2017 Annual Monitoring Report

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

EnPro Holdings, Inc.

GHD | One Remington Park Drive Cazenovia New York 13035 USA
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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.

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February 5, 2018
Date

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1. Introduction

This report summarizes laboratory analytical results and field observations of annual groundwater monitoring, triennial inclinometer monitoring, and triennial settlement plate monitoring activities completed in October 2017 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), as modified by the NYSDEC-approved Monitoring Variance Request (GHD, March 23, 2017), 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 integrity observation on October 25, 2017. Laboratory analytical services were provided by Alpha Analytical of Westborough, Massachusetts. Inclinometer measurements were completed on October 25, 2017 by SJB Services, Inc. The settlement plate survey was completed in October 2017 by D.W. Hannig, L.S., P.C. Currently, the next scheduled groundwater monitoring and landfill integrity observation event will be in October 2018 and the next scheduled inclinometer and settlement plate events will be in October 2020, in accordance with the approved post-closure monitoring plan.

In addition, the NYSDEC approved the decommissioning of two (2) groundwater monitoring wells (MS-106.5 and W-5.5) and removal of three (3) piezometers (PZ-2.2, PZ-2.3, and PZ-5.3) from the monitoring program. The two (2) groundwater monitoring wells were decommissioned following the completion of the October 2017 groundwater sampling event. In order to prevent damage to other piezometers in the nested clusters these three (3) piezometers were not decommissioned, but they will not be monitored during future monitoring events.

1.1 Background

EnPro Holdings, Inc. (EnPro) is responsible for the Operations, Maintenance, and Monitoring (OM&M) of the Site, 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 Ninemile Creek and Interstate 690 to the west and south; the New York State Fair Grounds overflow and Onondaga County Lakeview Amphitheater parking lots to the south; the Onondaga County Lakeview Amphitheater, which was constructed in 2015, adjoining the Site to the north and east; and Onondaga Lake further 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 groundwater quality and contaminant concentrations following landfill closure, document observations of the landfill cover system integrity, and document landfill settlement. Groundwater monitoring is conducted annually with groundwater elevations recorded at thirty-one (31) groundwater monitoring wells and piezometers (Table 1) and groundwater samples taken from fifteen (15) 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-201R; and W-5.6 on Figure 3).

The assessment of the landfill cover system integrity is completed annually by visual inspection of the cover surface material for erosion and/or subsidence, observation of the stormwater management features for general function, and annual maintenance of the cover system by mowing to preclude woody growth.

Monitoring of post-closure landfill subsidence and horizontal movement is conducted triennially by recording measurements at forty-one (41) 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 results, findings, conclusions, and recommendations associated with the 2017 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 31 Groundwater Monitoring Wells and Piezometers (Table 1) Groundwater samples from 15 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-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 2017) 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 2017) Measurements taken at 41 settlement plates (P-1, P-3, P-4, P-11 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.

On October 26, 2017, 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
- General functionality of stormwater management and run-off control systems
- Monitoring well and piezometer condition
- Visual condition of the landfill cover surface.

The visual inspections did not identify any issues that required immediate attention or maintenance. 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-one (31) 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. Also, groundwater monitoring wells MS-106.5 and W-5.5 and piezometers PZ-2.2, PZ-2.3, and PZ-5.3 will no longer be part of the groundwater elevation monitoring program after this round, based on an approved reduction granted by the NYSDEC (March 31, 2017).

Each of the depth to water and total depth of well measurements was 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.

During the October 2017 monitoring event, depth to water measurements at the Site ranged from 29.12-feet (MS-104.5) to 61.65-feet (MS-106.1) below top of casing (approximately 27.12-feet and 57.65-feet below ground surface, respectively), and calculated groundwater elevations ranged from 365.5-feet (MS-301.2) to 399.5-feet (MS-104.5) above mean sea level. Based on these observations, and the fact that Crucible Specialty Metals Waste is reportedly present from approximately 420-feet to 433-feet above mean sea level (Calocerinos & Spina Consulting Engineers, *Crucible Specialty Metals Revised Landfill Closure Plan*, January 1986), it is noted that the groundwater monitoring wells associated with monitoring the Site are completed in Solvay Process Waste materials. As a result, groundwater samples taken from these wells represent groundwater quality within the Solvay Process Waste and not necessarily impacts associated with Crucible landfill activities at the Site, especially since there is at least a 20-foot thickness of Solvay Process Waste separating the bottom of the Crucible Specialty Metals Waste from the current groundwater table.

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 2017 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, three (3) piezometers (PZ-2.2, PZ-2.3, and PZ-5.3) were dry during the October 2017 monitoring event.

3.2 Groundwater Sampling Methods

Annual groundwater quality monitoring is conducted at fifteen (15) existing groundwater monitoring wells (Figure 3), in accordance with the NYSDEC-approved Updated Post-Closure Work Plan

(S&ME Northeast, P.C., October 2011) and NYSDEC-approved Monitoring Variance Request (GHD, March 23, 2017). During the October 2017 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 one (1) trip blank were taken and analyzed for the same analytical list as the groundwater samples. Groundwater monitoring well MS-106.5 was dry and groundwater monitoring well MS-106.4 contained less than 1-foot of water column. As a result, groundwater samples were not taken from these two (2) groundwater monitoring wells during the October 2017 monitoring event.

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 YSI ProDSS 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 YSI ProDSS 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 one (1) steel 55-gallon drum, which was 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

As a result of reviewing historic reports during preparation of the 2015 Annual Monitoring Report, 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 at that time, 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 requested by the NYSDEC, GHD recalculated the UCL and LCL for each groundwater monitoring well using the most historic data available for each location and included the results in that report.

GHD performed a confidence calculation using a normal distribution (at the 99-percent confidence interval) for each of the sixteen (16) groundwater monitoring wells monitored at that time. 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

Groundwater Monitoring Well ID	Dates of Historic Groundwater Quality Data Used to Calculate UCL and LCL
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. As requested by the NYSDEC, 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 range are noted as exceedances; however, readings lower than the LCL for pH would generally indicate that groundwater quality is heading towards a more neutral pH, which would generally indicate an improvement in water quality.

3.4 Groundwater Analytical Results

3.4.1 Field Parameter Results

Field parameter results, including available historic data, are compared to the well-specific LCL and UCL on the tables in Appendix D. Appendix D also includes time-series plots for each field parameter and each groundwater monitoring well. Figure 4 summarizes field parameters that are outside the well-specific LCL and UCL range.

Field parameters taken during the October 2017 annual groundwater monitoring event identified the following concentrations outside the well-specific UCL and LCL range:

- pH in twelve (12) of the thirteen (13) wells measured exceeded the UCL, including: MS-104.3; MS-104.4; MS-104.5; MS-106.1; MS-106.2; MS-106.3; MS-301.2; MS-301.3; MS-301.4; MS-301.5; W-201R; W -5.6
- Specific Conductivity in eight (8) 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-301.1 (above UCL); MS-301.2 (above UCL); 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 (Appendix D).

3.4.2 Laboratory Analytical Results

Laboratory analytical results of groundwater samples taken during the October 2017 annual groundwater monitoring event identified the following concentrations detected above the laboratory detection limits:

- Total phenols in all fourteen (14) of the samples analyzed, including the Duplicate (taken from MS-301.3). Identified concentrations ranged from 0.006 mg/L to 4.1 mg/L.
- Total chromium in seven (7) of the fourteen (14) samples analyzed, including MS-104.3; MS-104.5; MS-106.2; MS-301.2; MS-301.3; MS-301.4; and Duplicate (taken from MS-301.3). Identified concentrations ranged from non-detect (less than 0.002 mg/L) to 0.007 mg/L.
- Total iron in all fourteen (14) samples analyzed, including the Duplicate (taken from MS-301.3). Identified concentrations ranged from 0.015 mg/L to 81.8 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-104.3, MS-301.4, and MS-301.5.

A total of six (6) QA/QC samples were taken during the October 2017 monitoring event - one (1) blind field duplicate, one (1) MS sample, one (1) MSD sample, one (1) trip blank, 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 (both taken from MS-301.3), 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 – 2.47%
- Total chromium – 0.00%
- Total iron – 4.17%

The relative percent differences for each of the analytes are lower than the generally accepted 20% difference.

Analysis of the trip blank identified an estimated total iron concentration of 0.009 mg/L. In addition, concentrations of total iron (0.089 mg/L and 0.142 mg/L) were also detected in both of the rinse blanks prepared during this monitoring event. The detections in the trip and rinse blanks are likely due to the laboratory providing water for the blanks that was not certified to be free of metals, as happened during the October 2016 monitoring event. 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, especially given the fact that eight (8) of the samples identified concentrations of iron (ranging from 0.015 mg/L to 0.066 mg/L) that were lower than those identified in the rinse blanks.

3.5 Monitoring Well Decommissioning

The NYSDEC approved a Monitoring Variance Request (GHD, March 23, 2017) on March 31, 2017. Based on the approved variance, two (2) groundwater monitoring wells (MS-106.5 and W-5.5) were decommissioned on October 26, 2017, following completion of October 2017 monitoring activities. Decommissioning consisted of removing the protective steel stick-ups, concrete pads, and PVC casing to a depth of approximately 1-foot below ground surface. The remainder of the PVC casing was grouted in place and the surface was restored to surrounding grade with bagged store bought topsoil. Decommissioning logs for these two (2) monitoring wells are provided in Appendix H.

NYSDEC also approved the removal of three (3) piezometers (PZ-2.2, PZ-2.3, and PZ-5.3) from the monitoring program since they have been routinely dry for an extended period of time. In order to prevent damage to other piezometers in the nested clusters the piezometers were not decommissioned, but they will not be monitored during future monitoring events.

In addition, NYSDEC approved the decommissioning of monitoring well DW-101 and piezometers PZ-101.1, PZ-101.2, and PZ-101.3 to accommodate a project being completed in the area by others. At the time of the October 2017 monitoring activities, the monitoring well and piezometers were in place and monitored as planned; however, they are reportedly scheduled to be decommissioned by others prior to the next scheduled monitoring event, which currently will occur in October 2018. Well decommissioning logs will reportedly be prepared by others following decommissioning and they will be included for reference in the next annual report.

4. Inclinometer Readings

Monitoring of the four (4) existing inclinometers (Figure 3) occurs once every three (3) years, as required by the NYSDEC-approved Updated Post-Closure Work Plan (S&ME Northeast, P.C., October 2011). The inclinometers were measured during the October 2017 monitoring event.

According to information contained in the *Crucible Specialty Metals Revised Landfill Closure Plan* (Calocerinos & Spina Consulting Engineers, January 1986), all four inclinometers are located outside the Former Crucible Specialty Metals Landfill footprint and are completed through the historic Solvay Process Waste (generally from the ground surface to a depth of approximately 65-feet below ground surface), which underlies and surrounds the landfill footprint, and extend into underlying soils that were interpreted as native materials. Variability identified through the inclinometer measurements is generally an assessment of the potential displacement of the Solvay Process Waste and not of movement associated with the Site's materials.

GHD contracted SJB Services, Inc. (SJB) to conduct the inclinometer monitoring, compare the data to historical monitoring values, and prepare a report, a copy of which is included in Appendix F. The recorded data was used to create displacement and cumulative displacement plots to graphically depict evidence of possible displacement and compared the October 2017 data to December 2009, December 2011, and October 2014 data.

SJB concluded that it does not appear the inclinometer casings have shown any detectable changes from their original position in 1985. In addition, the cumulative displacement plots do not provide any evidence of possible displacement and the slight overall tilts evidenced by the cumulative displacements may be due to the effects of systematic accumulation error rather than actual displacement.

Currently, the next round of inclinometer measurements is scheduled to occur during the 2020 monitoring event, in accordance with the triennial schedule.

5. Settlement Plate Survey

Surveying of forty-one (41) of the Site's fifty (50) settlement plates (Figure 3) occurs once every 3 years by a New York State licensed surveyor, as required by the NYSDEC-approved Updated Post-Closure Work Plan (S&ME Northeast, P.C., October 2011). Historically, thirty-seven (37) of the fifty (50) settlement plates have been surveyed. However, the NYSDEC requested that the 2017 monitoring event also include settlement plates PL-1, PL-3, and PL-11 (located on the northwest perimeter of the landfill) and PL-4 (located on the northeast perimeter of the landfill) due to the recent construction of the amphitheater adjacent to the landfill. The NYSDEC provided historic data for these settlement plates that were used as "baseline" measurements for comparison purposes. It is noted that the baseline measurements provided do not appear to be consistent with current survey reference elevations and there was no identifiable stripe (survey reference point) on any of the four (4) additional settlement plates. The results of the settlement plate survey, as well as comparisons to historic survey results, are provided in Appendix G.

According to information provided in the *Crucible Specialty Metals Revised Landfill Closure Plan* (Calocerinos & Spina Consulting Engineers, January 1986), the settlement plates were installed as part of the landfill closure activities and reportedly consist of a 3-foot by 3-foot square steel base plate attached to a metal pipe, the lengths of which vary from 10-feet to 16-feet depending on horizontal location of the settlement plate. The steel base plates are reportedly placed on the surface of the historic Solvay Process Waste at the interface with the Former Crucible Specialty Metals Landfill waste mass (*Crucible Specialty Metals Revised Landfill Closure Plan,* Calocerinos & Spina Consulting Engineers, January 1986). In addition to surveying settlement based on the base plate displacement, the ground surface is also surveyed adjacent to the location of each settlement plate. Overall, the displacement of the settlement plate base is likely a measurement of the Solvay Process Waste settlement whereas the comparison of the displacement of the ground surface to the settlement plate should provide an indication of the settlement of the landfill waste mass.

A comparison of the 2001 through 2017 settlement plate elevations indicates a range of 0.62 feet of settlement (Plate 34) to 0.21 feet of uplift (Plate 39, the only plate with a measured uplift). This excludes the four (4) settlement plates added to the program in 2017 as they appear to have a different reference elevation and a historic survey reference point (stripe) on the pipe could not be determined. The average settlement measured at the settlement plates over this same period of time is 0.16 feet.

Similarly, a comparison of the 2001 through 2017 ground surface elevations adjacent to the settlement plates indicates a range of 0.35 feet of settlement (adjacent to Plates 28 and 47) to 0.63 feet of uplift (adjacent to Plate 38, one of three plates with a measured uplift). This excludes the four (4) settlement plates added to the monitoring program in 2017 as historic ground elevations were not provided. The average ground surface settlement measured adjacent to the settlement plates over this same period of time is 0.11 feet.

It is noted that there were no measured changes in elevations at one (1) settlement plate (Plate 25) and two (2) ground locations (adjacent to Plates 25 and 32) when comparing 2001 measurements to 2017 measurements.

Relative changes across the landfill can be determined by looking at three (3) transects, which include:

- Plates 16 through 21 and Plates 44 through 49 (eastern portion)
- Plates 12 through 14, 23, 24, and 39 through 42 (central portion)
- Plates 26 through 29, 31 through 33, and 35 through 37 (western portion).

A comparison of the measurements taken from settlement plates along these transects between 2001 and 2017 indicates that the most settlement (an average of 0.23 feet) occurs along the eastern transect, with the central and western transects both averaging 0.10 feet of settlement. A similar pattern for average ground surface elevation is seen along these transects, with the most settlement (an average of 0.15 feet) occurring along the eastern transect and the central and western transects both averaging 0.11 feet of settlement.

The trends observed during the 2017 monitoring event are consistent with those observed during previous monitoring events and continue to demonstrate insignificant variations in settlement across the landfill footprint, with some locations demonstrating minor increases, some minor demonstrating decreases, and some demonstrating no changes. Based on the survey data, the Amphitheater construction does not appear to have had any significant impact on settlement within the footprint of the Site.

Currently, the next round of settlement plate measurements is scheduled to occur during the 2020 monitoring event, in accordance with the triennial schedule.

6. Conclusions

Visual observations of the integrity of the closed landfill did not identify issues that required immediate attention. The annual mowing of the landfill surface has been effective at removing woody growth that could adversely impact the cover system. Generally, the stormwater management and control features are in place and appear to be functioning as intended. The damaged and modified groundwater monitoring wells were repaired and surveyed by others under contract with Onondaga County after completion of the 2016 monitoring event field work. Based on observations made during the 2017 annual monitoring event, it does not appear that the repairs adversely impacted the functionality of the monitoring points, with the exception of W-201R being difficult to sample due to modified surface grades in the vicinity of this well. The surveyed elevation of the top of the PVC risers 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 2017), exceedances of the well-specific UCLs are limited to samples taken from the following groundwater monitoring wells:

- Total Chromium – None
- Total Iron –MS-104.3, MS-301.4, and MS-301.5
- Total Phenols – MS-301.1
- Specific Conductivity – MS-104.5, MS-301.1, and MS-301.2
- pH – MS-104.3, MS-104.4, MS-104.5, MS-106.1, MS-106.2, MS-106.3, MS-301.2, MS-301.3, MS-301.4, MS-301.5, W-201R, and W -5.6.

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. Total iron concentrations occasionally exceed the well-specific UCLs; however, the identified concentrations are typically below the NYS Class GA groundwater standard with the exception of samples taken from four (4) Site wells, MS-301.1, MS-301.2, MS-301.4, and MS-301.5. Total phenol concentrations are generally below the well-specific UCLs but the identified concentrations routinely exceed the NYS Class GA groundwater standard.

Results of inclinometer monitoring completed during the October 2017 monitoring event were similar to historic data and continue to indicate no significant measurable change in inclinometer readings since they were installed in 1985.

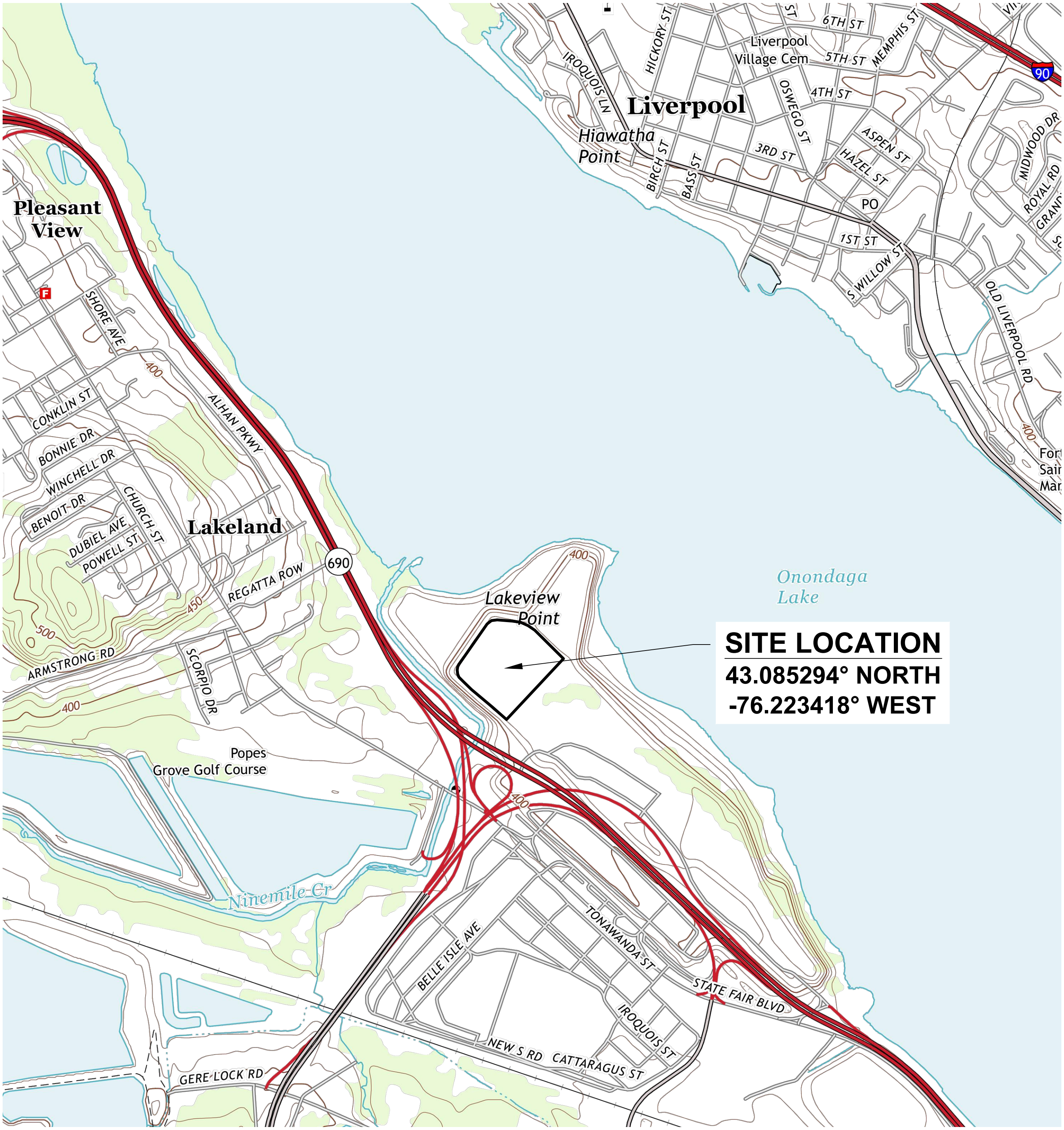
The settlement plate and ground surface survey results indicate no significant settlement of the landfill waste mass that could impact the function of the landfill cover system. In general, there were measured areas of both minor settlement and minor increases in elevations that occurred in the underlying Solvay Process Waste and the corresponding surface of the landfill.

Based on recent groundwater monitoring events and the 2017 inclinometer and settlement plate activities, EnPro requests that the NYSDEC allow for consideration of the following modifications to the on-going monitoring program:

- Remove requirement for on-going inclinometer monitoring due to no detectable change in the inclinometers since monitoring began in 1985. It would be proposed to leave the inclinometers in place should there be a need for future monitoring of the Solvay Process Waste Beds by others.
- Remove requirement for on-going settlement plate monitoring due to minimal changes over the past 17 years. To mitigate potential damage to the final cover system, it would be proposed to leave the settlement plates in place.
- Remove total chromium from the groundwater monitoring analytical requirements based on historic data. The historic data indicates that concentrations of total chromium have been non-detect or below the groundwater standard across the Site since post-closure monitoring was initiated.
- Reduce the frequency of groundwater monitoring to once every two years based on the historic consistency of the data. pH is the only parameter which has consistently been above the UCL (below the UCL or LCL in most cases would be indicative of an improvement in water quality with respect to pH), which is likely a result of the underlying Solvay Process Waste in which the monitoring wells are completed.

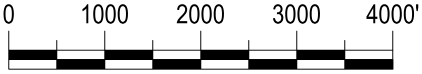
If NYSDEC is agreeable to considering these modifications, a Monitoring Variance Request will be submitted on behalf of EnPro Holdings, Inc. for NYSDEC review and approval.

Figures



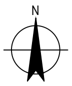
CONTOUR INTERVAL: 10 FEET

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



SCALE 1"=2000' AT ORIGINAL SIZE

QUADRANGLE LOCATION



EnPro Holdings, Inc.
Former Crucible Specialty Metals Landfill Site
2017 Annual Groundwater Monitoring

Site Location Map

Job Number	86-18809
Revision	A
Date	01.15.2018

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: 24 January 2018 - 2:15 PM Cad File No: G:\86\18809\Groundwater Monitoring\2017 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.

GHD

EnPro Holdings, Inc.
Former Crucible Specialty Metals Landfill Site
2017 Annual Groundwater Monitoring

Site Vicinity Aerial

Job Number	86-18809
Revision	A
Date	01.15.2018

Figure 2

Plot Date: 24 January 2018 - 1:10 PM Cad File No: G:\86\18809\Groundwater Monitoring\2017 Annual\Figures\Site Vicinity Aerial.dwg

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 AND PIEZOMETERS SHOWN. 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 Holdings, Inc.
Former Crucible Specialty Metals Landfill Site
2017 Annual Groundwater Monitoring

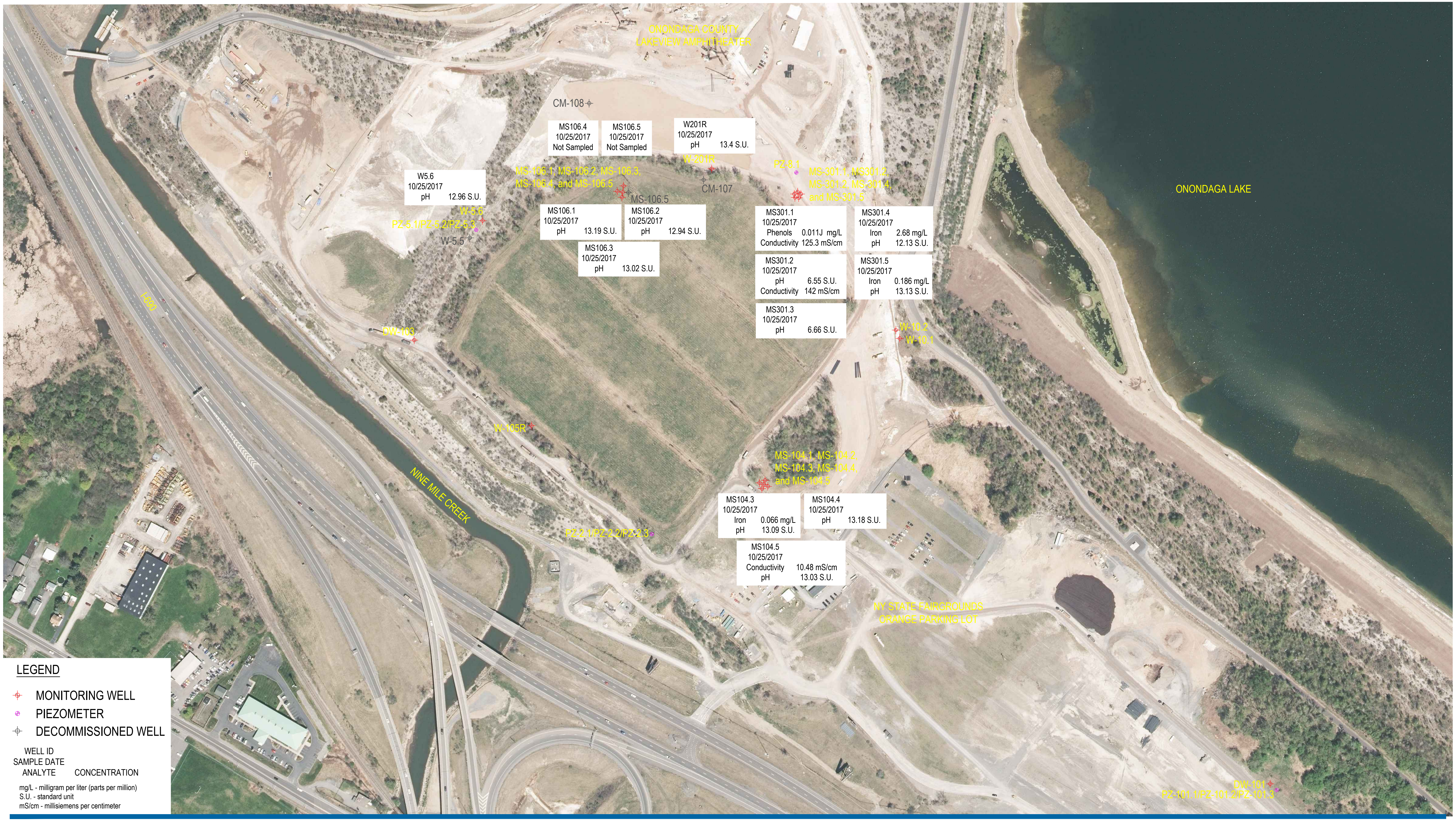
Site Layout Map

Job Number	86-18809
Revision	A
Date	01.15.2018

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: 24 January 2018 - 2:16 PM Cad File No: G:\86\18809\Groundwater Monitoring\2017 Annual\Figures\Site Layout Map.dwg



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.

GHD

EnPro Holdings, Inc.
Former Crucible Specialty Metals Landfill Site
2017 Annual Groundwater Monitoring

Groundwater Results - Exceedances of UCLs

Job Number 86-18809
Revision A
Date 01.15.2018

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: 24 January 2018 - 1:54 PM Cad File No: G:\86\18809\Groundwater Monitoring\2017 Annual\Figures\Groundwater Results.dwg

Tables

Table 1

Groundwater Elevation Data

2017 Annual Monitoring Event

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	372.93	
DW101	10/15/1998	62.2	370.83	
DW101	5/21/1999	59.7	373.33	
DW101	11/10/1999	60.3	372.73	
DW101	7/31/2000	58.2	374.83	
DW101	11/28/2000	59.4	373.63	
DW101	6/20/2001	59.5	373.53	
DW101	10/10/2001	60.0	373.03	
DW101	4/24/2002	58.8	374.23	
DW101	11/8/2002	59.4	373.63	
DW101	6/11/2003	58.5	374.53	
DW101	10/24/2003	59.9	373.13	
DW101	6/24/2004	58.7	374.33	
DW101	11/3/2004	59.2	373.83	
DW101	6/15/2005	59.2	373.83	
DW101	11/8/2005	58.8	374.23	
DW101	6/26/2006	59.1	373.93	
DW101	11/6/2006	58.4	374.63	
DW101	4/20/2007	57.3	375.73	
DW101	9/21/2007	59.9	373.13	
DW101	4/18/2008	58.9	374.13	
DW101	11/3/2008	59.4	373.63	
DW101	10/20/2014	59.7	373.35	
DW101	10/30/2015	59.5	373.53	
DW101	10/27/2016	59.4	373.63	
DW101	10/25/2017	58.4	374.59	

Table 1

Groundwater Elevation Data

2017 Annual Monitoring Event

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	368.5	
DW103	6/20/2001	57.0	370.1	
DW103	10/10/2001	57.4	369.7	
DW103	4/24/2002	56.4	370.7	
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	371.0	
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	
DW103	10/25/2017	55.7	371.4	
MS104.3	6/2/1998	29.0	399.5	
MS104.3	10/15/1998	35.7	392.8	
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	396.3	
MS104.3	10/10/2001	34.8	393.7	
MS104.3	4/24/2002	27.7	400.8	
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	391.4	
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	
MS104.3	10/25/2017	32.2	396.3	

Table 1

Groundwater Elevation Data

2017 Annual Monitoring Event

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	
MS104.4	10/25/2017	30.9	397.3	
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	402.6	
MS104.5	10/15/2012	34.7	393.9	
MS104.5	9/23/2013	27.8	400.7	
MS104.5	10/20/2014	23.1	405.5	
MS104.5	10/29/2015	24.7	403.9	
MS104.5	10/27/2016	23.9	404.7	
MS104.5	10/25/2017	29.1	399.5	

Table 1

Groundwater Elevation Data

2017 Annual Monitoring Event

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	
MS106.1	10/25/2017	61.7	374.4	
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	
MS106.2	10/25/2017	58.3	378.1	

Table 1

Groundwater Elevation Data

2017 Annual Monitoring Event

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	
MS106.3	10/25/2017	53.1	380.9	
MS106.4	6/2/1998	42.2	391.7	
MS106.4	10/15/1998	-	-	DRY
MS106.4	5/21/1999	44.1	389.8	
MS106.4	11/10/1999	-	-	DRY
MS106.4	7/31/2000	41.4	392.5	
MS106.4	11/28/2000	50.1	383.8	
MS106.4	6/20/2001	44.6	389.3	
MS106.4	10/10/2001	-	-	DRY
MS106.4	4/24/2002	41.4	392.5	
MS106.4	11/8/2002	51.0	382.9	
MS106.4	6/11/2003	40.9	393.0	
MS106.4	10/24/2003	50.6	383.3	
MS106.4	6/24/2004	39.7	394.2	
MS106.4	11/3/2004	45.9	388.0	
MS106.4	6/15/2005	43.3	390.6	
MS106.4	11/8/2005	50.7	383.2	
MS106.4	6/26/2006	43.9	390.0	
MS106.4	11/6/2006	40.5	393.4	
MS106.4	4/20/2007	34.8	399.1	
MS106.4	9/21/2007	49.3	384.6	
MS106.4	4/18/2008	37.1	396.8	
MS106.4	11/3/2008	49.9	384.0	
MS106.4	11/5/2011	45.3	388.6	
MS106.4	10/15/2012	-	-	DRY
MS106.4	9/23/2013	49.3	384.7	
MS106.4	10/20/2014	-	-	DRY
MS106.4	10/30/2015	50.3	383.7	
MS106.4	10/26/2016	-	-	DRY
MS106.4	10/25/2017	50.5	384.5	

Table 1
Groundwater Elevation Data
2017 Annual Monitoring Event

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
MS106.5	6/2/1998	40.4	393.5	
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	395.9	
MS106.5	10/24/2003	-	-	DRY
MS106.5	6/24/2004	37.5	396.4	
MS106.5	11/3/2004	-	-	DRY
MS106.5	6/15/2005	41.7	392.2	
MS106.5	11/8/2005	-	-	DRY
MS106.5	6/26/2006	-	-	DRY
MS106.5	11/6/2006	36.3	397.6	
MS106.5	4/20/2007	29.9	404.0	
MS106.5	9/21/2007	-	-	DRY
MS106.5	4/18/2008	34.1	399.8	
MS106.5	11/3/2008	-	-	DRY
MS106.5	11/5/2011	40.1	393.8	
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
MS106.5	10/25/2017	-	-	DRY
MS301.1	6/2/1998	57.4	367.5	
MS301.1	10/15/1998	58.2	366.7	
MS301.1	5/21/1999	58.0	366.9	
MS301.1	11/10/1999	58.3	366.6	
MS301.1	7/31/2000	57.9	367.0	
MS301.1	11/28/2000	58.1	366.8	
MS301.1	6/20/2001	58.0	366.9	
MS301.1	10/10/2001	58.6	366.3	
MS301.1	4/24/2002	57.6	367.3	
MS301.1	11/8/2002	58.1	366.8	
MS301.1	6/11/2003	57.4	367.5	
MS301.1	10/24/2003	59.0	365.9	
MS301.1	6/24/2004	57.7	367.2	
MS301.1	11/3/2004	58.1	366.8	
MS301.1	6/15/2005	58.1	366.8	
MS301.1	11/8/2005	57.8	367.1	
MS301.1	6/26/2006	58.0	366.9	
MS301.1	11/6/2006	57.6	367.3	
MS301.1	4/20/2007	56.4	368.5	
MS301.1	9/21/2007	58.8	366.1	
MS301.1	4/18/2008	57.9	367.0	
MS301.1	11/3/2008	58.4	366.5	
MS301.1	11/5/2011	58.2	366.7	
MS301.1	10/15/2012	59.0	365.9	
MS301.1	9/23/2013	58.4	366.5	
MS301.1	10/20/2014	58.6	366.2	
MS301.1	10/29/2015	56.7	368.2	
MS301.1	10/26/2016	53.8	371.0	
MS301.1	10/25/2017	57.0	367.9	

