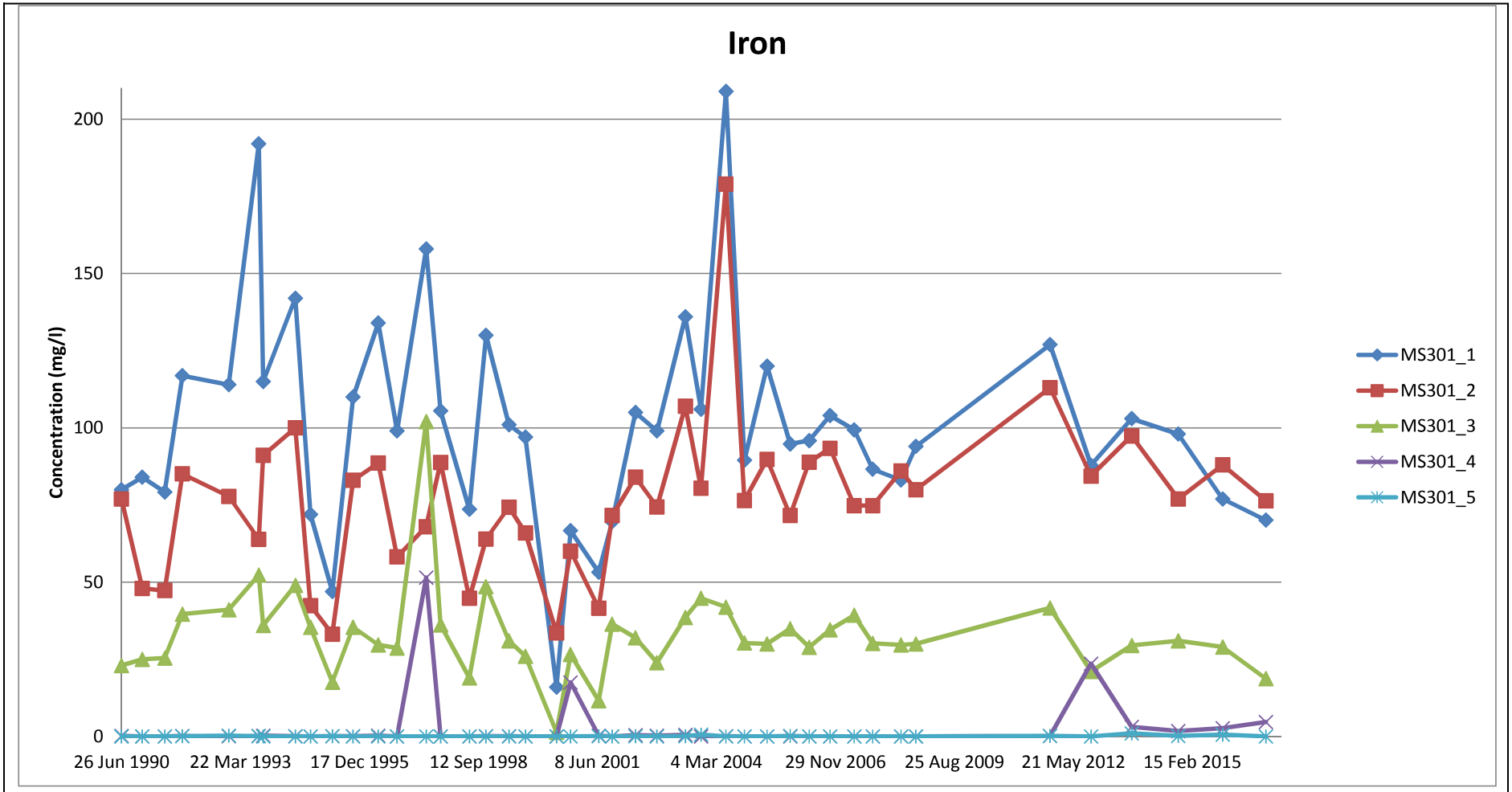
Appendix D

MS-301 Cluster - Chromium Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID In('MS301.1' , 'MS301.2' , 'MS301.3' , 'MS301.4' , 'MS301.5') AND ChemName = 'Chromium (III+VI)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



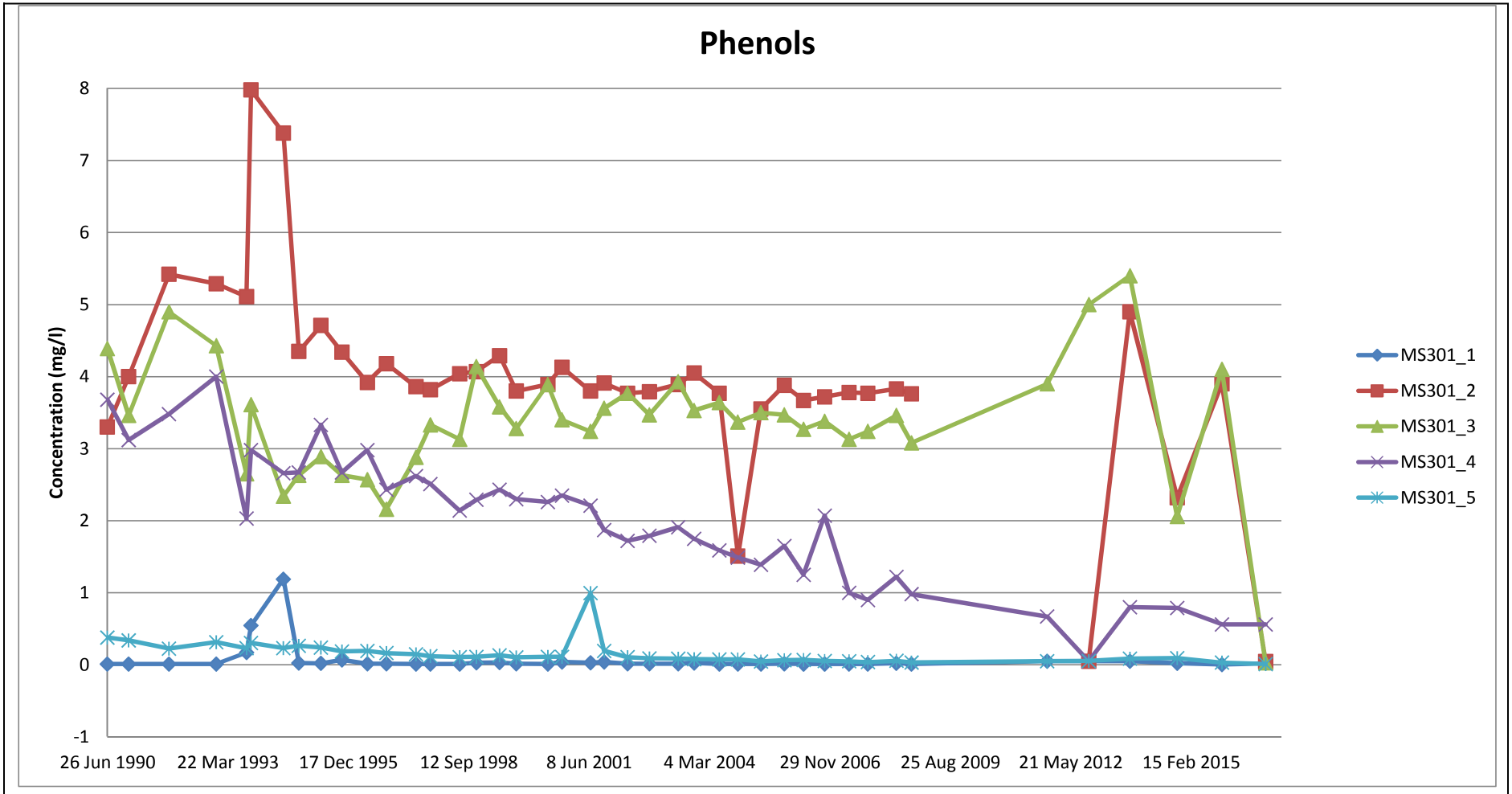
Appendix D

MS-301 Cluster - Iron Time Series Plot

□or□er □r□i□le □pe□ialt□Metal□LF, □ □ere□□□e□ □□2_ □□e□i□tr□□□a□ple□_□it□_□a□_□e□□lt□□□□o□□ode] □n(□M□301.1', □M□301.2', □M□301.3', □M□301.4', □M□301□5') AND □ell□ode □□□□ll AND □□e□□a□e = □ron')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



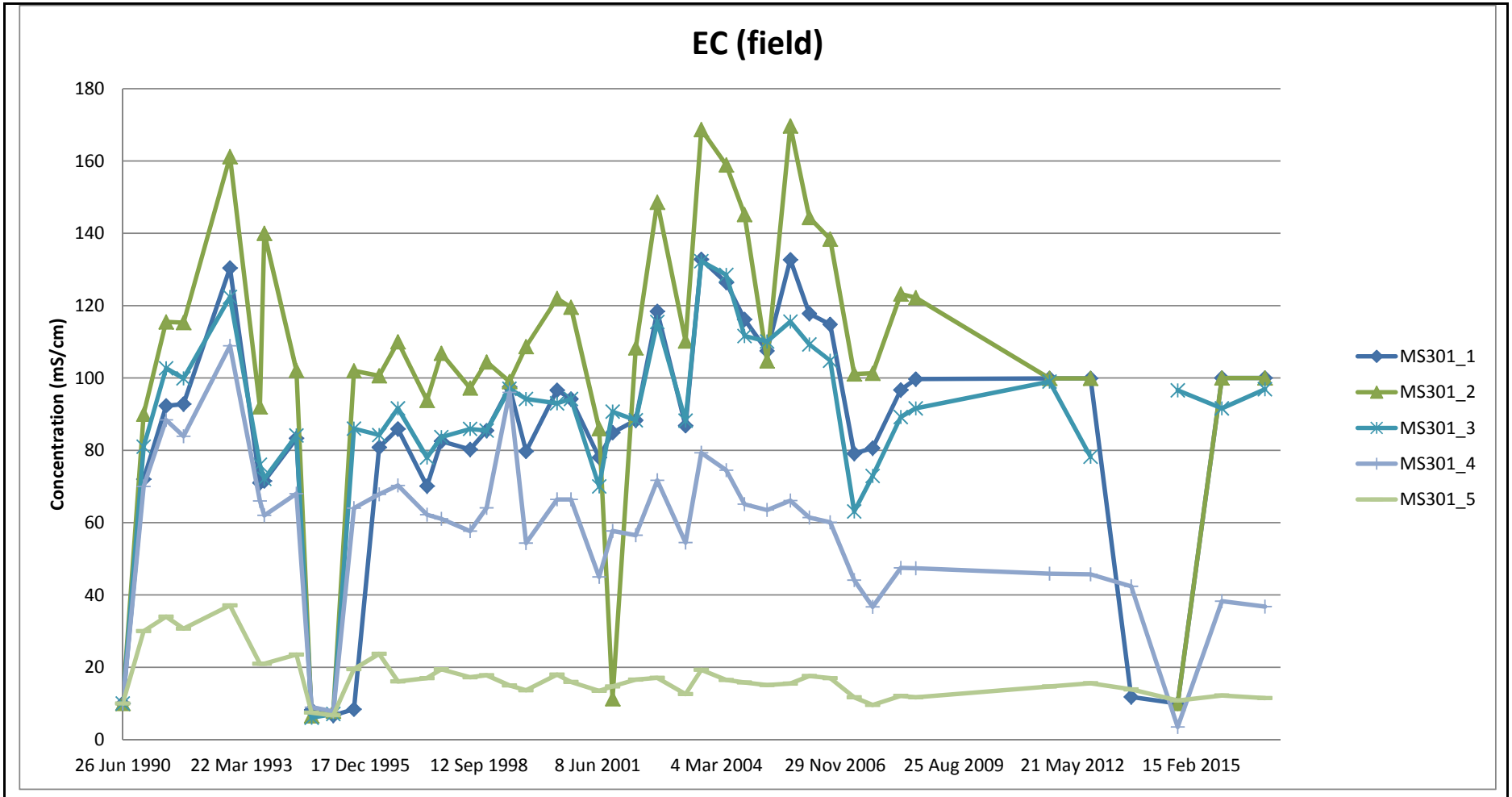
Appendix D

MS-301 - Phenols Time Series Plot

□or□er □r□i□le □pe□ialt□Metal□ LF, □ □ere□□□e□ □□2_ □□e□i□tr□□□a□ple□_ □it□_ □a□_ □e□□lt□□□□o□□ode] □n(□M□301.1', □M□301.2', □M□301.3', □M□301.4', □M□301 □5') AND □ ell□ode □□ □□ll AND □□e□ □a□e = □□enol□' □

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



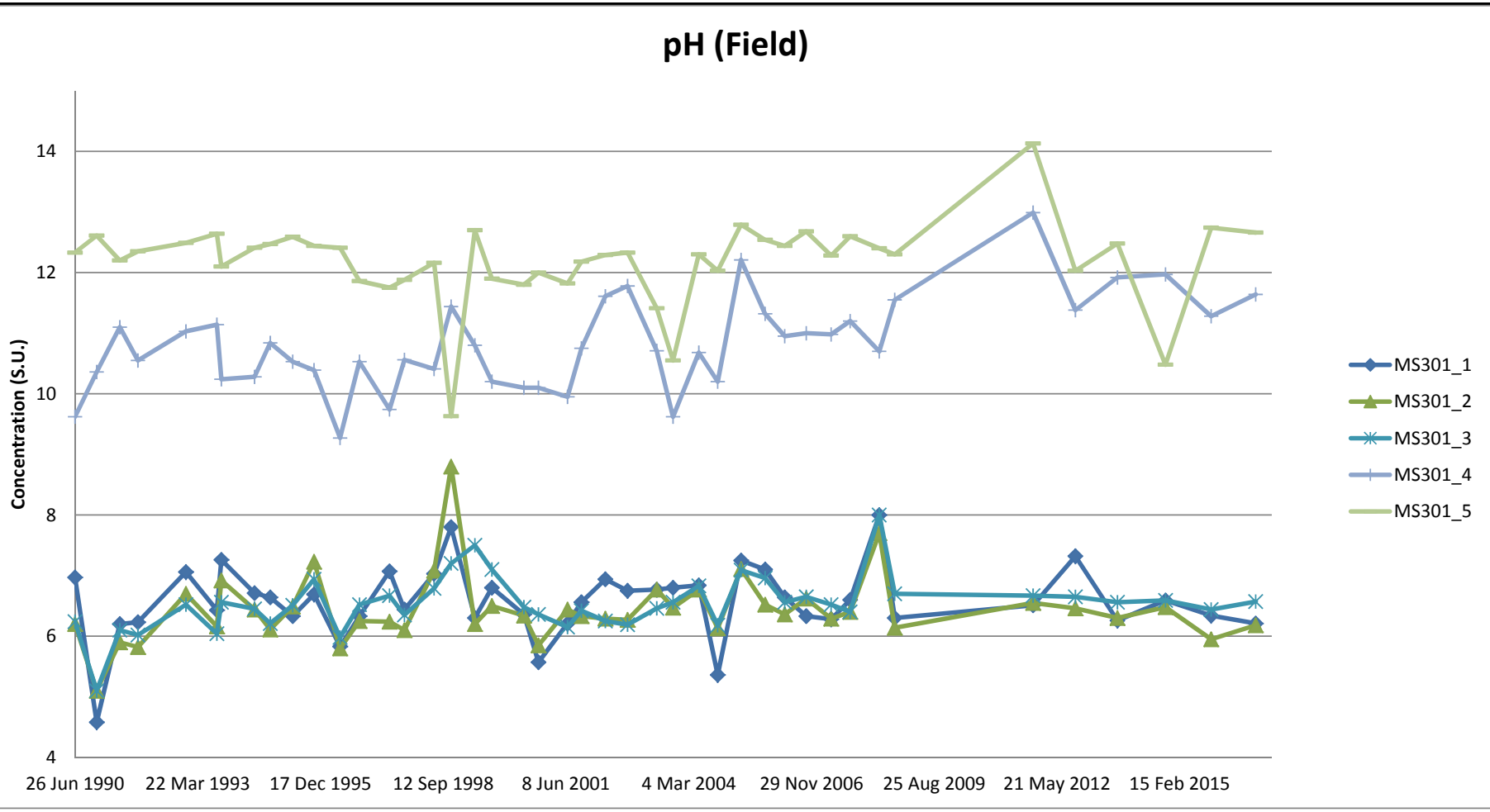
Appendix D

MS-301 Cluster - Conductivity Time Series Plot

Former Crucible Specialty Metals LF, Where(ChemName = 'EC (field)' AND [ChemQA2_Chemistry_Samples_with_Raw_Results].[LocCode] In('MS301.1' , 'MS301.2' , 'MS301.3' , 'MS301.4' , 'MS301.5'))