Table 1

Groundwater Elevation Data

2017 Annual Monitoring Event

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
MS301.2	6/2/1998	56.1	368.5	
MS301.2	10/15/1998	58.7	365.9	
MS301.2	5/21/1999	56.7	367.9	
MS301.2	11/10/1999	60.3	364.3	
MS301.2	7/31/2000	55.7	368.9	
MS301.2	11/28/2000	58.5	366.1	
MS301.2	6/20/2001	57.4	367.2	
MS301.2	10/10/2001	59.7	364.9	
MS301.2	4/24/2002	55.4	369.2	
MS301.2	11/8/2002	59.3	365.3	
MS301.2	6/11/2003	55.5	369.1	
MS301.2	10/24/2003	60.1	364.5	
MS301.2	6/24/2004	55.0	369.6	
MS301.2	11/3/2004	57.5	367.1	
MS301.2	6/15/2005	57.3	367.3	
MS301.2	11/8/2005	58.2	366.4	
MS301.2	6/26/2006	57.1	367.5	
MS301.2	11/6/2006	54.9	369.7	
MS301.2	4/20/2007	53.0	371.6	
MS301.2	9/21/2007	60.0	364.6	
MS301.2	4/18/2008	53.9	370.7	
MS301.2	11/3/2008	58.6	366.0	
MS301.2	11/5/2011	57.1	367.5	
MS301.2	10/15/2012	60.1	364.5	
MS301.2	9/23/2013	59.6	365.1	
MS301.2	10/20/2014	62.4	362.2	
MS301.2	10/29/2015	57.9	366.8	
MS301.2	10/26/2016	57.5	367.2	
MS301.2	10/25/2017	59.1	365.5	
MS301.3	6/2/1998	55.6	369.3	
MS301.3	10/15/1998	58.4	366.5	
MS301.3	5/21/1999	56.6	368.3	
MS301.3	11/10/1999	60.1	364.8	
MS301.3	7/31/2000	55.3	369.6	
MS301.3	11/28/2000	58.2	366.7	
MS301.3	6/20/2001	57.0	367.9	
MS301.3	10/10/2001	59.4	365.5	
MS301.3	4/24/2002	55.0	369.9	
MS301.3	11/8/2002	58.9	366.0	
MS301.3	6/11/2003	55.1	369.8	
MS301.3	10/24/2003	59.9	365.0	
MS301.3	6/24/2004	54.4	370.5	
MS301.3	11/3/2004	57.1	367.8	
MS301.3	6/15/2005	56.8	368.1	
MS301.3	11/8/2005	57.3	367.6	
MS301.3	6/26/2006	56.5	368.4	
MS301.3	11/6/2006	54.4	370.5	
MS301.3	4/20/2007	52.0	372.9	
MS301.3	9/21/2007	59.4	365.5	
MS301.3	4/18/2008	53.0	371.9	
MS301.3	11/3/2008	58.1	366.8	
MS301.3	11/5/2011	56.2	368.7	
MS301.3	10/15/2012	59.4	365.6	
MS301.3	9/23/2013	58.8	366.2	
MS301.3	10/20/2014	61.9	363.1	
MS301.3	10/29/2015	57.2	367.8	
MS301.3	10/26/2016	54.8	370.1	
MS301.3	10/25/2017	58.4	366.5	

Table 1

Groundwater Elevation Data

2017 Annual Monitoring Event

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
MS301.4	6/2/1998	49.5	374.9	
MS301.4	10/15/1998	53.2	371.2	
MS301.4	5/21/1999	50.1	374.3	
MS301.4	11/10/1999	55.5	368.9	
MS301.4	7/31/2000	48.8	375.6	
MS301.4	11/28/2000	53.0	371.4	
MS301.4	6/20/2001	51.1	373.3	
MS301.4	10/10/2001	54.3	370.1	
MS301.4	4/24/2002	48.6	375.8	
MS301.4	11/8/2002	54.2	370.2	
MS301.4	6/11/2003	48.7	375.7	
MS301.4	10/24/2003	54.7	369.7	
MS301.4	6/24/2004	47.9	376.5	
MS301.4	11/3/2004	51.5	372.9	
MS301.4	6/15/2005	50.7	373.7	
MS301.4	11/8/2005	52.2	372.2	
MS301.4	6/26/2006	50.5	373.9	
MS301.4	11/6/2006	48.2	376.2	
MS301.4	4/20/2007	45.0	379.4	
MS301.4	9/21/2007	54.2	370.2	
MS301.4	4/18/2008	46.3	378.1	
MS301.4	11/3/2008	52.9	371.5	
MS301.4	11/5/2011	50.8	373.7	
MS301.4	10/15/2012	54.5	369.9	
MS301.4	9/23/2013	53.1	371.4	
MS301.4	10/20/2014	55.9	368.5	
MS301.4	10/29/2015	50.2	374.2	
MS301.4	10/26/2016	50.9	373.5	
MS301.4	10/25/2017	52.2	372.3	
MS301.5	6/2/1998	38.9	386.0	
MS301.5	10/15/1998	45.5	379.4	
MS301.5	5/21/1999	39.9	385.0	
MS301.5	11/10/1999	46.4	378.5	
MS301.5	7/31/2000	38.3	386.6	
MS301.5	11/28/2000	44.7	380.2	
MS301.5	6/20/2001	41.2	383.7	
MS301.5	10/10/2001	45.3	379.6	
MS301.5	4/24/2002	36.5	388.4	
MS301.5	11/8/2002	45.1	379.8	
MS301.5	6/11/2003	37.2	387.7	
MS301.5	10/24/2003	45.3	379.6	
MS301.5	6/24/2004	37.4	387.5	
MS301.5	11/3/2004	41.9	383.0	
MS301.5	6/15/2005	40.5	384.4	
MS301.5	11/8/2005	43.4	381.5	
MS301.5	6/26/2006	40.4	384.5	
MS301.5	11/6/2006	36.8	388.1	
MS301.5	4/20/2007	31.7	393.2	
MS301.5	9/21/2007	44.7	380.2	
MS301.5	4/18/2008	35.2	389.7	
MS301.5	11/3/2008	43.1	381.8	
MS301.5	11/5/2011	40.5	384.4	
MS301.5	10/15/2012	46.0	378.9	
MS301.5	9/23/2013	43.2	381.7	
MS301.5	10/20/2014	45.5	379.3	
MS301.5	10/29/2015	39.6	385.3	
MS301.5	10/26/2016	39.6	385.2	
MS301.5	10/25/2017	41.7	383.2	

Table 1
Groundwater Elevation Data
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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	384.7	
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	
PZ101.1	10/25/2017	47.9	385.5	
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	397.8	
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	
PZ101.2	10/25/2017	40.6	393.3	
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	392.8	
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	
PZ101.3	10/25/2017	40.0	393.3	

Table 1

Groundwater Elevation Data

2017 Annual Monitoring Event

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	381.6	
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	
PZ2.1	10/25/2017	49.4	379.1	
PZ2.2	6/2/1998	41.8	386.6	
PZ2.2	10/15/1998	41.9	386.5	
PZ2.2	5/21/1999	42.1	386.3	
PZ2.2	11/10/1999	-	-	Probe Stop
PZ2.2	7/31/2000	-	-	Probe Stop
PZ2.2	11/28/2000	-	-	Probe Stop
PZ2.2	6/20/2001	-	-	Probe Stop
PZ2.2	10/10/2001	-	-	Probe Stop
PZ2.2	4/24/2002	35.5	392.9	
PZ2.2	11/8/2002	-	-	Probe Stop
PZ2.2	6/11/2003	-	-	Probe Stop
PZ2.2	10/24/2003	-	-	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	-	-	Probe Stop
PZ2.2	6/26/2006	-	-	Probe Stop
PZ2.2	11/6/2006	-	-	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
PZ2.2	10/25/2017	-	-	DRY

Table 1
Groundwater Elevation Data
2017 Annual Monitoring Event

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	
PZ2.3	10/25/2017	-	-	DRY
PZ5.1	6/2/1998	44.7	381.8	
PZ5.1	10/15/1998	49.6	376.9	
PZ5.1	5/21/1999	45.5	381.0	
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	377.7	
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	-	-	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	
PZ5.1	10/25/2017	49.9	376.6	

Table 1

Groundwater Elevation Data

2017 Annual Monitoring Event

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	378.1	
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	-	-	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	
PZ5.2	10/25/2017	46.9	379.6	
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	-	-	Probe Stop
PZ5.3	11/3/2004	-	-	Probe Stop
PZ5.3	6/15/2005	-	-	Probe Stop
PZ5.3	11/8/2005	-	-	Probe Stop
PZ5.3	6/26/2006	-	-	Probe Stop
PZ5.3	11/6/2006	-	-	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	-	-	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
PZ5.3	10/25/2017	-	-	DRY

Table 1

Groundwater Elevation Data

2017 Annual Monitoring Event

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
PZ8.1	6/2/1998	50.2	376.2	
PZ8.1	10/15/1998	52.5	373.9	
PZ8.1	5/21/1999	51.0	375.4	
PZ8.1	11/10/1999	53.5	372.9	
PZ8.1	7/31/2000	46.8	379.6	
PZ8.1	11/28/2000	51.4	375.0	
PZ8.1	6/20/2001	50.2	376.2	
PZ8.1	10/10/2001	53.2	373.2	
PZ8.1	4/24/2002	45.3	381.1	
PZ8.1	11/8/2002	52.6	373.8	
PZ8.1	6/11/2003	47.8	378.6	
PZ8.1	10/24/2003	53.0	373.4	
PZ8.1	6/24/2004	47.2	379.2	
PZ8.1	11/3/2004	50.1	376.3	
PZ8.1	6/15/2005	51.5	374.9	
PZ8.1	11/8/2005	51.1	375.3	
PZ8.1	6/26/2006	50.0	376.4	
PZ8.1	11/6/2006	46.6	379.8	
PZ8.1	4/20/2007	43.6	382.8	
PZ8.1	9/21/2007	53.2	373.2	
PZ8.1	4/18/2008	45.5	380.9	
PZ8.1	11/3/2008	51.0	375.4	
PZ8.1	11/5/2011	48.8	377.6	
PZ8.1	10/15/2012	53.9	372.5	
PZ8.1	9/23/2013	52.2	374.2	
PZ8.1	10/20/2014	47.8	378.6	
PZ8.1	10/29/2015	49.4	377.0	
PZ8.1	10/26/2016	49.6	376.8	
PZ8.1	10/25/2017	46.7	379.7	
PZ8.2	6/2/1998	40.9	385.5	
PZ8.2	10/15/1998	46.4	380.0	
PZ8.2	5/21/1999	42.1	384.3	
PZ8.2	11/10/1999	48.6	377.8	
PZ8.2	7/31/2000	40.8	385.6	
PZ8.2	11/28/2000	44.7	381.7	
PZ8.2	6/20/2001	41.8	384.6	
PZ8.2	10/10/2001	47.1	379.3	
PZ8.2	4/24/2002	39.5	386.9	
PZ8.2	11/8/2002	46.8	379.6	
PZ8.2	6/11/2003	36.8	389.6	
PZ8.2	10/24/2003	46.7	379.7	
PZ8.2	6/24/2004	36.9	389.5	
PZ8.2	11/3/2004	42.6	383.8	
PZ8.2	6/15/2005	43.4	383.0	
PZ8.2	11/8/2005	46.4	380.0	
PZ8.2	6/26/2006	41.1	385.3	
PZ8.2	11/6/2006	42.6	383.8	
PZ8.2	4/20/2007	30.0	396.4	
PZ8.2	9/21/2007	47.1	379.3	
PZ8.2	4/18/2008	34.9	391.5	
PZ8.2	11/3/2008	43.3	383.1	
PZ8.2	11/5/2011	40.3	386.0	
PZ8.2	10/15/2012	48.6	377.8	
PZ8.2	9/23/2013	44.7	381.7	
PZ8.2	10/20/2014	54.0	372.4	
PZ8.2	10/29/2015	41.0	385.4	
PZ8.2	10/26/2016	39.5	386.9	
PZ8.2	10/25/2017	52.9	373.4	

Table 1

Groundwater Elevation Data

2017 Annual Monitoring Event

Well ID	Measurement Date	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Comments
W10.1	6/2/1998	33.5	390.5	
W10.1	10/15/1998	39.9	384.1	
W10.1	5/21/1999	34.7	389.3	
W10.1	11/10/1999	42.2	381.8	
W10.1	7/31/2000	34.5	389.5	
W10.1	11/28/2000	38.7	385.3	
W10.1	6/20/2001	35.9	388.1	
W10.1	10/10/2001	40.4	383.6	
W10.1	4/24/2002	32.5	391.5	
W10.1	11/8/2002	40.9	383.1	
W10.1	6/11/2003	32.6	391.4	
W10.1	10/24/2003	40.4	383.6	
W10.1	6/24/2004	32.3	391.7	
W10.1	11/3/2004	36.6	387.4	
W10.1	6/15/2005	35.7	388.3	
W10.1	11/8/2005	37.9	386.1	
W10.1	6/26/2006	35.6	388.4	
W10.1	11/6/2006	31.8	392.2	
W10.1	4/20/2007	26.8	397.2	
W10.1	9/21/2007	40.8	383.2	
W10.1	4/18/2008	30.2	393.8	
W10.1	11/3/2008	39.1	384.9	
W10.1	11/5/2011	34.9	389.1	
W10.1	10/15/2012	42.4	381.7	
W10.1	9/23/2013	38.4	385.6	
W10.1	10/20/2014	40.5	383.5	
W10.1	10/29/2015	36.4	387.6	
W10.1	10/27/2016	35.7	388.4	
W10.1	10/25/2017	40.4	383.6	
W10.2	6/2/1998	25.4	399.0	
W10.2	10/15/1998	31.5	392.9	
W10.2	5/21/1999	26.3	398.1	
W10.2	11/10/1999	34.5	389.9	
W10.2	7/31/2000	26.4	398.0	
W10.2	11/28/2000	30.1	394.3	
W10.2	6/20/2001	27.5	396.9	
W10.2	10/10/2001	32.1	392.3	
W10.2	4/24/2002	24.7	399.7	
W10.2	11/8/2002	36.2	388.2	
W10.2	6/11/2003	24.5	399.9	
W10.2	10/24/2003	31.8	392.6	
W10.2	6/24/2004	24.5	399.9	
W10.2	11/3/2004	27.9	396.5	
W10.2	6/15/2005	27.3	397.1	
W10.2	11/8/2005	29.9	394.5	
W10.2	6/26/2006	27.2	397.2	
W10.2	11/6/2006	24.0	400.4	
W10.2	4/20/2007	19.0	405.4	
W10.2	9/21/2007	32.4	392.0	
W10.2	4/18/2008	22.5	401.9	
W10.2	11/3/2008	39.1	385.3	
W10.2	11/5/2011	26.0	398.4	
W10.2	10/15/2012	34.2	390.1	
W10.2	9/23/2013	29.6	394.8	
W10.2	10/20/2014	31.3	393.1	
W10.2	10/29/2015	27.6	396.7	
W10.2	10/27/2016	27.3	397.0	
W10.2	10/25/2017	31.3	393.1	

Table 1

Groundwater Elevation Data

2017 Annual Monitoring Event

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	387.8	
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	
W105R	10/25/2017	44.0	384.2	
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	
W201R	10/25/2017	43.0	383.5	

Table 1

Groundwater Elevation Data

2017 Annual Monitoring Event

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
W5.5	10/25/2017	-	-	DRY
W5.6	6/2/1998	43.5	382.8	
W5.6	10/15/1998	48.4	377.9	
W5.6	5/21/1999	44.5	381.8	
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	380.0	
W5.6	10/26/2016	47.5	378.9	
W5.6	10/25/2017	48.3	378.1	

EnPro Holdings, Inc.
Former Crucible Specialty Metals Landfill
86-18809

Table 2

Summary of Groundwater Field Parameters

2017 Annual Monitoring Event

Well I.D.	Date and Time	Temp (°C)	pH (units)	Conductivity (mS/cm)	Turbidity (NTU)	Amount Purged (gal)	Comments
MS104.3	10/25/17 14:55	14.3	13.03	9.493	52.10	3.25	Water clear, No odor, Heavy blocky film.
	10/25/17 14:55	11.5	13.1	12.101	19.10		
	10/25/17 15:00	11.9	13.11	11.606	12.40		
	10/25/17 15:05	12.1	13.1	11.468	11.00		
	10/25/17 15:10	12.2	13.1	11.499	8.10		
	10/25/17 15:15	12.3	13.09	11.469	10.00		
MS104.4	10/25/17 14:02	12.3	13.2	10.626	15.10	3	Water clear, No Odor, Slight blocky film.
	10/25/17 14:07	12.5	13.18	10.480	13.20		
	10/25/17 14:12	12.7	13.16	10.191	10.60		
	10/25/17 14:17	12.9	13.14	9.797	11.30		
	10/25/17 14:22	12.8	13.15	9.995	8.60		
	10/25/17 14:27	12.2	13.18	10.019	4.50		
MS104.5	10/25/17 14:31	11.7	13.07	10.520	53.00	–	Clear, Colorless, No odor, No sheen, Thin film on top of the purge water.
	10/25/17 14:36	12	13.04	10.520	28.80		
	10/25/17 14:41	12.1	13.03	10.480	10.90		
MS106.1	10/25/17 12:40	12.3	13.25	10.075	5.20	4	Water clear, No odor, Heavy blocky film.
	10/25/17 12:45	12.7	13.21	10.217	3.80		
	10/25/17 12:50	12.8	13.2	10.380	2.90		
	10/25/17 12:55	12.9	13.19	10.549	1.80		
	10/25/17 13:00	12.8	13.19	10.578	1.70		
MS106.2	10/25/17 12:52	12	12.97	13.540	33.40	1.5	Clear, Colorless, No odor, No sheen.
	10/25/17 12:57	12.6	12.95	12.860	26.90		
	10/25/17 13:02	12.7	12.95	12.250	18.00		
	10/25/17 13:07	13.1	12.94	12.060	14.60		
MS106.3	10/25/17 13:31	12.2	13.04	11.020	4.10	1	Clear, Colorless, No odor, No sheen, Thin film on top of the purge water.
	10/25/17 13:36	12.8	13.02	10.890	1.30		
MS106.4	10/25/17	-	-	-	-	-	Well had less than 1-foot of water column, no sample taken.
MS106.5	10/25/17	-	-	-	-	-	Well was dry, no sample taken.
MS301.1	10/25/17 8:40	10.9	6.31	125.360	2.60	3.5	Clear, Colorless, No odor, No sheen.
	10/25/17 8:45	11.1	6.41	125.350	3.50		
	10/25/17 8:50	11.2	6.43	125.360	3.80		
	10/25/17 8:55	11.2	6.43	125.290	9.30		
MS301.2	10/25/17 9:38	11	6.5	140.986	18.80	3.5	Water slight green tint, Sulfur odor, Slight blocky film.
	10/25/17 9:43	11.4	6.5	141.171	25.70		
	10/25/17 9:48	11.6	6.51	141.218	70.90		
	10/25/17 9:53	11.4	6.53	141.874	51.20		
	10/25/17 9:58	11.5	6.54	142.071	49.70		
	10/25/17 10:03	11.6	6.55	141.992	47.30		
MS301.3	10/25/17 8:42	11	6.29	95.763	65.20	4	Clear, Colorless, No odor, No sheen.
	10/25/17 8:47	11.9	6.63	100.294	45.00		
	10/25/17 8:52	11.8	6.64	100.233	24.20		
	10/25/17 8:57	11.7	6.66	100.558	35.80		
MS301.4	10/25/17 9:40	11.1	12.22	34.320	10.00	1.5	Clear, Colorless, No odor, No sheen.
	10/25/17 9:45	12.3	12.15	34.420	13.60		
	10/25/17 9:50	12.2	12.13	34.550	26.20		
MS301.5	10/25/17 10:26	12	13.18	13.200	22.30	1.5	Clear, Colorless, Thin film on top of purge water, No odor, No sheen.
	10/25/17 10:31	11.6	13.17	13.120	27.90		
	10/25/17 10:36	12.4	13.14	13.000	31.80		
	10/25/17 10:41	12.5	13.13	12.780	41.90		
W201R	10/25/17 10:55	11.3	13.4	12.247	12.70	2.5	Water clear, No odor, No sheen, Slight film on surface.
	10/25/17 11:00	11.4	13.4	11.965	13.10		
	10/25/17 11:05	11.8	13.4	11.863	12.20		
	10/25/17 11:10	11.6	13.4	11.463	12.70		
W5.6	10/25/17 11:59	11.7	12.97	12.830	2.90	2.5	Clear, Colorless, No odor, No sheen, Thin film on top of the purge water.
	10/25/17 12:04	12	12.99	12.360	2.00		
	10/25/17 12:14	13.2	12.97	12.020	2.40		
	10/25/17 12:19	13	12.96	12.300	1.60		

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

GHD

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

DATE: 10-25-2017

Well ID	Depth to Water (feet)	Depth of Well (feet)	Condition - well cap, casing, well cover, pad, etc.	Actions
DW-101	58.44	126.66		
DW-103	55.66	160.30		
MS-104.1	34.93	53.40		
MS-104.2	31.14	53.95		
MS-104.3	32.22	54.38		
MS-104.4	30.91	40.69		
MS-104.5	29.12	34.78		
MS-106.1	61.65	82.35		
MS-106.2	58.25	74.33		
MS-106.3	53.08	61.35		
MS-106.4	50.49	51.36		
MS-106.5	DRY	41.81	Decommissioned on 10-26-17	
MS-301.1	56.98	169.51	BROKEN ROYER COVER	
MS-301.2	59.11	96.78		
MS-301.3	58.44	82.96	BROKEN ROYER COVER	
MS-301.4	52.17	~~88.98~~ 63.98		
MS-301.5	41.71	51.16		
PZ-101.1	47.94	74.15		
PZ-101.2	40.59	59.18		
PZ-101.3	39.99	43.93		
PZ-2.1	49.41	65.21		
PZ-2.2	DRY	26.83	No Longer Part of Monitoring Program	
PZ-2.3	~~37.21~~ DRY	37.38	No Longer Part of Monitoring Program	MUCK ON PROBE
PZ-5.1	49.89	64.27		
PZ-5.2	46.94	58.11		
PZ-5.3	DRY	21.44	No Longer Part of Monitoring Program	
PZ-8.1	46.66	55.89		
PZ-8.2	52.92	61.94		
W-10.1	40.39	63.34		
W-10.2	31.31	47.76		
W-105R	44.01	49.44		
W-201R	42.97	59.75	WATER VALVE BOX BELOW GRADE	
W-5.5	DRY	24.96	Decommissioned on 10-26-17	
W-5.6	48.27	63.33		

All depths recorded from top of PVC well casing.

56.98

~~179.51~~

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

DATE: 10-26-2017
PERSONNEL: IAN MCNAMARA

OBSERVATION CHECKLIST:

1. Is there evidence of erosion:
    - On the landfill cap? NO
    - On top of the landfill? NO
    - On side slopes? NO - SOME AREAS RUTTED/SCRAPED FROM MOWING
    - In drainage ditches? NO
    - On the surrounding Solvay Waste Beds? NO - FRESH EXCAVATION NEAR DW-103

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, WELL ESTABLISHED AND LOOKS HEALTHY

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, MOWED EARLY OCTOBER 2017

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

14. Was the landfill entrance gate locked upon arrival?
NO - OTHER WORK GOING ON IN AREA

15. Is there evidence of trespassing or vandalism on the site?
YES - 2 BROKEN WELL COVERS AT 301 CLUSTER WELLS

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 - MINOR SEDIMENT IN SOME
Storm sewer pipes? AT ENTRANCE FROM SUMPS, YES
Storm water outfall? YES

18. With regard to monitoring wells on site, do any have damage?
YES - 301 CLUSTER COVERS

19. Does the survey benchmark for the site appear to be undisturbed? YES - USING INCLINOMETERS

20. What is the condition of the four manholes?
UNSURE OF THE LOCATION OF THE MANHOLES. ONE ADJACENT TO PZ-2 CLUSTER
APPEARS TO BE IN GOOD CONDITION. DIDN'T OPEN TO INSPECT.

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 AT ALL

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: 10/25/2017

Project #: 86-18809

Sampler(s): IEM, DT

Sample ID: MS104.3

Sample Time: 15:20

Well Information:

Depth of Well (ft., Top of PVC): 54.38
Initial Static Water Level (ft., Top of PVC): 32.22
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:	22.16	ft. of water x .16 =	3.55	gallons
3 in. Casing:		ft. of water x .36 =		gallons
4 in. Casing:		ft. of water x .64 =		gallons

Evacuation Method:

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

Volume of Water Removed: 3.3 gallons
Dry: yes [✓ no]

Field Tests:

		Units:			Units:
Temperature:	12.3	°C	pH:	13.09	units
Salinity:		%	ORP:		mV
Spec. Cond.:	11.469	mS/cm	Turbidity:	10.00	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, No odor, Heavy blocky film.

Additional Comments:

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill

Date: 10/25/2017

Project #: 86-18809

Sampler(s): IEM, DT

Sample ID: MS104.4

Sample Time: 14:30

Well Information:

Depth of Well (ft., Top of PVC): 40.69
Initial Static Water Level (ft., Top of PVC): 30.91
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: 9.78 ft. of water x .16 = 1.56 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:
Temperature:	12.2	°C
Salinity:		%
Spec. Cond.:	10.019	mS/cm
Diss. Oxygen:		mg/L
pH:	13.18	units
ORP:		mV
Turbidity:	4.50	NTU

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, No Odor, Slight blocky film.

Additional Comments:

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill

Date: 10/25/2017

Project #: 86-18809

Sampler(s): IEM, DT

Sample ID: MS104.5

Sample Time: 15:00

Well Information:

Depth of Well (ft., Top of PVC): 34.78

Initial Static Water Level (ft., Top of PVC): 29.12

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:	5.66	ft. of water x .16 =	0.91	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: DRY gallons

Dry: [✓ yes] no

Field Tests:

		Units:			Units:
Temperature:	12.1	°C	pH:	13.03	units
Salinity:		%	ORP:		mV
Spec. Cond.:	10.480	mS/cm	Turbidity:	10.90	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: Clear, Colorless, No odor, No sheen, Thin film on top of the purge water.

Additional Comments: Well went dry after 14 minutes of purging.

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill

Date: 10/25/2017

Project #: 86-18809

Sampler(s): IEM, DT

Sample ID: MS106.1

Sample Time: 13:05

Well Information:

Depth of Well (ft., Top of PVC): 82.35
Initial Static Water Level (ft., Top of PVC): 61.65
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: 20.7 ft. of water x .16 = 3.31 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:	12.8	°C	pH:	13.19	units
Salinity:		%	ORP:		mV
Spec. Cond.:	10.578	mS/cm	Turbidity:	1.70	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, Heavy blocky film.

Additional Comments:

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill

Date: 10/25/2017

Project #: 86-18809

Sampler(s): IEM, DT

Sample ID: MS106.2

Sample Time: 13:10

Well Information:

Depth of Well (ft., Top of PVC): 74.33
Initial Static Water Level (ft., Top of PVC): 58.25
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: 16.08 ft. of water x .16 = 2.57 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:

Temperature: 13.1 °C
Salinity: %
Spec. Cond.: 12.060 mS/cm
Diss. Oxygen: mg/L
pH: 12.94 units
ORP: mV
Turbidity: 14.60 NTU

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: Clear, Colorless, No odor, No sheen.

Additional Comments:

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill
Date: 10/25/2017
Project #: 86-18809

Sampler(s): IEM, DT
Sample ID: MS106.3
Sample Time: 13:50

Well Information:

Depth of Well (ft., Top of PVC): 61.35
Initial Static Water Level (ft., Top of PVC): 53.08
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: 8.27 ft. of water x .16 = 1.32 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 gallons
Dry: [✓ yes] no

Field Tests:

		Units:			Units:
Temperature:	12.8	°C	pH:	13.02	units
Salinity:		%	ORP:		mV
Spec. Cond.:	10.890	mS/cm	Turbidity:	1.30	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: Clear, Colorless, No odor, No sheen, Thin film on top of the purge water.

Additional Comments: Well went dry after 1 gallons purged, let recharge before sampling

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill
Date: 10/25/2017
Project #: 86-18809

Sampler(s): IEM, DT
Sample ID: MS301.1
Sample Time: 9:00

Well Information:

Depth of Well (ft., Top of PVC): 169.51
Initial Static Water Level (ft., Top of PVC): 56.98
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:	112.53	ft. of water x .16 =	18.00	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:	11.2	°C	pH:	6.43	units
Salinity:		%	ORP:		mV
Spec. Cond.:	125.290	mS/cm	Turbidity:	9.30	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: Clear, Colorless, No odor, No sheen.

Additional Comments: MS/MSD sample taken here at 9:00

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill
Date: 10/25/2017
Project #: 86-18809

Sampler(s): IEM, DT
Sample ID: MS301.2
Sample Time: 10:05

Well Information:

Depth of Well (ft., Top of PVC): 96.78
Initial Static Water Level (ft., Top of PVC): 59.11
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:	37.67	ft. of water x .16 =	6.03	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:	11.6	°C	pH:	6.55	units
Salinity:		%	ORP:		mV
Spec. Cond.:	141.992	mS/cm	Turbidity:	47.30	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 slight green tint, Sulfur odor, Slight blocky film.

Additional Comments:

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill
Date: 10/25/2017
Project #: 86-18809

Sampler(s): IEM, DT
Sample ID: MS301.3
Sample Time: 9:00

Well Information:

Depth of Well (ft., Top of PVC): 82.96
Initial Static Water Level (ft., Top of PVC): 58.44
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:	24.52	ft. of water x .16 =	3.92	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:	11.7	°C	pH:	6.66	units
Salinity:		%	ORP:		mV
Spec. Cond.:	100.558	mS/cm	Turbidity:	35.80	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: Clear, Colorless, Thin film on top of purge water, No odor, No sheen.

Additional Comments: Duplicate sample taken here at 9:00

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill
Date: 10/25/2017
Project #: 86-18809

Sampler(s): IEM, DT
Sample ID: MS301.4
Sample Time: 10:05

Well Information:

Depth of Well (ft., Top of PVC): 67.98
Initial Static Water Level (ft., Top of PVC): 52.17
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: 15.81 ft. of water x .16 = 2.53 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:	12.2	°C	pH:	12.13	units
Salinity:		%	ORP:		mV
Spec. Cond.:	34.550	mS/cm	Turbidity:	26.20	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: Clear, Colorless, No odor, No sheen.

Additional Comments: Well went dry after 1.5 gallons purged, let recharge before sampling

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill

Date: 10/25/2017

Project #: 86-18809

Sampler(s): IEM, DT

Sample ID: MS301.5

Sample Time: 10:55

Well Information:

Depth of Well (ft., Top of PVC): 51.16
Initial Static Water Level (ft., Top of PVC): 41.71
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:	9.45	ft. of water x .16 =	1.51	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:	12.5	°C	pH:	13.13	units
Salinity:		%	ORP:		mV
Spec. Cond.:	12.780	mS/cm	Turbidity:	41.90	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: Clear, Colorless, Thin film on top of purge water, No odor, No sheen.

Additional Comments: Well went dry after 1.5 gallons purged, let recharge before sampling

GHD

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill

Date: 10/25/2017

Project #: 86-18809

Sampler(s): IEM, DT

Sample ID: W5.6

Sample Time: 12:20

Well Information:

Depth of Well (ft., Top of PVC): 63.33
Initial Static Water Level (ft., Top of PVC): 48.27
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:	15.06	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: 2.5 gallons
Dry: yes [✓ no]

Field Tests:

		Units:			Units:
Temperature:	13	°C	pH:	12.96	units
Salinity:		%	ORP:		mV
Spec. Cond.:	12.300	mS/cm	Turbidity:	1.60	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: Clear, Colorless, No odor, No sheen, Thin film on top of the purge water.

Additional Comments:

Groundwater Field Sampling Log

Site Name: Former Crucible Landfill

Date: 10/25/2017

Project #: 86-18809

Sampler(s): IEM, DT

Sample ID: W201R

Sample Time: 11:15

Well Information:

Depth of Well (ft., Top of PVC): 59.75
Initial Static Water Level (ft., Top of PVC): 42.97
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:	16.78	ft. of water x .16 =	2.68	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:	11.6	°C	pH:	13.4	units
Salinity:		%	ORP:		mV
Spec. Cond.:	11.463	mS/cm	Turbidity:	12.70	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, No sheen, Slight film on surface.

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.

10 26 2017

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

10 26 2017

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

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

Photograph Number 6: Representative view of stormwater swale crossing landfill.

Photograph Number 7: Representative view of isolated rutting following annual mowing.

Photograph Number 8: View of regrading and gravel placement completed by others adjacent to northwestern corner of landfill. Reason for work is unknown.

Photograph Number 9: Stormwater outfall pipe.

Photograph Number 10: Stormwater outfall rip-rap area leading to Nine Mile Creek.

Photograph Number 11: Monitoring well W-5.5 prior to decommissioning.

Photograph Number 12: The concrete pad was broken away and removed.

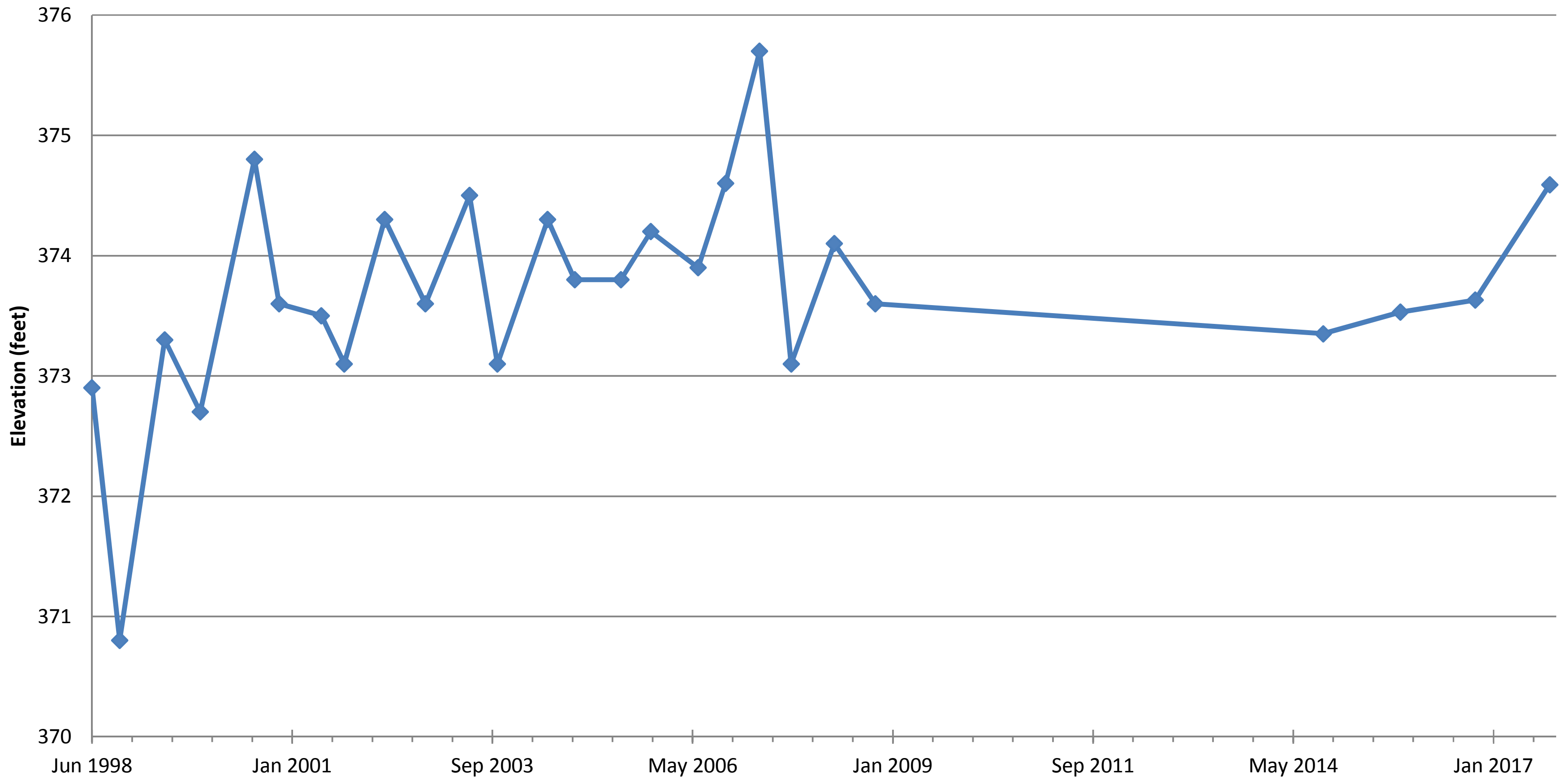
Photograph Number 13: A bentonite grout mixture was placed in the PVC casing using a tremie rod.