Date: Nov 16		Drawn:	
Scale: nts		Chk'd:	
Original:		Rev:	
File Reference:			

GHD



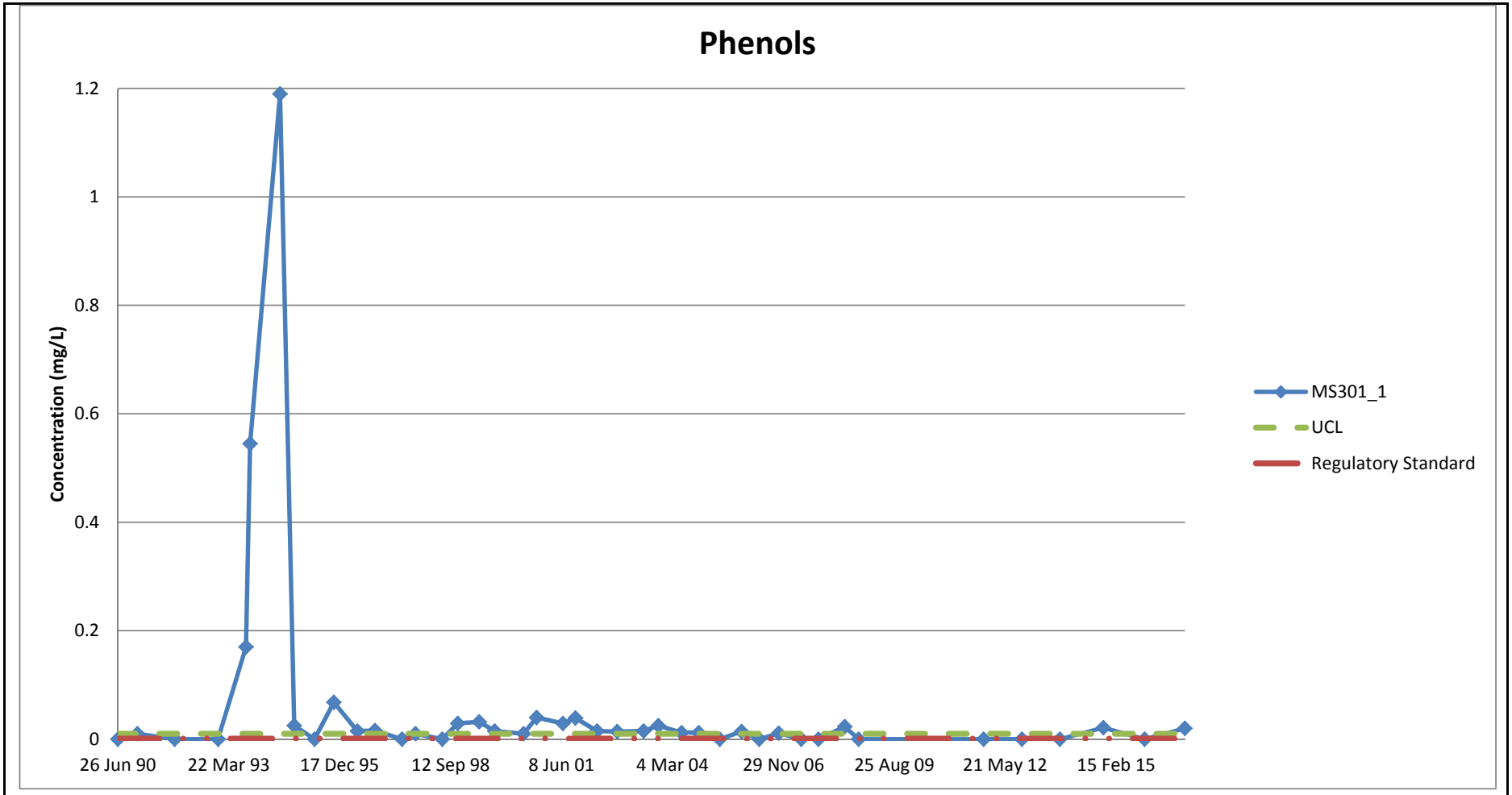
Appendix D

MS-301 Cluster - pH Time Series Plot

Former Crucible Specialty Metals LF, Where([ChemQA2_Chemistry_Samples_with_Raw_Results].[LocCode] In('MS301.1' , 'MS301.2' , 'MS301.3' , 'MS301.4' , 'MS301.5') AND ChemName = 'pH (field)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD

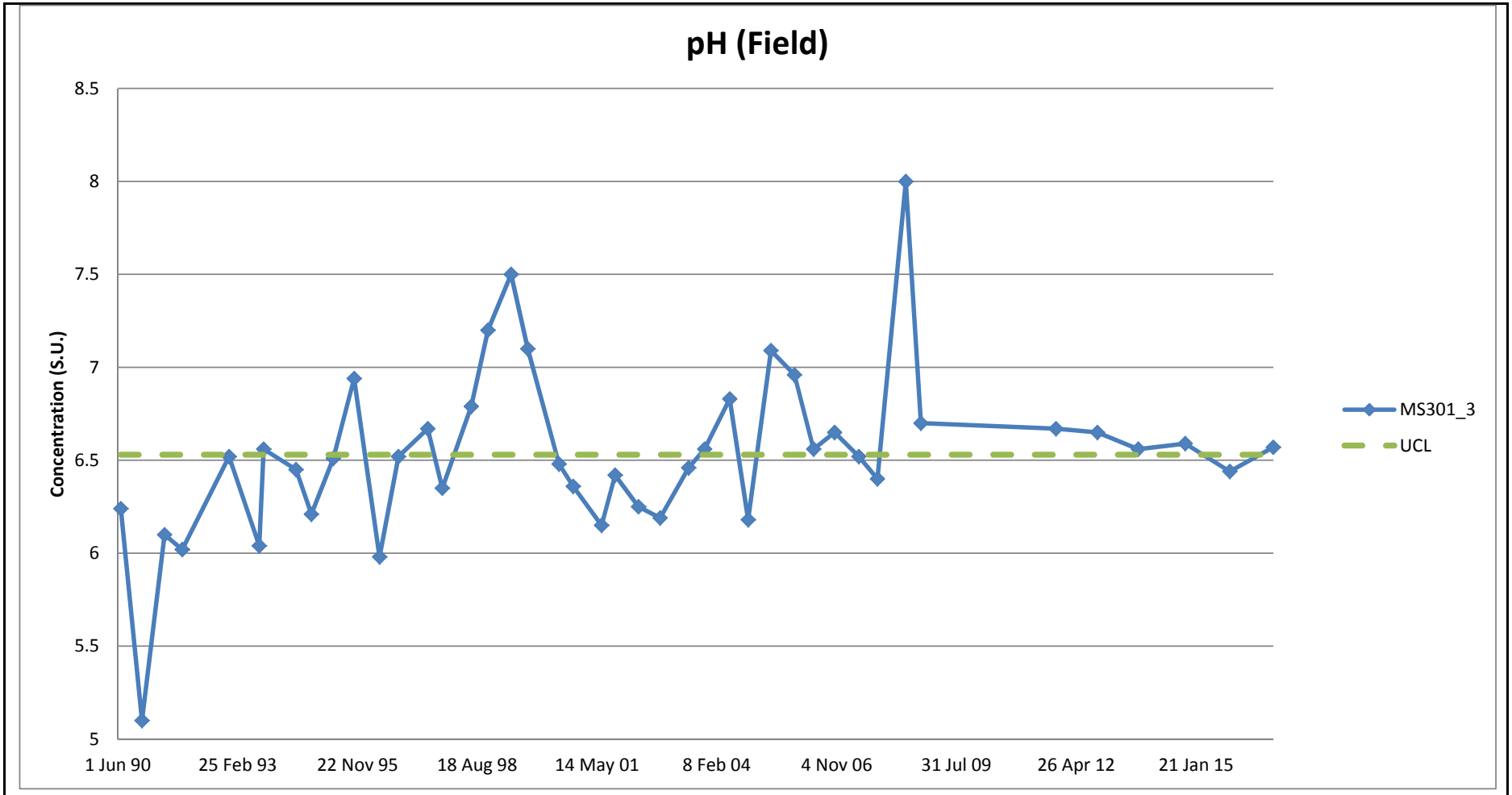


Appendix D

MS-301.1 - Phenols Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'MS301.1' AND ChemName = 'Phenols')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	



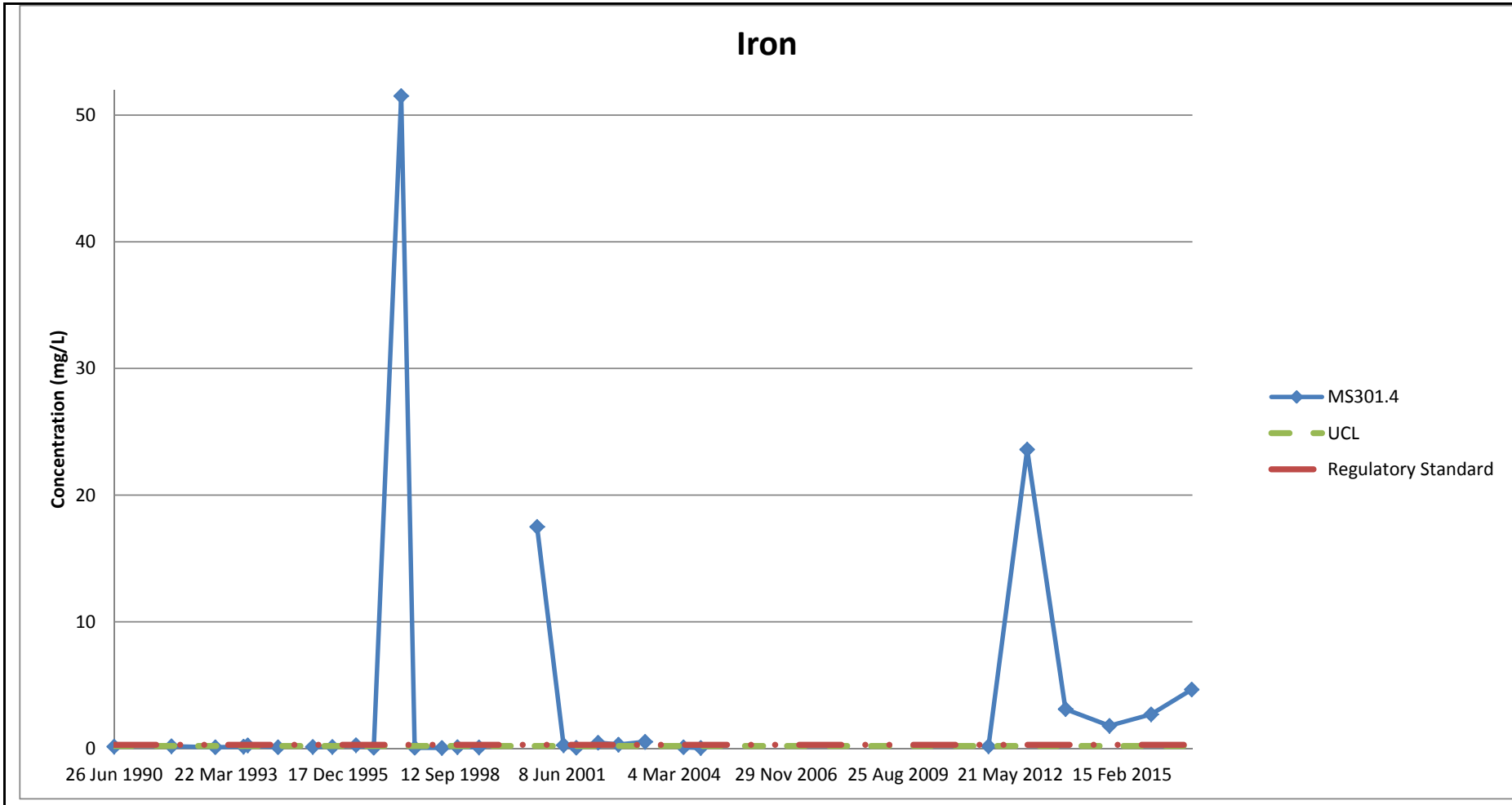
Appendix D

MS-301.3 - pH Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'MS301.3' AND ChemName = 'pH (field)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD

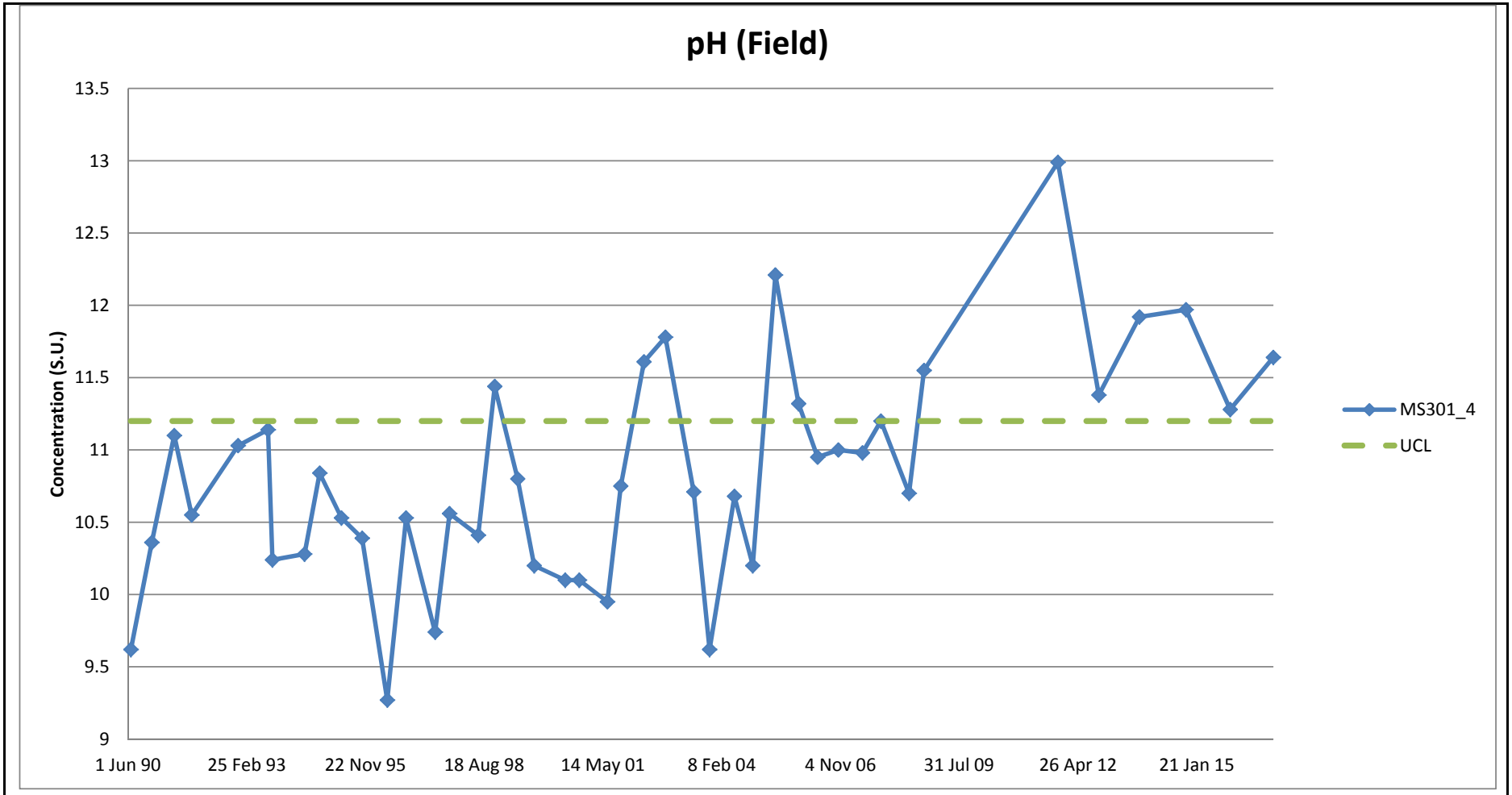


Appendix D

MS-301.4 - Iron Time Series Plot

Former Crucible Specialty Metals LF, Where([LChem2_Environmental_Standards].[LocCode] = 'MS301.4' AND ChemName = 'Iron')