Photograph Number 14: The steel protective casing was removed and the PVC casing was cut down to 1-foot below ground surface. Remainder of void was backfilled with bentonite grout and bagged topsoil.


10 26 2017

Photograph Number 15: MS-106.5 following decommissioning. Well was decommissioned in same manner as W-5.5.

Appendix C
Groundwater Elevation Data Plots

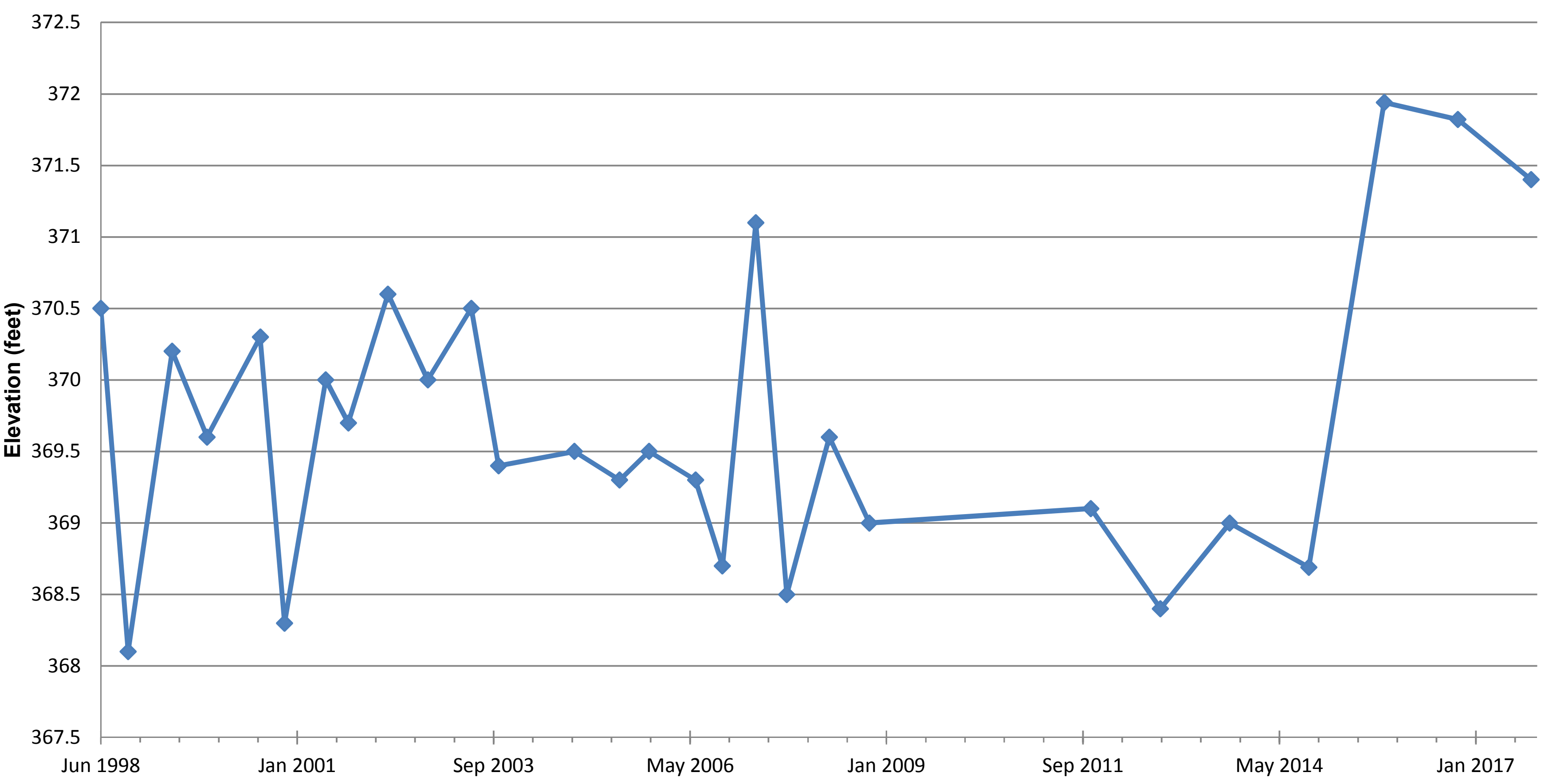


Appendix C

DW-101 - Groundwater Elevation

Former Crucible Specialty Metals LF, Where([WL1_WaterLevels_AHD_Using_Timeseries_TOC].[LocCode] = 'DW101')

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

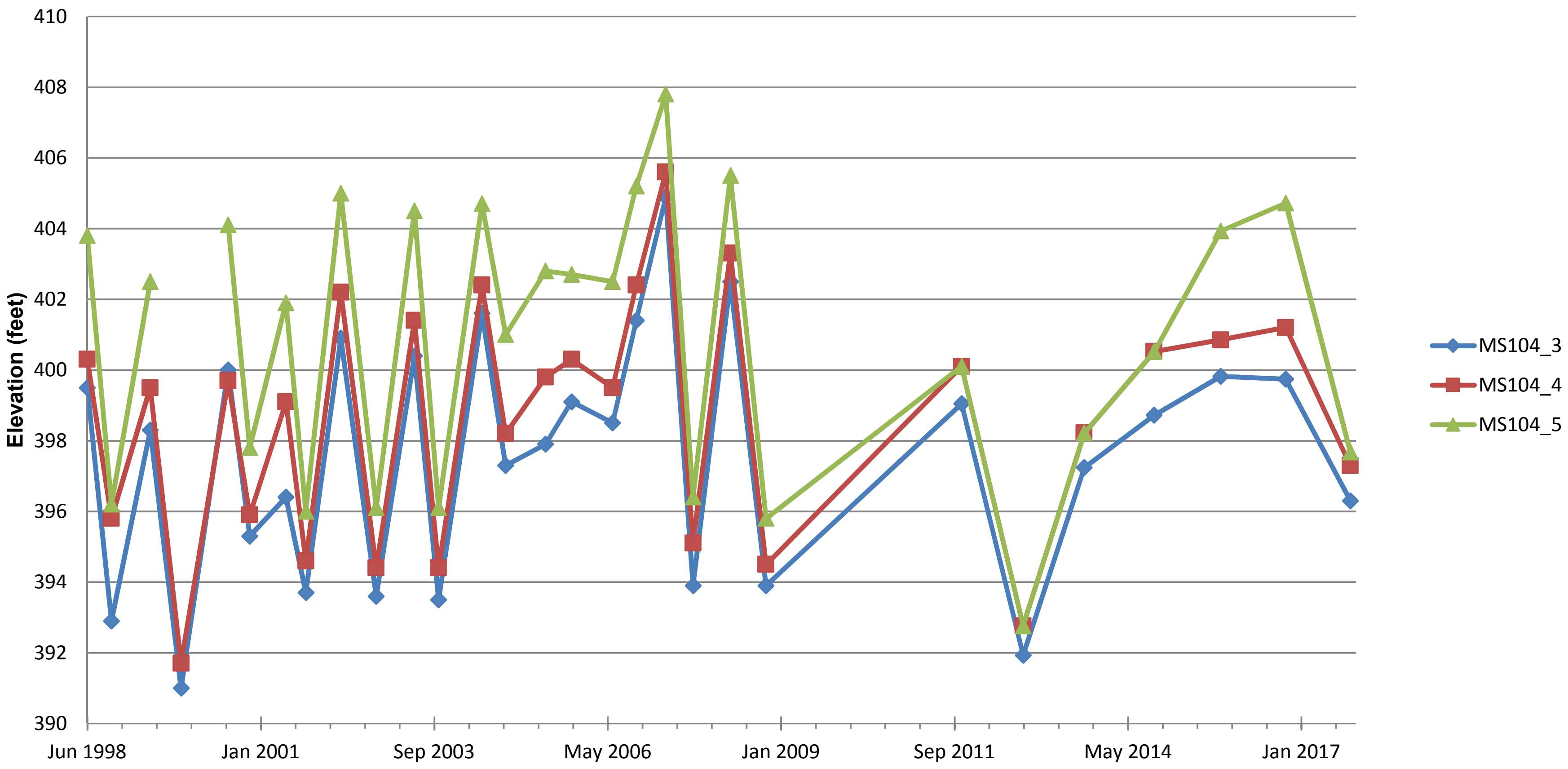


Appendix C

DW-103 - Groundwater Elevation

Former Crucible Specialty Metals LF, Where([WL1_WaterLevels_AHD_Using_Timeseries_TOC].[LocCode] = 'DW103')

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	



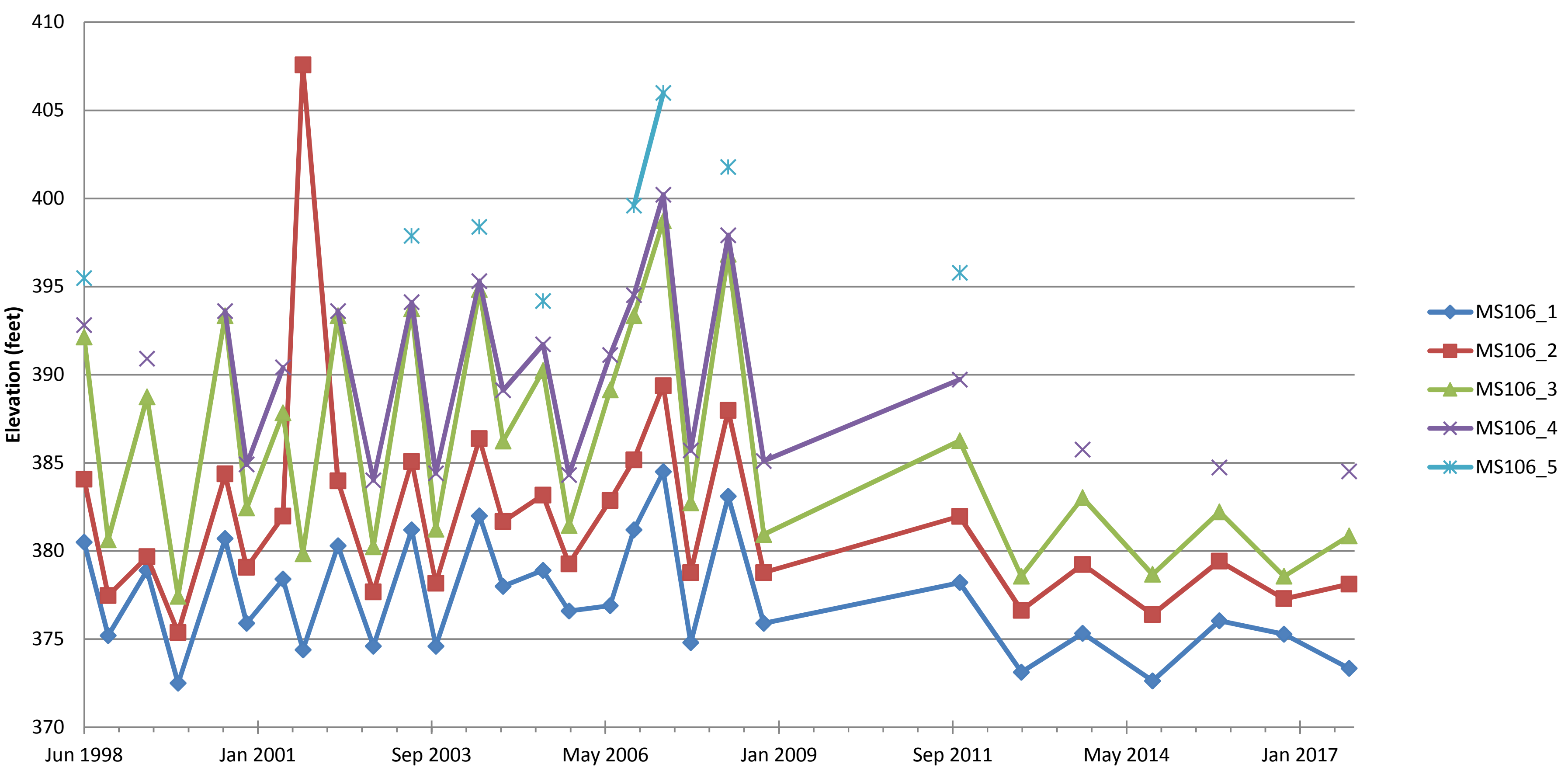
Appendix C

MS-104 Cluster - Groundwater Elevation

Former Crucible Specialty Metals LF, Where([WL1_WaterLevels_AHD_Using_Timeseries_TOC].[LocCode] In('MS104.3' , 'MS104.4' , 'MS104.5'))

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

GHD

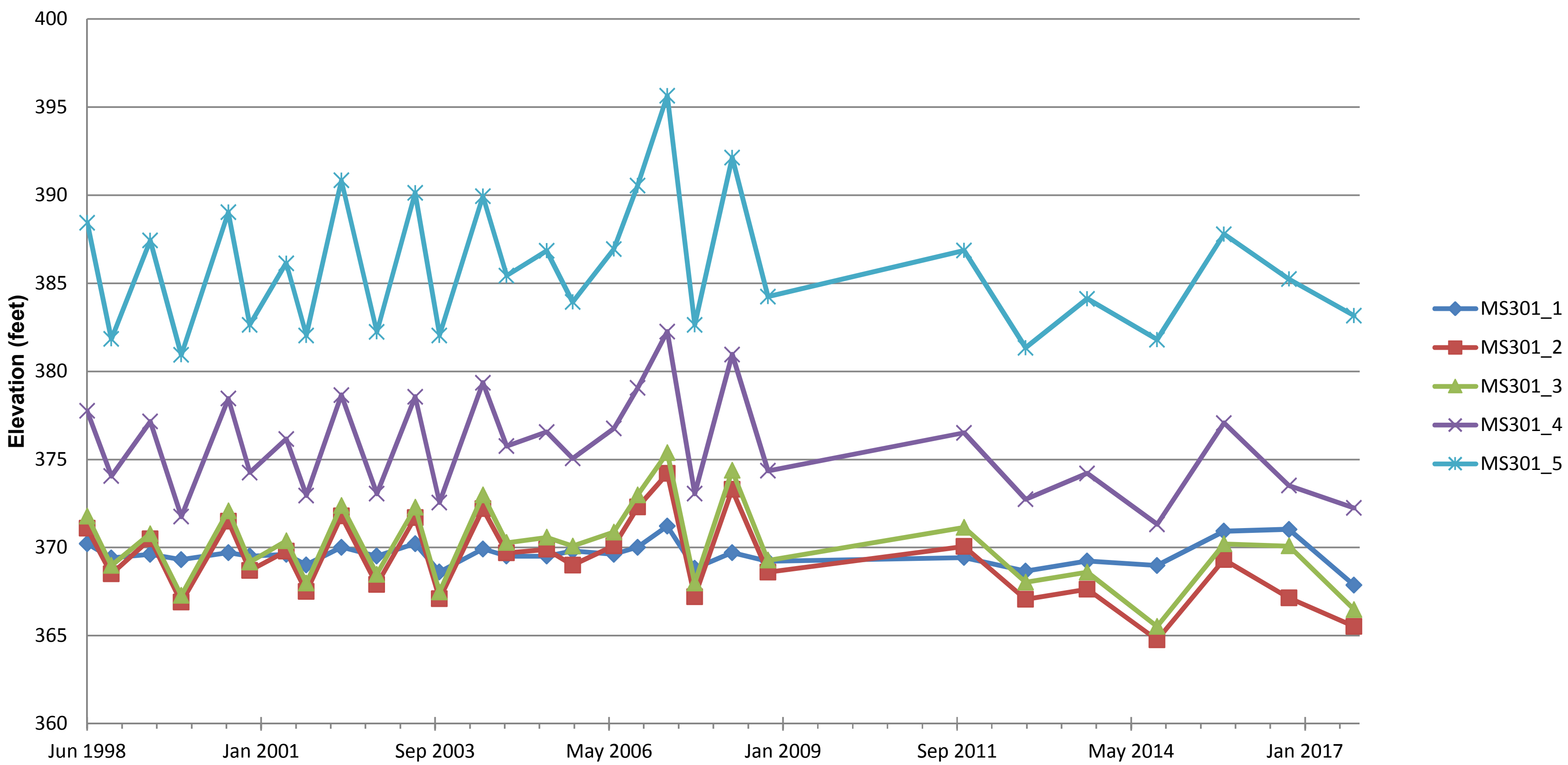


Appendix C

MS-106 Cluster - Groundwater Elevation

Former Crucible Specialty Metals LF, Where([WL1_WaterLevels_AHD_Using_Timeseries_TOC].[LocCode] In('MS106.1' , 'MS106.2' , 'MS106.3' , 'MS106.4' , 'MS106.5'))

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

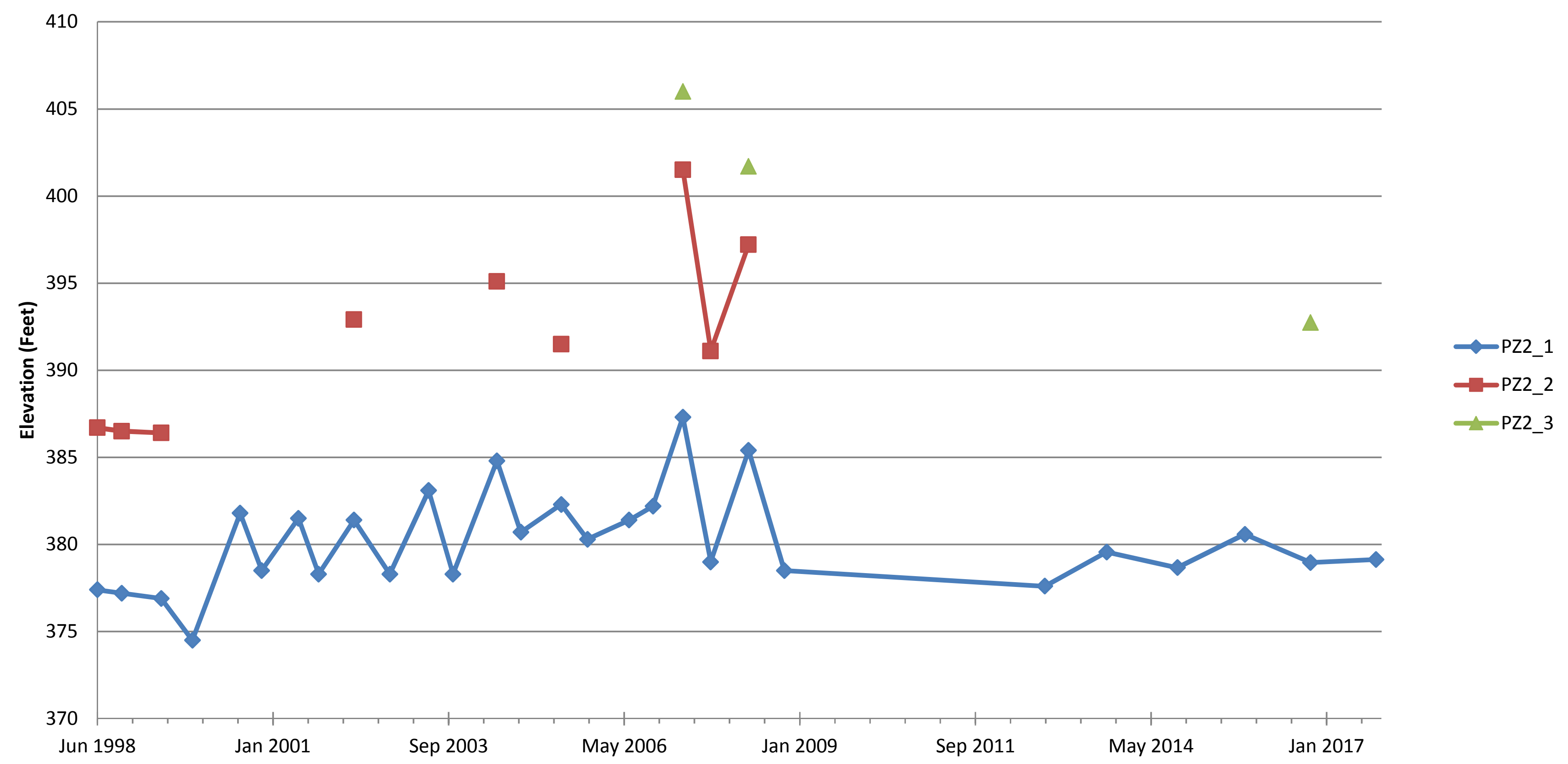


Appendix C

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: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

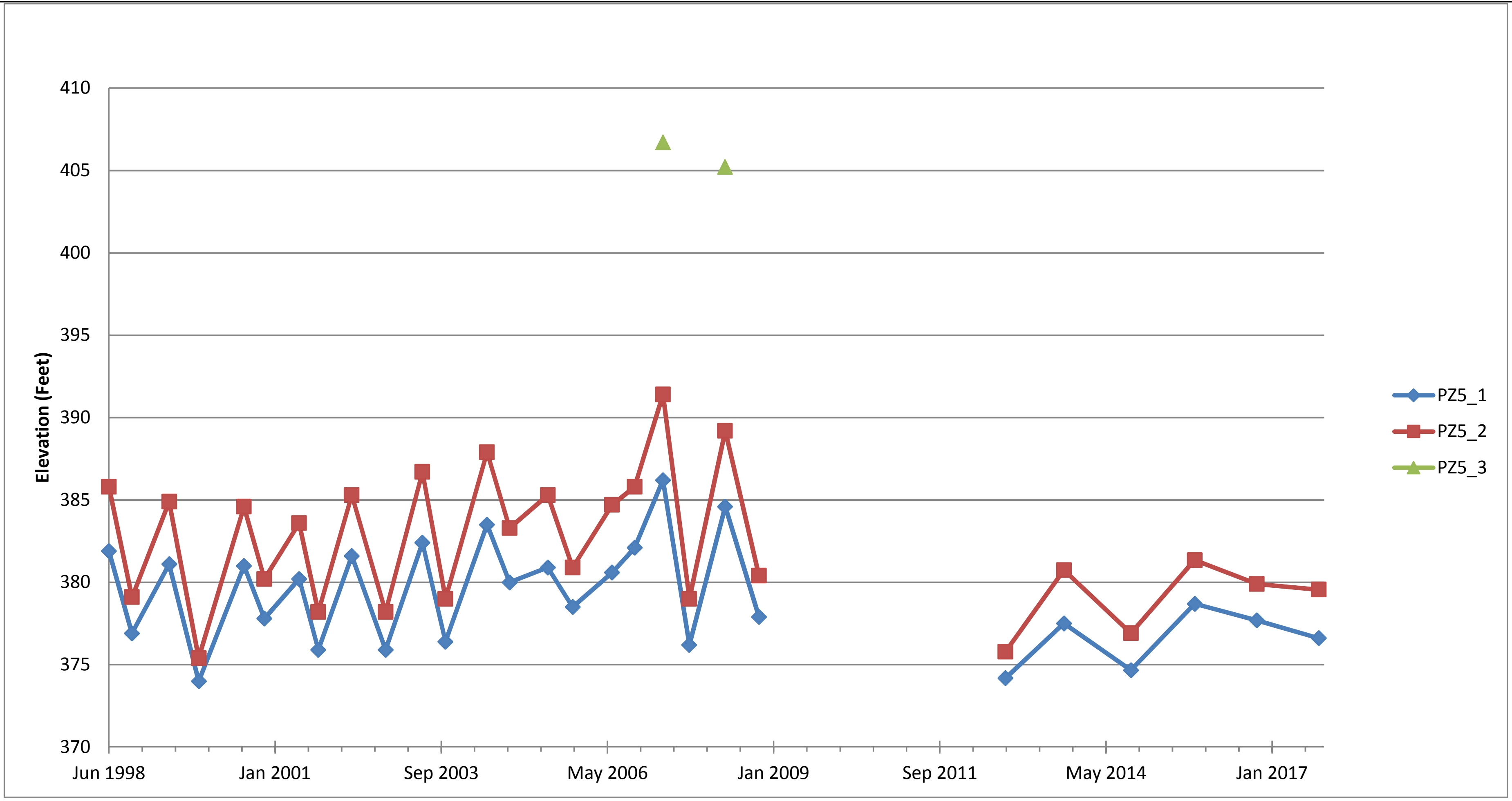


Appendix C

PZ-2 Cluster - Groundwater Elevation

Former Crucible Specialty Metals LF, Where([WL1_WaterLevels_AHD_Using_Timeseries_TOC].[LocCode] In('PZ2.1' , 'PZ2.2' , 'PZ2.3'))

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

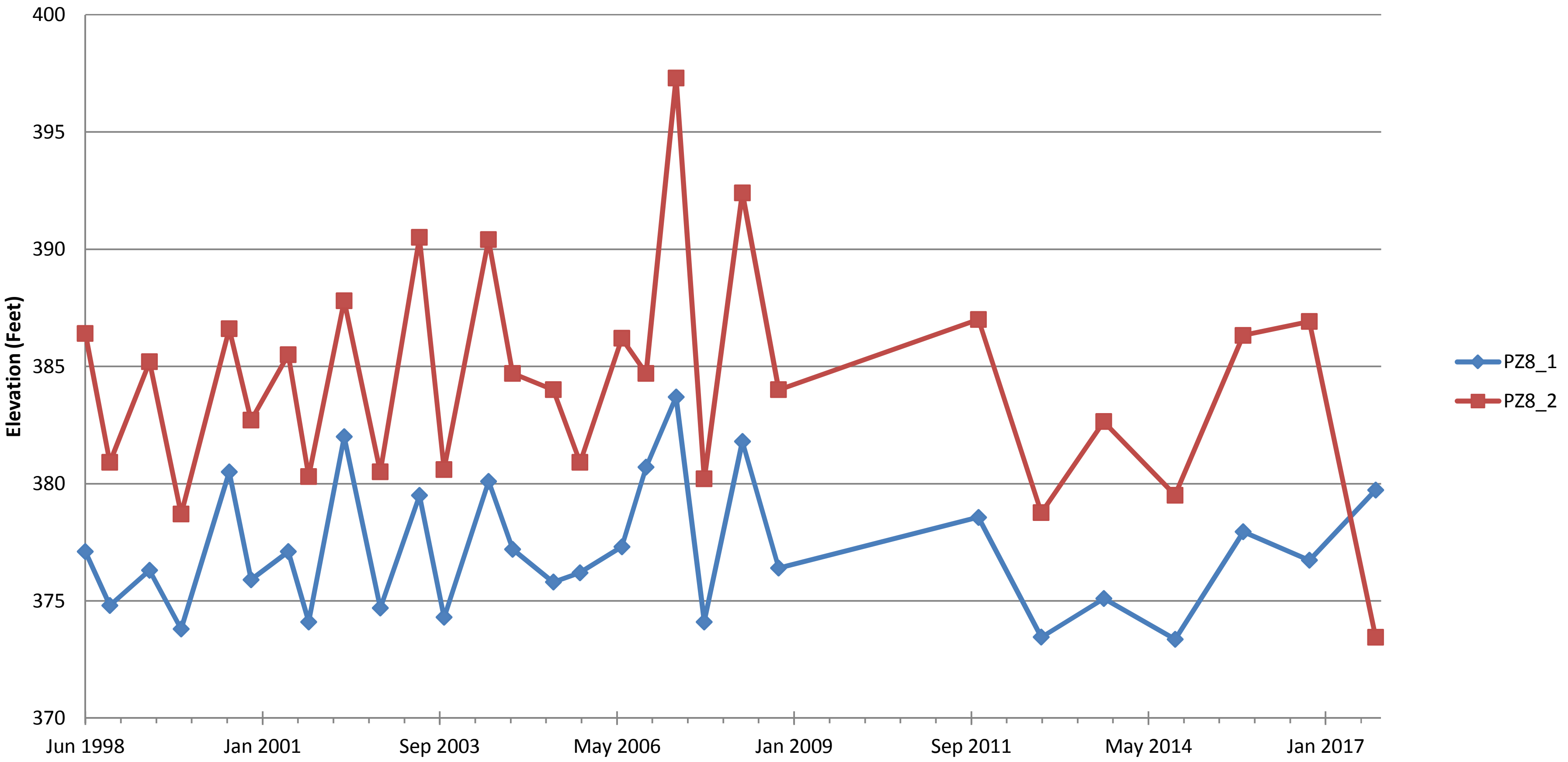


Appendix C

PZ-5 Cluster - Groundwater Elevation

Former Crucible Specialty Metals LF, Where([WL1_WaterLevels_AHD_Using_Timeseries_TOC].[LocCode] In('PZ5.1' , 'PZ5.2' , 'PZ5.3'))

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

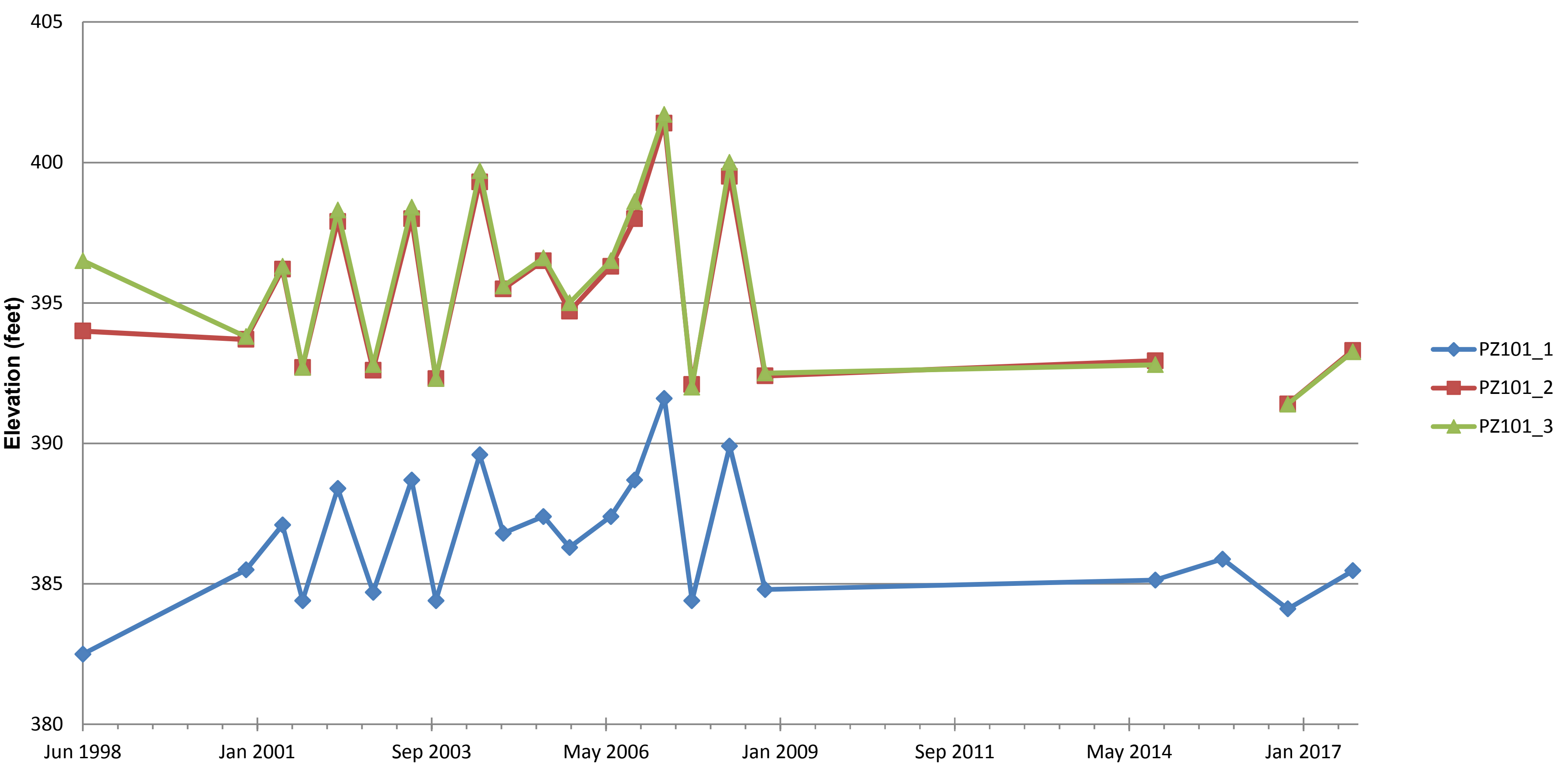


Appendix C

PZ-8 Cluster - Groundwater Elevation

Former Crucible Specialty Metals LF, Where([WL1_WaterLevels_AHD_Using_Timeseries_TOC].[LocCode] In('PZ8.1' , 'PZ8.2'))

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

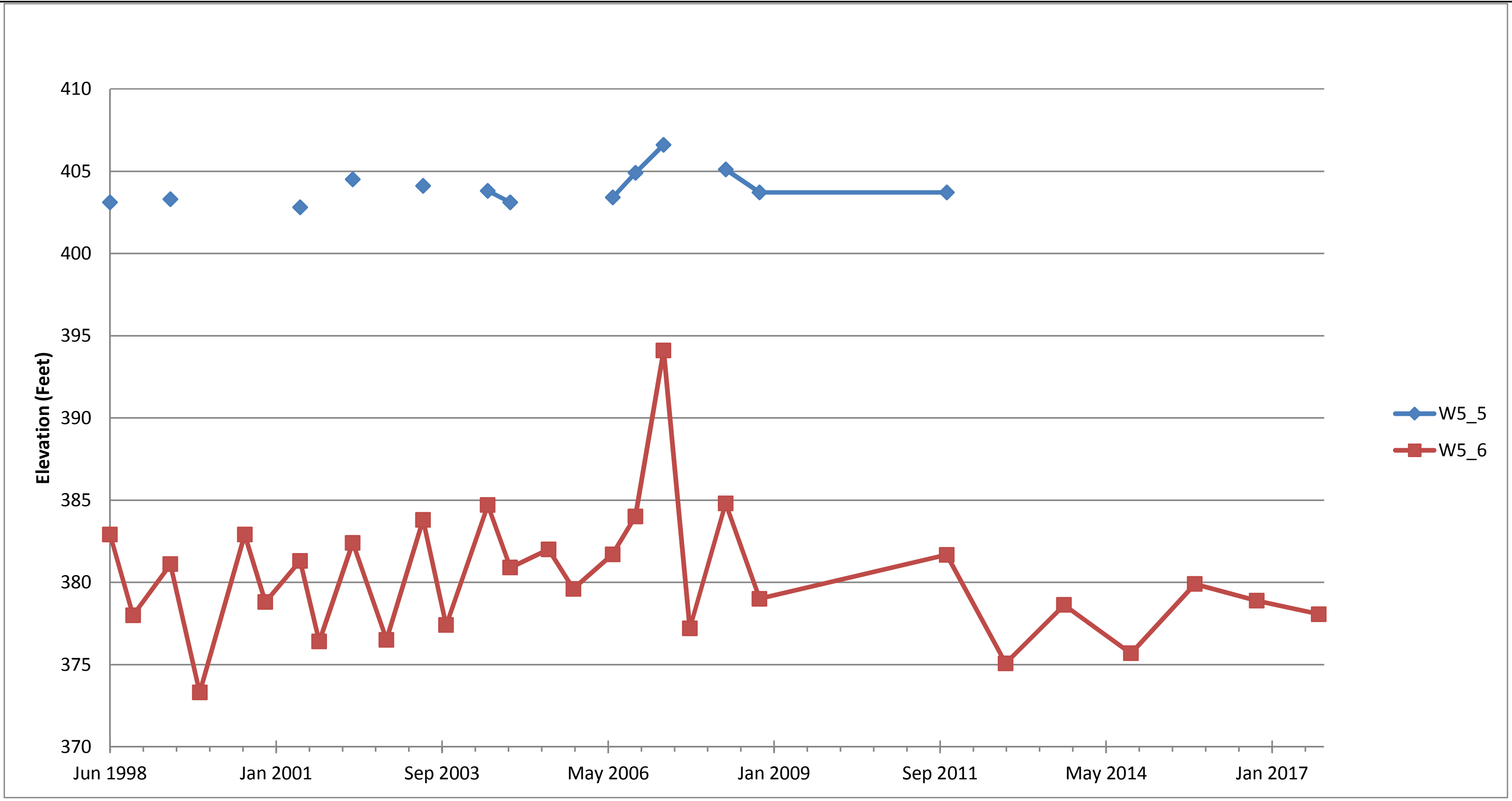


Appendix C

PZ-101 Cluster - Groundwater Elevation

Former Crucible Specialty Metals LF, Where([WL1_WaterLevels_AHD_Using_Timeseries_TOC].[LocCode] In('PZ101.1' , 'PZ101.2' , 'PZ101.3'))

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

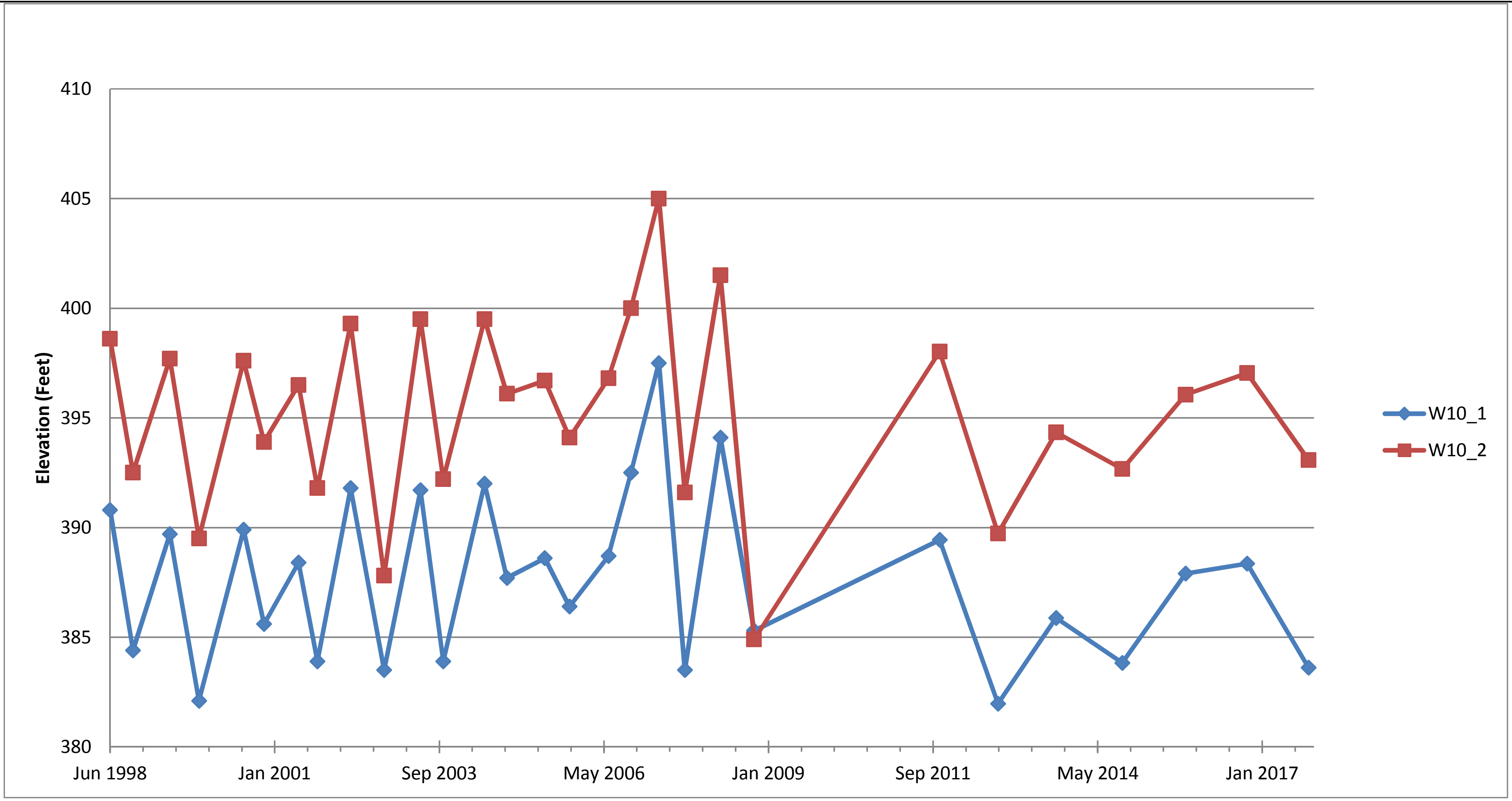


Appendix C

W-5 Cluster - Groundwater Elevation

Former Crucible Specialty Metals LF, Where([WL1_WaterLevels_AHD_Using_Timeseries_TOC].[LocCode] In('W5.5' , 'W5.6'))

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

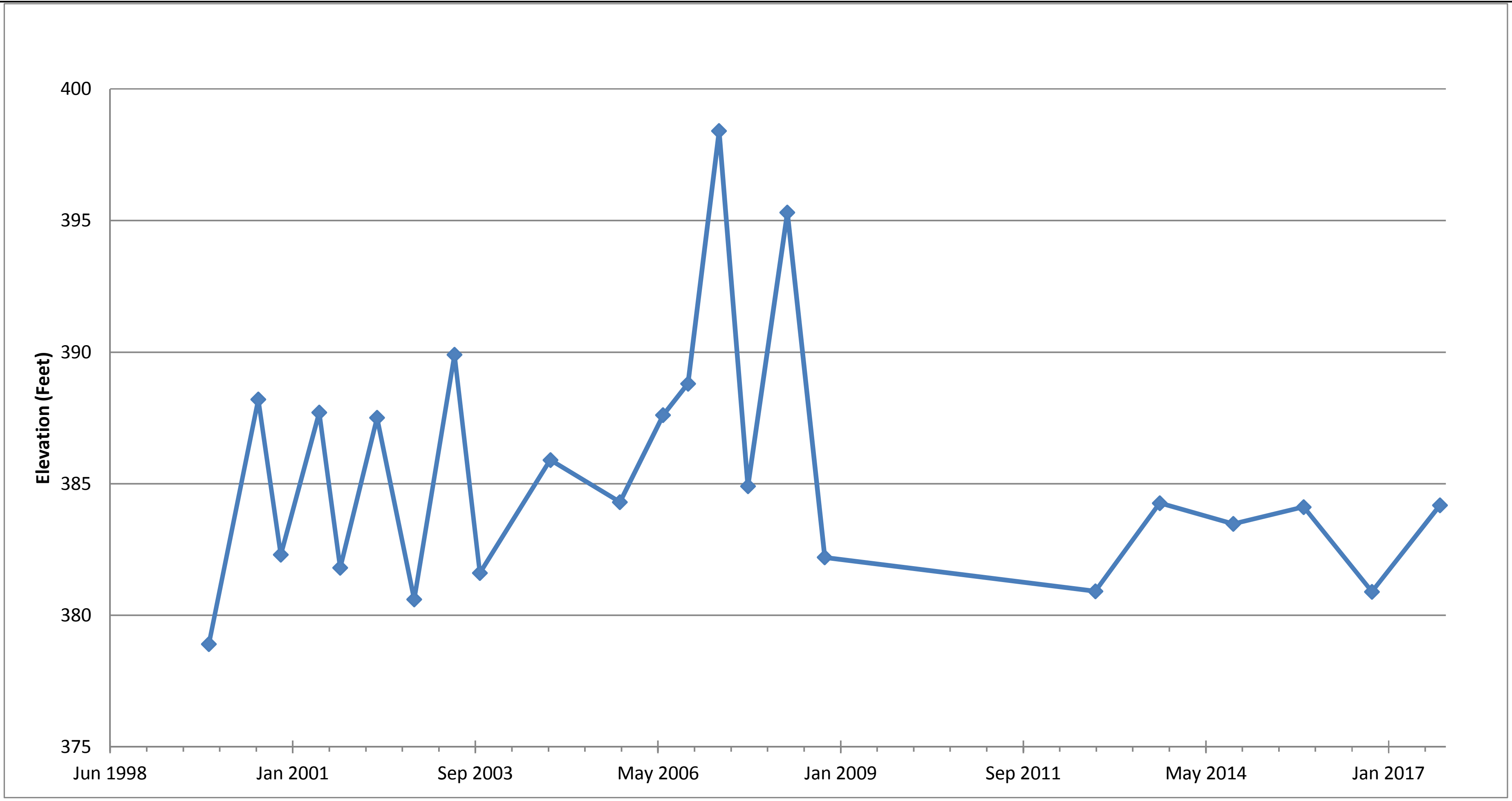


Appendix C

W-10 Cluster - Groundwater Elevation

Former Crucible Specialty Metals LF, Where([WL1_WaterLevels_AHD_Using_Timeseries_TOC].[LocCode] In('W10.1' , 'W10.2'))

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

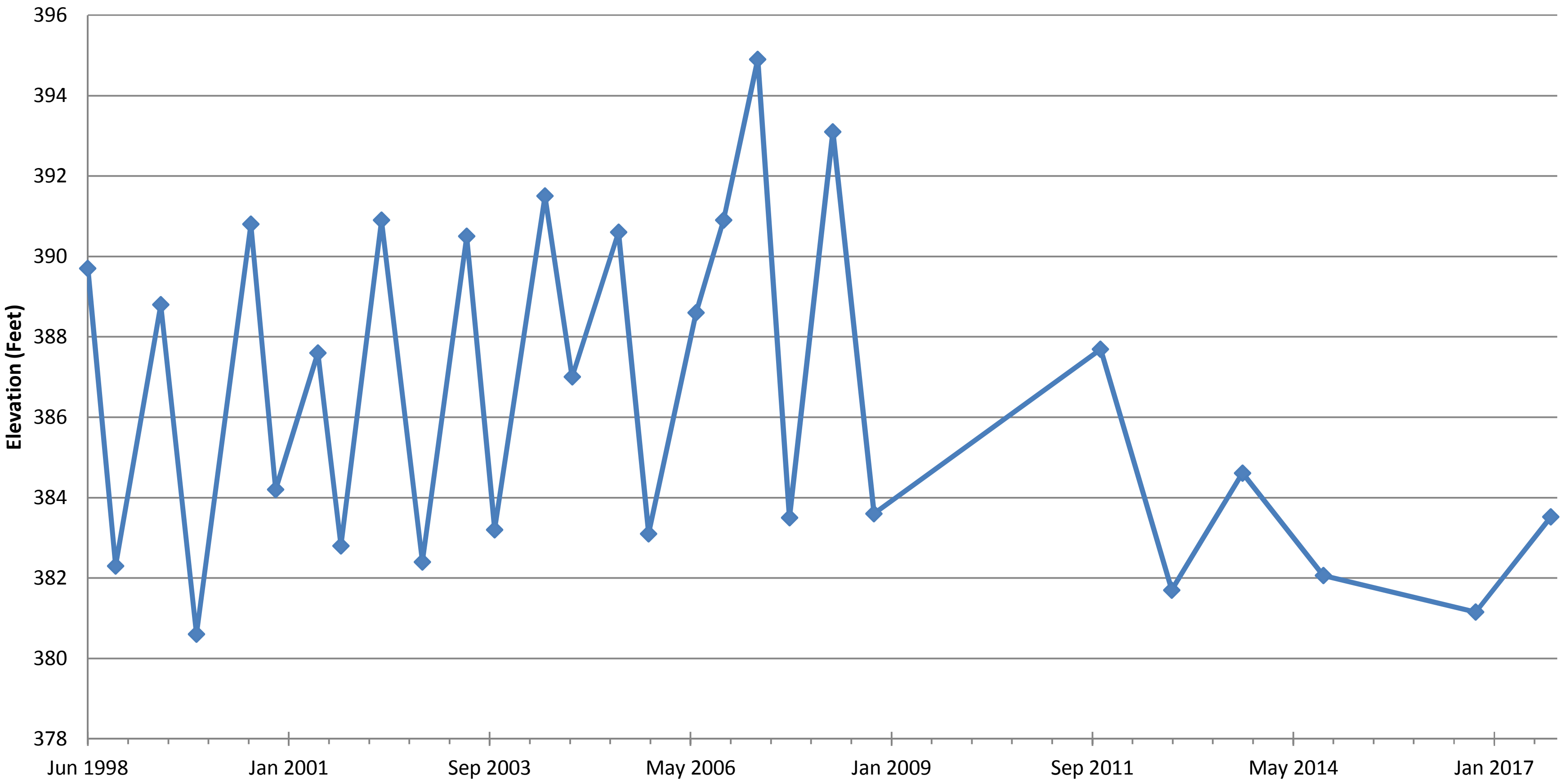


Appendix C

W-105R - Groundwater Elevation

Former Crucible Specialty Metals LF, Where([WL1_WaterLevels_AHD_Using_Timeseries_TOC].[LocCode] = 'W105R')

Date: Oct 17
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: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Appendix D
Groundwater Results Plots

Appendix D

Summary of Field Parameter Results

October 2017 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**
10/25/2017	MS104.3	**11.47**	**13.09**

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 2017 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
10/25/2017	MS104.4	**10.02**	**13.18**

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 2017 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
10/25/2017	MS104.5	**10.48**	**13.03**

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 2017 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**
10/25/2017	MS106.1	10.58	**13.19**

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 2017 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
10/25/2017	MS106.2	**12.06**	**12.94**

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 2017 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
10/25/2017	MS106.3	10.89	**13.02**

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 2017 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	-	-
10/25/2017	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

		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	-	-
10/25/2017	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

EnPro Holdings, Inc.
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Appendix D

Summary of Field Parameter Results

October 2017 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
10/25/2017	MS301.1	**125.3**	6.43

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 2017 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
10/25/2017	MS301.2	**142**	**6.55**

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 2017 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**
10/25/2017	MS301.3	100.6	**6.66**

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 2017 Annual Monitoring Event

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Sample Date	Sample ID	Field Parameters	
		Specific Conductivity	pH
		mS/cm	pH_Units
UCL		95.03	11.2
LCL		66.5	9.62
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**
10/25/2017	MS301.4	**34.55**	**12.13**

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 2017 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**
10/25/2017	MS301.5	**12.78**	**13.13**

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 2017 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	-	-
10/25/2017	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 2017 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
10/25/2017	W201R	11.46	**13.4**

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 2017 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
10/25/2017	W5.6	12.3	**12.96**

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 2017 Annual Monitoring Event

		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total) mg/L	Chloride mg/L	Phenols mg/L	Chromium (III+VI) mg/L	Iron 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
MS104.3	10/25/2017	-	-	0.037	0.006J	**0.066**

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 yellow 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
MS104.4	10/25/2017	-	-	0.031	<0.002U	0.015J

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Appendix D

Summary of Laboratory Analytical Results
October 2017 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				**0.045**	**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
MS104.5	10/25/2017	-	-	0.02J	0.003J	0.031J

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Appendix D

Summary of Laboratory Analytical Results

October 2017 Annual Monitoring Event

		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total) mg/L	Chloride mg/L	Phenols mg/L	Chromium (III+VI) mg/L	Iron 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
MS106.1	10/25/2017	-	-	0.019J	<0.002U	0.018J

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Appendix D

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October 2017 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				**0.363**	**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
MS106.2	10/25/2017	-	-	0.017J	0.003J	0.043J

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		Alkalinity	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**
MS106.3	10/25/2017	-	-	0.008J	<0.002U	0.018J

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Summary of Laboratory Analytical Results
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		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total) mg/L	Chloride mg/L	Phenols mg/L	Chromium (III+VI) mg/L	Iron 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	-	-	-	-	-
MS106.4	10/25/2017	-	-	-	-	-

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		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total) mg/L	Chloride mg/L	Phenols mg/L	Chromium (III+VI) mg/L	Iron 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	-	-	-	-	-
MS106.5	10/25/2017	-	-	-	-	-

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		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
MS301.1	10/25/2017	-	-	**0.011J**	<0.002U	81.8

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		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total) mg/L	Chloride mg/L	Phenols mg/L	Chromium (III+VI) mg/L	Iron 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
MS301.2	10/25/2017	-	-	0.006J	0.007J	80.3

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		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total) mg/L	Chloride mg/L	Phenols mg/L	Chromium (III+VI) mg/L	Iron 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
MS301.3	10/25/2017	-	-	4	0.004J	19.6

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		Alkalinity	**Chloride**	**Phenols**	**Total Metals**	
		Alkalinity (total) mg/L	**Chloride** mg/L	**Phenols** mg/L	**Chromium (III+VI)** mg/L	**Iron** 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**
MS301.4	10/25/2017	-	-	0.5	0.003J	**2.68**

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Appendix D

Summary of Laboratory Analytical Results

October 2017 Annual Monitoring Event

		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total) mg/L	Chloride mg/L	Phenols mg/L	Chromium (III+VI) mg/L	Iron 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
MS301.5	10/25/2017	-	-	0.033	<0.002U	**0.186**

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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				**0.135**	**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	-	-	-	-	-
W105R	10/25/2017	-	-	-	-	-

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Appendix D

Summary of Laboratory Analytical Results

October 2017 Annual Monitoring Event

		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total) mg/L	Chloride mg/L	Phenols mg/L	Chromium (III+VI) mg/L	Iron 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
W201R	10/25/2017	-	-	0.029J	<0.002U	0.018J

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Appendix D

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October 2017 Annual Monitoring Event

		Alkalinity	Chloride	Phenols	Total Metals	
		Alkalinity (total) mg/L	Chloride mg/L	Phenols mg/L	Chromium (III+VI) mg/L	Iron 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
W5.6	10/25/2017	-	-	0.04	<0.002U	0.022J

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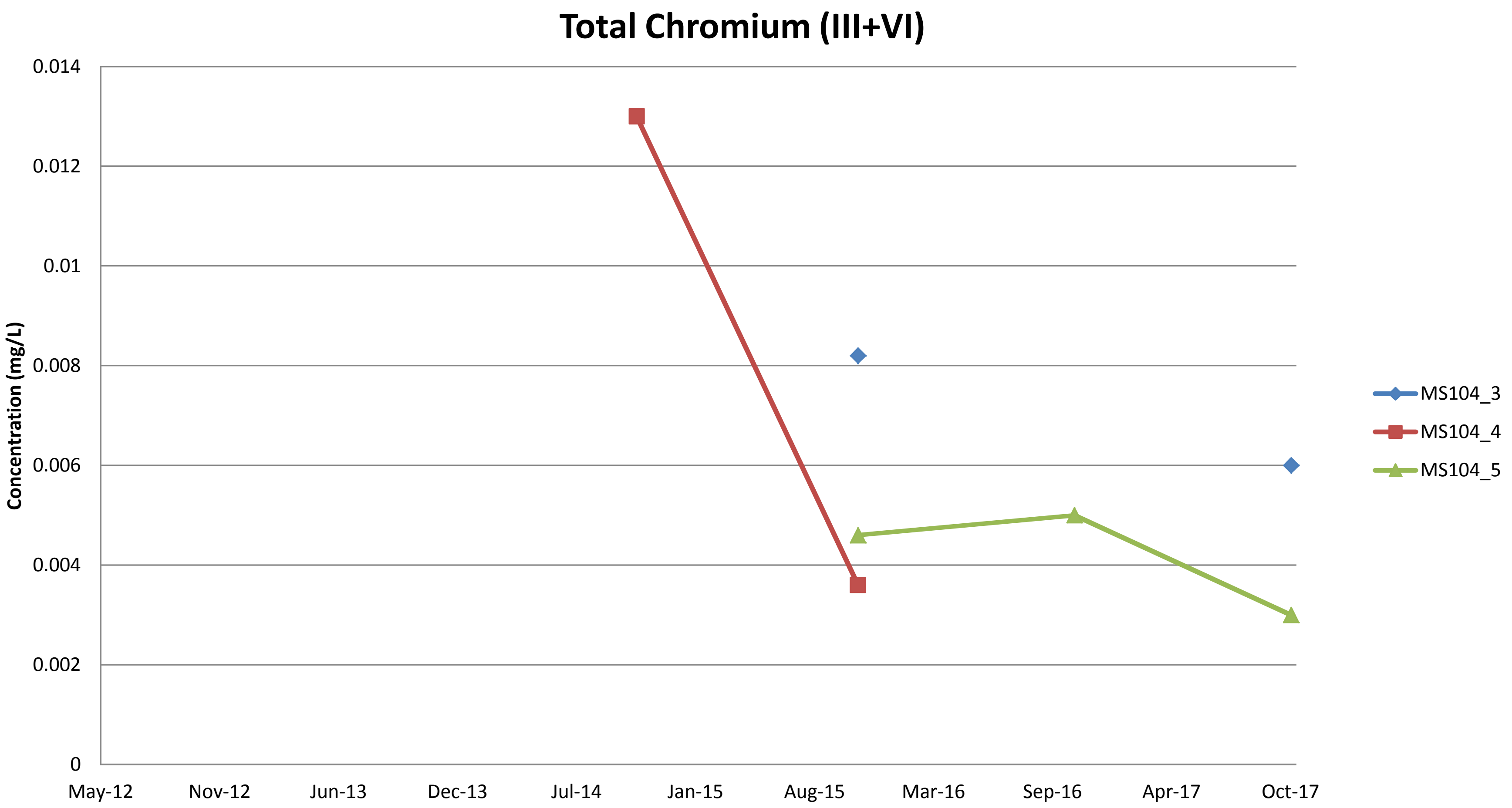
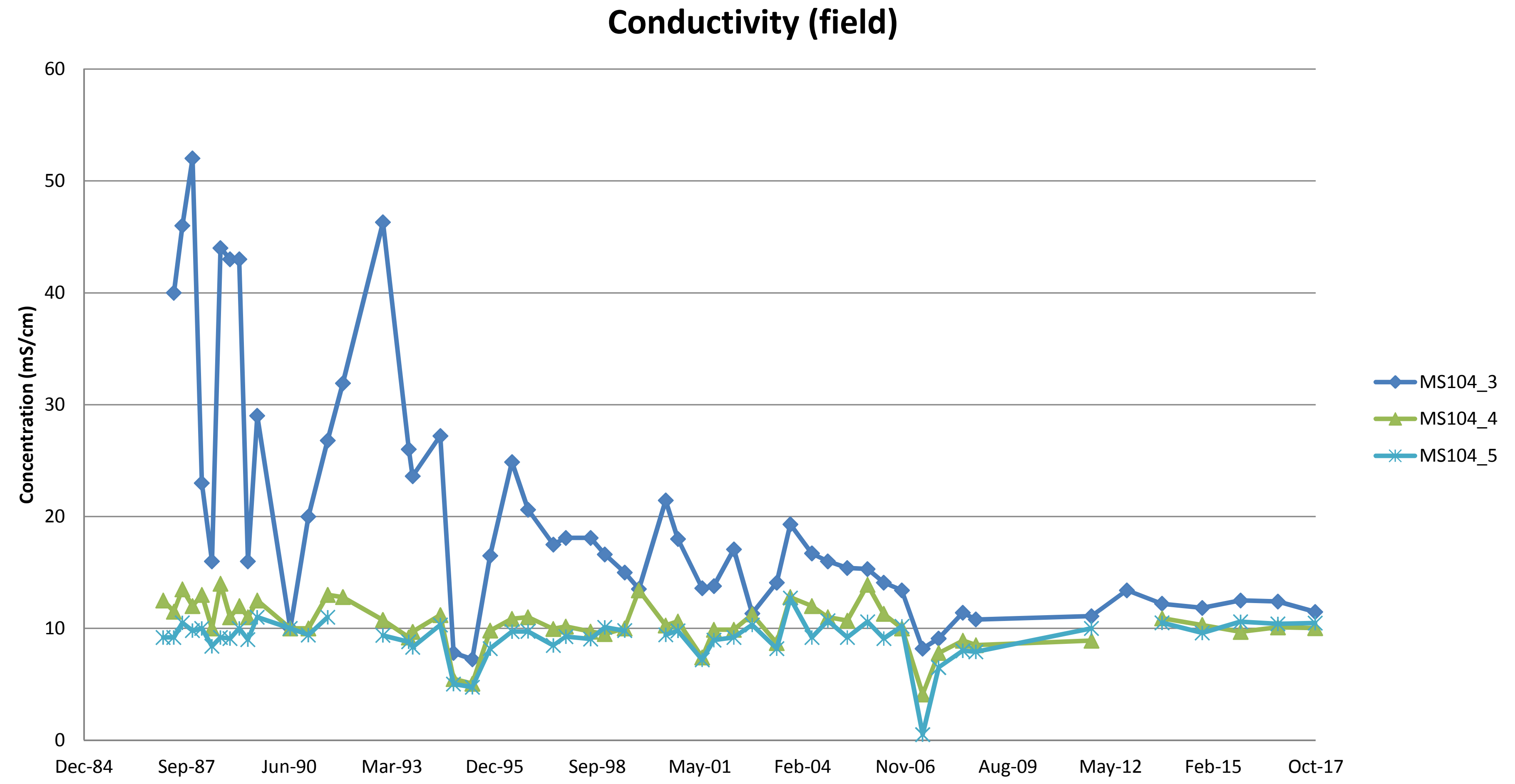


Appendix D

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)')

Date: Oct 17
Drawn:
Scale: nts
Chk'd:
Original:
Rev:
File Reference:

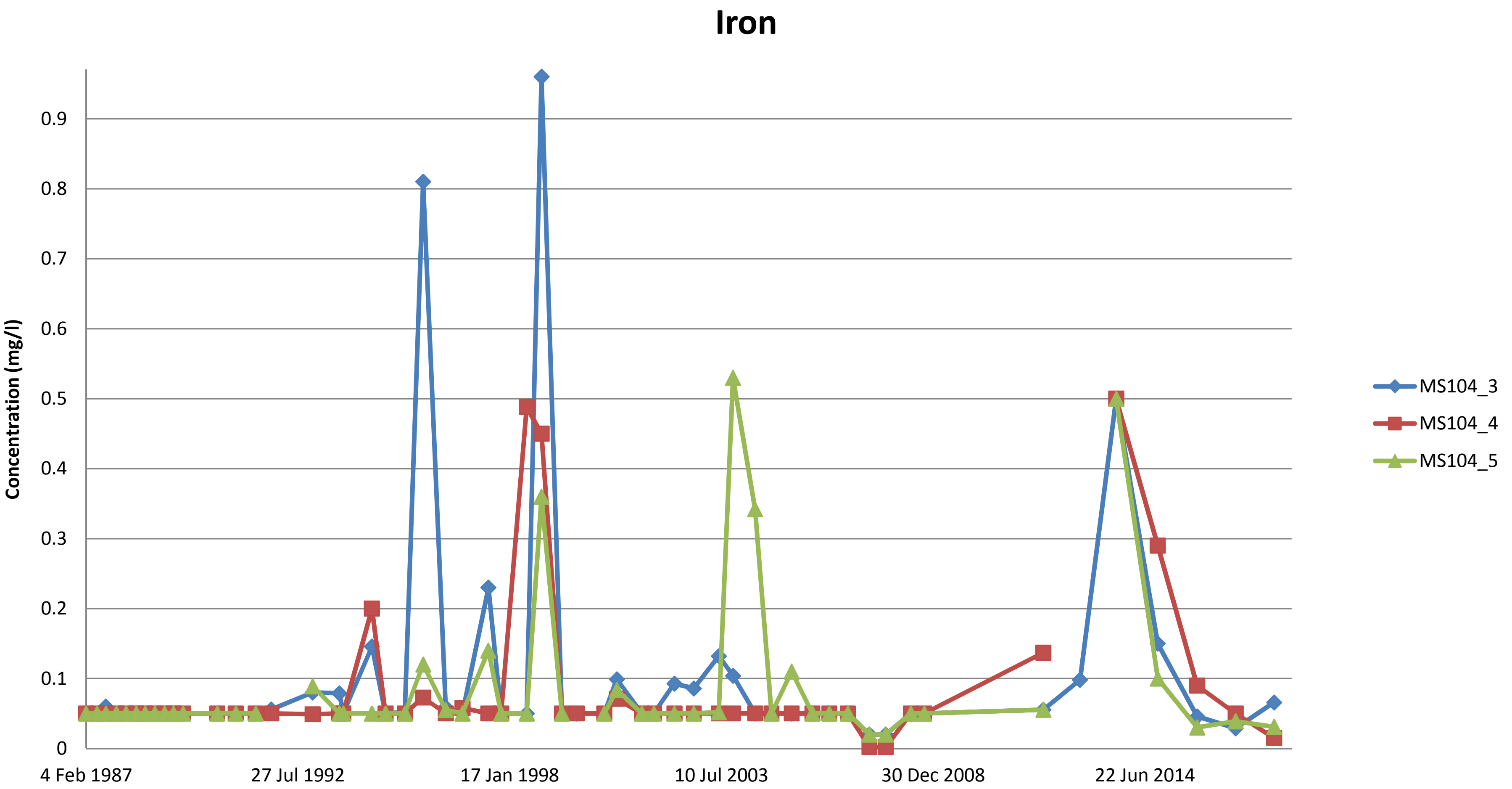


Appendix D

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: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

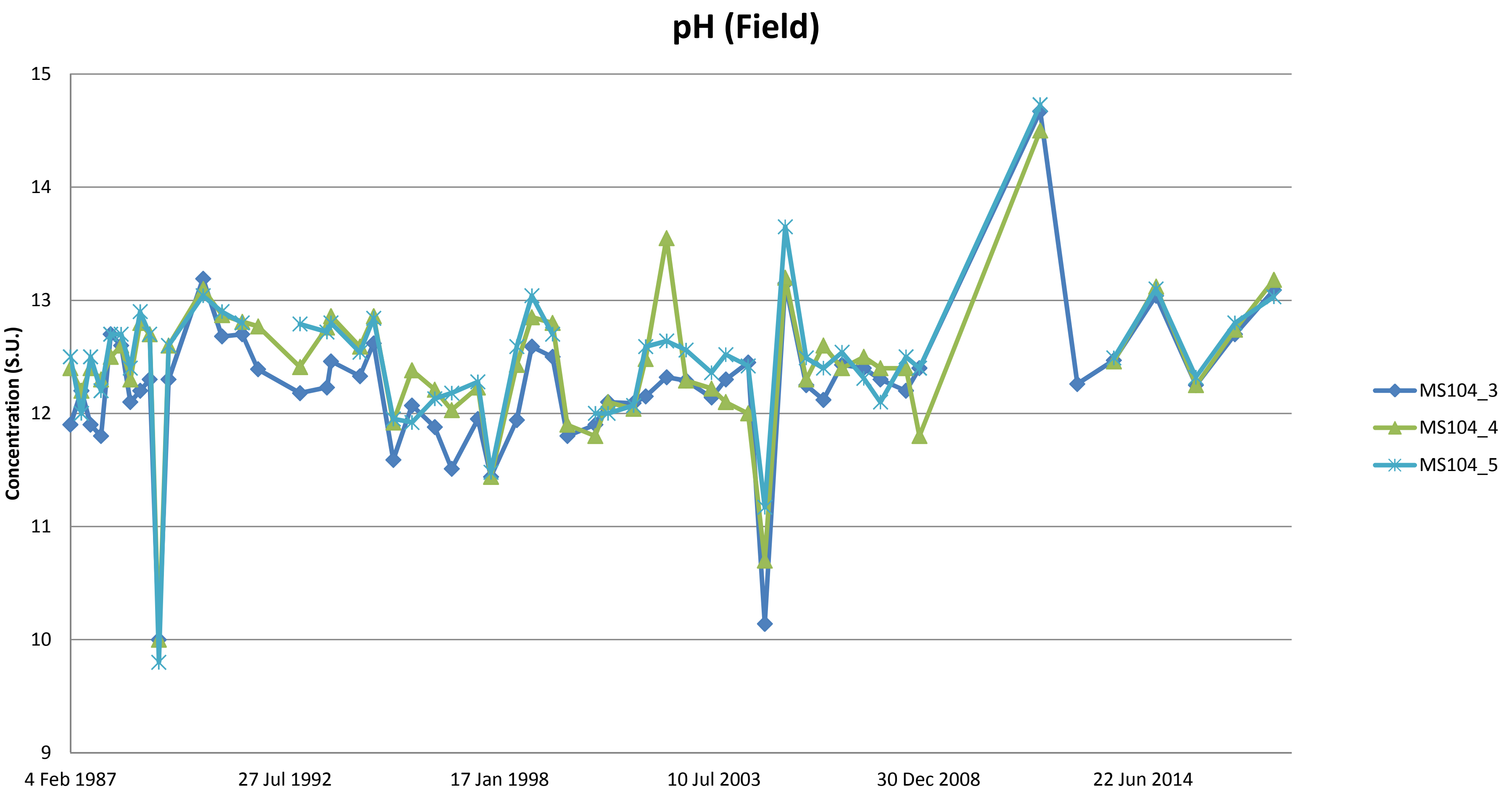


Appendix D

MS-104 Cluster - Iron Time Series Plot

Former Crucible Specialty Metals LF, Where([ChemQA2_Chemistry_Samples_with_Raw_Results].[LocCode] In('MS104.3' , 'MS104.4' , 'MS104.5') AND WellCode Is Null AND ChemName = 'Iron')