Date: Nov 16	Drawn:		
Scale: nts	Chk'd:		
Original:	Rev:		
File Reference:			



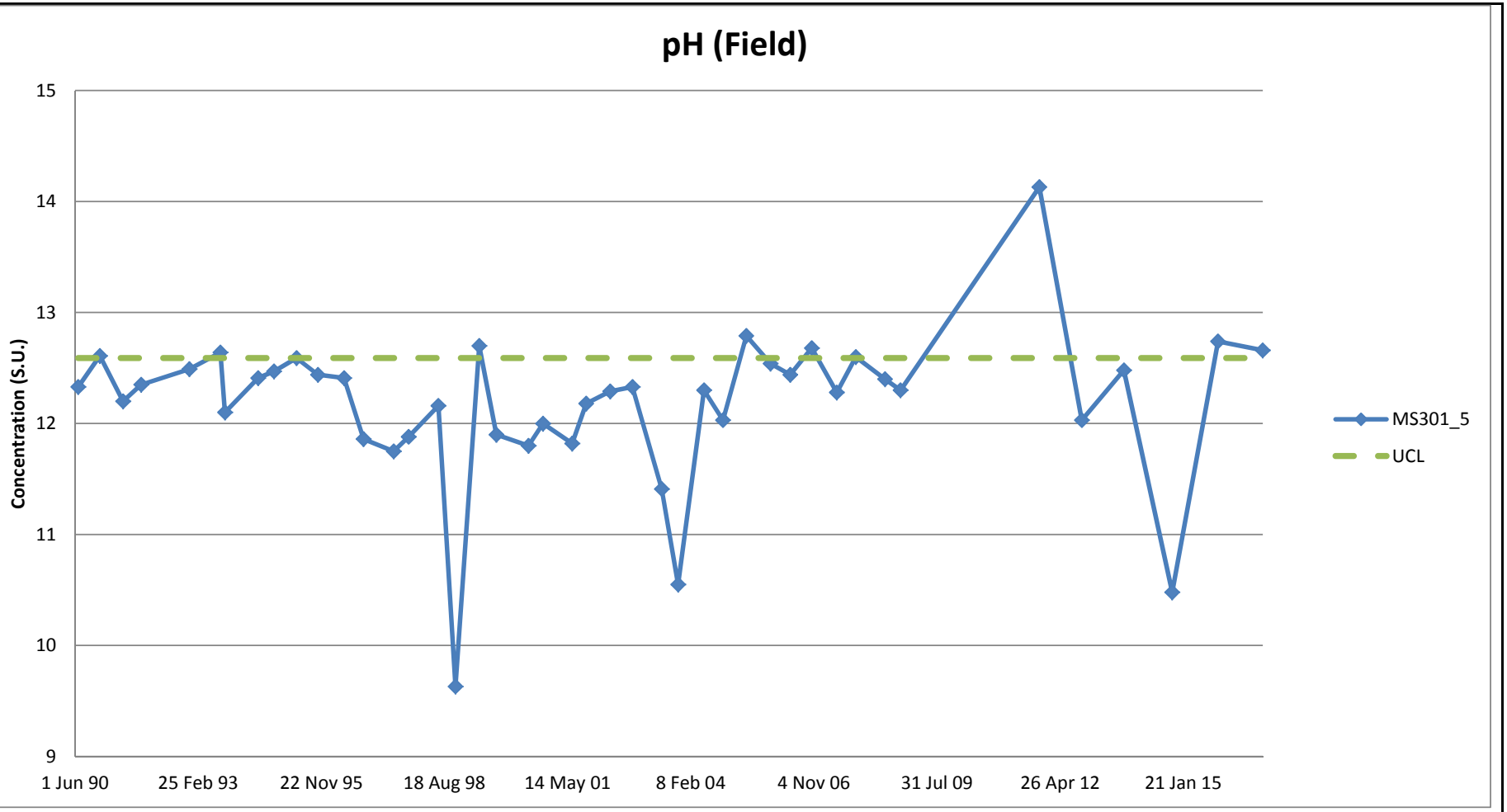
Appendix D

MS-301.4 - pH Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'MS301.4' AND ChemName = 'pH (field)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD

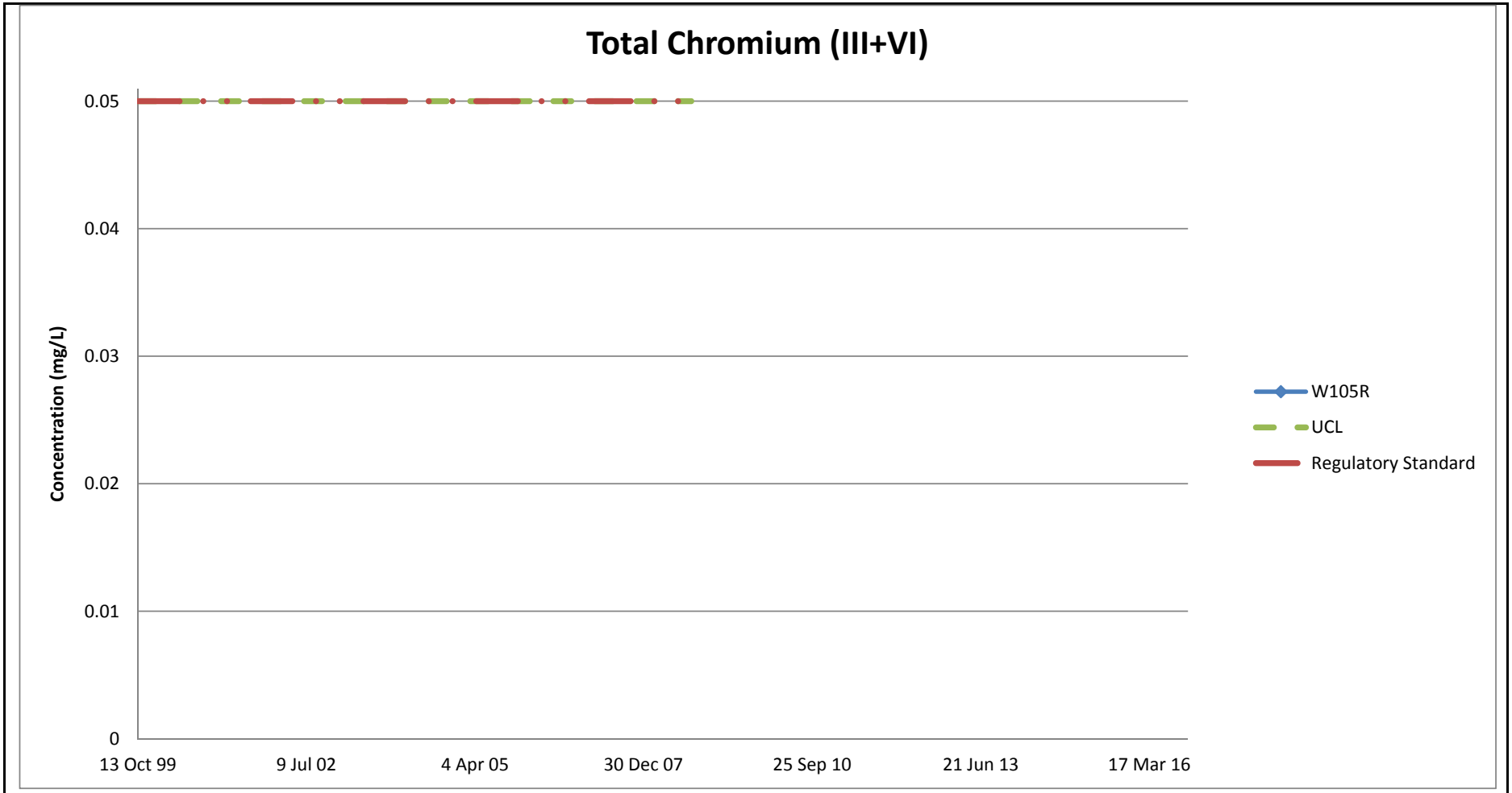


Appendix D

MS-301.5 - pH Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'MS301.5' AND ChemName = 'pH (field)')

Date: Nov 16		Drawn:	
Scale: nts		Chk'd:	
Original:		Rev:	
File Reference:			



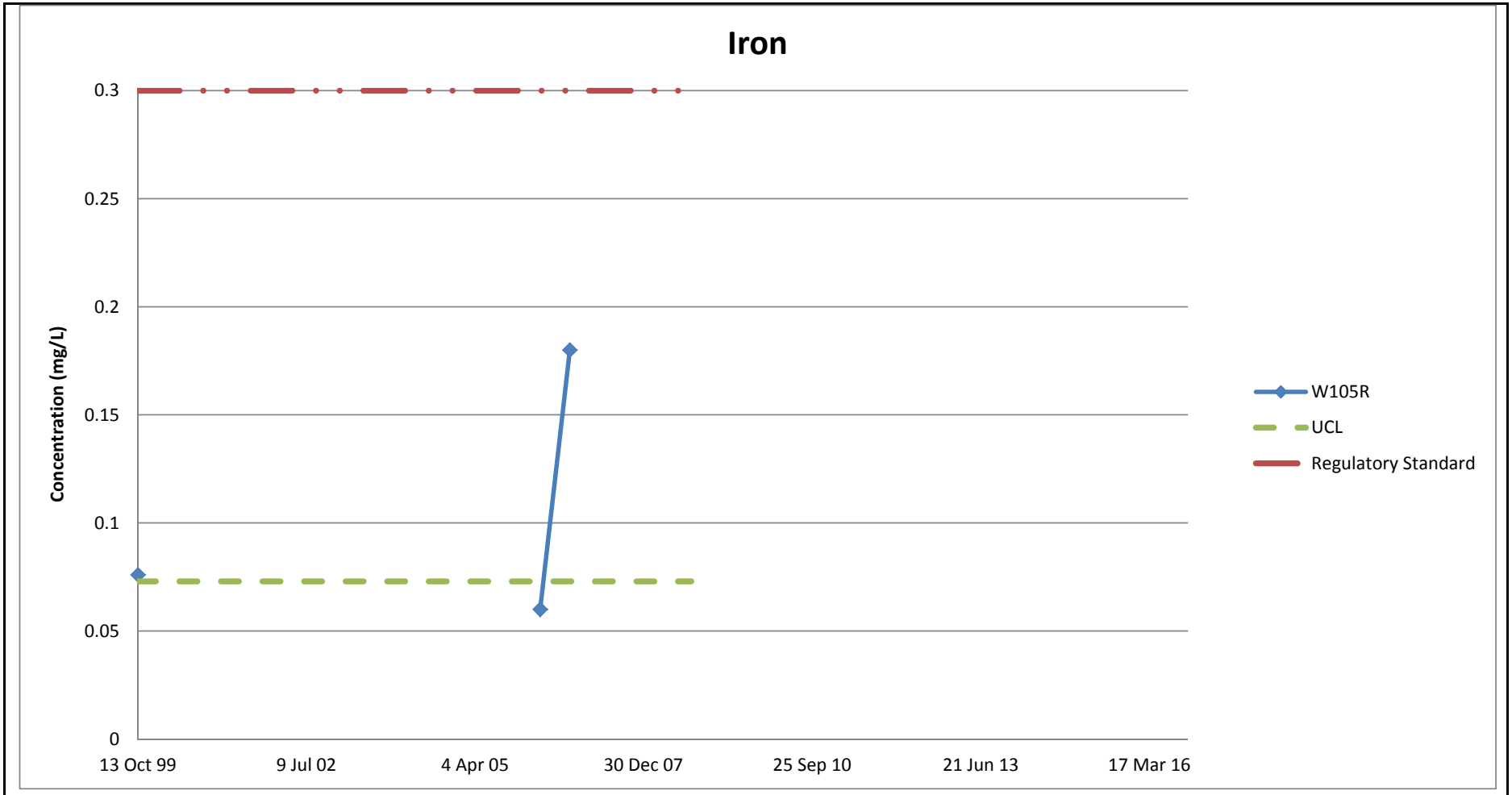
Appendix D

W-105R - Chromium Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'W105R' AND ChemName = 'Chromium (III+VI)')

Date: Nov 16		Drawn:	
Scale: nts		Chk'd:	
Original:		Rev:	
File Reference:			