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

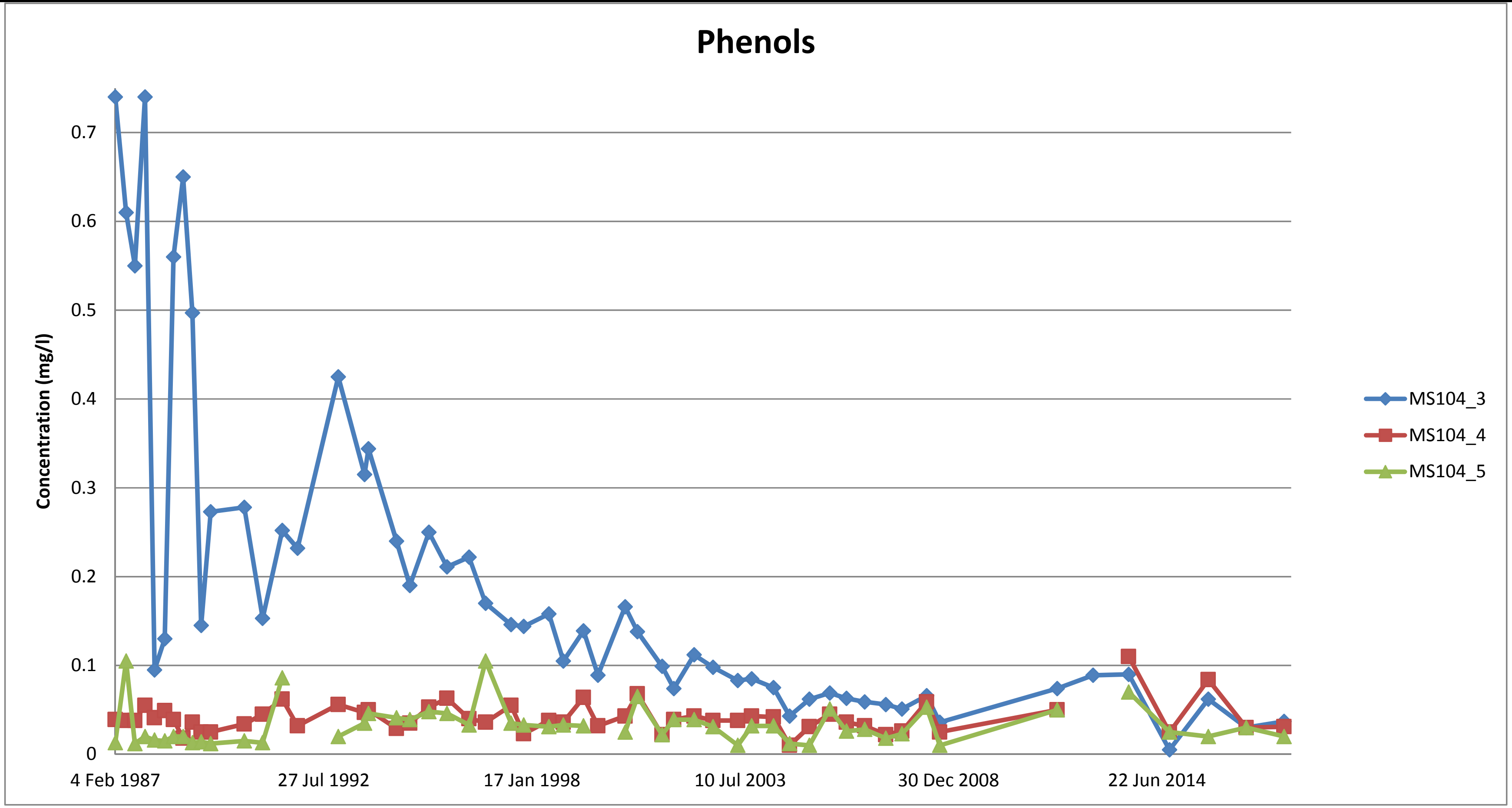


Appendix D

MS-104 Cluster - pH Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

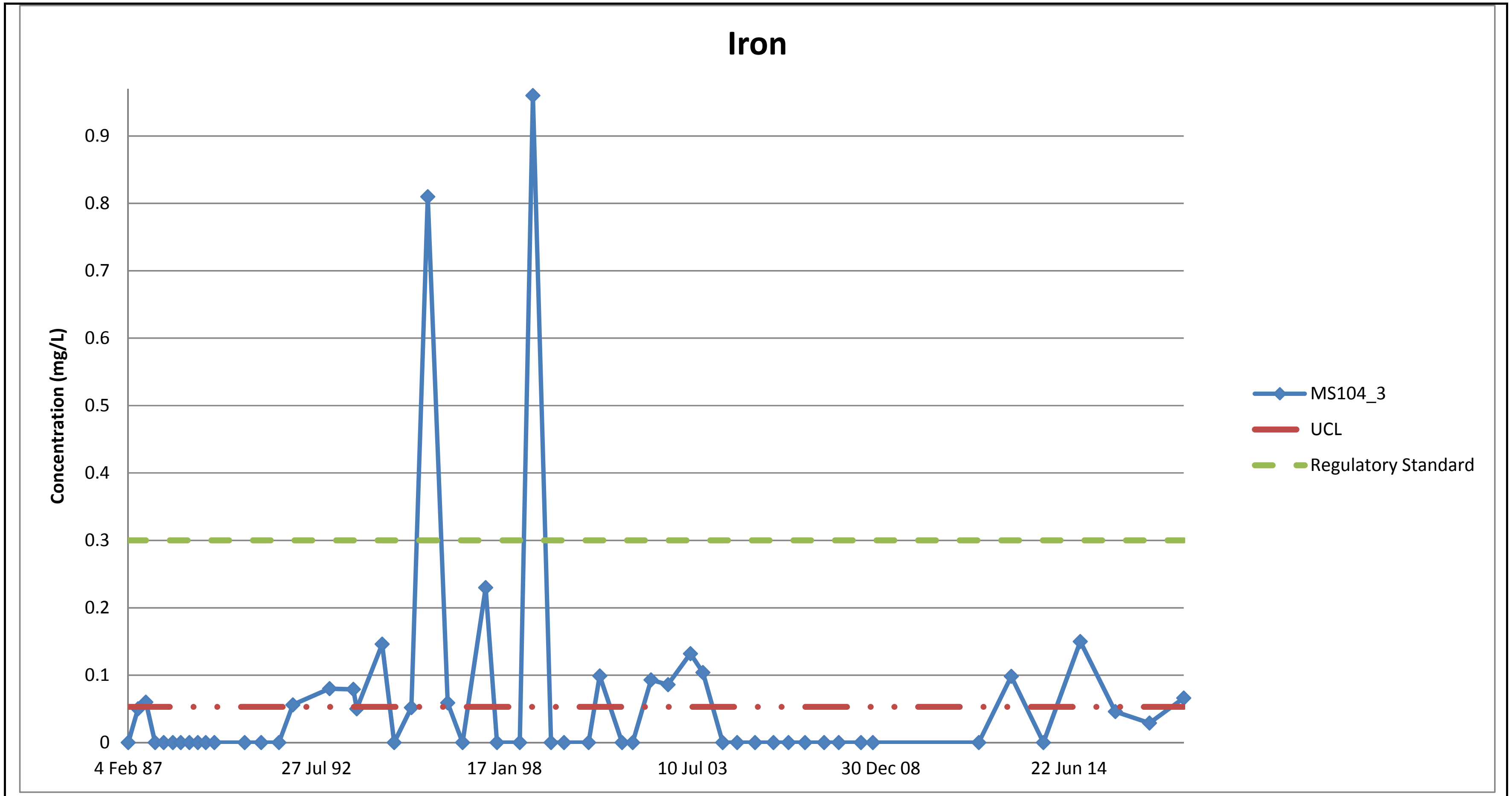


Appendix D

MS-104 Cluster - Phenols Time Series Plot

Former Crucible Specialty Metals LF, Where([ChemQA2_Chemistry_Samples_with_Raw_Results].[LocCode] In('MS104.3' , 'MS104.4' , 'MS104.5') AND WellCode Is Null AND ChemName = 'Phenols')

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	



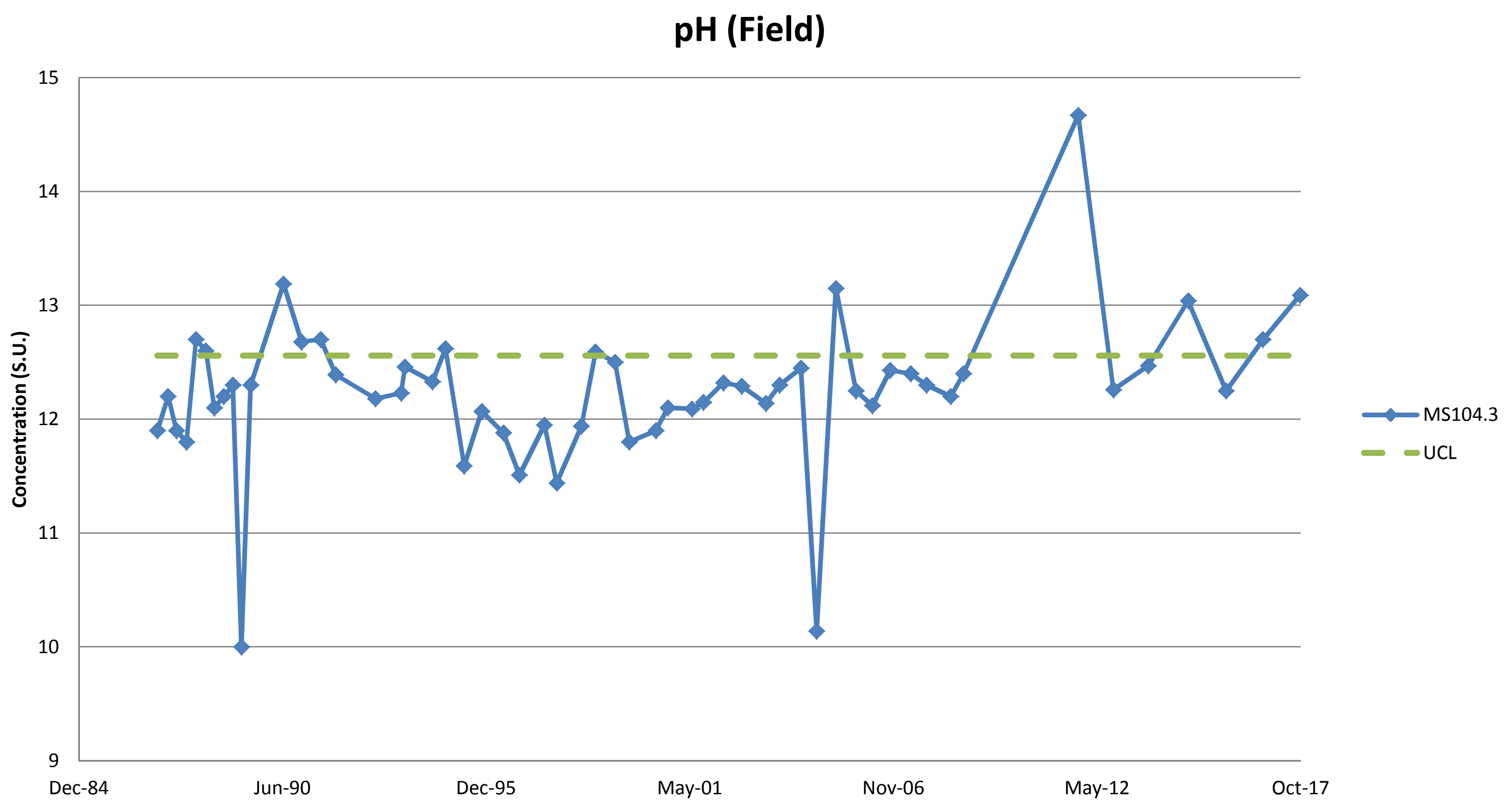
Appendix D

MS-104.3 - Iron Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

]

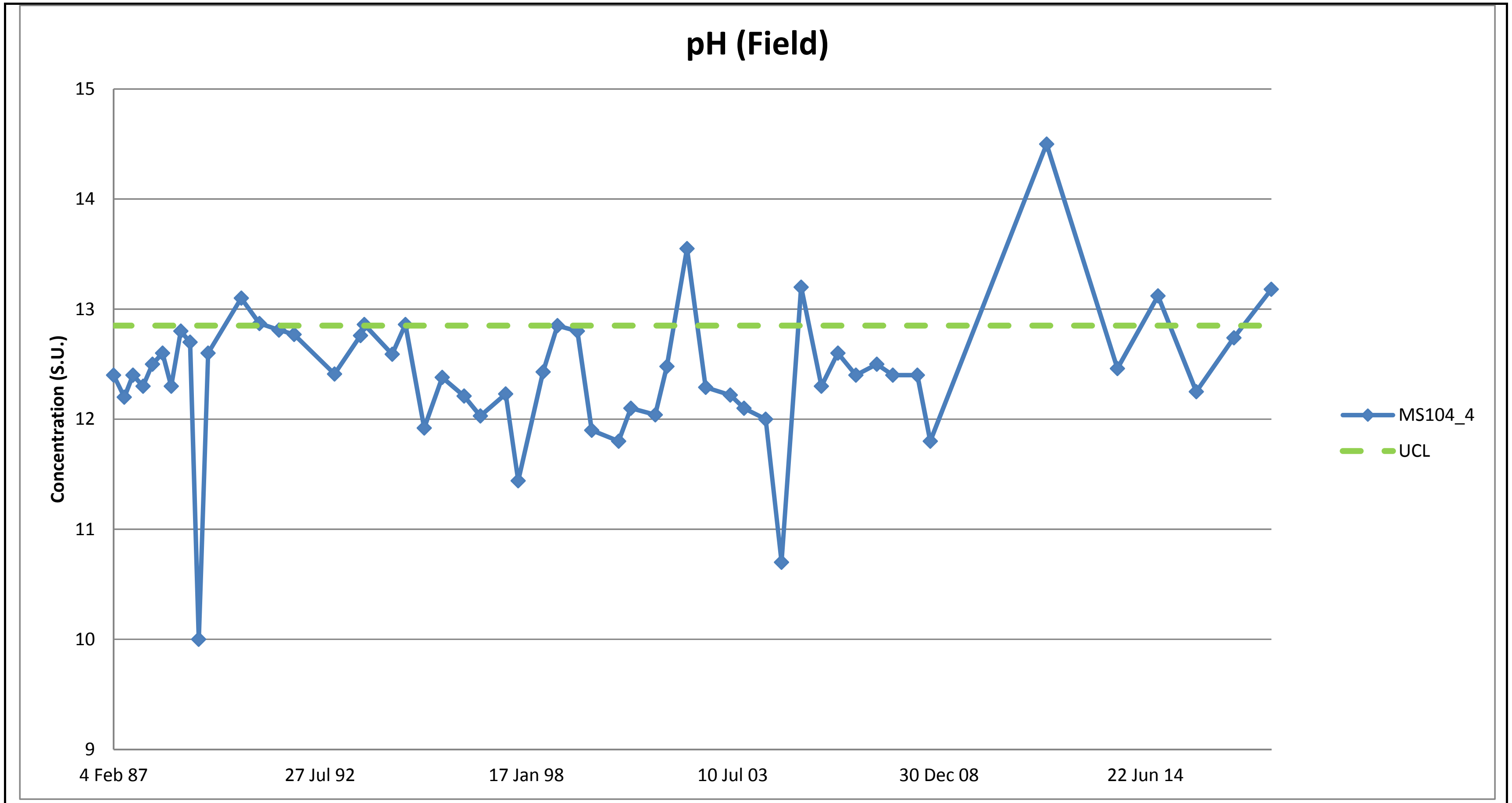


Appendix D

MS-104.3 - pH Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

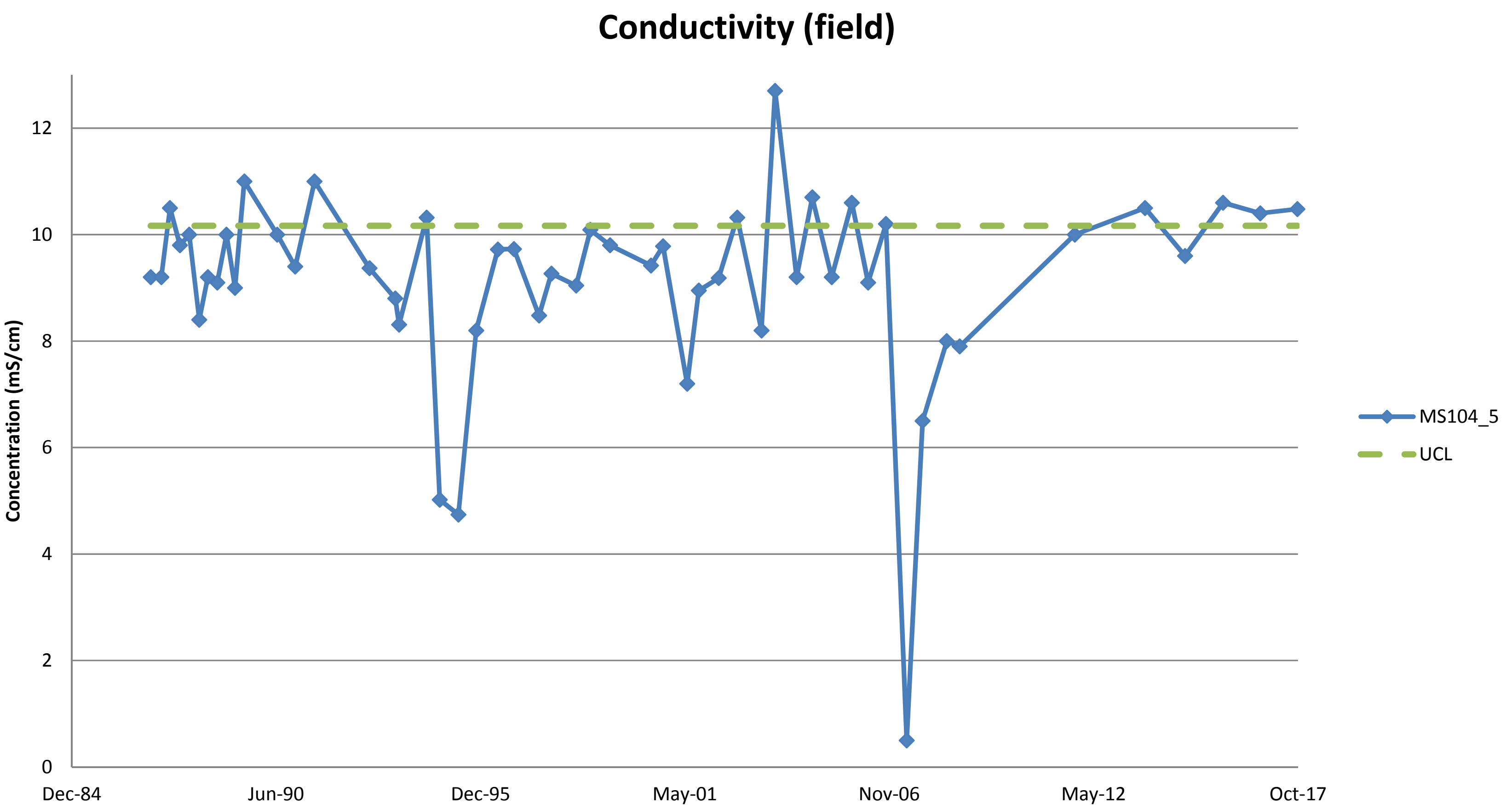


Appendix D

MS-104.4 - pH Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'MS104.4' AND   ChemName = 'pH (field)')

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

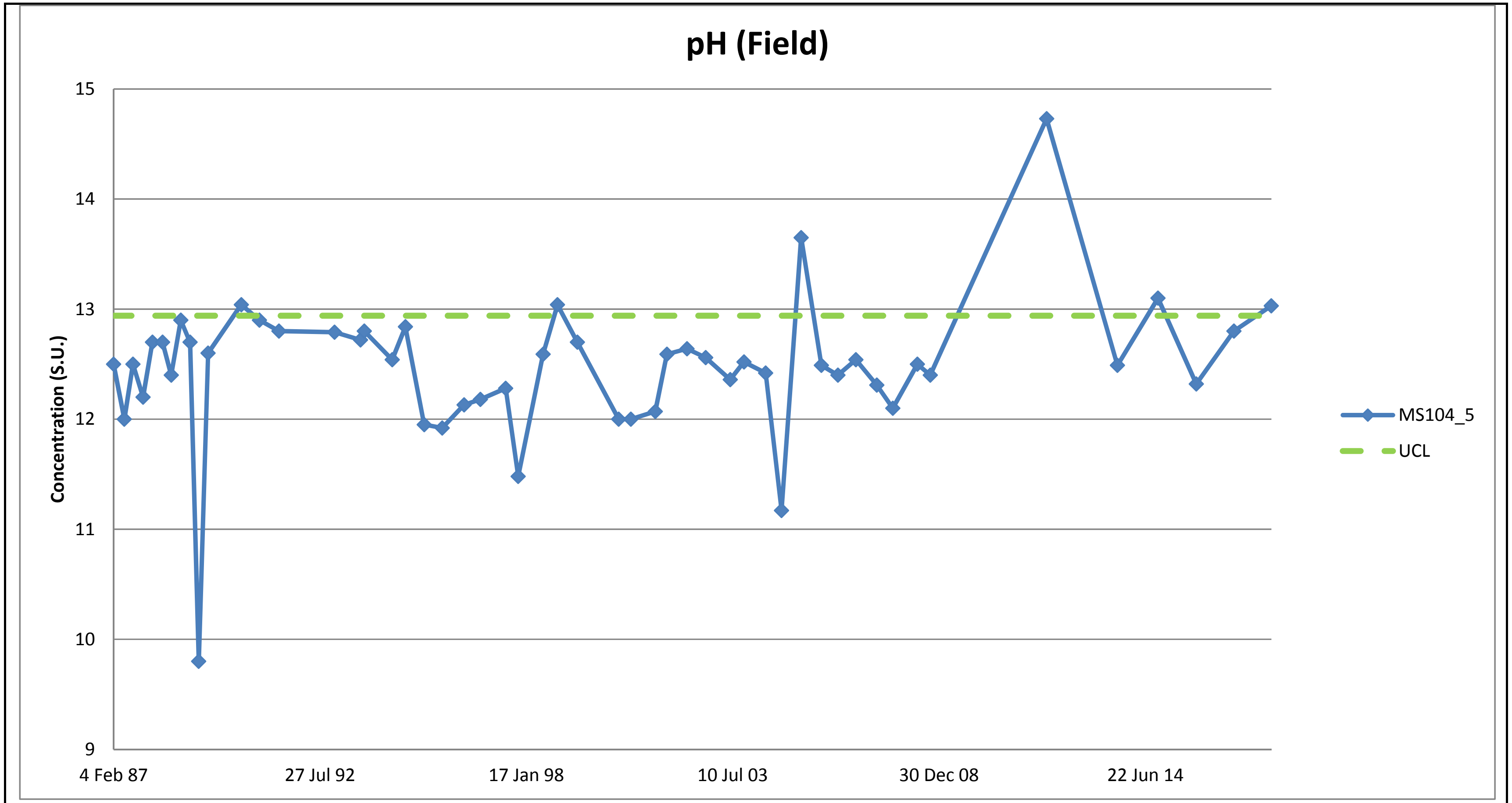


Appendix D

MS-104.5 - Conductivity Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

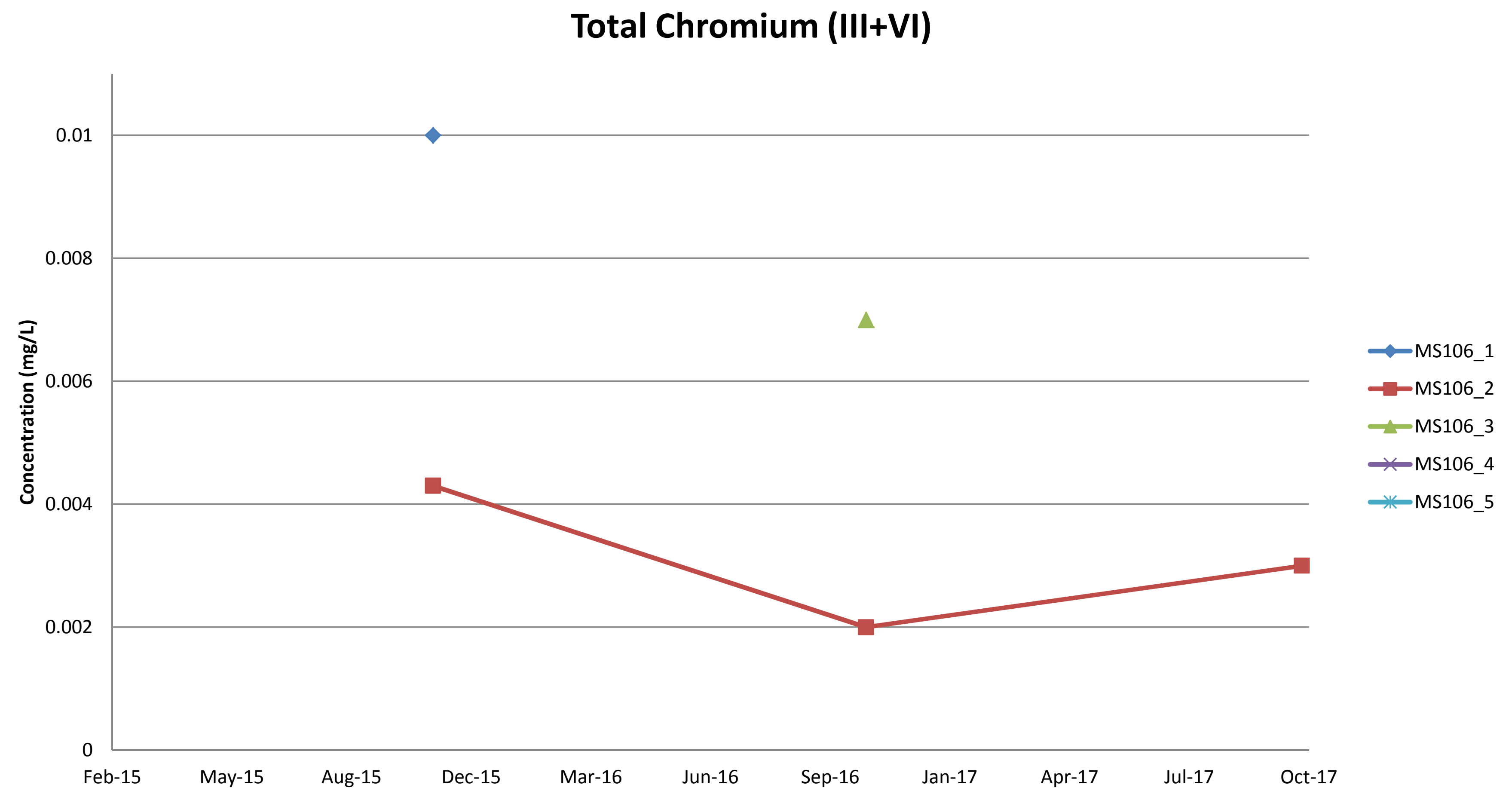


Appendix D

MS-104.5 - pH Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

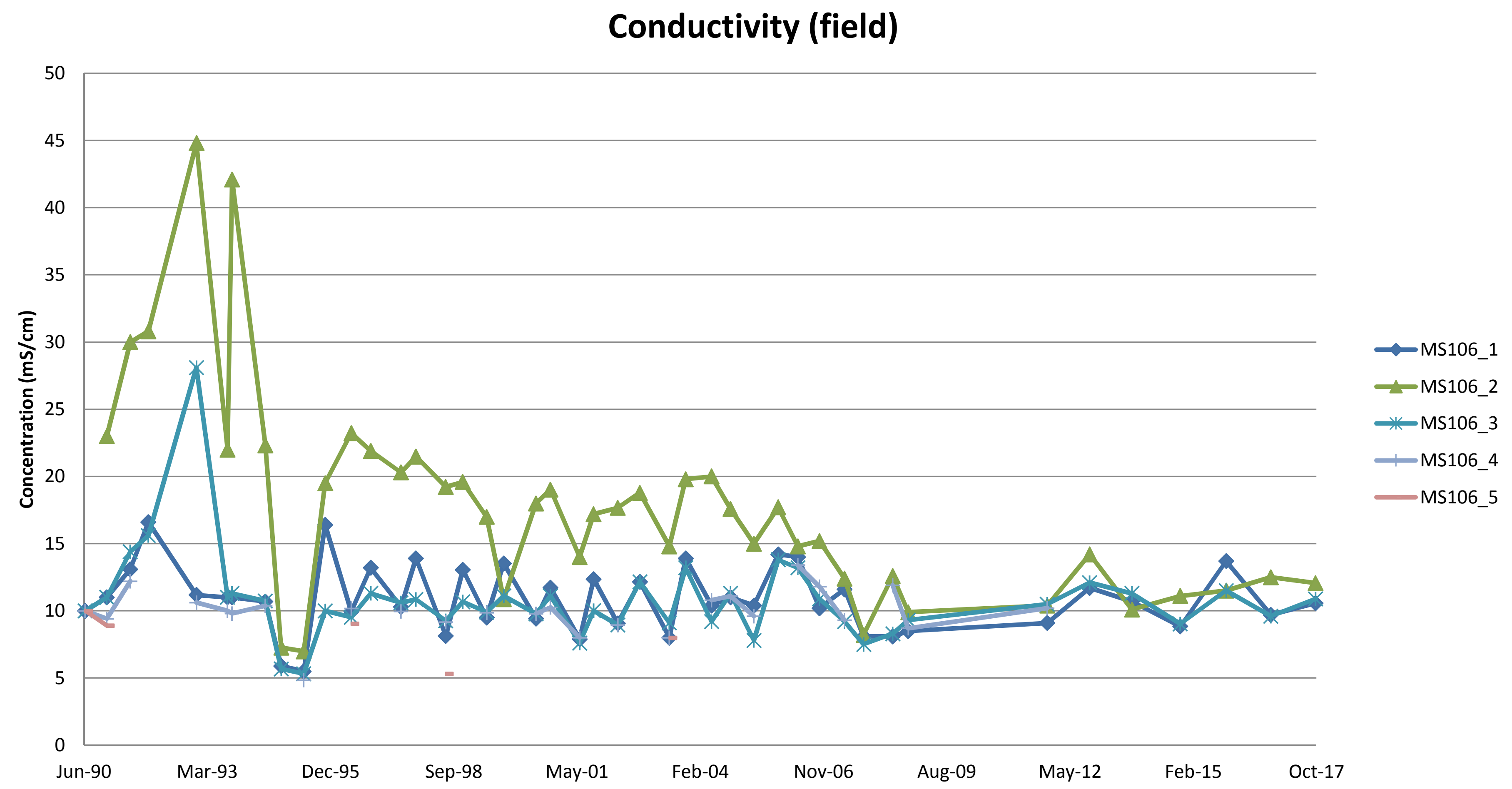


Appendix D

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: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

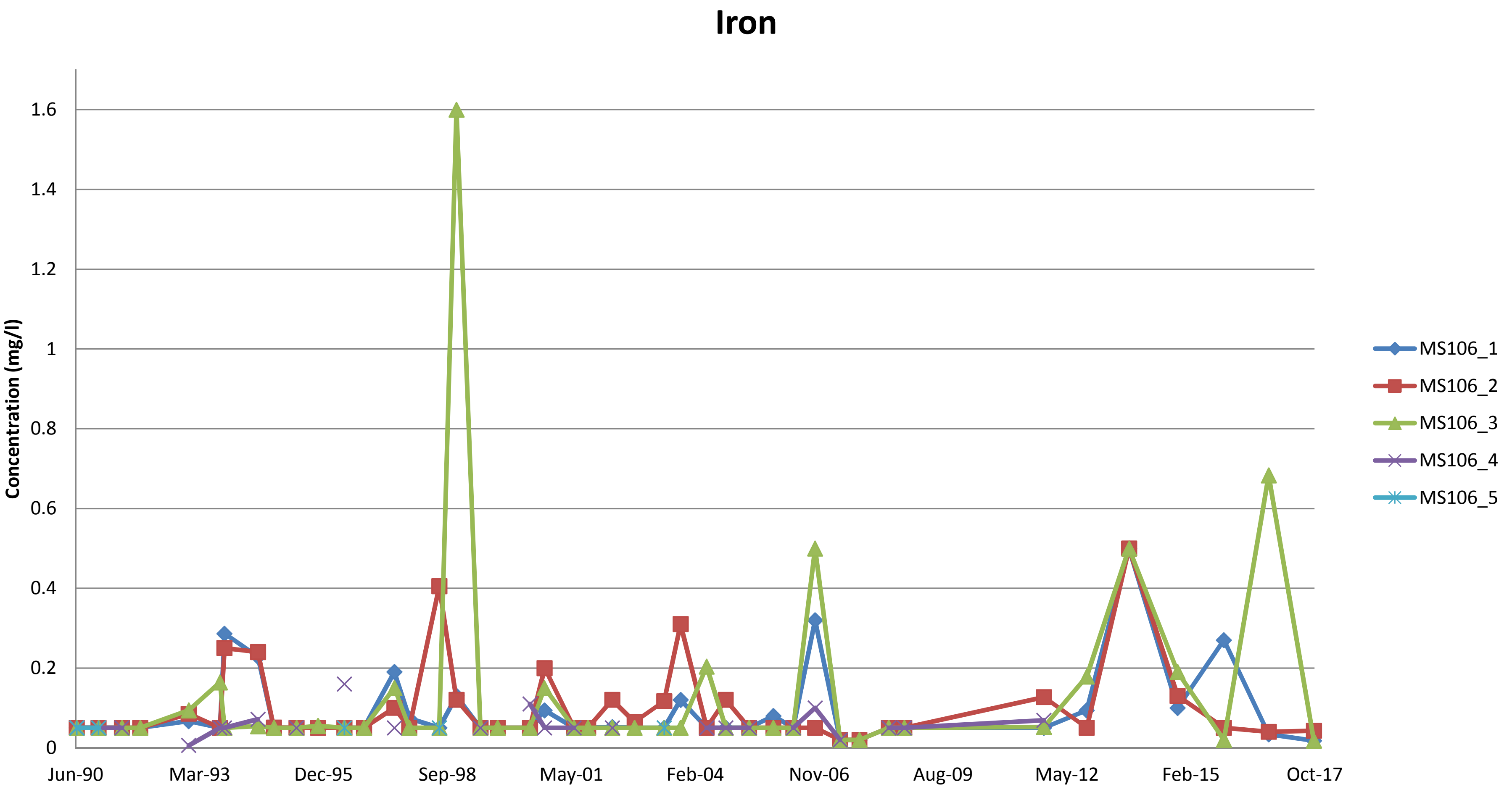


Appendix D

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: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

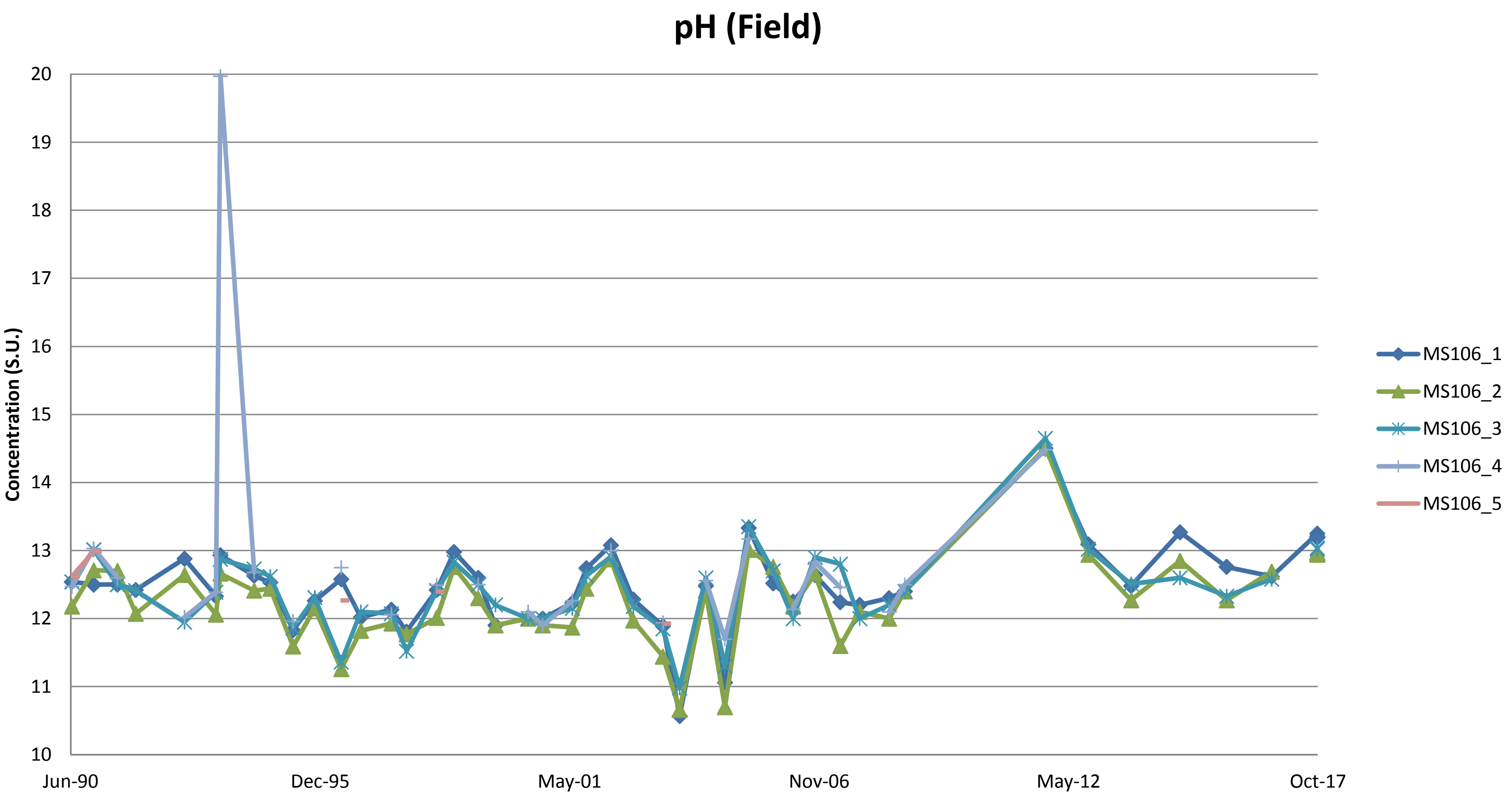


Appendix D

MS-106 Cluster - Iron Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

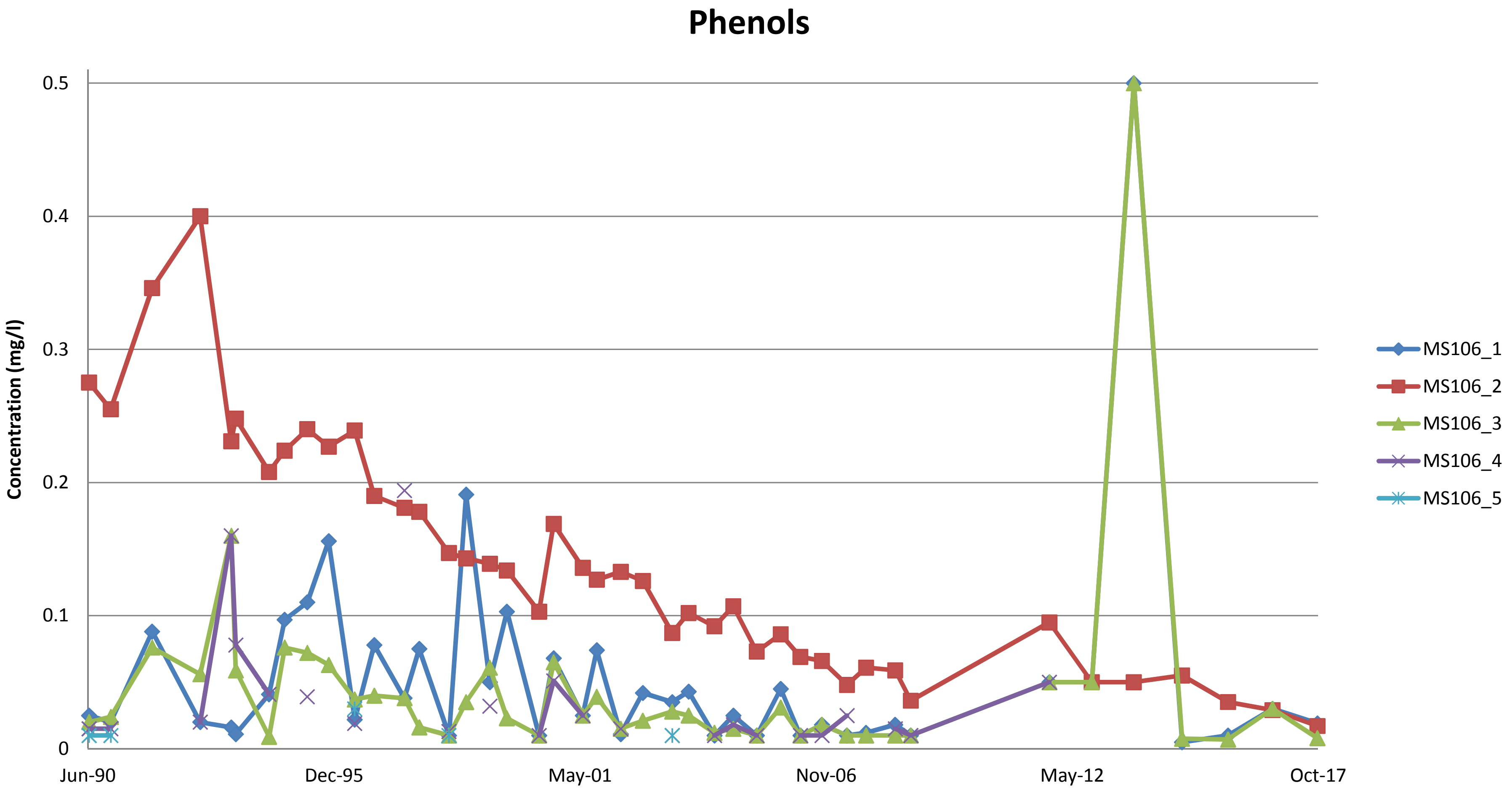


Appendix D

MS-106 Cluster - pH Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	



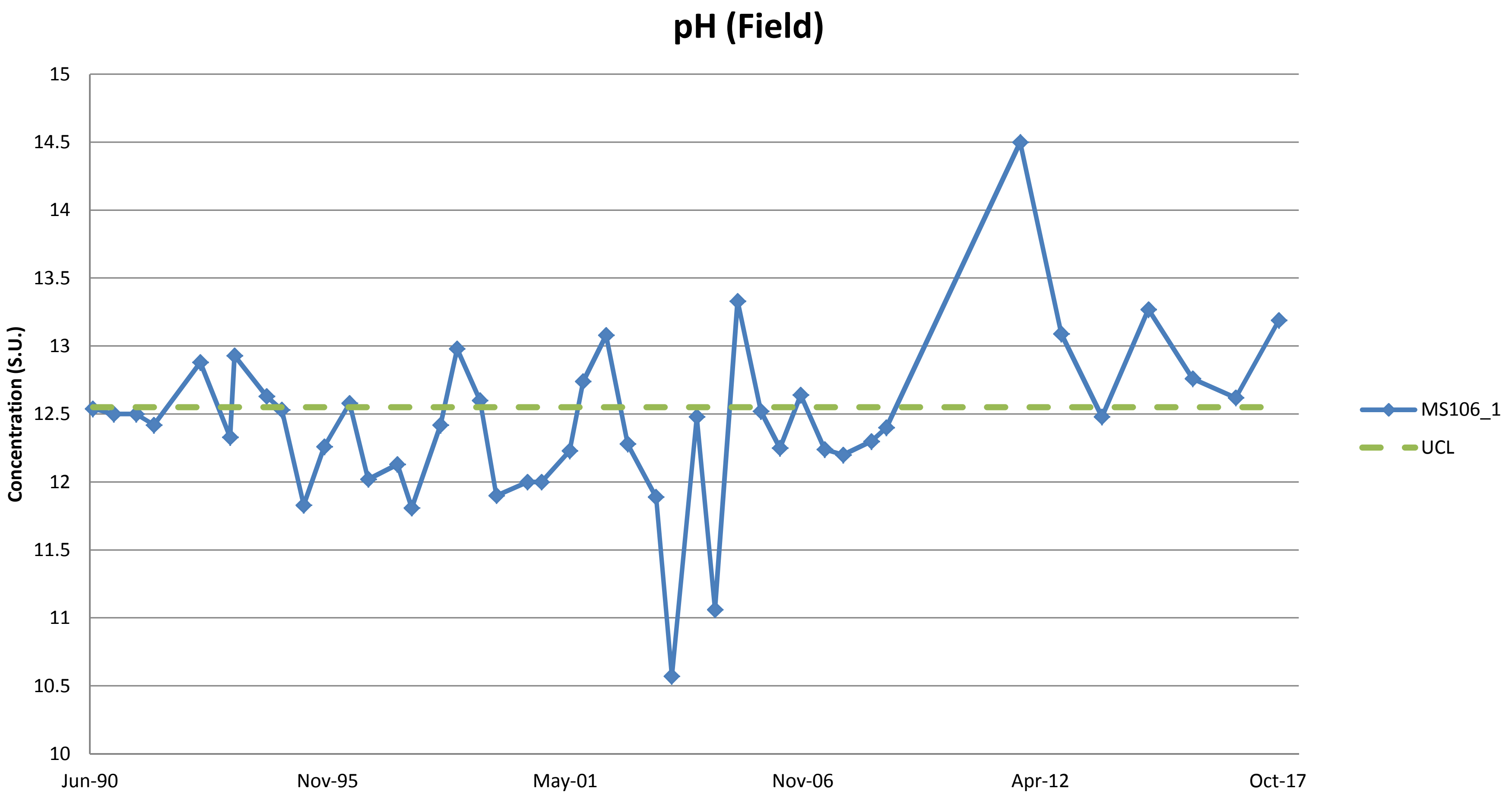
Appendix D

MS-106 Cluster - Phenols Time Series Plot

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

Date: Oct 17
Drawn:
Scale: nts
Chk'd:
Original:
Rev:
File Reference:

GHD

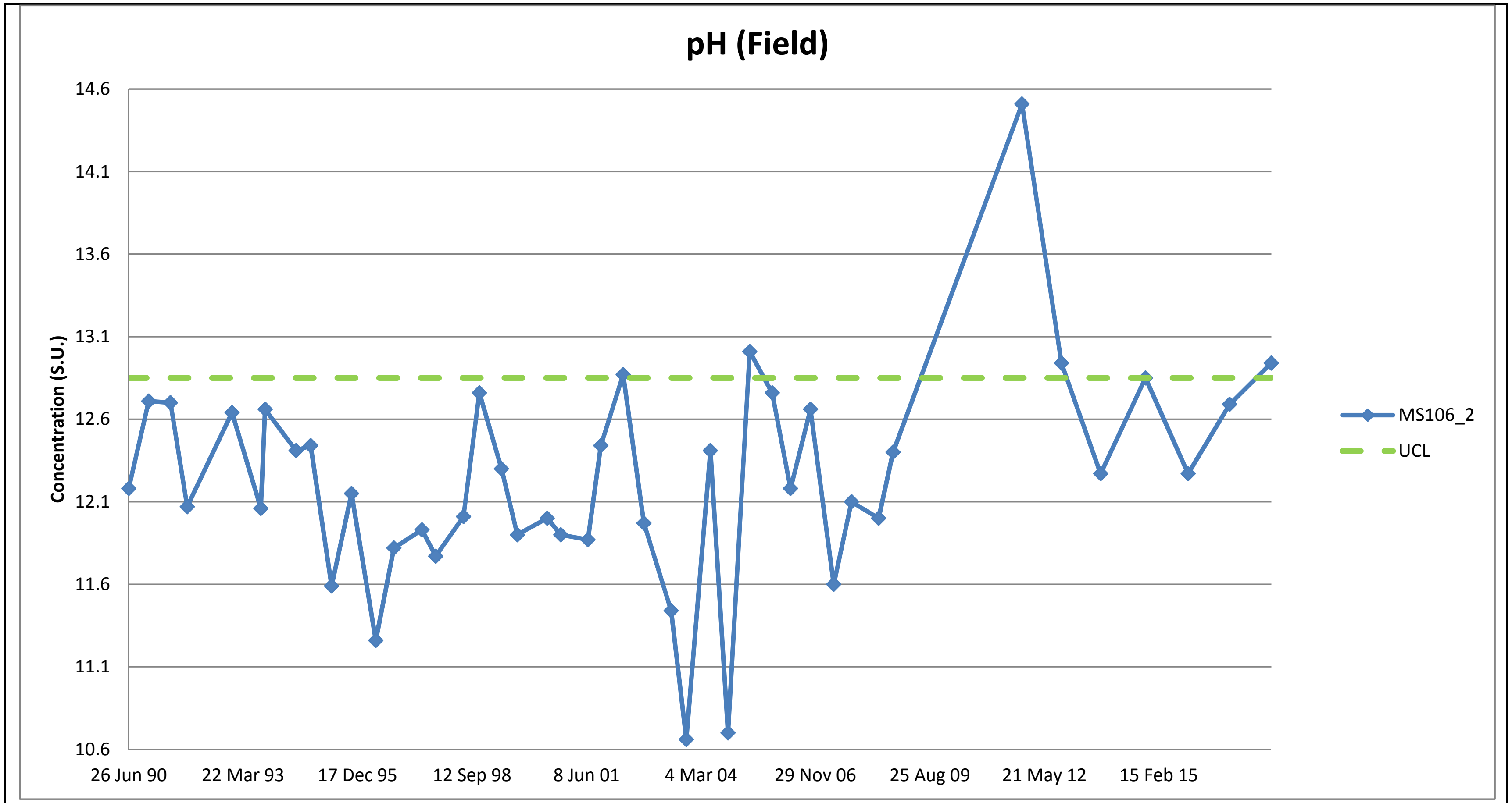


Appendix D

MS-106.1 - pH Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

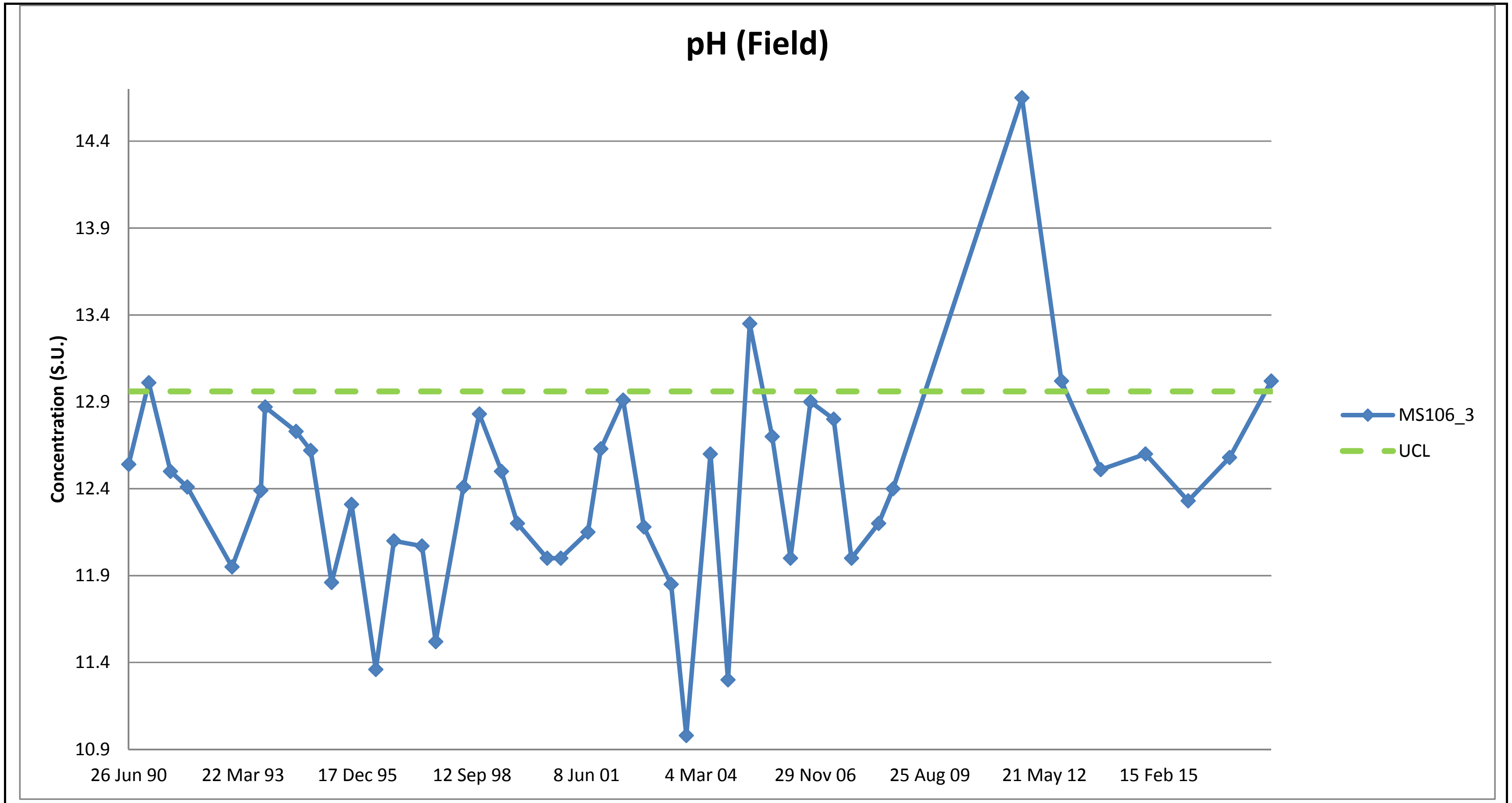


Appendix D

MS-106.2 - pH Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'MS106.2' AND ChemName = 'pH (field)')

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

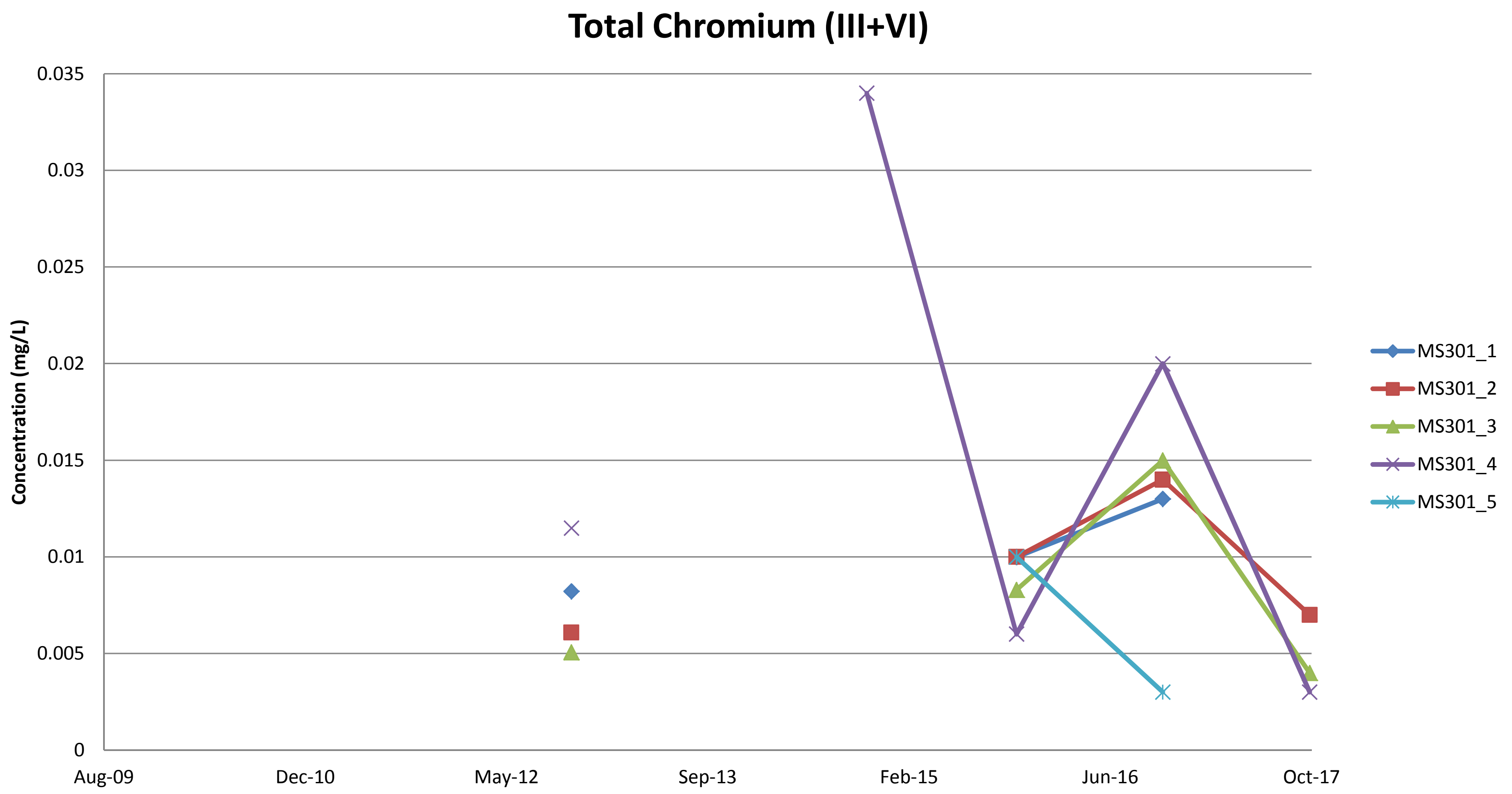


Appendix D

MS-106.3 - pH Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

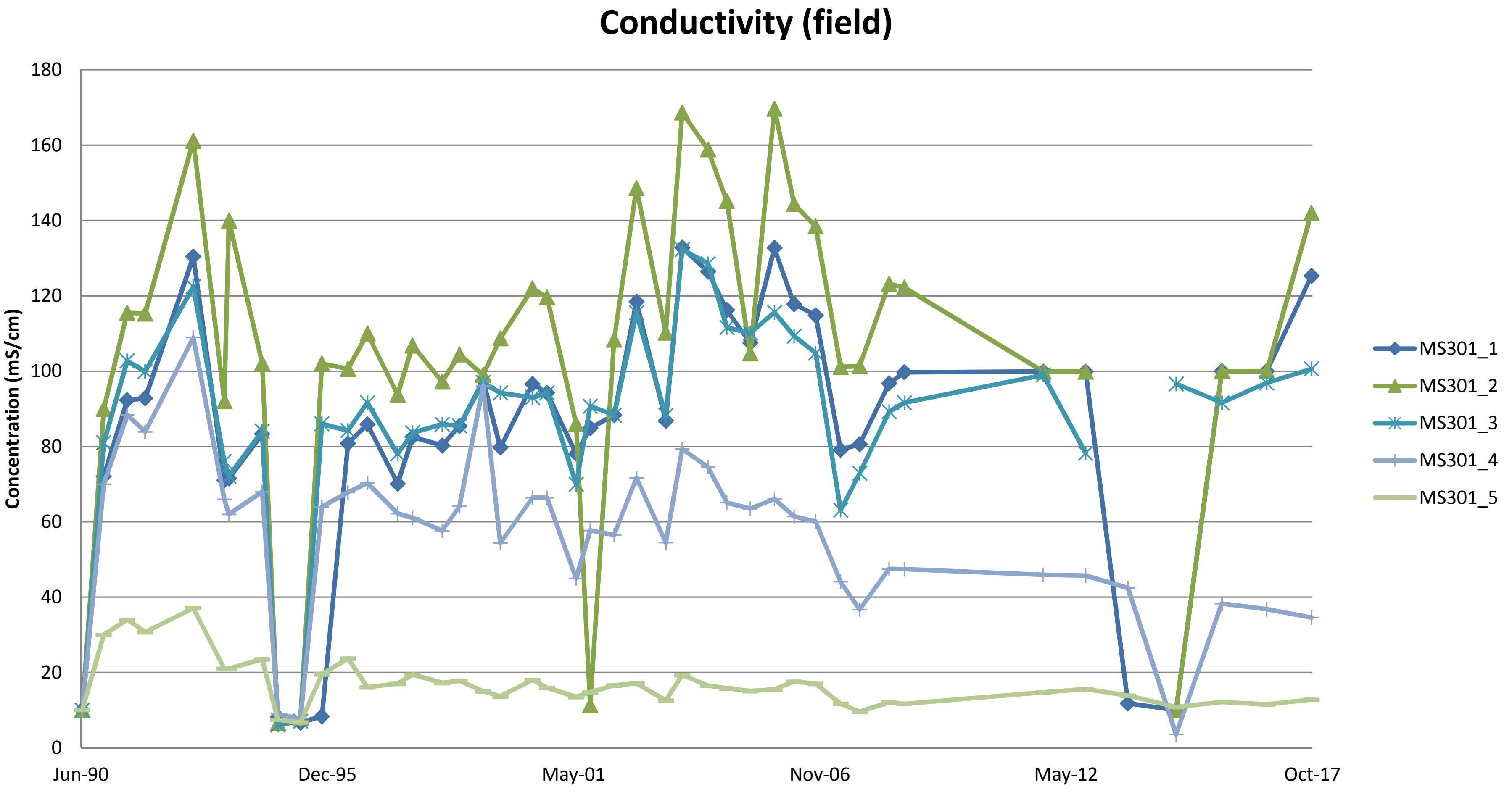


Appendix D

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: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

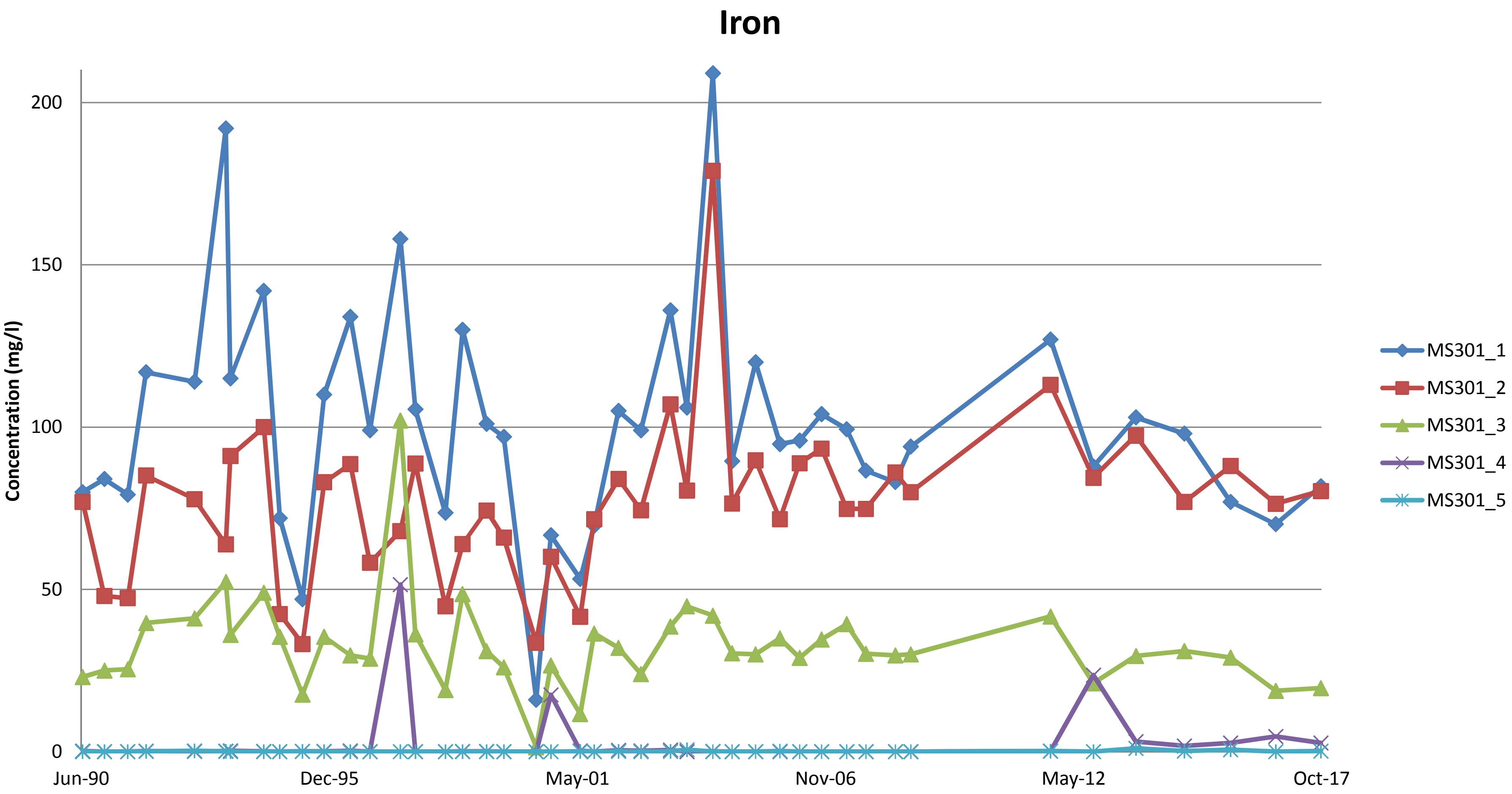


Appendix D

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: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

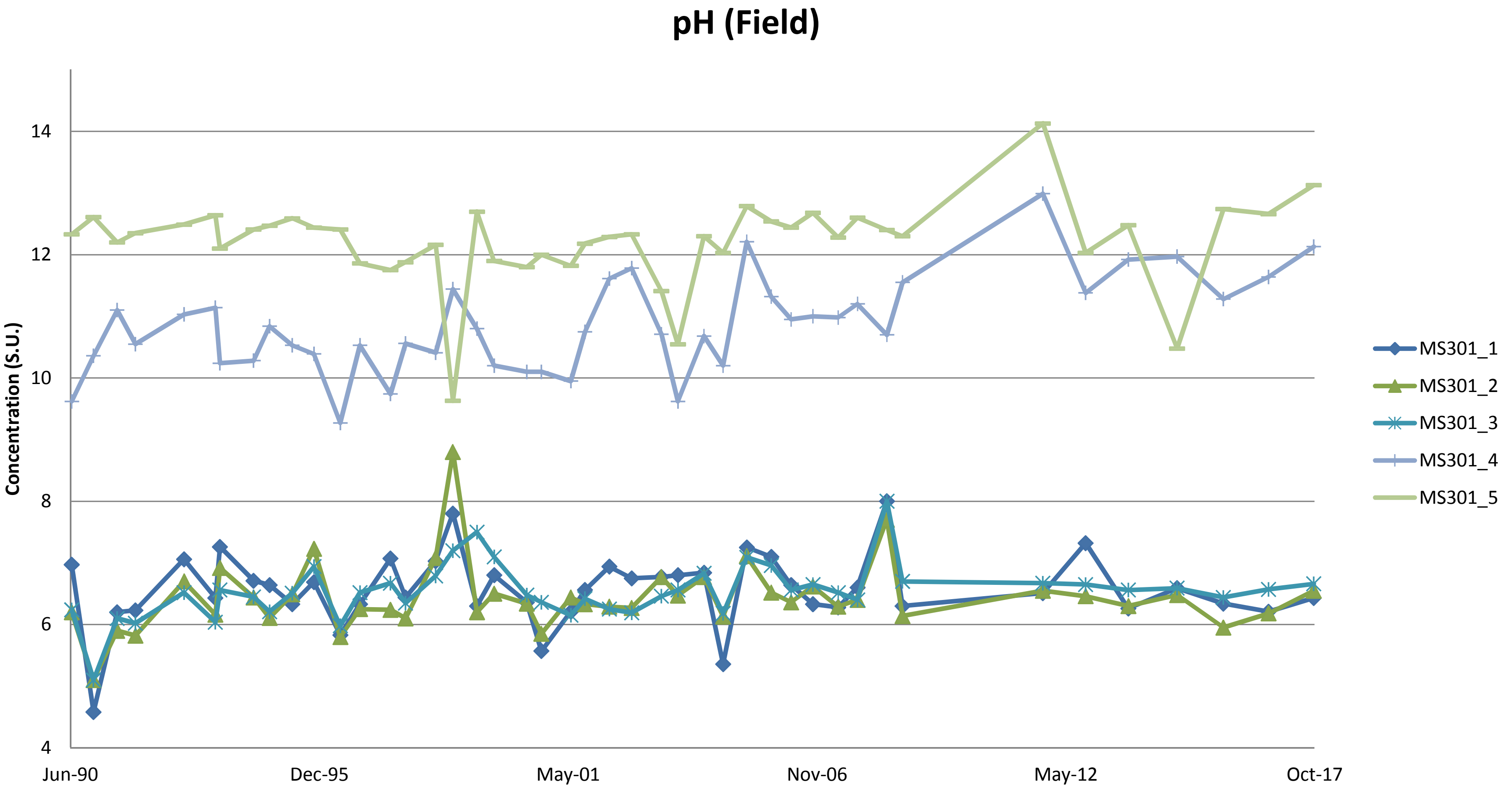


Appendix D

MS-301 Cluster - Iron 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 WellCode Is Null AND ChemName = 'Iron')

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	



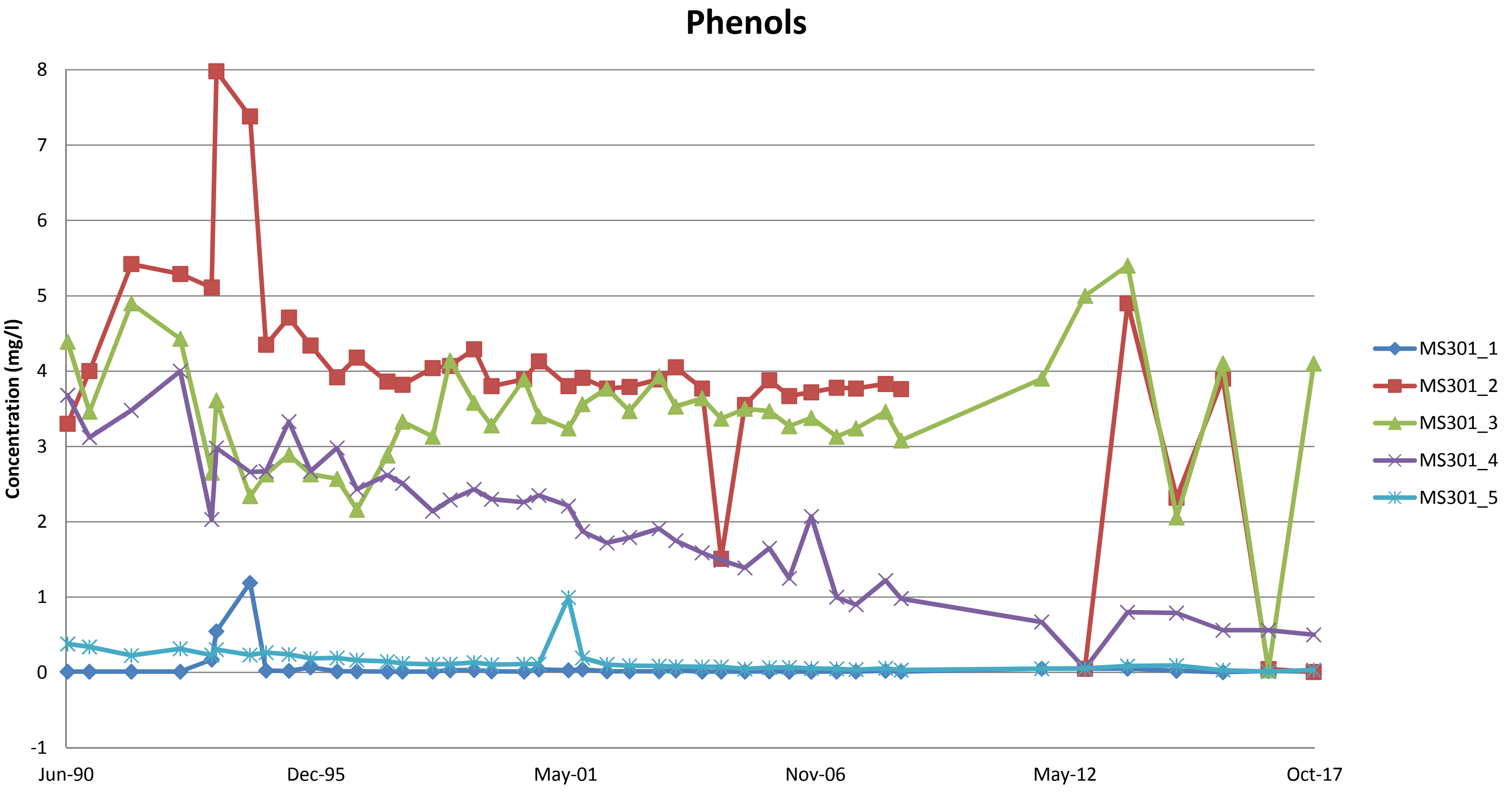
Appendix D

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: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