GHD



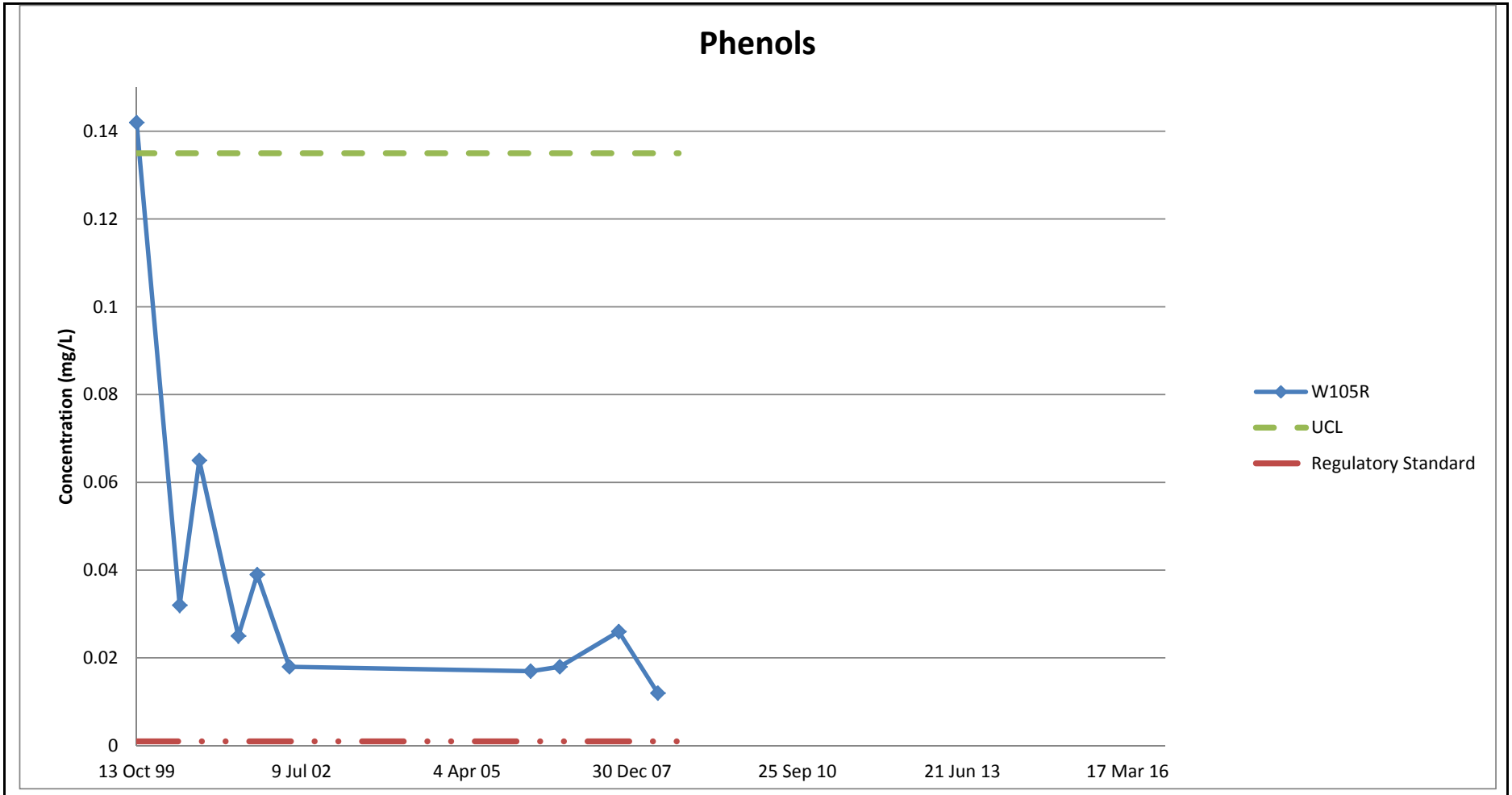
Appendix D

W-105R - Iron Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'W105R' AND ChemName = 'Iron')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



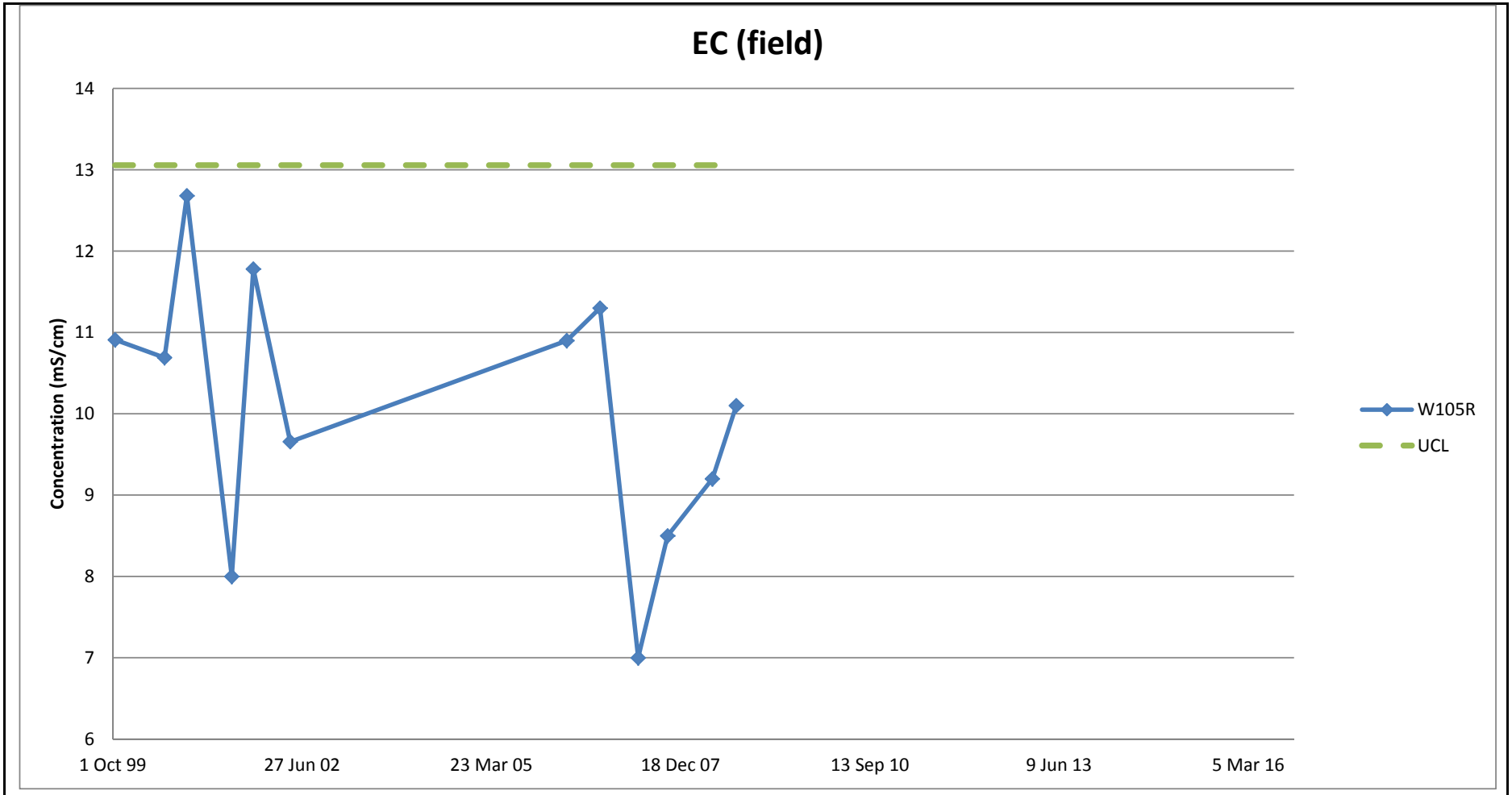
Appendix D

W-105R - Phenols Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'W105R' AND ChemName = 'Phenols')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



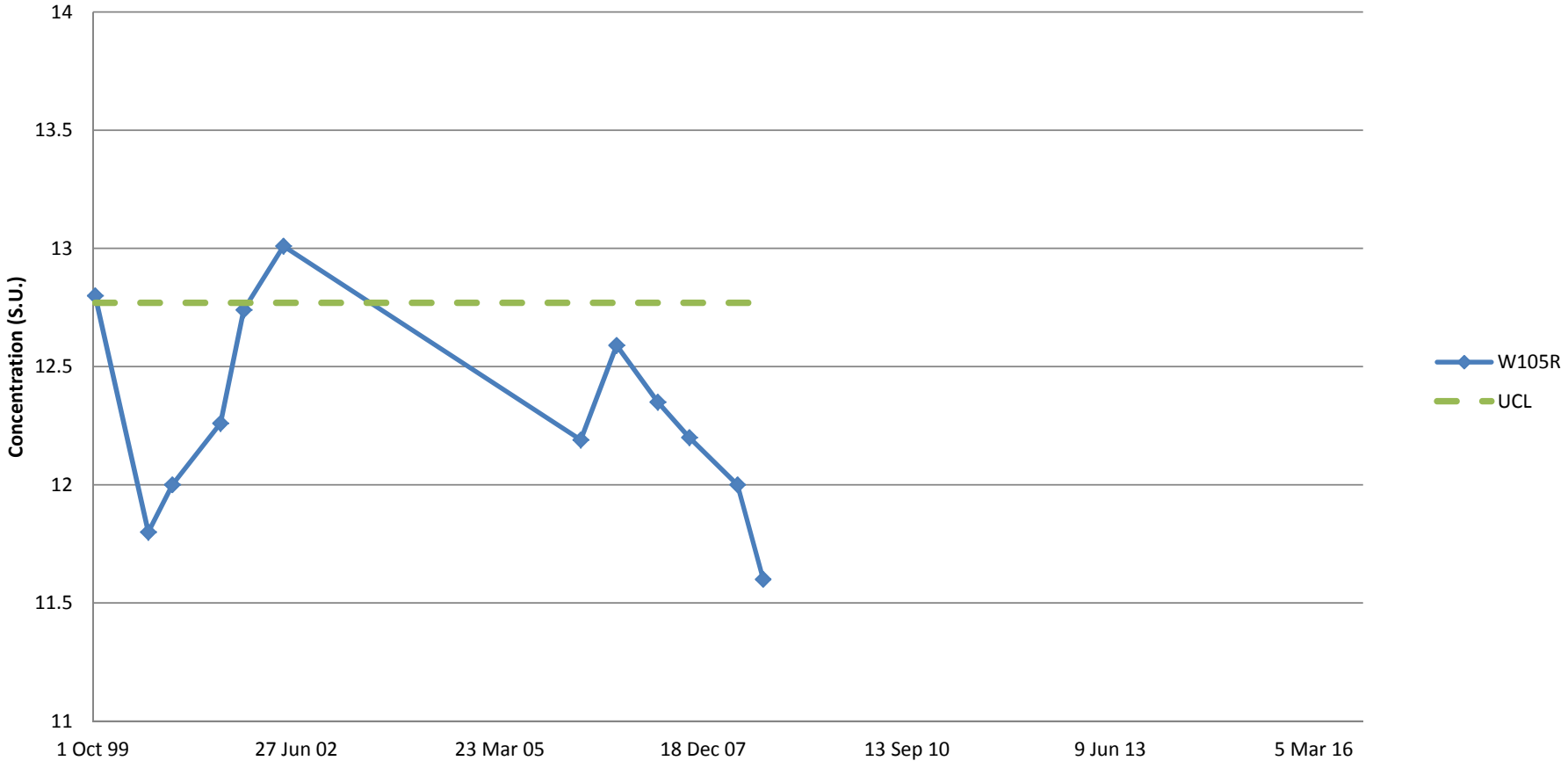
Appendix D

W-105R - Conductivity Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'W105R' AND ChemName = 'EC (field)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



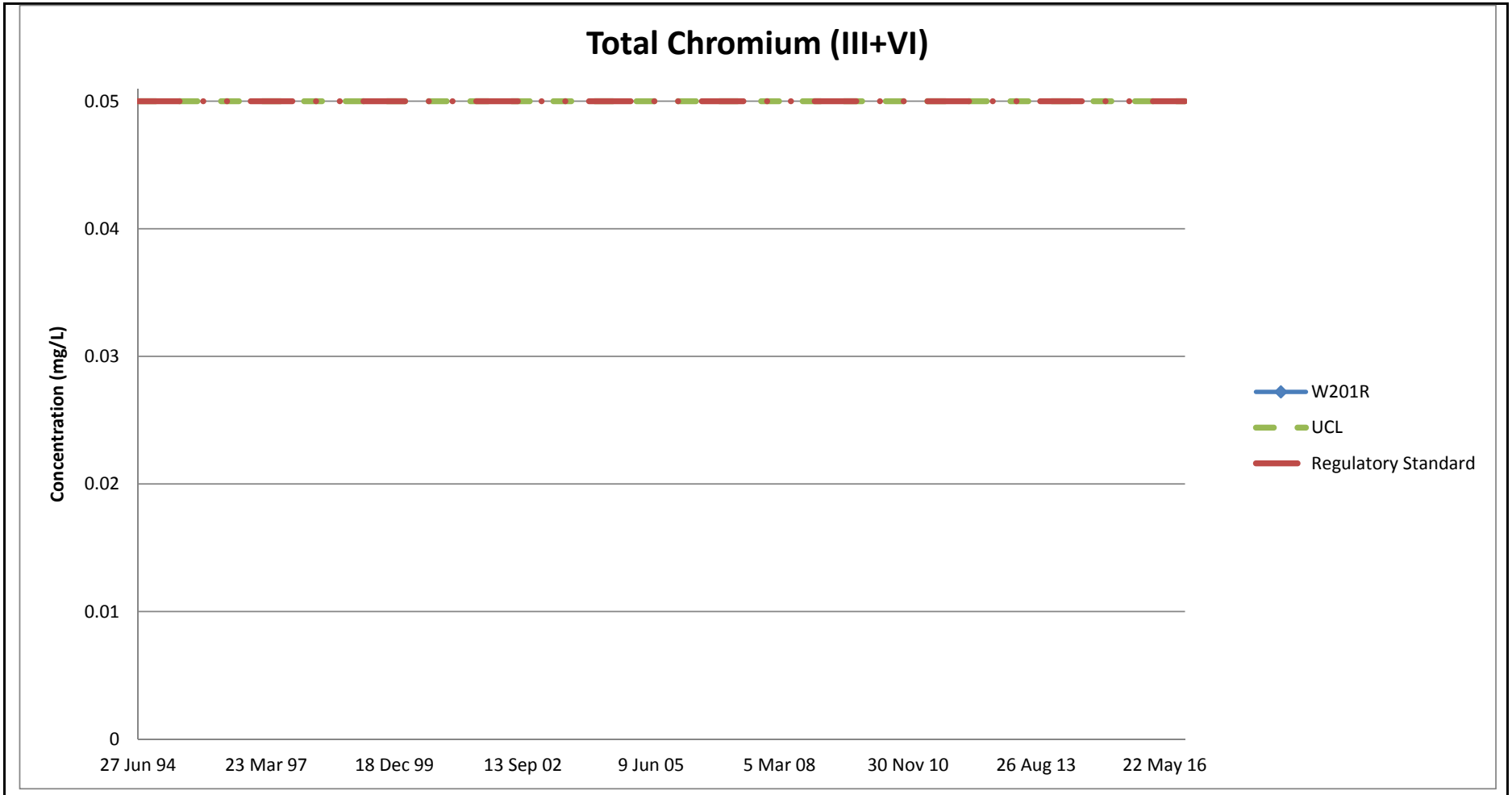
Appendix D

W-105R - pH Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'W105R' AND ChemName = 'pH (field)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