GHD

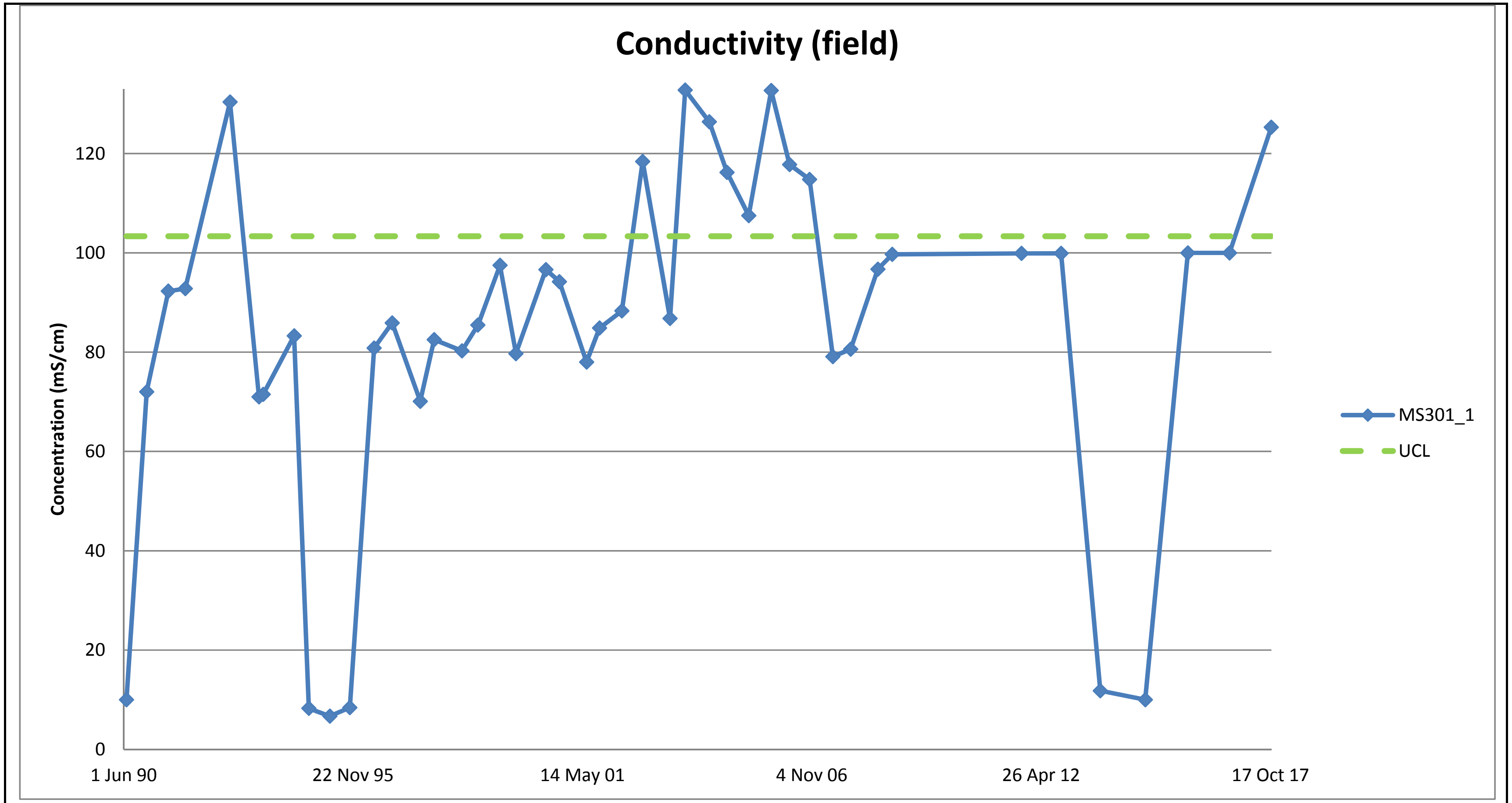


Appendix D

MS-301 - Phenols 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 WellCode Is Null AND ChemName = 'Phenols')

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

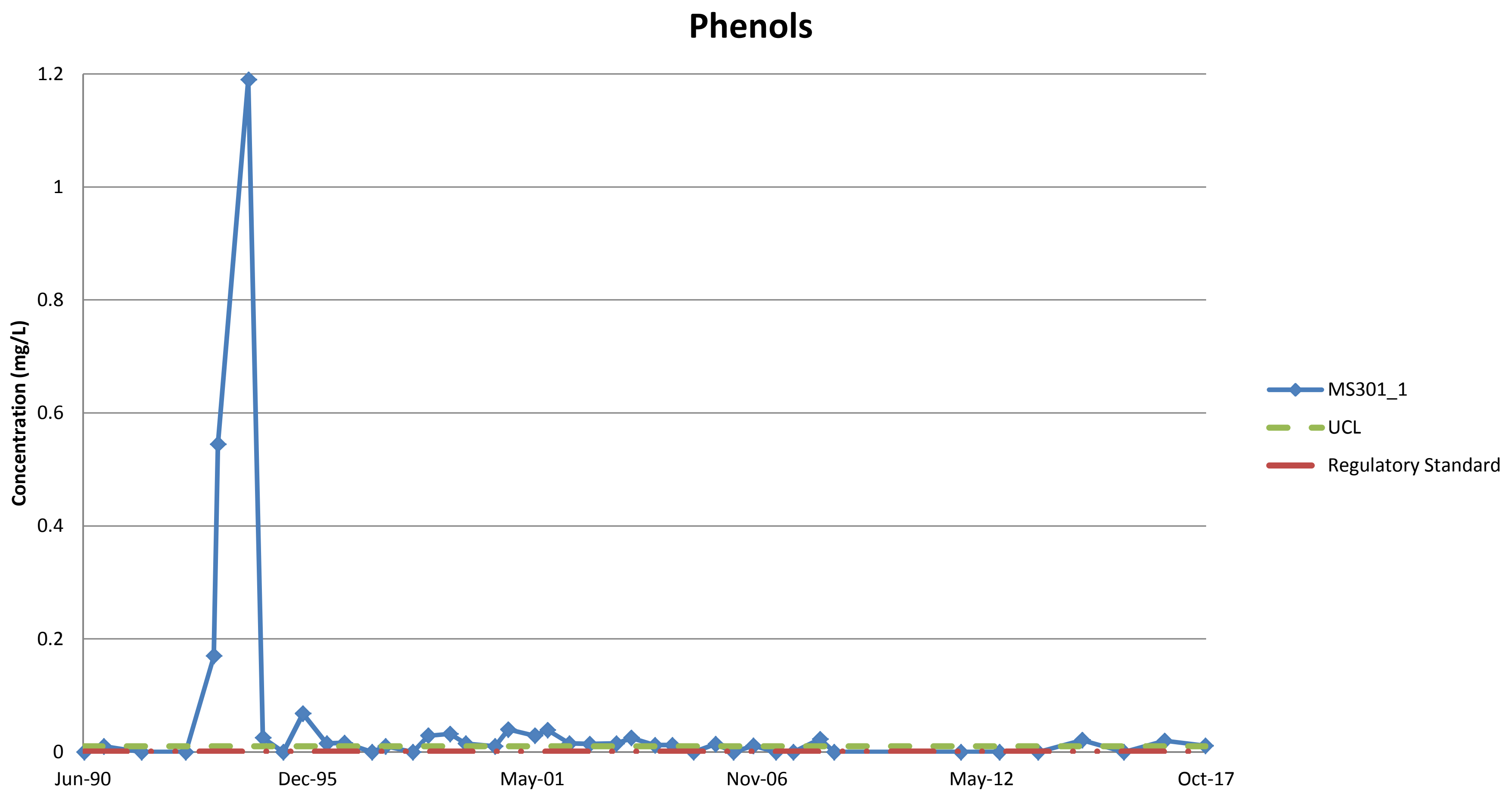


Appendix D

MS-301.1 - Conductivity Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	



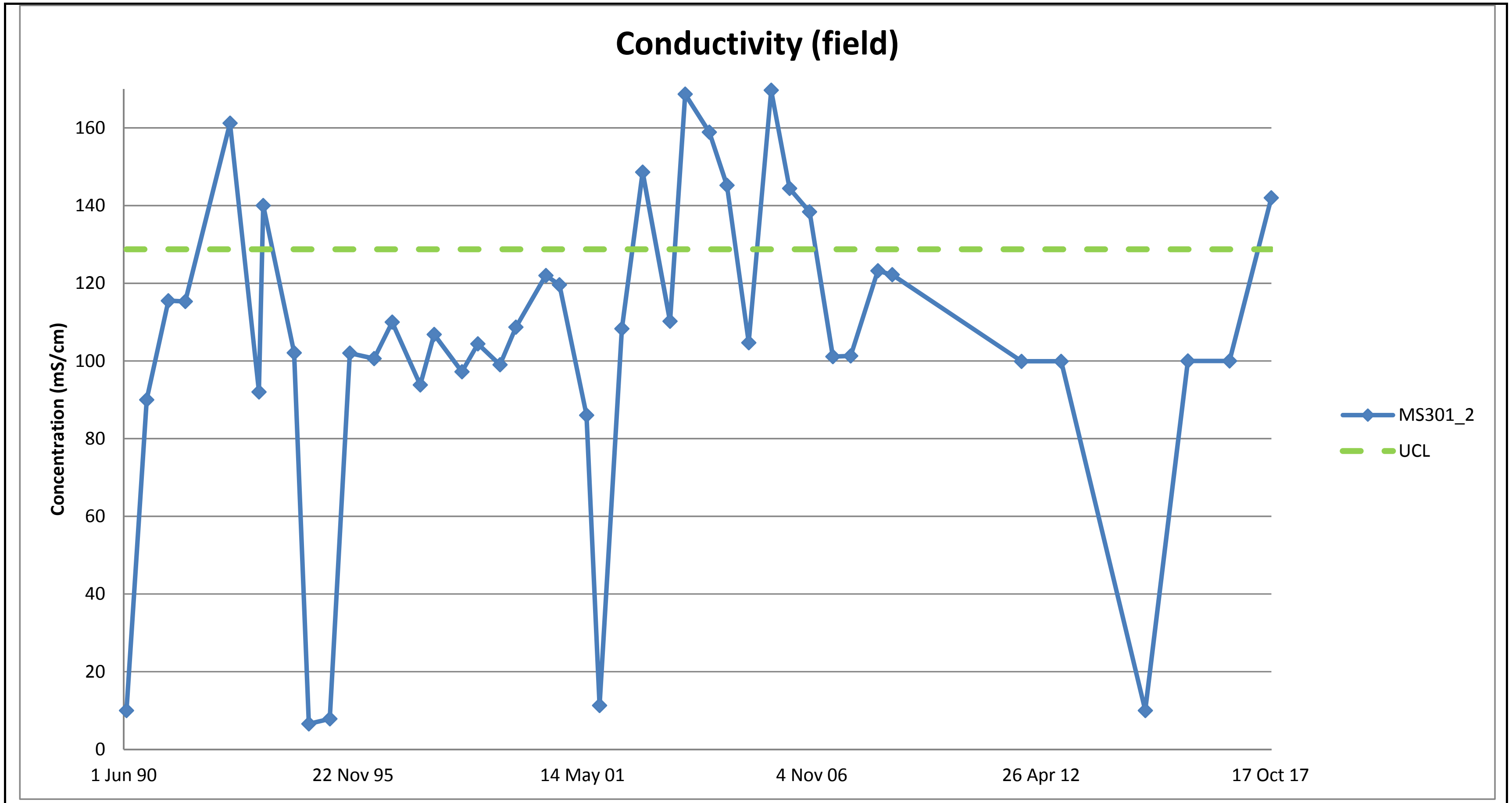
Appendix D

MS-301.1 - Phenols Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

GHD

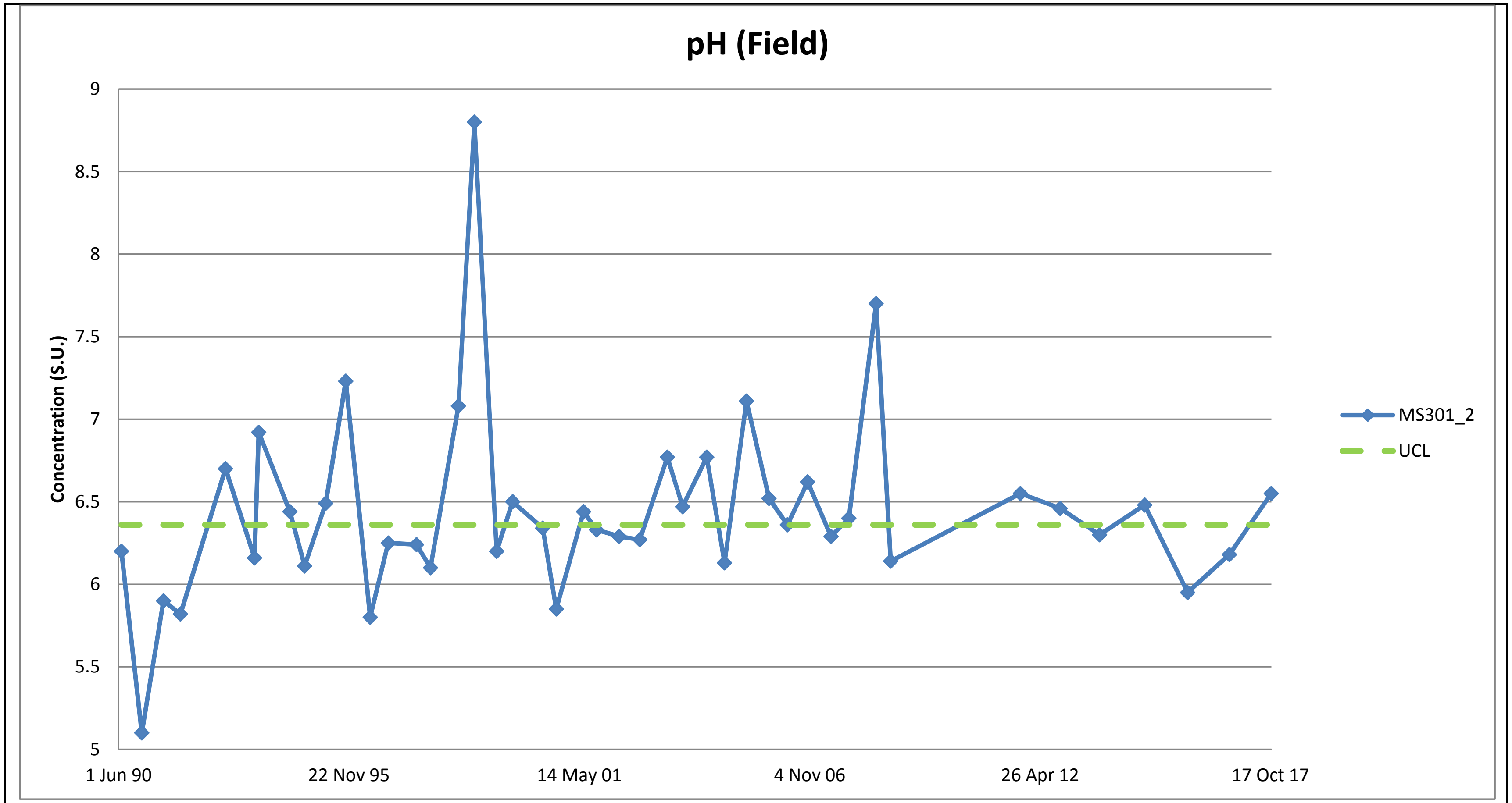


Appendix D

MS-301.2 - Conductivity Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'MS301.2' AND ChemName = 'EC (field)')

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

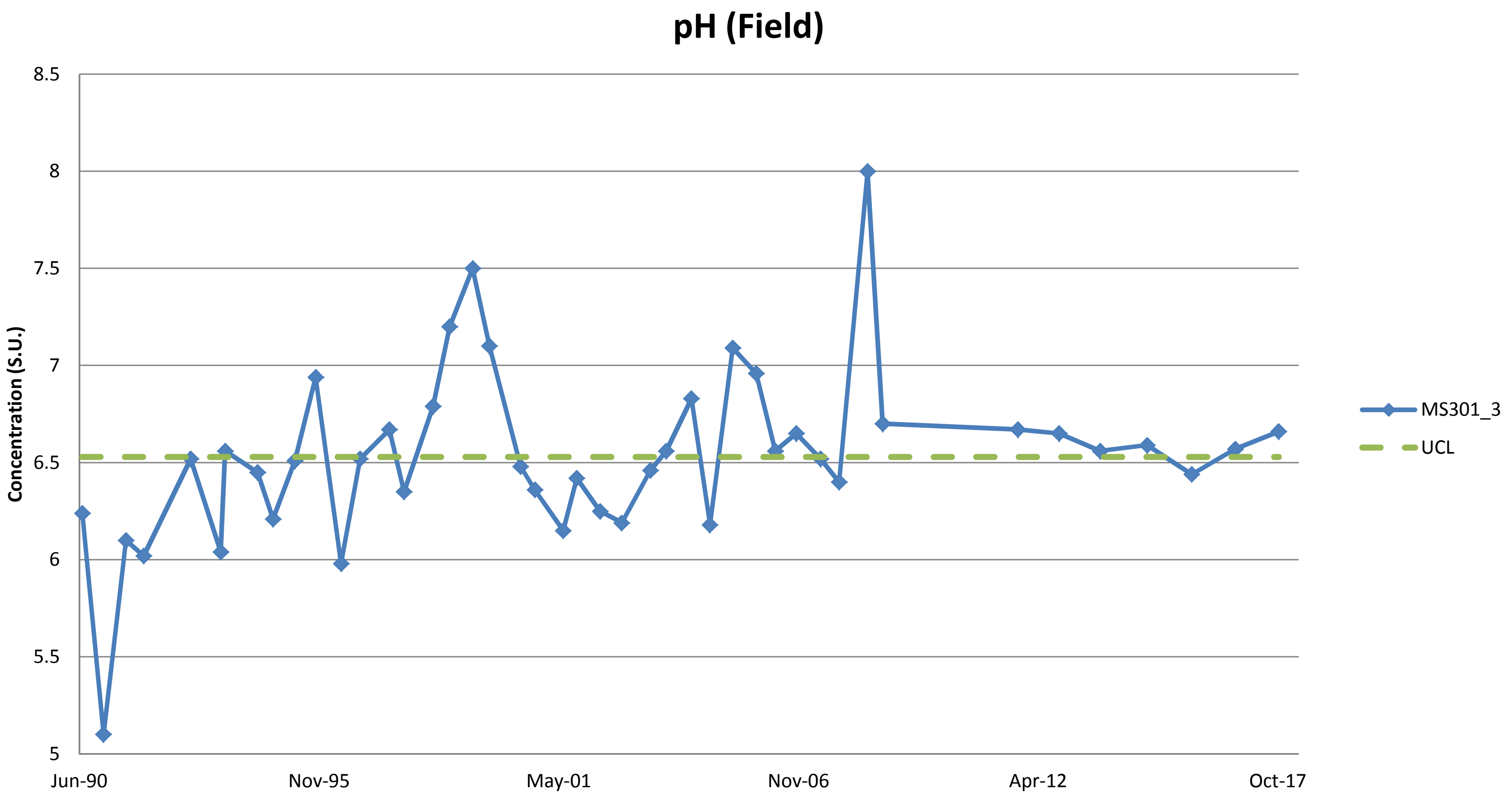


Appendix D

MS-301.2 - pH Time Series Plot

Former Crucible Specialty Metals LF, Where(Field_ID = 'MS301.2' AND   ChemName = 'pH (field)')