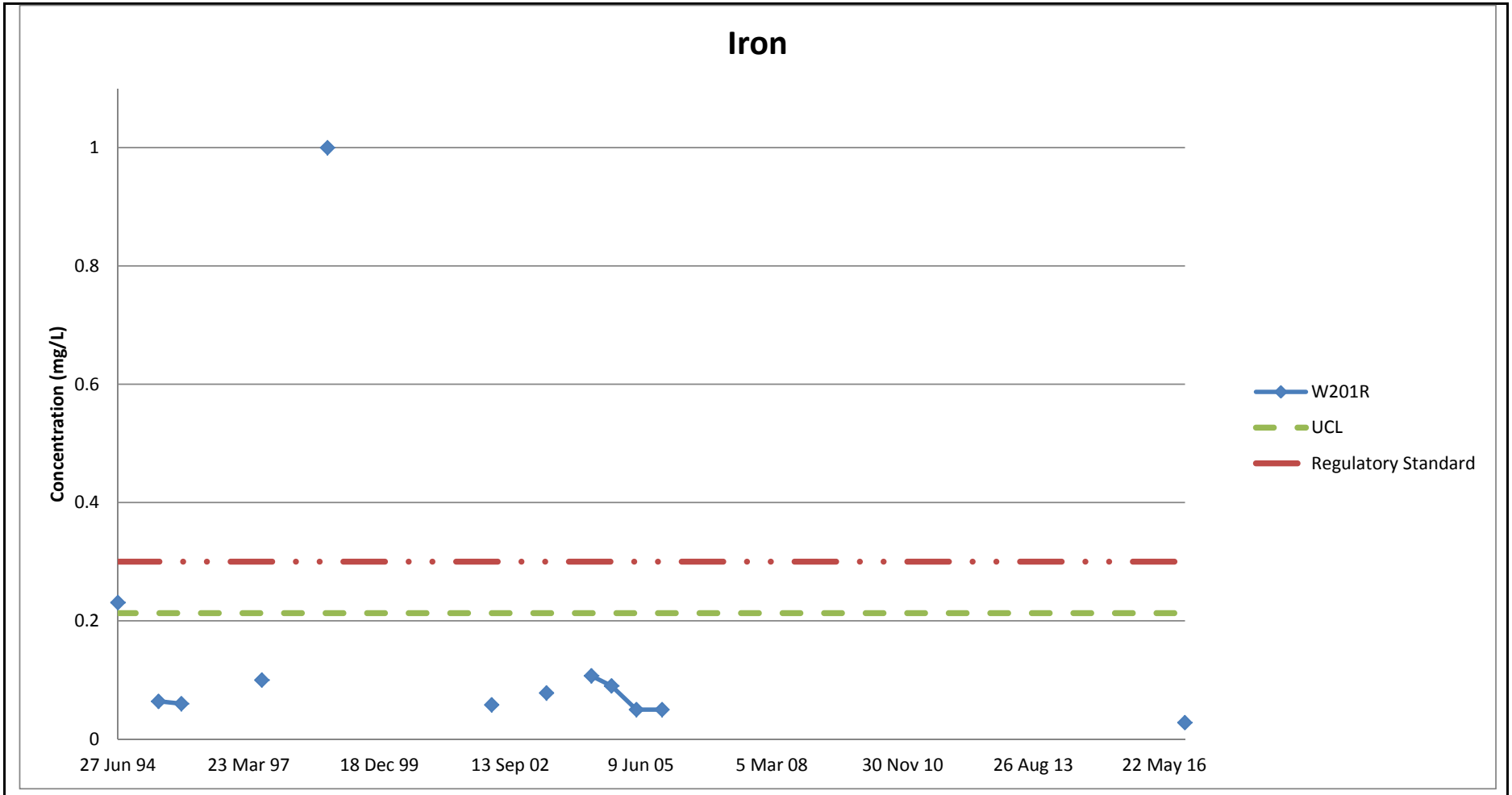
Appendix D

W-201R - Chromium Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'W201R' AND ChemName = 'Chromium (III+VI)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



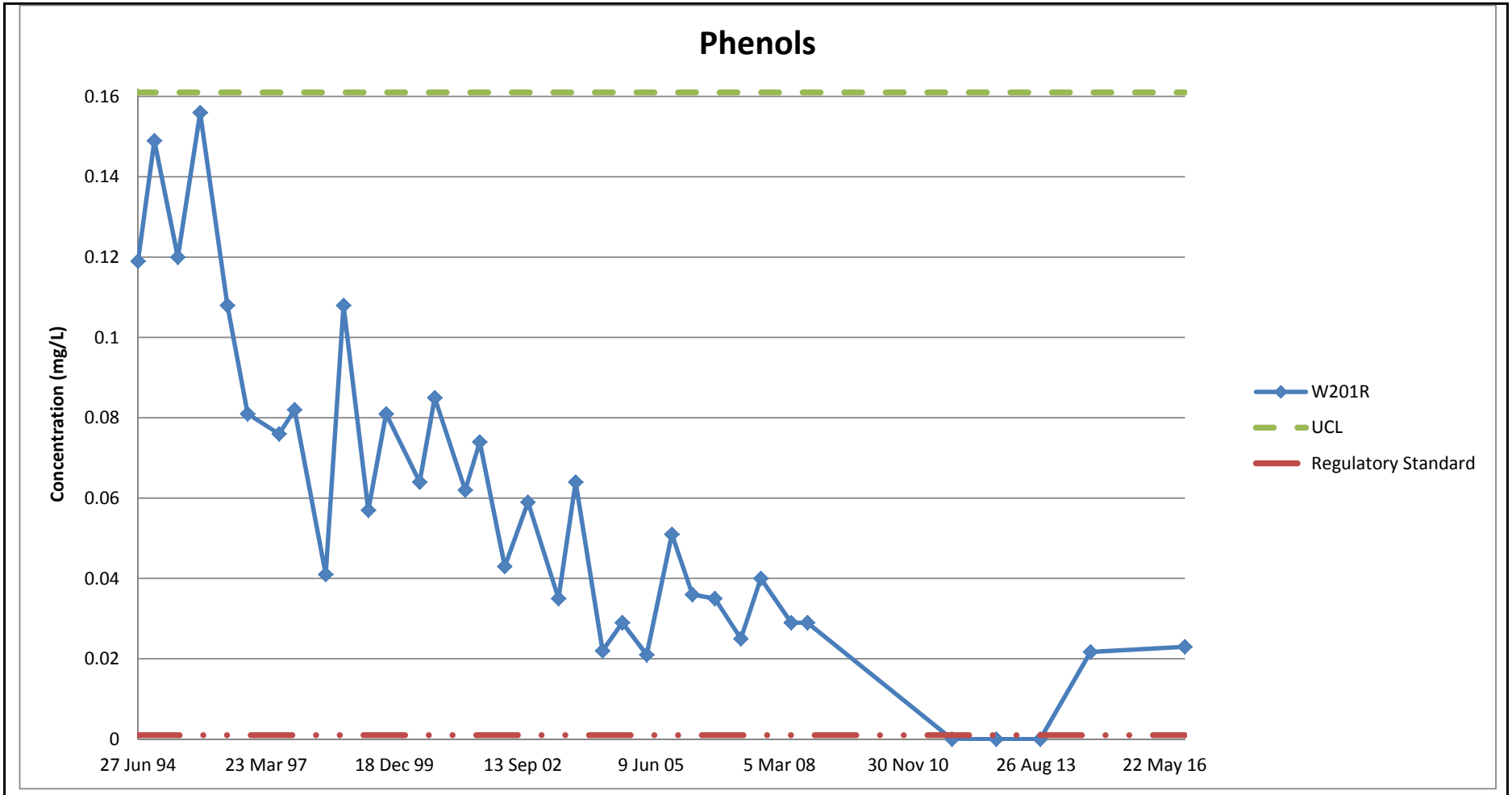
Appendix D

W-201R - Iron Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'W201R' AND ChemName = 'Iron')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



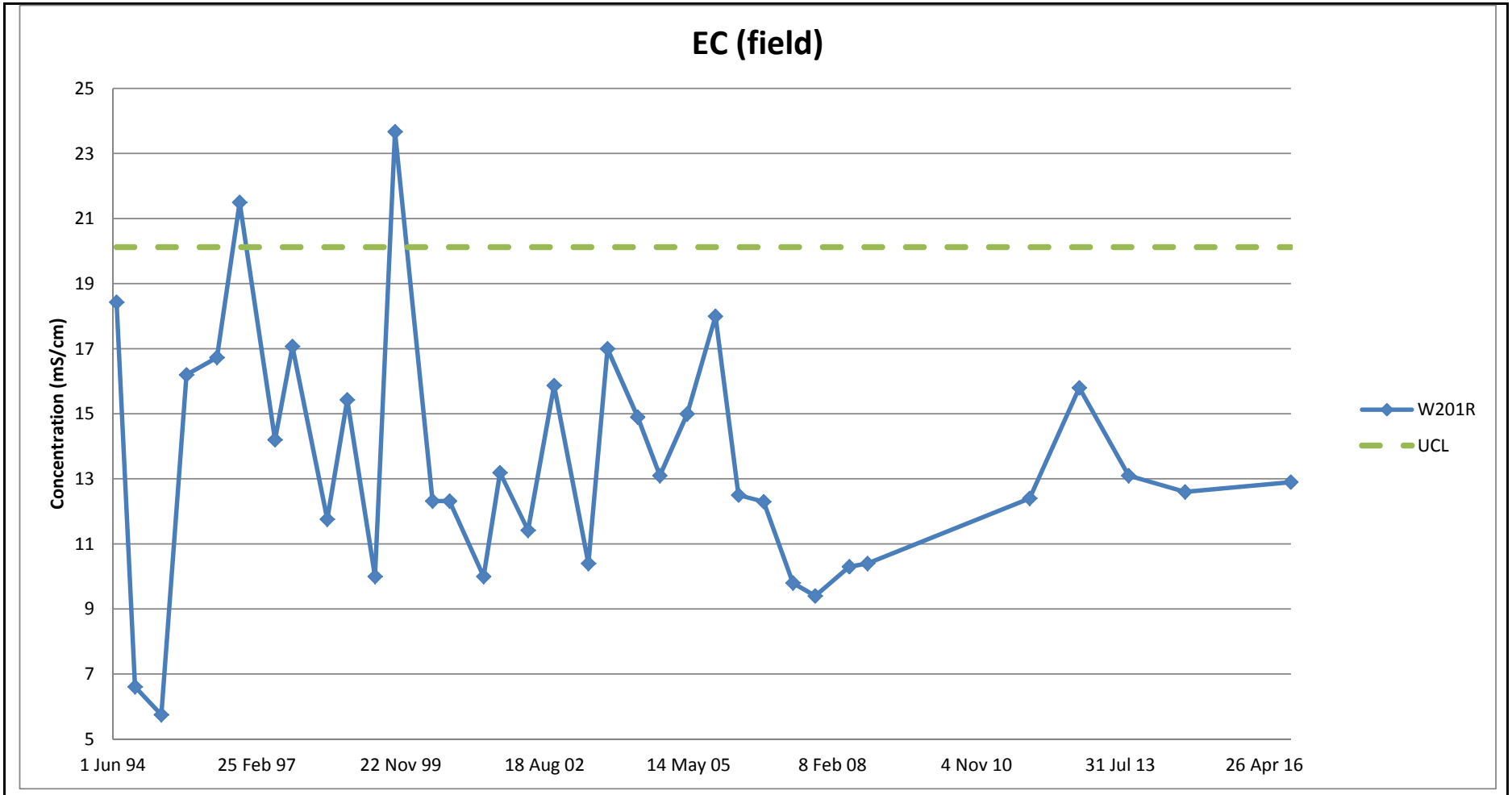
Appendix D

W-201R - Phenols Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'W201R' AND ChemName = 'Phenols')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



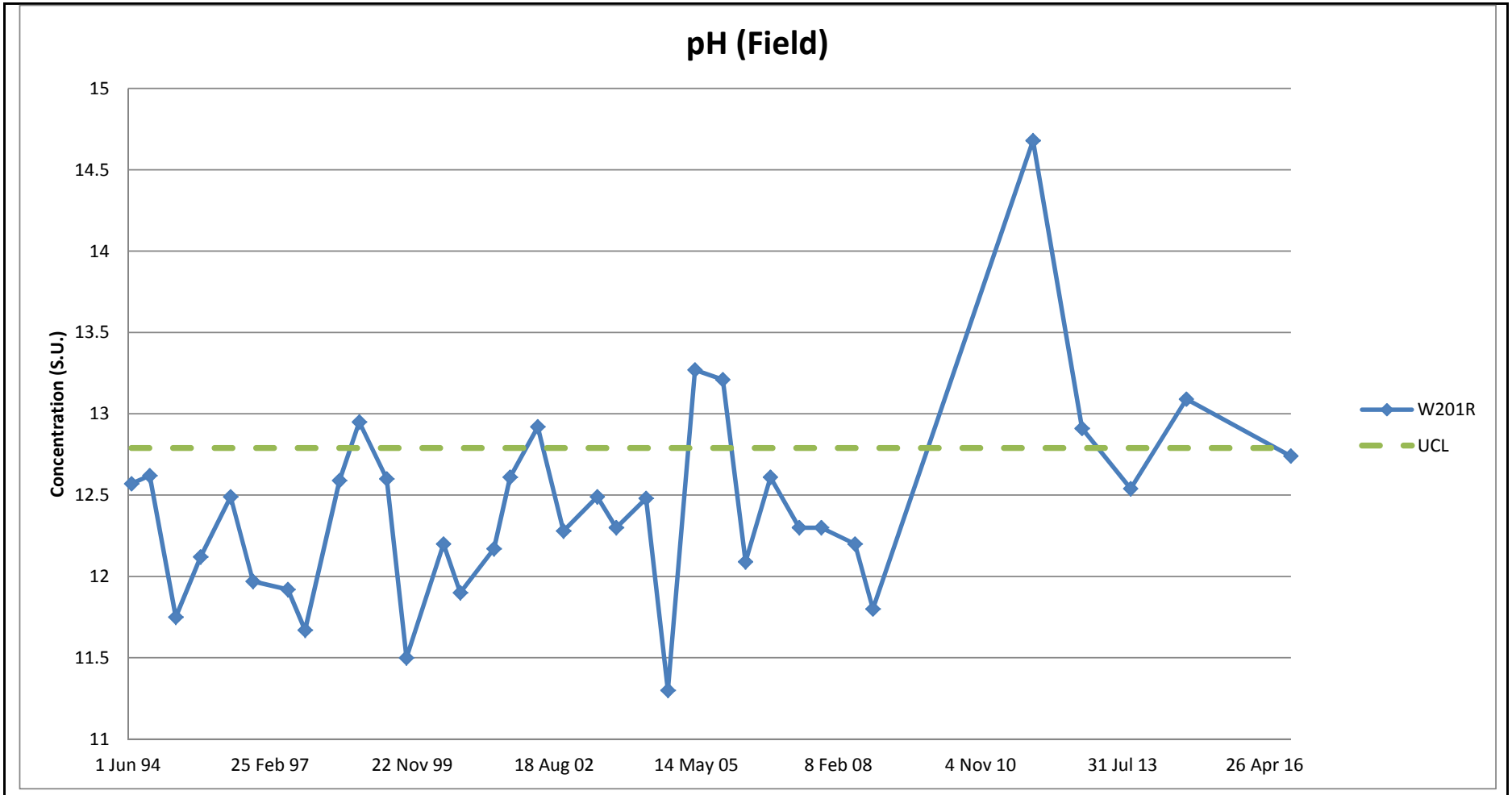
Appendix D

W-201R - Conductivity Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'W201R' AND ChemName = 'EC (field)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



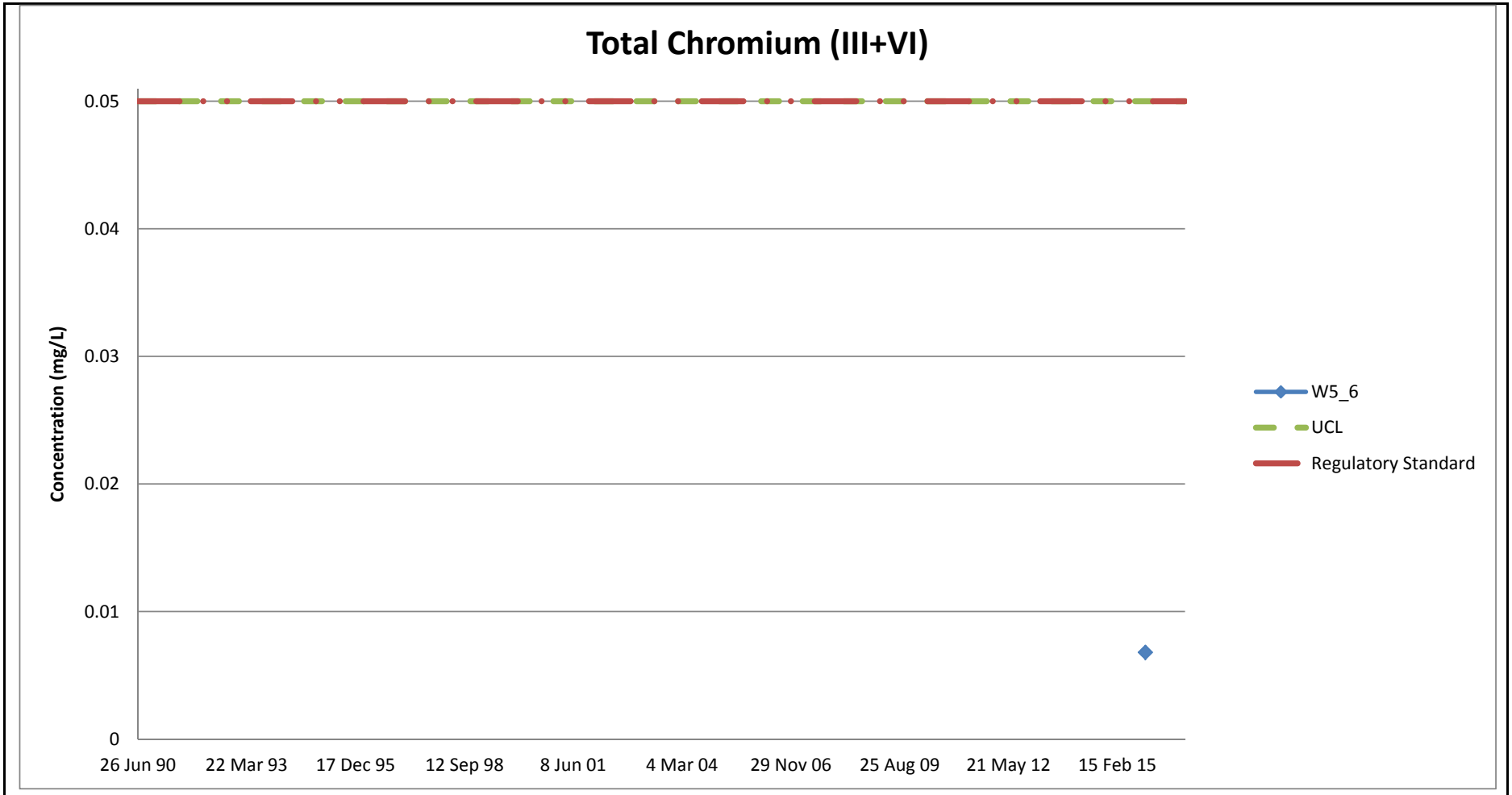
Appendix D

W-201R - pH Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'W201R' AND ChemName = 'pH (Field)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



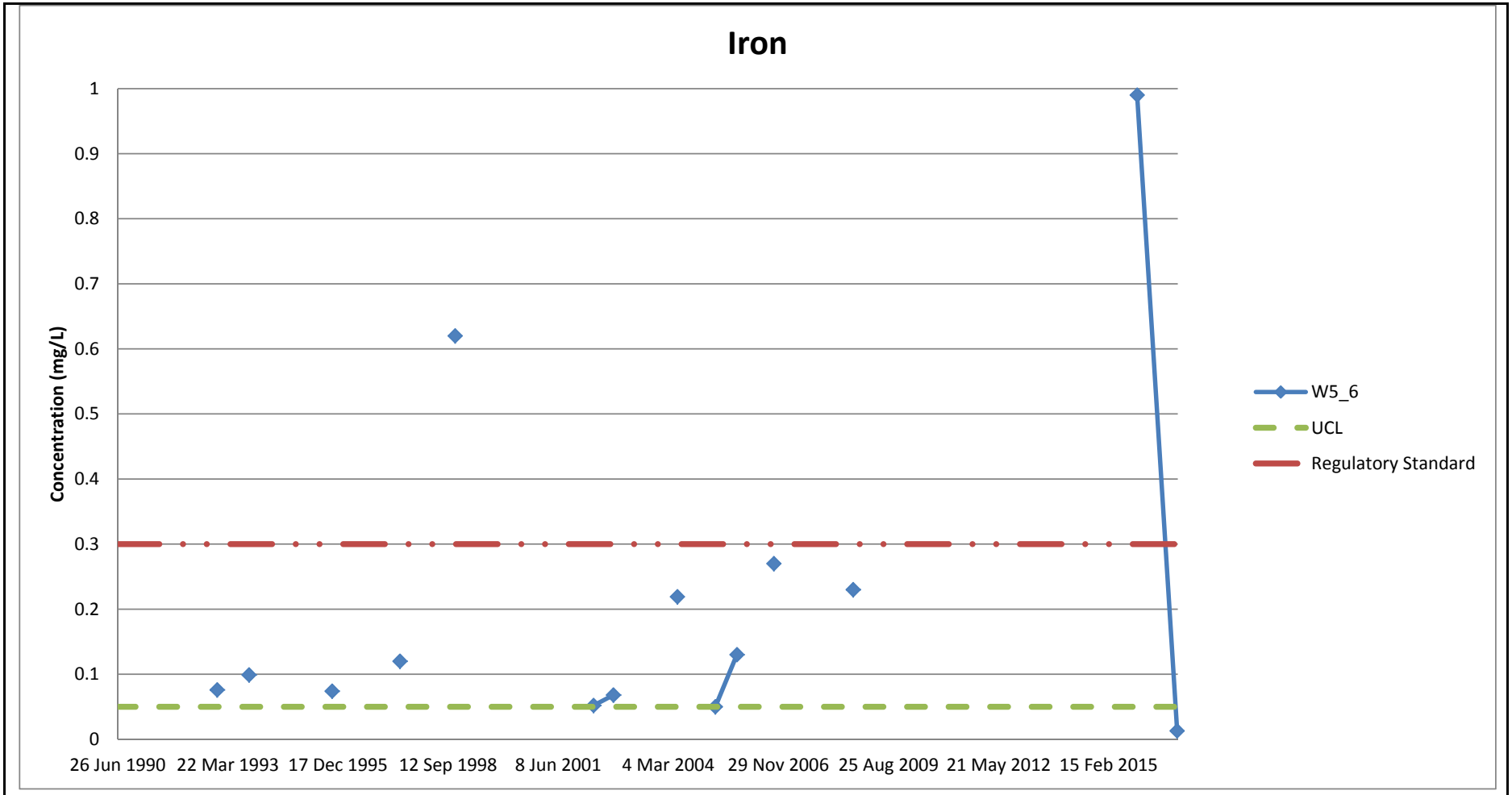
Appendix D

W-5.6 - Chromium Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'W5.6' AND ChemName = 'Chromium (III+VI)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



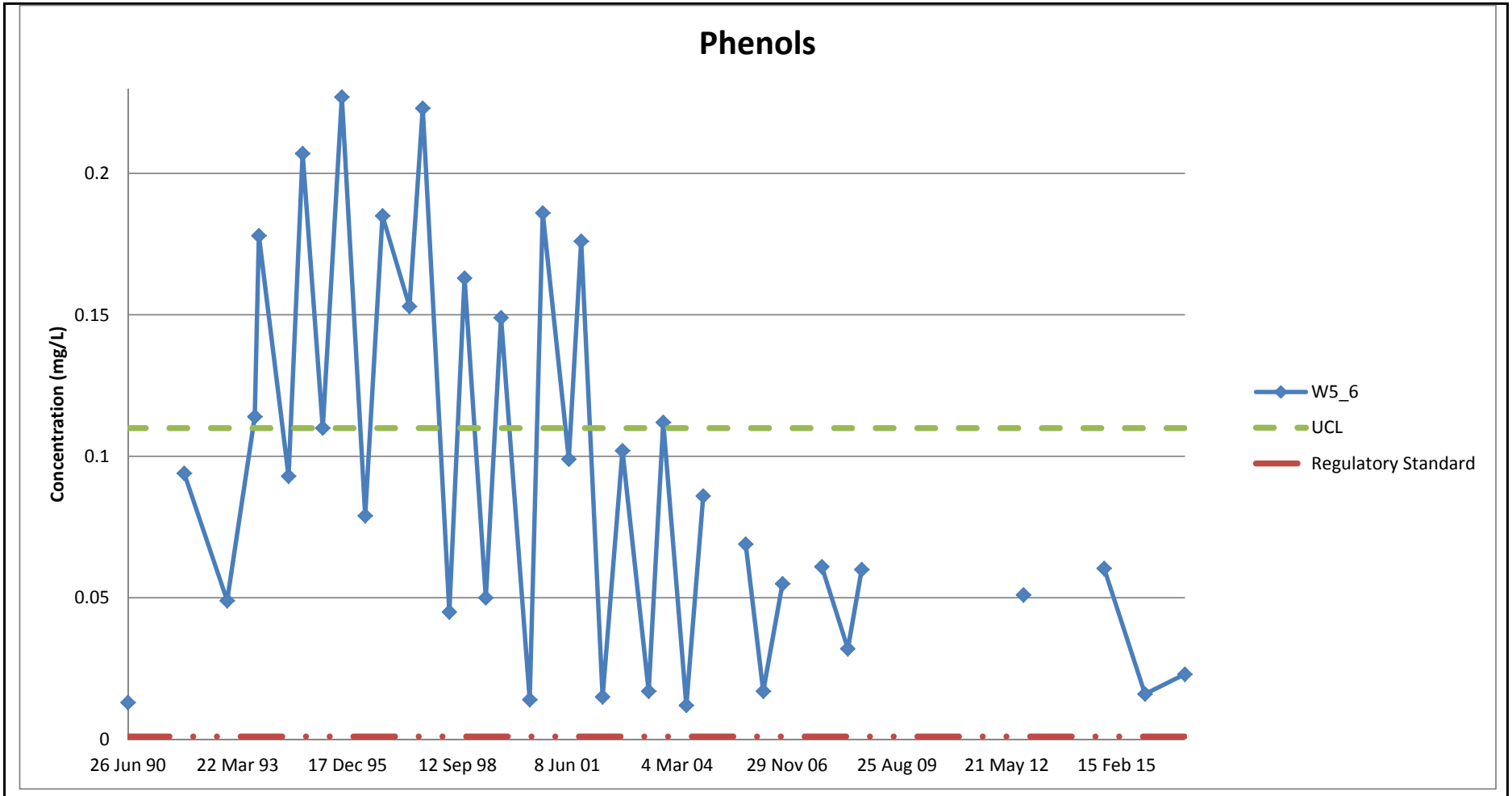
Appendix D

W-5.6 - Iron Time Series Plot

Former Crucible Specialty Metals LF, Where([LChem2_Environmental_Standards].[LocCode] = 'W5.6' AND ChemName = 'Iron')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD

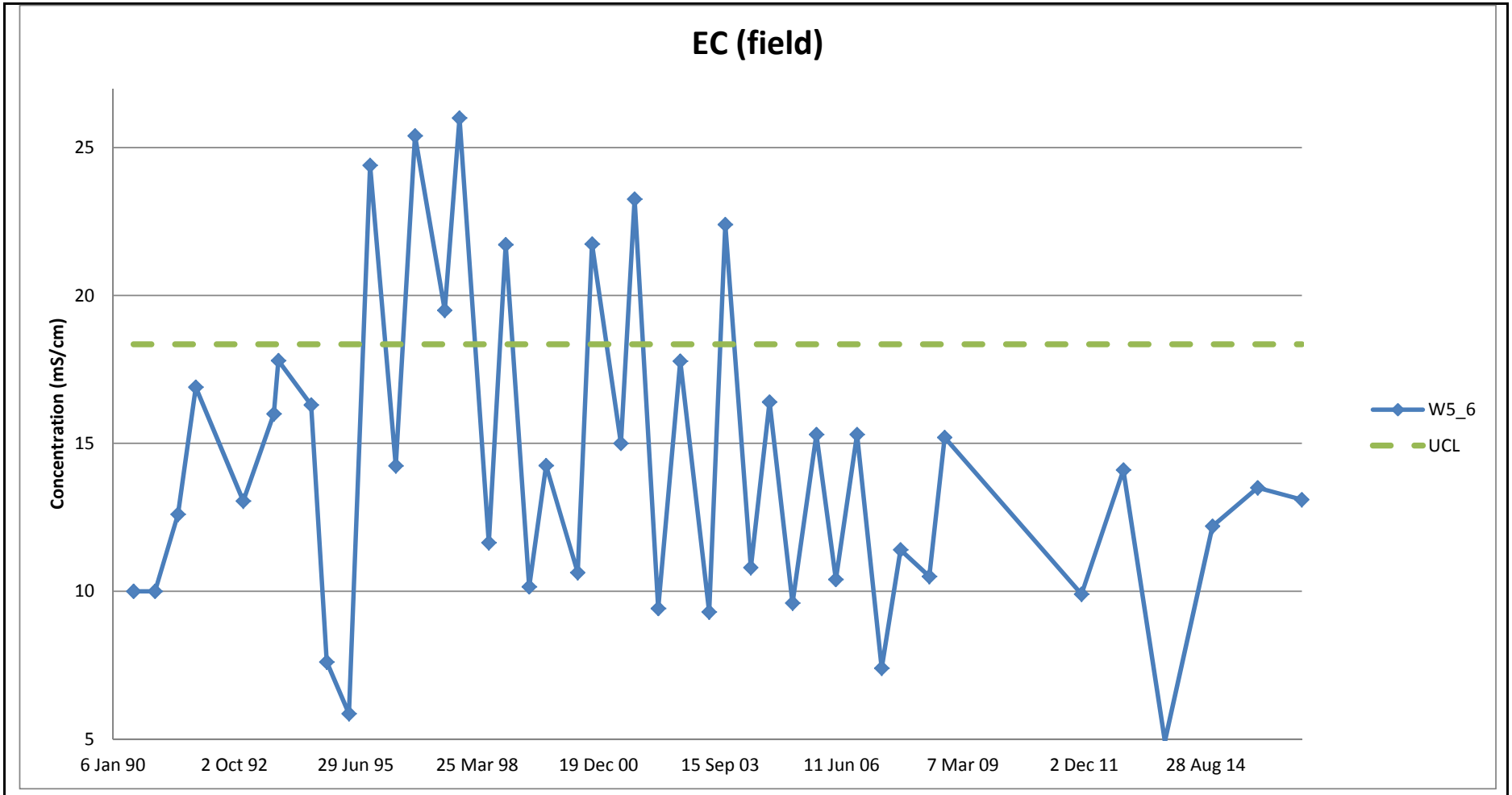


Appendix D

W-5.6 - Phenols Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'W5.6' AND ChemName = 'Phenols')

Date: Nov 16		Drawn:	
Scale: nts		Chk'd:	
Original:		Rev:	
File Reference:			



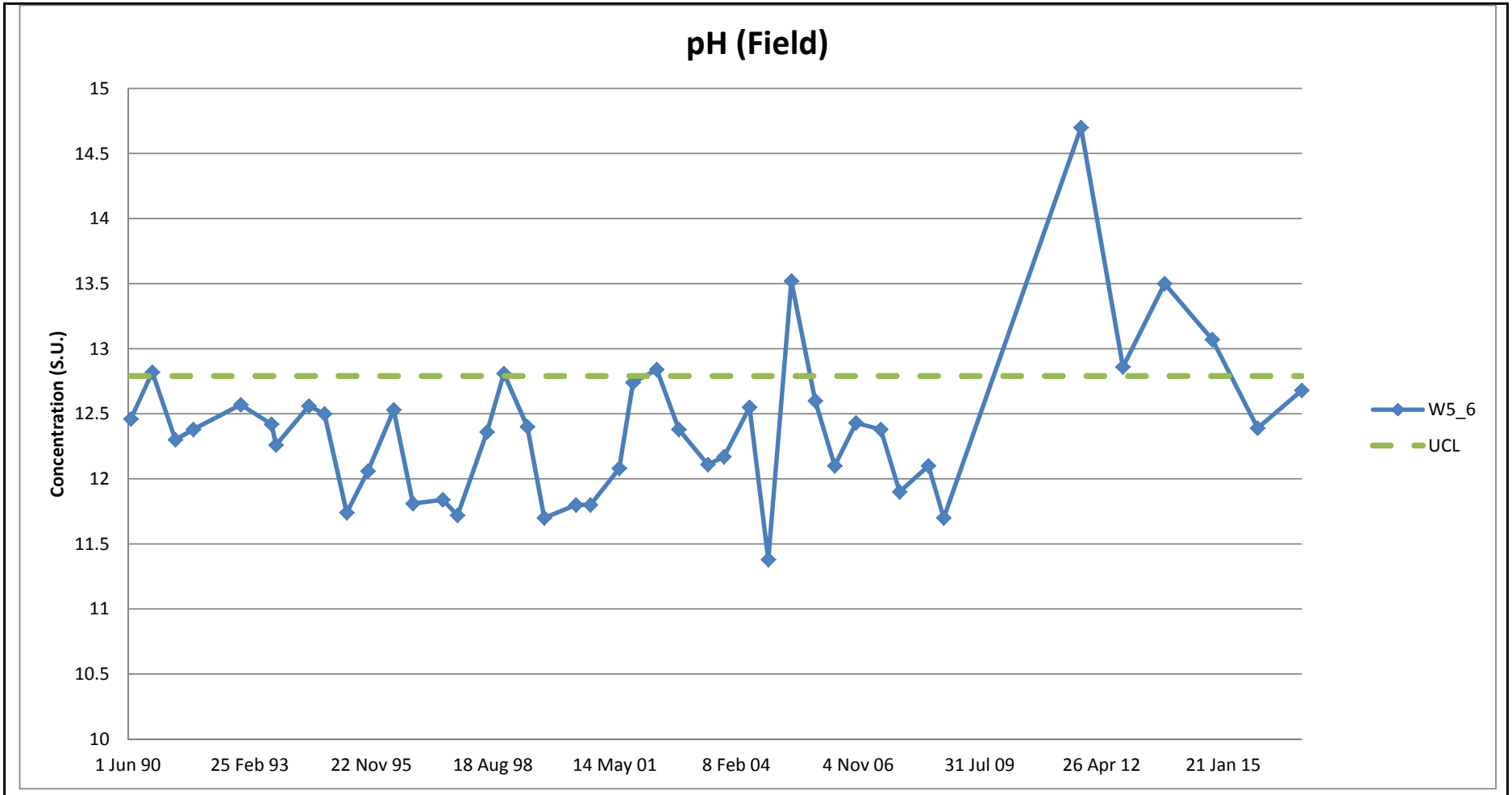
Appendix D

W-5.6 - Conductivity Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'W5.6' AND ChemName = 'EC (field)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD



Appendix D

W-5.6 - pH Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'W5.6' AND ChemName = 'pH (field)')

Date: Nov 16	Drawn:
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

GHD

Appendix E
Laboratory Analytical Report

ANALYTICAL REPORT

Lab Number:	L1634614
Client:	GHD Inc One Remington Park Drive Cazenovia, NY 13035
ATTN:	Ian McNamara
Phone:	(315) 679-5800
Project Name:	GEDDES LANDFILL
Project Number:	86-18809
Report Date:	11/03/16

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), VA (460195), MD (348), IL (200077), NC (666), TX (T104704476), DOD (L2217), USDA (Permit #P-330-11-00240).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1634614
Report Date: 11/03/16

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1634614-01	MS 301.3	WATER	GEDDES, NY	10/26/16 09:05	10/26/16
L1634614-02	MS 301.1	WATER	GEDDES, NY	10/26/16 09:00	10/26/16
L1634614-03	MS 301.4	WATER	GEDDES, NY	10/26/16 10:10	10/26/16
L1634614-04	MS 301.2	WATER	GEDDES, NY	10/26/16 10:15	10/26/16
L1634614-05	MS 301.5	WATER	GEDDES, NY	10/26/16 11:10	10/26/16
L1634614-06	W-201R	WATER	GEDDES, NY	10/26/16 11:50	10/26/16
L1634614-07	W-5.6	WATER	GEDDES, NY	10/26/16 13:25	10/26/16
L1634614-08	MS-106.2	WATER	GEDDES, NY	10/26/16 14:45	10/26/16
L1634614-09	MS-106.3	WATER	GEDDES, NY	10/26/16 14:50	10/26/16
L1634614-10	MS-106.1	WATER	GEDDES, NY	10/26/16 15:40	10/26/16
L1634614-11	DUP	WATER	GEDDES, NY	10/26/16 00:00	10/26/16
L1634614-12	TRIP BLANK 1	WATER	GEDDES, NY	10/26/16 00:00	10/26/16
L1634614-14	MS-104.4	WATER	GEDDES, NY	10/27/16 10:30	10/27/16
L1634614-15	MS-104.5	WATER	GEDDES, NY	10/27/16 11:15	10/27/16
L1634614-16	MS-104.3	WATER	GEDDES, NY	10/27/16 11:50	10/27/16
L1634614-17	RINSE BLANK 1	WATER	GEDDES, NY	10/27/16 13:15	10/27/16
L1634614-18	RINSE BLANK 2	WATER	GEDDES, NY	10/27/16 13:20	10/27/16
L1634614-19	TRIP BLANK 2	WATER	GEDDES, NY	10/27/16 00:00	10/27/16

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	GEDDES LANDFILL	**Lab Number:**	L1634614
Project Number:	86-18809	**Report Date:**	11/03/16

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L1634614-03: The sample was received above the appropriate pH for the Metals analysis. The laboratory added additional HNO3 to a pH <2.

L1634614-09: At the client's request, the sample identified as "MS-106.5" on the chain of custody is reported as "MS-106.3".

Metals

The WG947921-3/-4 MS/MSD recoveries for iron (60%/0%), performed on L1634614-04, do not apply because the sample concentration is greater than four times the spike amount added.

The WG947921-3/-4 MS/MSD recoveries, performed on L1634614-04, are outside the acceptance criteria for chromium (70%/71%). A post digestion spike was performed and yielded an unacceptable recovery of 59%. This has been attributed to sample matrix.

Phenolics, Total

The WG947505-4 MS recovery (0%), performed on L1634614-04, is outside the acceptance criteria; however, the associated LCS recovery is within criteria. No further action was taken.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 11/03/16

METALS

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-01
Client ID: MS 301.3
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 09:05
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	0.015		mg/l	0.010	0.002	1	11/01/16 11:45	11/02/16 00:28	EPA 3005A	19,200.7	FB
Iron, Total	18.8		mg/l	0.050	0.009	1	11/01/16 11:45	11/02/16 00:28	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-02
Client ID: MS 301.1
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 09:00
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	0.013		mg/l	0.010	0.002	1	11/01/16 11:45	11/02/16 01:16	EPA 3005A	19,200.7	FB
Iron, Total	70.1		mg/l	0.050	0.009	1	11/01/16 11:45	11/02/16 01:16	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL
Lab Number: L1634614
Project Number: 86-18809
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-03
Client ID: MS 301.4
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 10:10
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	0.020		mg/l	0.010	0.002	1	11/01/16 11:45	11/02/16 01:42	EPA 3005A	19,200.7	FB
Iron, Total	4.66		mg/l	0.050	0.009	1	11/01/16 11:45	11/02/16 01:42	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL
Lab Number: L1634614
Project Number: 86-18809
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-04
Client ID: MS 301.2
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 10:15
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	0.014		mg/l	0.010	0.002	1	11/01/16 11:45	11/02/16 00:58	EPA 3005A	19,200.7	FB
Iron, Total	76.4		mg/l	0.050	0.009	1	11/01/16 11:45	11/02/16 00:58	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL
Lab Number: L1634614
Project Number: 86-18809
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-05
Client ID: MS 301.5
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 11:10
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	0.003	J	mg/l	0.010	0.002	1	11/01/16 11:45	11/02/16 01:46	EPA 3005A	19,200.7	FB
Iron, Total	0.064		mg/l	0.050	0.009	1	11/01/16 11:45	11/02/16 01:46	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL
Lab Number: L1634614
Project Number: 86-18809
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-06
Client ID: W-201R
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 11:50
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	ND		mg/l	0.010	0.002	1	11/01/16 11:45	11/02/16 01:51	EPA 3005A	19,200.7	FB
Iron, Total	0.028	J	mg/l	0.050	0.009	1	11/01/16 11:45	11/02/16 01:51	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-07
Client ID: W-5.6
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 13:25
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	ND		mg/l	0.010	0.002	1	11/01/16 11:45	11/02/16 01:56	EPA 3005A	19,200.7	FB
Iron, Total	0.013	J	mg/l	0.050	0.009	1	11/01/16 11:45	11/02/16 01:56	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL
Lab Number: L1634614
Project Number: 86-18809
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-08
Client ID: MS-106.2
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 14:45
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	0.002	J	mg/l	0.010	0.002	1	11/01/16 11:45	11/02/16 02:00	EPA 3005A	19,200.7	FB
Iron, Total	0.040	J	mg/l	0.050	0.009	1	11/01/16 11:45	11/02/16 02:00	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL
Lab Number: L1634614
Project Number: 86-18809
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-09
Client ID: MS-106.3
Sample Location: GEDDES, NY
Matrix: Water

Date Collected: 10/26/16 14:50
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	0.007	J	mg/l	0.010	0.002	1	11/01/16 11:45	11/02/16 02:05	EPA 3005A	19,200.7	FB
Iron, Total	0.683		mg/l	0.050	0.009	1	11/01/16 11:45	11/02/16 02:05	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL
Lab Number: L1634614
Project Number: 86-18809
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-10
Client ID: MS-106.1
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 15:40
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	ND		mg/l	0.010	0.002	1	11/02/16 06:25	11/02/16 16:31	EPA 3005A	19,200.7	AB
Iron, Total	0.034	J	mg/l	0.050	0.009	1	11/02/16 06:25	11/02/16 16:31	EPA 3005A	19,200.7	AB

Project Name: GEDDES LANDFILL
Lab Number: L1634614
Project Number: 86-18809
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-11
Client ID: DUP
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 00:00
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	0.011		mg/l	0.010	0.002	1	11/02/16 06:25	11/02/16 16:35	EPA 3005A	19,200.7	AB
Iron, Total	3.32		mg/l	0.050	0.009	1	11/02/16 06:25	11/02/16 16:35	EPA 3005A	19,200.7	AB

Project Name: GEDDES LANDFILL
Lab Number: L1634614
Project Number: 86-18809
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-12
Client ID: TRIP BLANK 1
Sample Location: GEDDES, NY
Matrix: Water

Date Collected: 10/26/16 00:00
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	0.003	J	mg/l	0.010	0.002	1	11/02/16 06:25	11/02/16 16:15	EPA 3005A	19,200.7	AB
Iron, Total	0.016	J	mg/l	0.050	0.009	1	11/02/16 06:25	11/02/16 16:15	EPA 3005A	19,200.7	AB

Project Name: GEDDES LANDFILL
Lab Number: L1634614
Project Number: 86-18809
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-14
Client ID: MS-104.4
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/27/16 10:30
Date Received: 10/27/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	ND		mg/l	0.010	0.002	1	11/02/16 14:30	11/03/16 05:17	EPA 3005A	19,200.7	FB
Iron, Total	ND		mg/l	0.050	0.009	1	11/02/16 14:30	11/03/16 05:17	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL
Lab Number: L1634614
Project Number: 86-18809
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-15
Client ID: MS-104.5
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/27/16 11:15
Date Received: 10/27/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	0.005	J	mg/l	0.010	0.002	1	11/02/16 14:30	11/03/16 05:40	EPA 3005A	19,200.7	FB
Iron, Total	0.039	J	mg/l	0.050	0.009	1	11/02/16 14:30	11/03/16 05:40	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL
Lab Number: L1634614
Project Number: 86-18809
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-16
Client ID: MS-104.3
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/27/16 11:50
Date Received: 10/27/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	ND		mg/l	0.010	0.002	1	11/02/16 14:30	11/03/16 05:44	EPA 3005A	19,200.7	FB
Iron, Total	0.029	J	mg/l	0.050	0.009	1	11/02/16 14:30	11/03/16 05:44	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-17
Client ID: RINSE BLANK 1
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/27/16 13:15
Date Received: 10/27/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	0.012		mg/l	0.010	0.002	1	11/02/16 14:30	11/03/16 06:11	EPA 3005A	19,200.7	FB
Iron, Total	1.20		mg/l	0.050	0.009	1	11/02/16 14:30	11/03/16 06:11	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL
Lab Number: L1634614
Project Number: 86-18809
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-18
Client ID: RINSE BLANK 2
Sample Location: GEDDES, NY
Matrix: Water

Date Collected: 10/27/16 13:20
Date Received: 10/27/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	0.011		mg/l	0.010	0.002	1	11/02/16 14:30	11/03/16 06:15	EPA 3005A	19,200.7	FB
Iron, Total	2.43		mg/l	0.050	0.009	1	11/02/16 14:30	11/03/16 06:15	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL
Lab Number: L1634614
Project Number: 86-18809
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-19
Client ID: TRIP BLANK 2
Sample Location: GEDDES, NY
Matrix: Water

Date Collected: 10/27/16 00:00
Date Received: 10/27/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	ND		mg/l	0.010	0.002	1	11/02/16 14:30	11/03/16 06:20	EPA 3005A	19,200.7	FB
Iron, Total	0.027	J	mg/l	0.050	0.009	1	11/02/16 14:30	11/03/16 06:20	EPA 3005A	19,200.7	FB

Project Name: GEDDES LANDFILL **Lab Number:** L1634614

Project Number: 86-18809 **Report Date:** 11/03/16

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-09 Batch: WG947921-1										
Chromium, Total	ND		mg/l	0.010	0.002	1	11/01/16 11:45	11/02/16 00:50	19,200.7	FB
Iron, Total	ND		mg/l	0.050	0.009	1	11/01/16 11:45	11/02/16 00:50	19,200.7	FB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 10-12 Batch: WG948182-1										
Chromium, Total	ND		mg/l	0.010	0.002	1	11/02/16 06:25	11/02/16 15:26	19,200.7	AB
Iron, Total	ND		mg/l	0.050	0.009	1	11/02/16 06:25	11/02/16 15:26	19,200.7	AB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 14-19 Batch: WG948392-1										
Chromium, Total	ND		mg/l	0.010	0.002	1	11/02/16 14:30	11/03/16 04:21	19,200.7	FB
Iron, Total	ND		mg/l	0.050	0.009	1	11/02/16 14:30	11/03/16 04:21	19,200.7	FB

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: GEDDES LANDFILL

Project Number: 86-18809

Lab Number: L1634614

Report Date: 11/03/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 Batch: WG947921-2								
Chromium, Total	99		-		85-115	-		
Iron, Total	92		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 10-12 Batch: WG948182-2								
Chromium, Total	85		-		85-115	-		
Iron, Total	88		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 14-19 Batch: WG948392-2								
Chromium, Total	94		-		85-115	-		
Iron, Total	92		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1634614
Report Date: 11/03/16

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG947921-3 WG947921-4 QC Sample: L1634614-04 Client ID: MS 301.2												
Chromium, Total	0.014	0.2	0.154	**70**	Q	0.156	**71**	Q	75-125	1		20
Iron, Total	76.4	1	77.0	**60**	Q	75.6	**0**	Q	75-125	2		20
Total Metals - Mansfield Lab Associated sample(s): 10-12 QC Batch ID: WG948182-3 QC Sample: L1634966-02 Client ID: MS Sample												
Chromium, Total	ND	0.2	0.165	82		-	-		75-125	-		20
Iron, Total	0.133	1	0.961	83		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 14-19 QC Batch ID: WG948392-3 QC Sample: L1634614-14 Client ID: MS-104.4												
Chromium, Total	ND	0.2	0.178	89		-	-		75-125	-		20
Iron, Total	ND	1	0.883	88		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1634614
Report Date: 11/03/16

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10-12 QC Batch ID: WG948182-4 QC Sample: L1634966-02 Client ID: DUP Sample						
Iron, Total	0.133	0.145	mg/l	9		20
Total Metals - Mansfield Lab Associated sample(s): 14-19 QC Batch ID: WG948392-4 QC Sample: L1634614-14 Client ID: MS-104.4						
Chromium, Total	ND	ND	mg/l	NC		20
Iron, Total	ND	0.0090J	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-01
Client ID: MS 301.3
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 09:05
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	ND		mg/l	0.030	0.009	1	10/31/16 09:53	10/31/16 17:31	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-02
Client ID: MS 301.1
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 09:00
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	0.020	J	mg/l	0.030	0.009	1	10/31/16 09:53	10/31/16 15:55	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-03
Client ID: MS 301.4
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 10:10
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	0.44		mg/l	0.030	0.009	1	10/31/16 09:53	10/31/16 17:32	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-04
Client ID: MS 301.2
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 10:15
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	0.047		mg/l	0.030	0.009	1	10/31/16 09:53	10/31/16 16:37	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-05
Client ID: MS 301.5
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 11:10
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	0.011	J	mg/l	0.030	0.009	1	10/31/16 09:53	10/31/16 17:33	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-06
Client ID: W-201R
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 11:50
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	0.023	J	mg/l	0.030	0.009	1	10/31/16 09:53	10/31/16 16:00	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-07
Client ID: W-5.6
Sample Location: GEDDES, NY
Matrix: Water

Date Collected: 10/26/16 13:25
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	0.023	J	mg/l	0.030	0.009	1	10/31/16 09:53	10/31/16 16:01	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-08
Client ID: MS-106.2
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 14:45
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	0.029	J	mg/l	0.030	0.009	1	10/31/16 09:53	10/31/16 16:02	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-09
Client ID: MS-106.3
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 14:50
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	ND		mg/l	0.030	0.009	1	10/31/16 09:53	10/31/16 16:03	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-10
Client ID: MS-106.1
Sample Location: GEDDES, NY
Matrix: Water

Date Collected: 10/26/16 15:40
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	ND		mg/l	0.030	0.009	1	10/31/16 14:05	10/31/16 17:40	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-11
Client ID: DUP
Sample Location: GEDDES, NY
Matrix: Water

Date Collected: 10/26/16 00:00
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	0.56		mg/l	0.030	0.009	1	10/31/16 14:05	10/31/16 17:44	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-12
Client ID: TRIP BLANK 1
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/26/16 00:00
Date Received: 10/26/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	ND		mg/l	0.030	0.009	1	10/31/16 14:05	10/31/16 17:45	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-14
Client ID: MS-104.4
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/27/16 10:30
Date Received: 10/27/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	ND		mg/l	0.030	0.009	1	10/31/16 14:05	10/31/16 17:46	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-15
Client ID: MS-104.5
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/27/16 11:15
Date Received: 10/27/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	ND		mg/l	0.030	0.009	1	10/31/16 14:05	10/31/16 17:47	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-16
Client ID: MS-104.3
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/27/16 11:50
Date Received: 10/27/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	ND		mg/l	0.030	0.009	1	10/31/16 14:05	10/31/16 17:48	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-17
Client ID: RINSE BLANK 1
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/27/16 13:15
Date Received: 10/27/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	ND		mg/l	0.030	0.009	1	10/31/16 14:05	10/31/16 17:49	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-18
Client ID: RINSE BLANK 2
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/27/16 13:20
Date Received: 10/27/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	ND		mg/l	0.030	0.009	1	10/31/16 14:05	10/31/16 17:50	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

SAMPLE RESULTS

Lab ID: L1634614-19
Client ID: TRIP BLANK 2
Sample Location: GEDDES, NY
Matrix: Water
Date Collected: 10/27/16 00:00
Date Received: 10/27/16
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	ND		mg/l	0.030	0.009	1	10/31/16 14:05	10/31/16 17:51	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809
Lab Number: L1634614
Report Date: 11/03/16

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-09 Batch: WG947505-1										
Phenolics, Total	ND		mg/l	0.030	0.009	1	10/31/16 09:53	10/31/16 15:48	4,420.1	AW
General Chemistry - Westborough Lab for sample(s): 10-12,14-19 Batch: WG947508-1										
Phenolics, Total	ND		mg/l	0.030	0.009	1	10/31/16 14:05	10/31/16 17:37	4,420.1	AW

Lab Control Sample Analysis

Batch Quality Control

Project Name: GEDDES LANDFILL

Project Number: 86-18809

Lab Number: L1634614

Report Date: 11/03/16

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-09 Batch: WG947505-2								
Phenolics, Total	85		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 10-12,14-19 Batch: WG947508-2								
Phenolics, Total	79		-		70-130	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1634614
Report Date: 11/03/16

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG947505-4 QC Sample: L1634614-04 Client ID: MS 301.2												
Phenolics, Total	0.047	0.4	0.017J	**0**	Q	-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 10-12,14-19 QC Batch ID: WG947508-4 QC Sample: L1634614-10 Client ID: MS-106.1												
Phenolics, Total	ND	0.4	0.34	86		-	-		70-130	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1634614
Report Date: 11/03/16

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG947505-3 QC Sample: L1634614-04 Client ID: MS 301.2						
Phenolics, Total	0.047	0.019J	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 10-12,14-19 QC Batch ID: WG947508-3 QC Sample: L1634614-10 Client ID: MS-106.1						
Phenolics, Total	ND	ND	mg/l	NC		20

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1634614
Report Date: 11/03/16

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information Custody Seal

Cooler	
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1634614-01A	Plastic 250ml HNO3 preserved	A	<2	3.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-01B	Amber 500ml H2SO4 preserved	A	<2	3.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-02A	Plastic 250ml HNO3 preserved	A	<2	3.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-02B	Amber 500ml H2SO4 preserved	A	<2	3.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-03A	Plastic 250ml HNO3 preserved	A	<2	3.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-03B	Amber 500ml H2SO4 preserved	A	<2	3.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-04A	Plastic 250ml HNO3 preserved	A	<2	3.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-04A1	Plastic 250ml HNO3 preserved	A	<2	3.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-04A2	Plastic 250ml HNO3 preserved	A	<2	3.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-04B	Amber 500ml H2SO4 preserved	A	<2	3.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-04B1	Amber 500ml H2SO4 preserved	A	<2	3.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-04B2	Amber 500ml H2SO4 preserved	A	<2	3.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-05A	Plastic 250ml HNO3 preserved	A	<2	3.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-05B	Amber 500ml H2SO4 preserved	A	<2	3.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-06A	Plastic 250ml HNO3 preserved	A	<2	3.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-06B	Amber 500ml H2SO4 preserved	A	<2	3.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-07A	Plastic 250ml HNO3 preserved	A	<2	3.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-07B	Amber 500ml H2SO4 preserved	A	<2	3.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-08A	Plastic 250ml HNO3 preserved	A	<2	3.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-08B	Amber 500ml H2SO4 preserved	A	<2	3.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-09A	Plastic 250ml HNO3 preserved	A	<2	3.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-09B	Amber 500ml H2SO4 preserved	A	<2	3.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-10A	Plastic 250ml HNO3 preserved	A	<2	3.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-10B	Amber 500ml H2SO4 preserved	A	<2	3.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-11A	Plastic 250ml HNO3 preserved	A	<2	3.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-11B	Amber 500ml H2SO4 preserved	A	<2	3.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-12A	Plastic 250ml HNO3 preserved	A	<2	3.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-12B	Amber 500ml H2SO4 preserved	A	<2	3.3	Y	Absent	NY-TPHENOL-420(28)

*Values in parentheses indicate holding time in days

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1634614
Report Date: 11/03/16

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1634614-14A	Plastic 250ml HNO3 preserved	B	<2	4.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-14B	Amber 500ml H2SO4 preserved	B	<2	4.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-15A	Plastic 250ml HNO3 preserved	B	<2	4.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-15B	Amber 500ml H2SO4 preserved	B	<2	4.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-16A	Plastic 250ml HNO3 preserved	B	<2	4.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-16B	Amber 500ml H2SO4 preserved	B	<2	4.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-17A	Plastic 250ml HNO3 preserved	B	<2	4.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-17B	Amber 500ml H2SO4 preserved	B	<2	4.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-18A	Plastic 250ml HNO3 preserved	B	<2	4.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-18B	Amber 500ml H2SO4 preserved	B	<2	4.3	Y	Absent	NY-TPHENOL-420(28)
L1634614-19A	Plastic 250ml HNO3 preserved	B	<2	4.3	Y	Absent	FE-UI(180),CR-UI(180)
L1634614-19B	Amber 500ml H2SO4 preserved	B	<2	4.3	Y	Absent	NY-TPHENOL-420(28)

*Values in parentheses indicate holding time in days

Project Name:	GEDDES LANDFILL	**Lab Number:**	L1634614
Project Number:	86-18809	**Report Date:**	11/03/16

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the

Report Format: DU Report with 'J' Qualifiers

Project Name:	GEDDES LANDFILL	**Lab Number:**	L1634614
Project Number:	86-18809	**Report Date:**	11/03/16

Data Qualifiers

reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	GEDDES LANDFILL	**Lab Number:**	L1634614
Project Number:	86-18809	**Report Date:**	11/03/16

REFERENCES

4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.

19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
SM 2540D: TSS
EPA 3005A NPW
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: ***EPA 3050B***

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF**.

Mansfield Facility:

Drinking Water
EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1** Hg.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 10/28/16

ALPHA Job #: L1634614

Client Information

Client: GHD
Address: One Remington Park Dr. Cazenovia, NY 13035
Phone: 315-674-5800
Fax:
Email: Jon.McNamara@ghd.com

Project Information

Project Name: Geddes Landfill
Project Location: Geddes, NY
Project #: 86-18809
(Use Project name as Project #) ☐
Project Manager: Jon McNamara
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ ASP-A ☒ ASP-B
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Billing Information

☒ Same as Client Info
PO # 86 18809

Regulatory Requirement

☒ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL. Fe + Cr

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPH EPA 8015	Total Metals (Fe, Cr)	Total Bottle
34614-14	MS-104.4	10/27/16	10:30	GW	JBM	X	X	2
15	MS-104.5		11:15					
16	MS-104.3		11:50					
17	Rinse Blank 1		13:15					
18	Rinse Blank 2		13:20					
19	Trip Blank 2		00:00	—	—	—	—	

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Sample Specific Comments

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	A	P										
Preservative	D	C										

Relinquished By:	Date/Time	Received By:	Date/Time
JB	10/27/16 14:15		
	10/27		10/28/16 1835

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are ~~resolved~~. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 2

Date Rec'd in Lab: 10/27/16

ALPHA Job #: L1634614

Client Information
Client: GHD
Address: 1 Remington Park Dr.
Cazenovia, NY 13035
Phone: (315) 679-5732
Fax:
Email: ian.mcnamara@ghd.com

Project Information
Project Name: Geddes Landfill
Project Location: Geddes, NY
Project # 86-18809
(Use Project name as Project #) ☐
Project Manager: Ian McNamara
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☒ ASP-B
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Billing Information
☒ Same as Client Info
PO # 86-18809

Regulatory Requirement
☒ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL. Fe, Cr

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPHENOL	Total Metals (Fe,Cr)	Total Bottle	Sample Specific Comments
34614-01	MS-301.3	10/26/16	9:05	GW	TJF	X	X	2	
02	MS-301.1		9:00		IEM				
03	MS-301.4		10:10		TJF				
04	MS-301.2		10:15		IEM				
04	MS-MSD		10:15		IEM				
05	MS-301.5		11:10		TJF				
06	W-201R		11:50		TJF				
07	W-5.6		13:25		IEM				
08	MS-106.2		14:45		TJF				
09	MS-106.5		14:50		IEM				

Container Type: A P
Preservative: D C

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
TJF	10/26/16 17:30		10/26/16 17:30
	10/26/16		10/27/16 0145

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 2 of 2

Date Rec'd in Lab: 10/27/16

ALPHA Job #: L1634614

Client Information
Client: GHD
Address: 1 Remington Park Dr.
Cazenovia, NY 13035
Phone: (315) 679-5732
Fax:
Email: ian.mcnamara@ghd.com

Project Information
Project Name: Geddes Landfill
Project Location: Geddes, NY
Project #: 86-18809
(Use Project name as Project #) ☐
Project Manager: Ian McNamara
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☒ ASP-B
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Billing Information
☒ Same as Client Info
PO # 86-18809

Regulatory Requirement
☒ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL. Fe, Cr

ANALYSIS
TPHENOL
Total Metals (Fe, Cr)

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPHENOL	Total Metals (Fe, Cr)	Sample Specific Comments	Total Bottle
34604-10	MS-106.1	10/26/16	15:40	GW	IEM	x	x		2
11	DUP	1	00:00	1	TJF	1	1		1
12	Trip Blank 1	1	00:00	1	IEM	1	1		1

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	A	P
Preservative	D	C

Relinquished By:	Date/Time	Received By:	Date/Time
TJF 17:30	10/26/16 17:30		10/26/16 18:30
	10/26/16		10/27/16 01:45

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

Appendix F
Alpha Analytical - Metals Trip and Rinse Blank Discussion Letter

ALPHA ANALYTICAL
World Class Chemistry

GHD

One Remington Park Drive

Cazenovia, NY 13035

Re: Metals trip and rinse blank discussion

Dear, Mr. McNamara:

Alpha Analytical generates two different water sources of dissolved ionized water (DI) – namely, inorganic and organic free water. It is Alpha Analytical's standard practice to create trip blanks and rinse blanks with organic free water. Alpha's laboratory in Westborough, MA creates new trip blanks for the Buffalo and Albany service centers approximately every two (2) weeks. The trip blanks are transported via courier and stored in an office setting. The organic rinse water, although from the same source and transported in the same way, is only provided to the service centers on an as-needed basis. It would, therefore, be unlikely that trip blanks and rinse water provided to customers would come from the same batch. While the water used for GHD's Geddes Landfill project was tested and found to be organic free, it is not certified to be free of any metals or non-metal compounds.

The metals detected in the rinse and trip blank water from the Geddes Landfill project are likely a result of the organic free water used in the preparation of the trip blanks and/or rinse blanks.

If you should need any additional information for Alpha Analytical please let me know.

Sincerely,

Alpha Analytical

Patrick J Filey

Vice President of Technical Sales

www.ghd.com