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

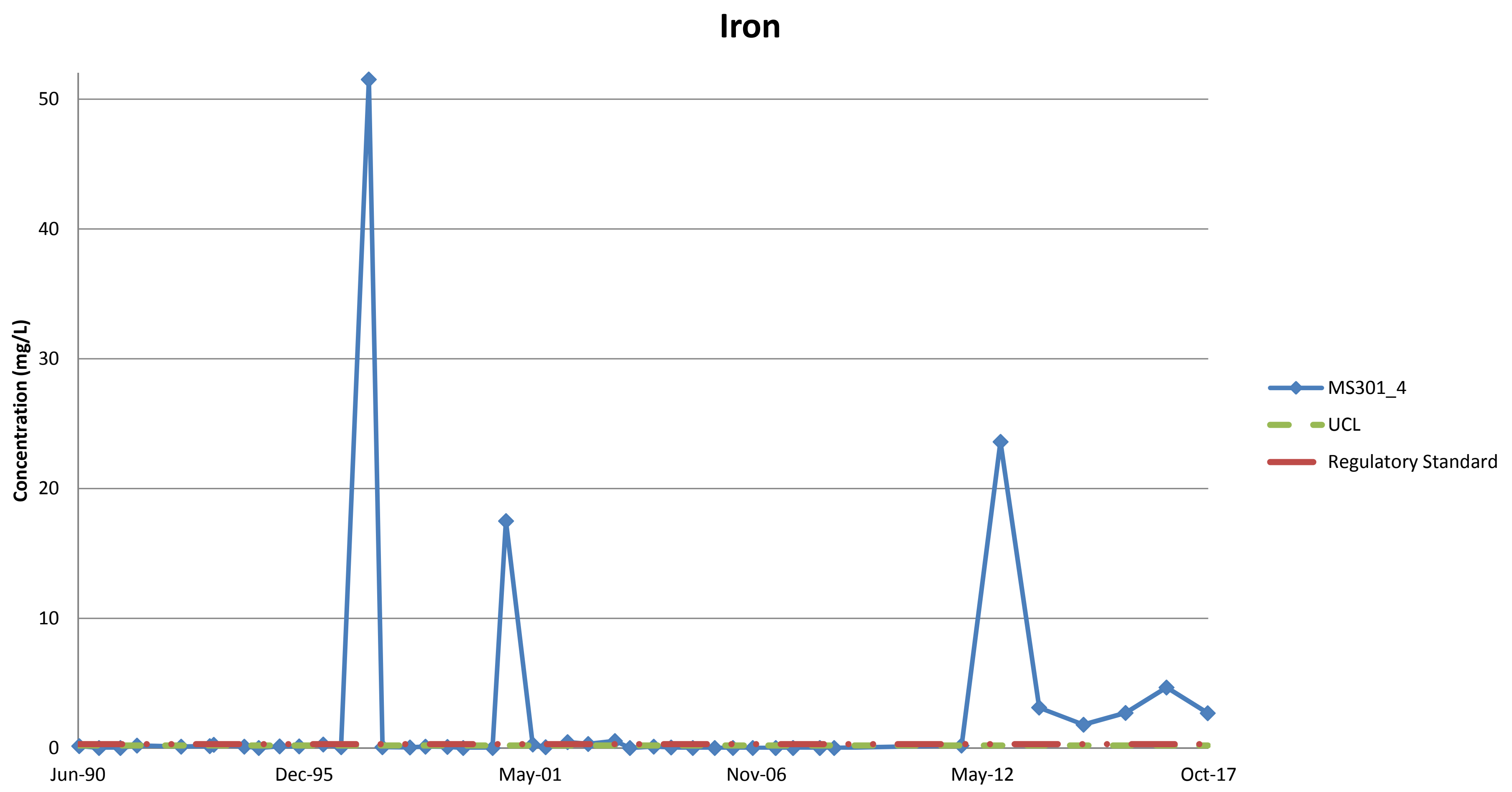


Appendix D

MS-301.3 - pH Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

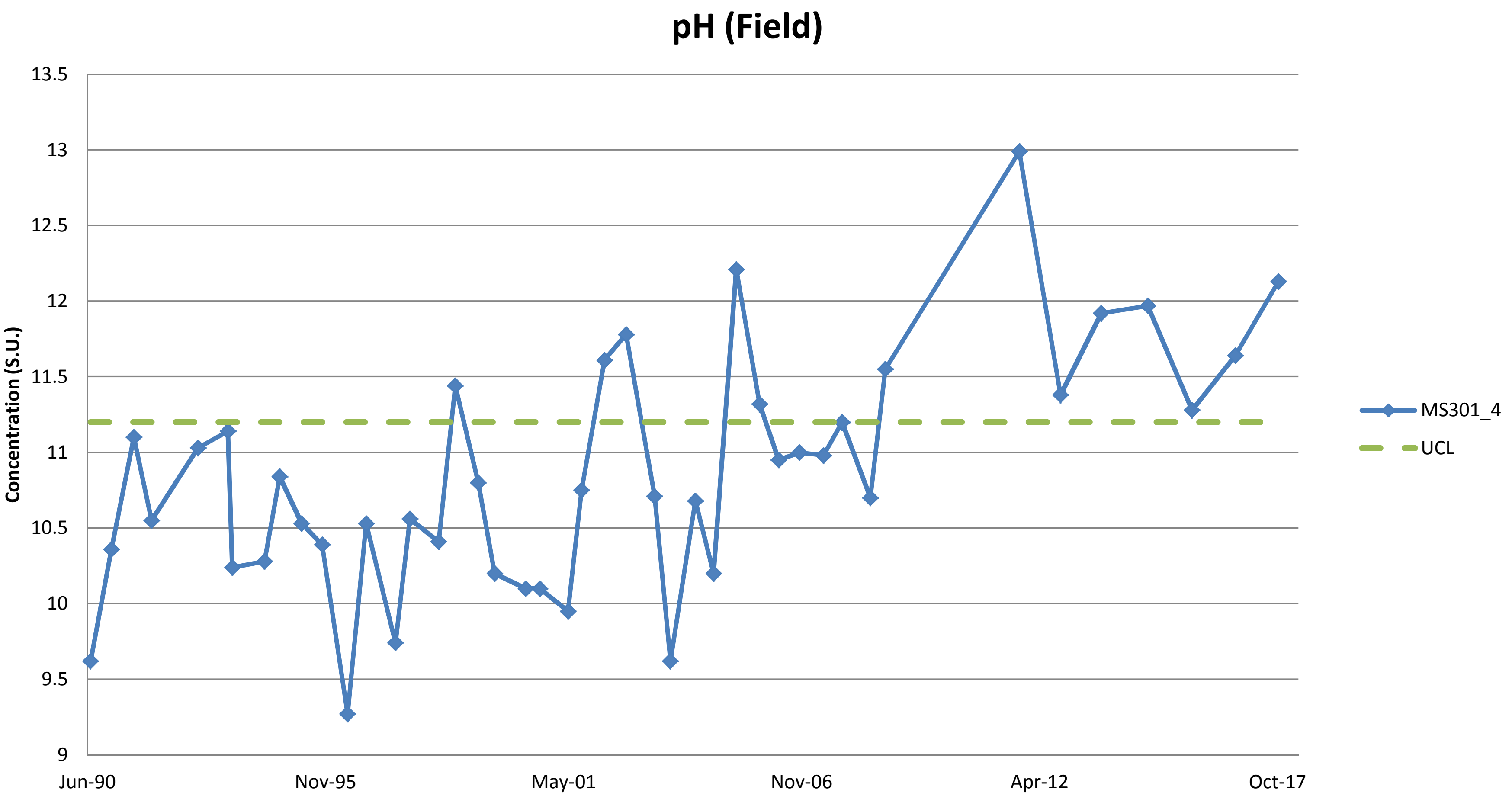


Appendix D

MS-301.4 - Iron Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

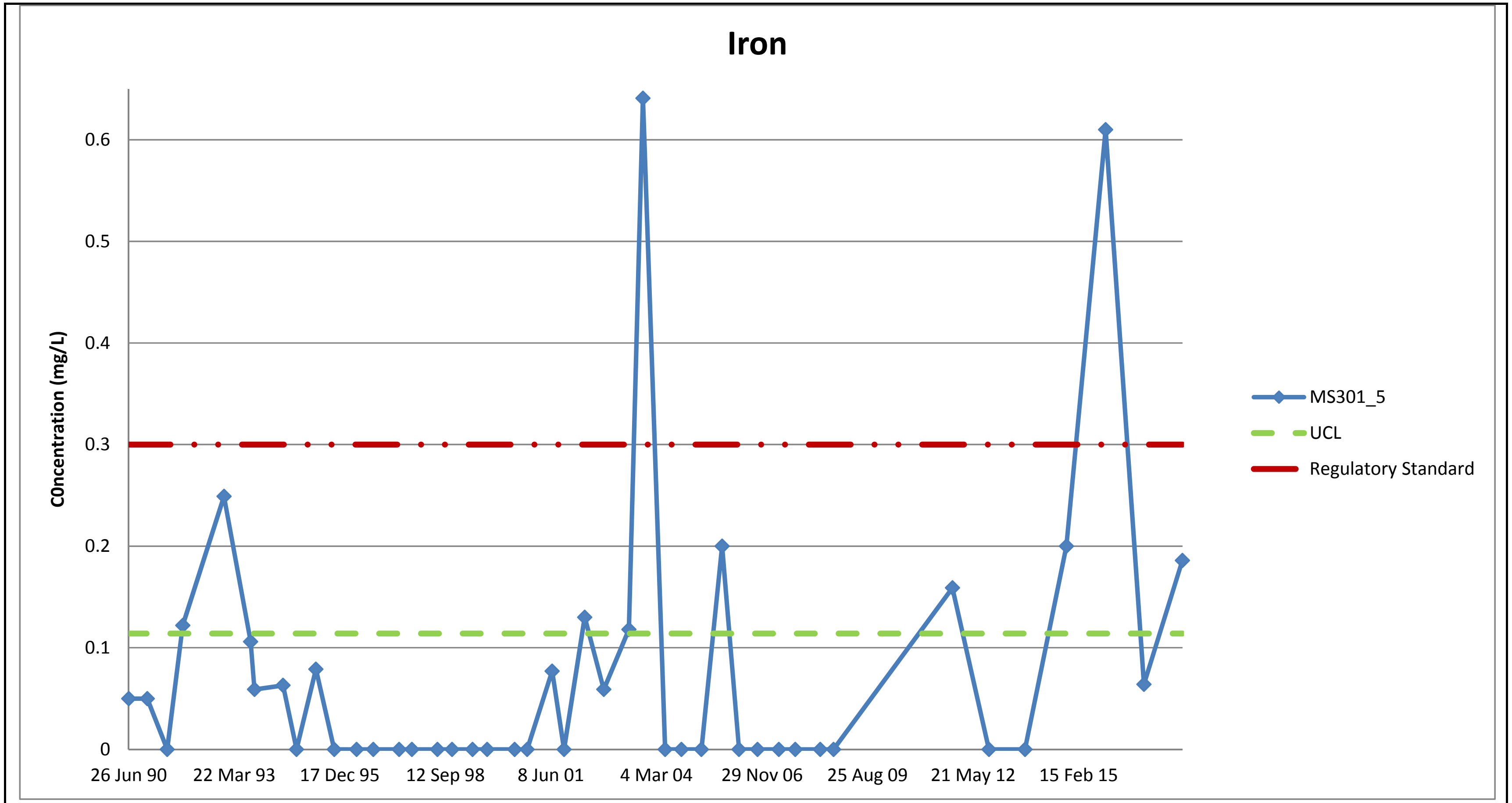


Appendix D

MS-301.4 - pH Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

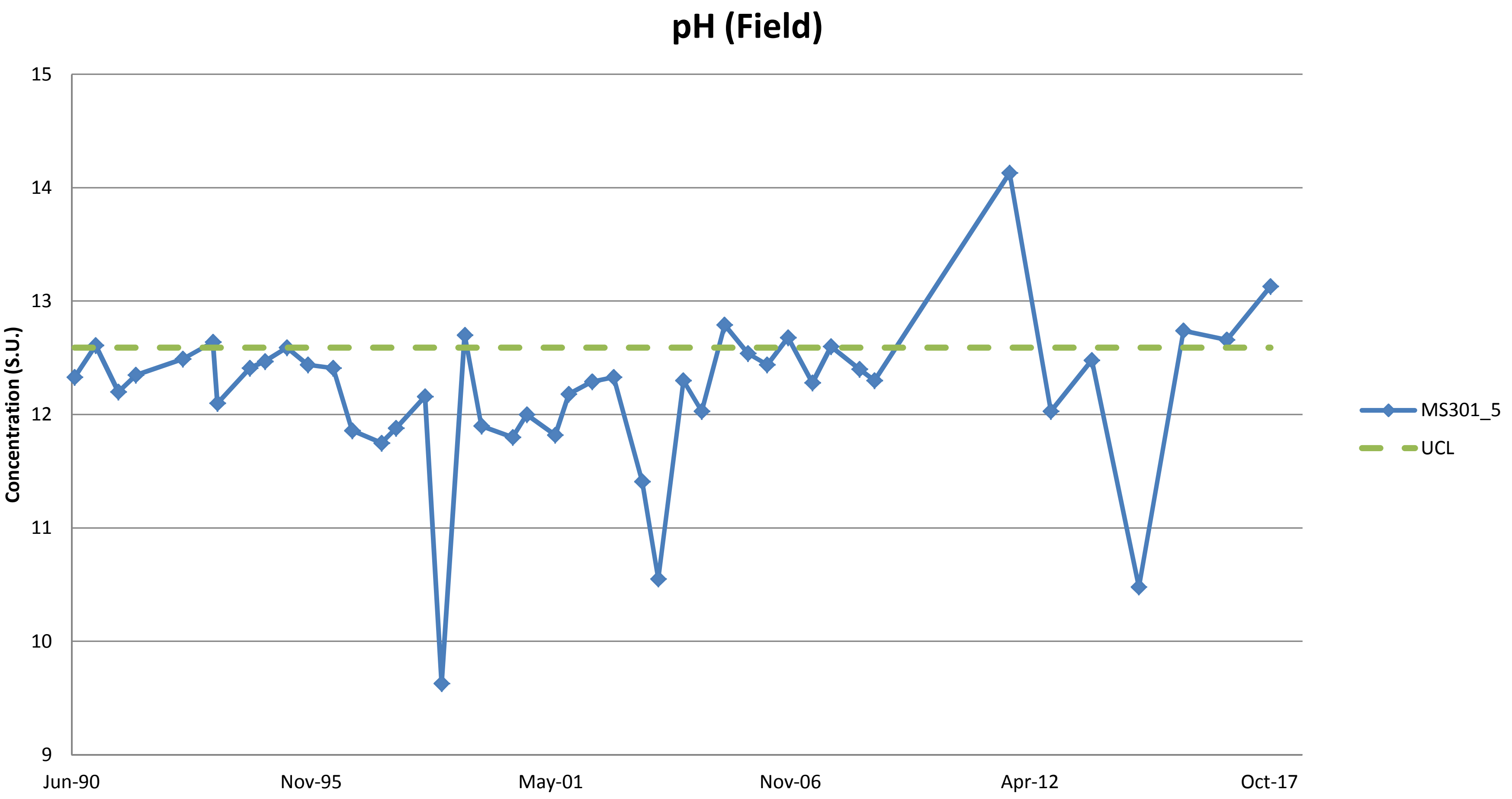


Appendix D

MS-301.5 - Iron Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	



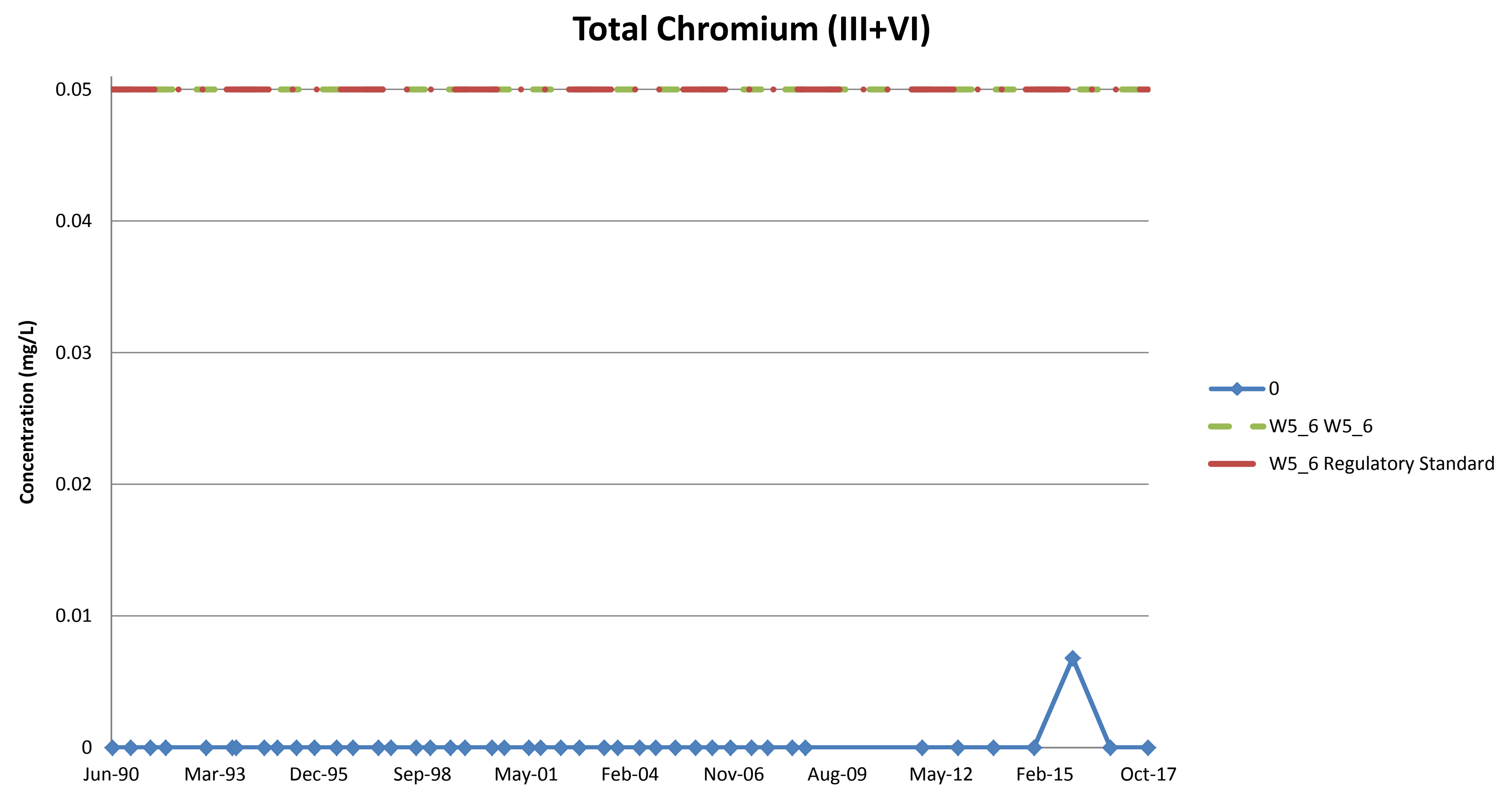
Appendix D

MS-301.5 - pH Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

GHD

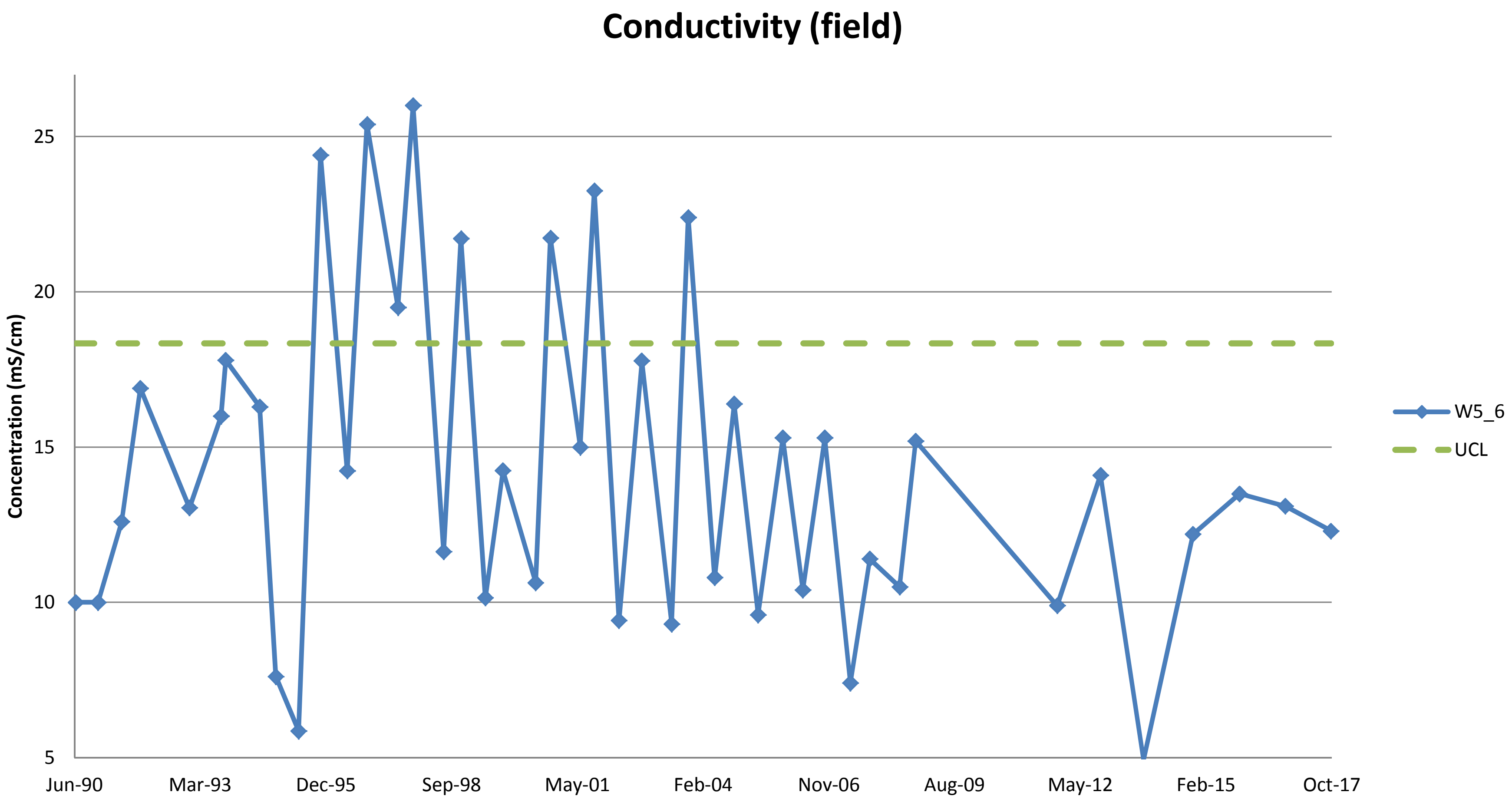


Appendix D

W-5.6 - Chromium Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

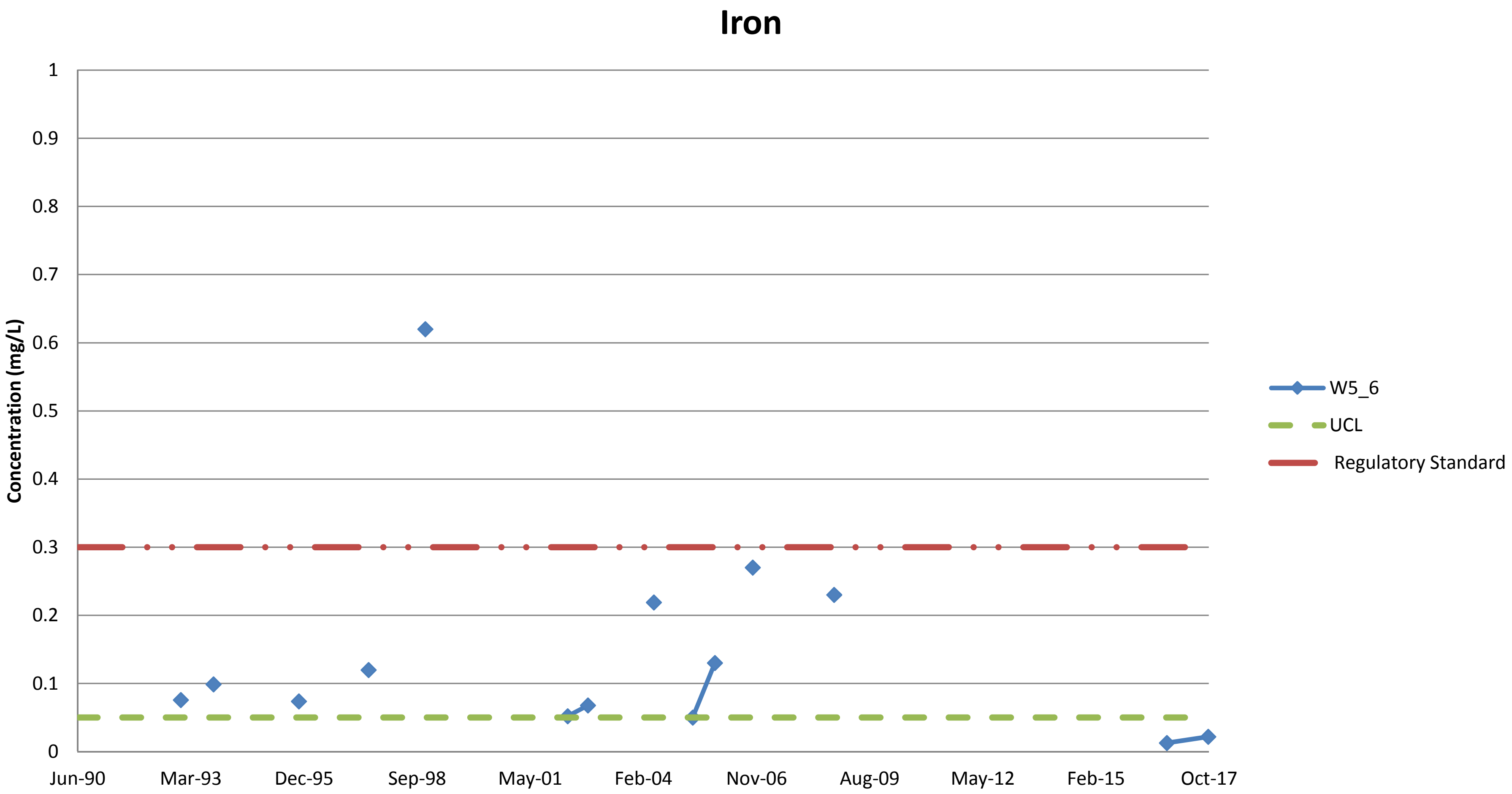


Appendix D

W-5.6 - Conductivity Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

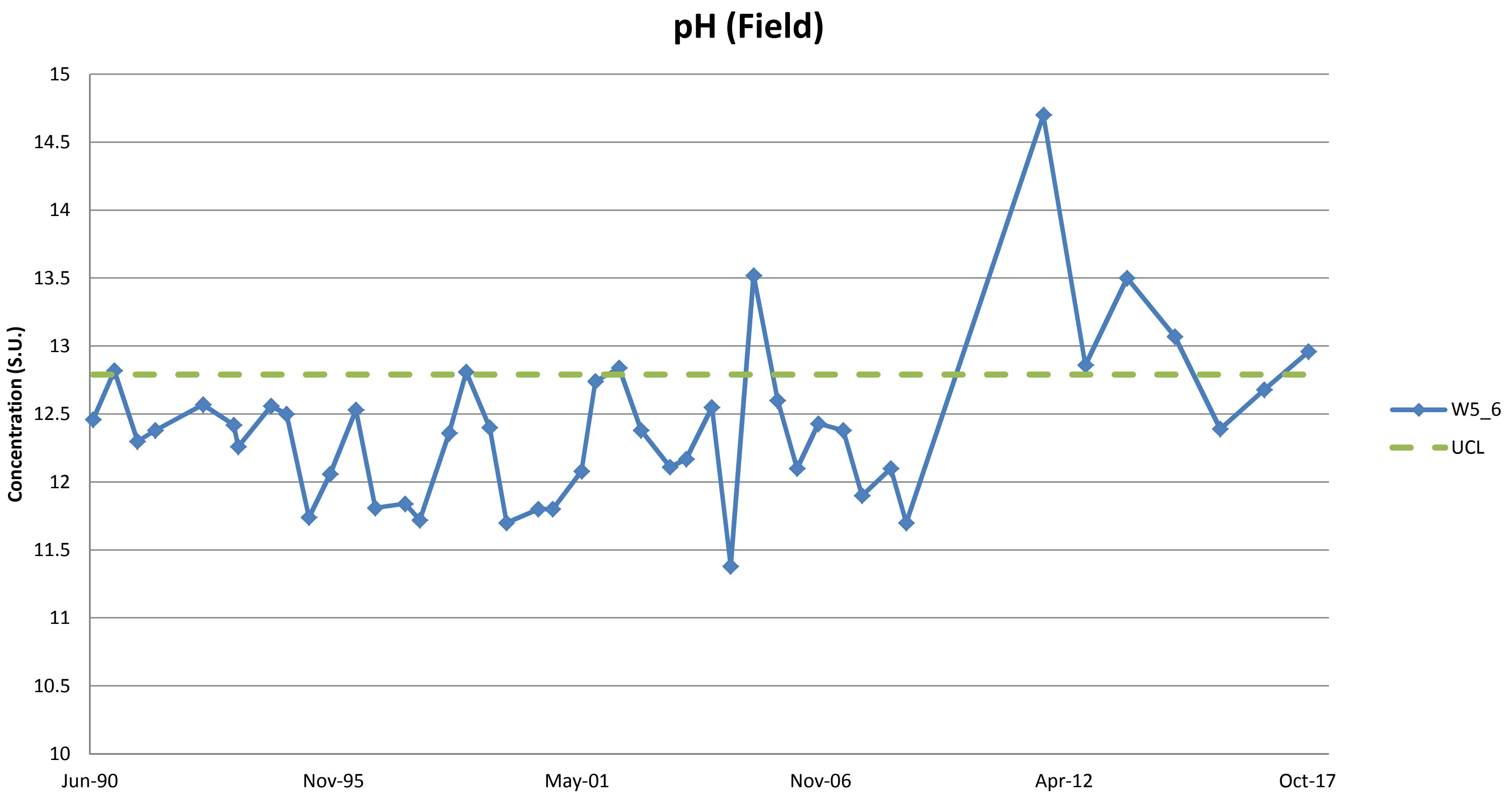


Appendix D

W-5.6 - Iron Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

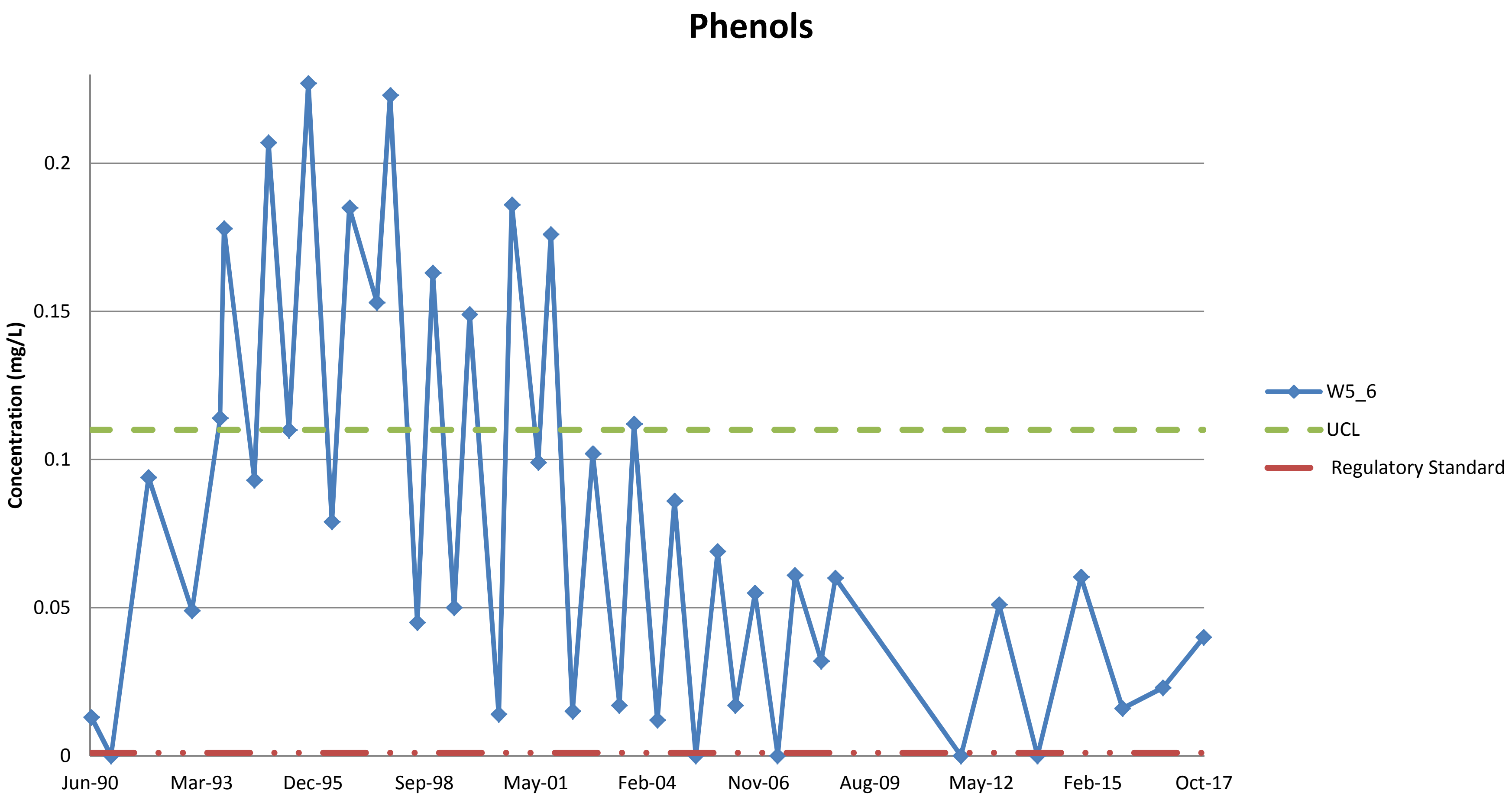


Appendix D

W-5.6 - pH Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

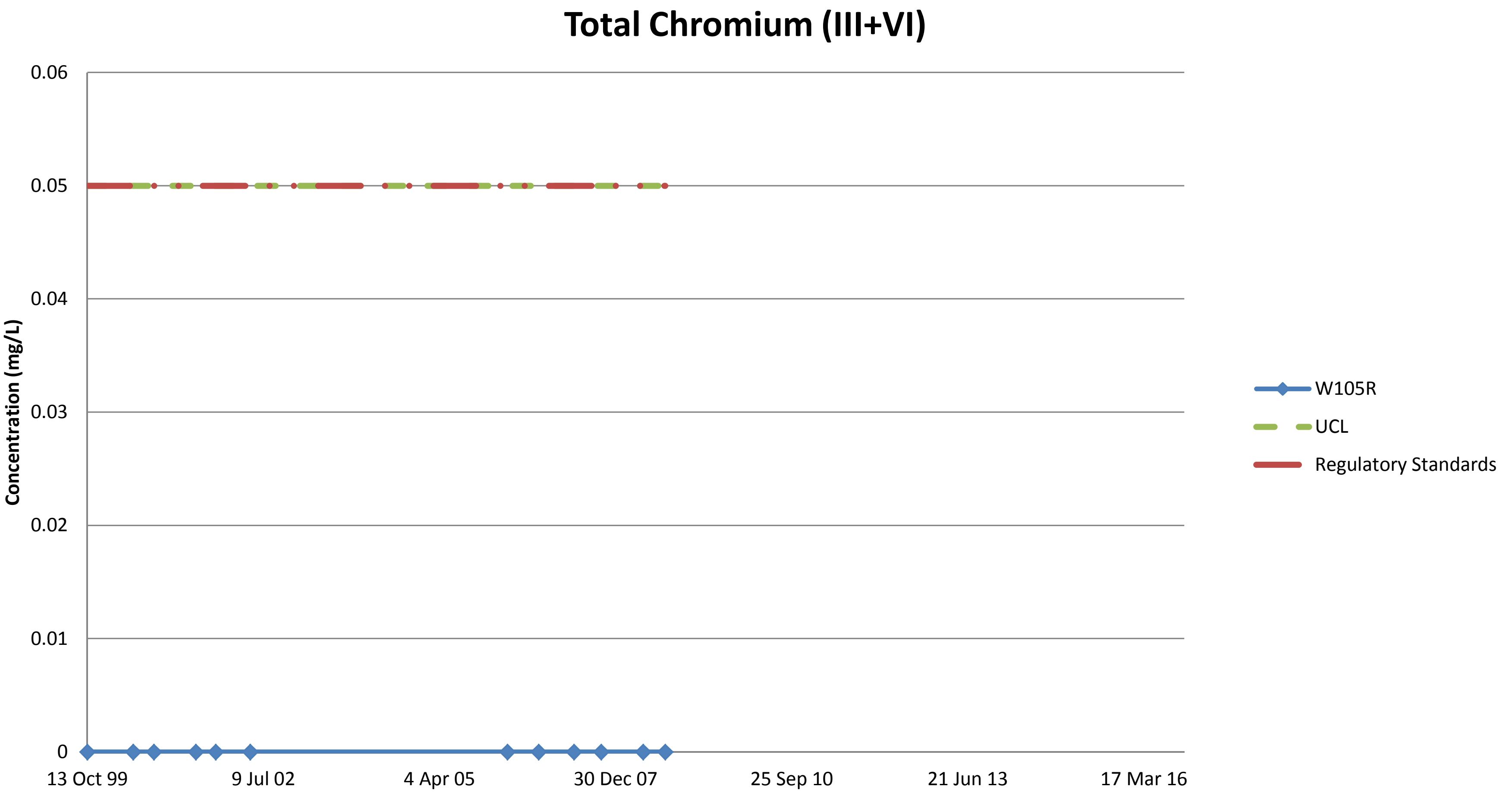


Appendix D

W-5.6 - Phenols Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	



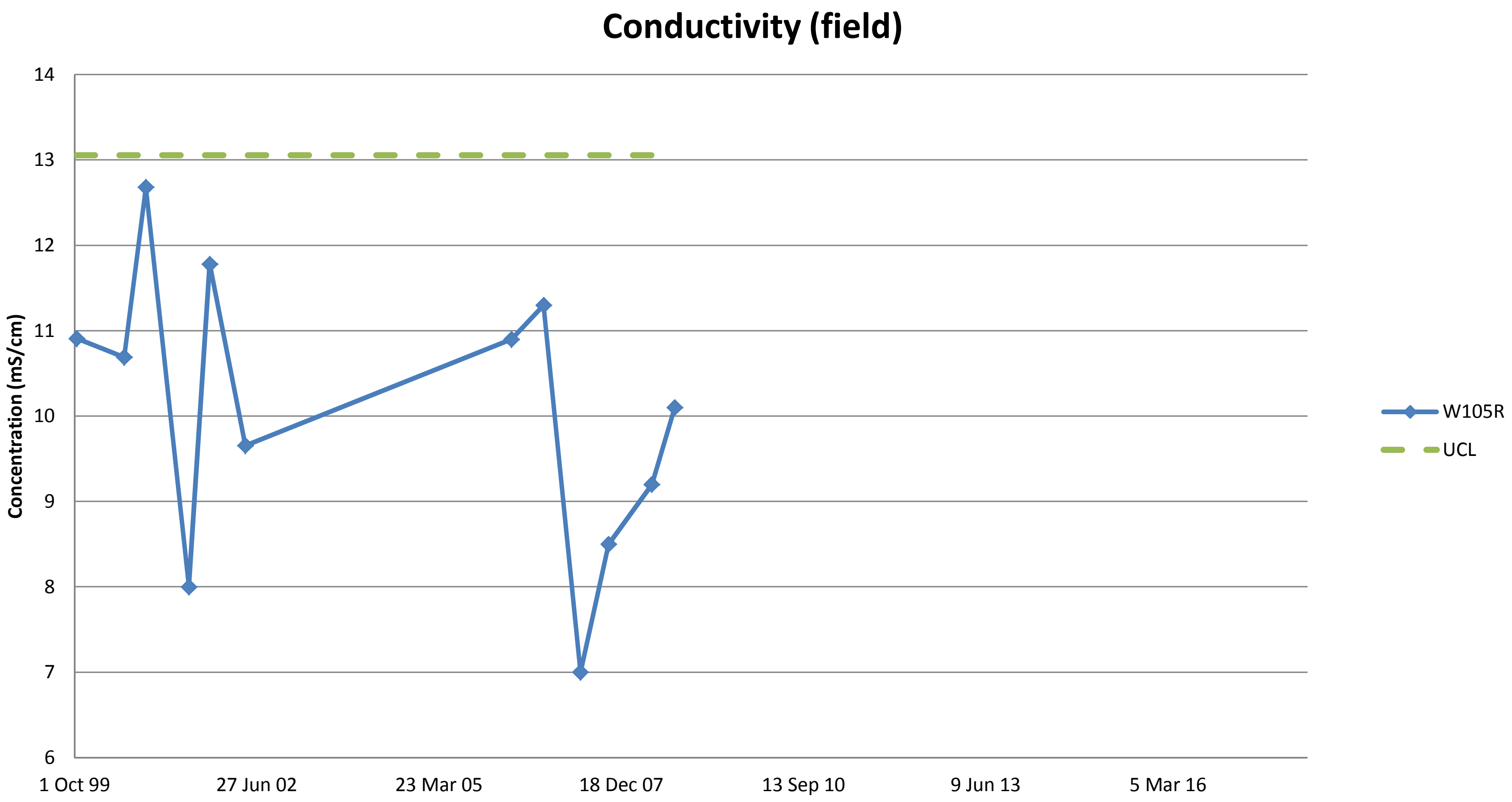
Appendix D

W-105R - Chromium Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

GHD

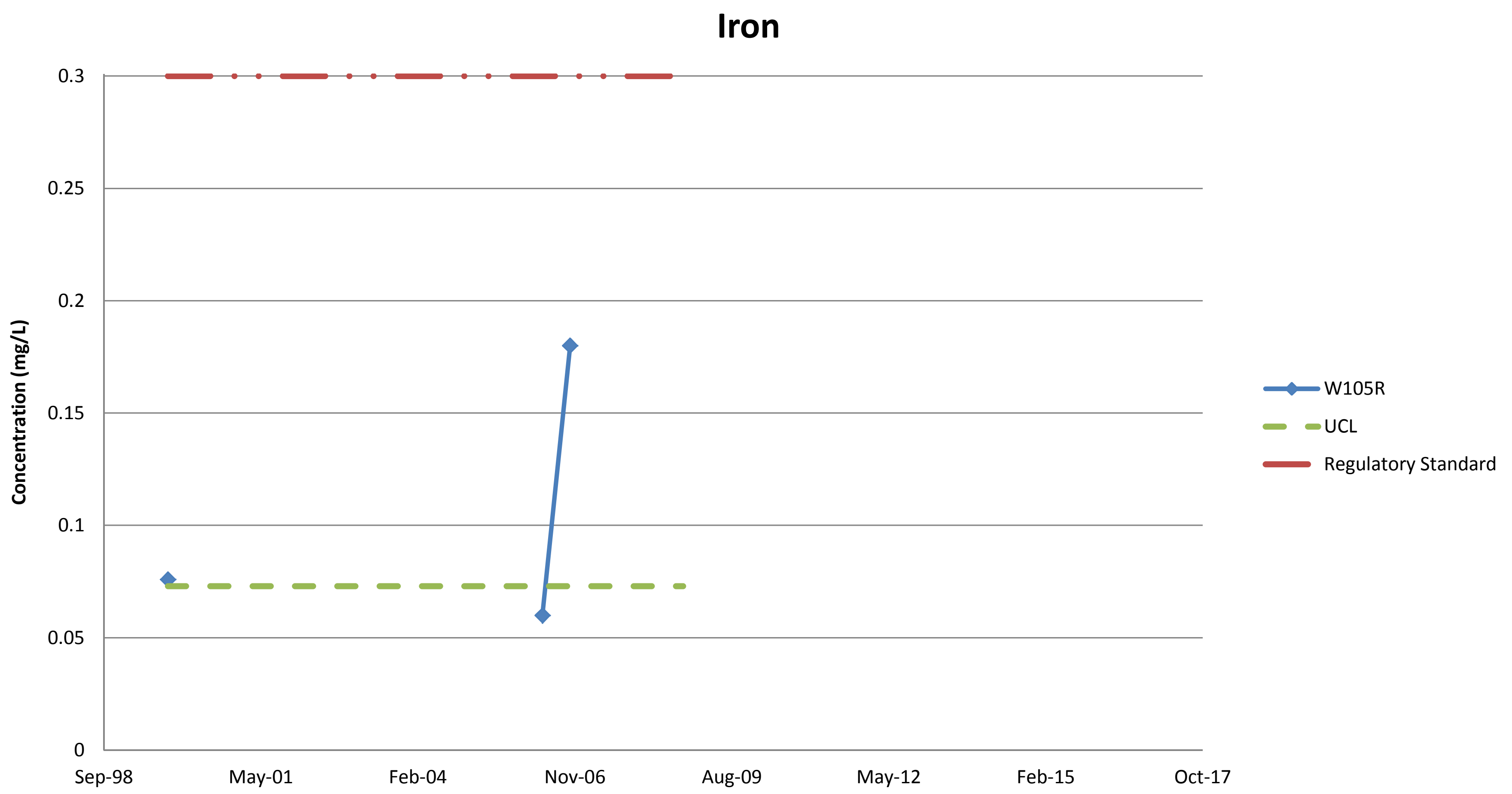


Appendix D

W-105R - Conductivity Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

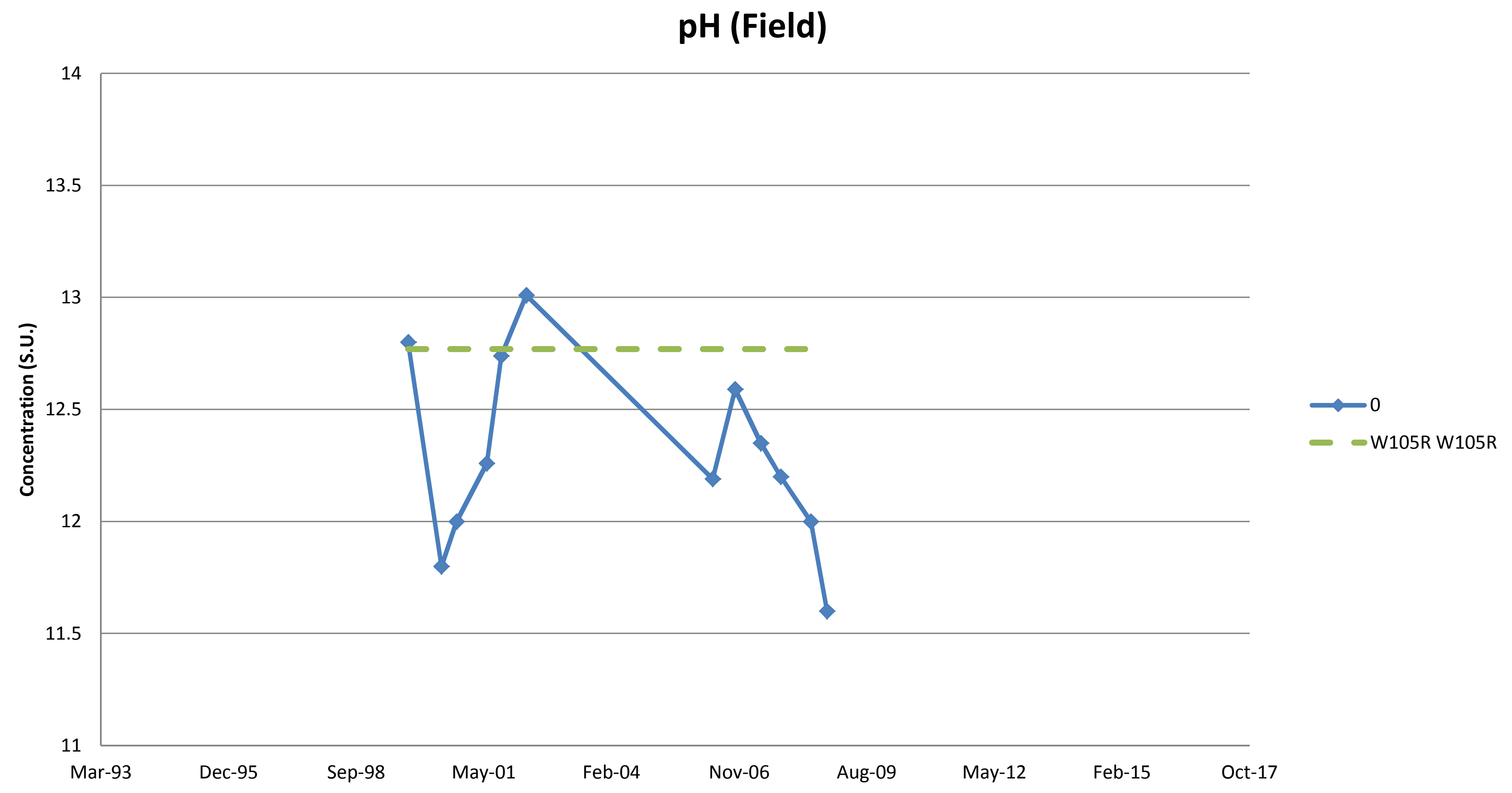


Appendix D

W-105R - Iron Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

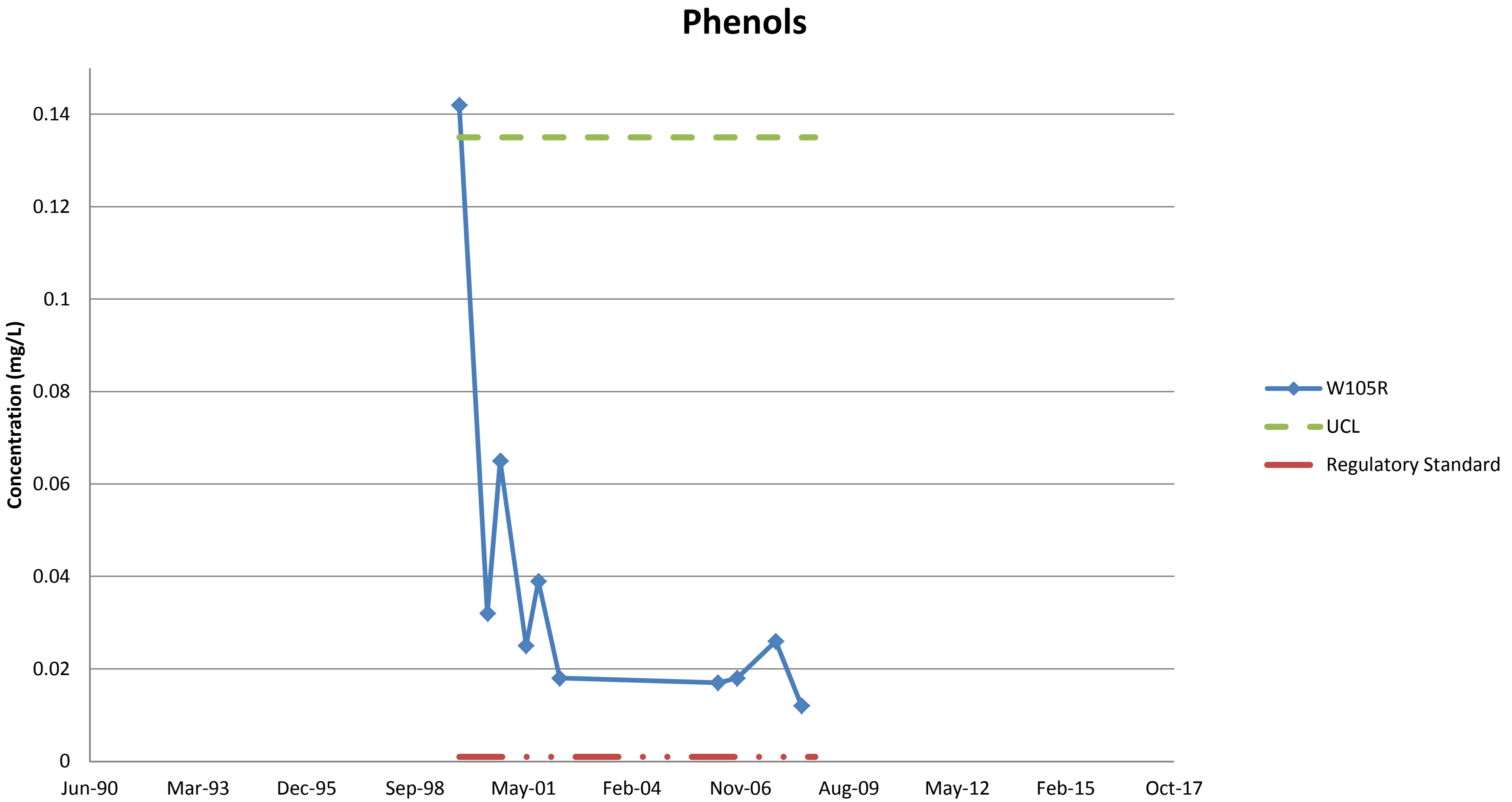


Appendix D

W-105R - pH Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

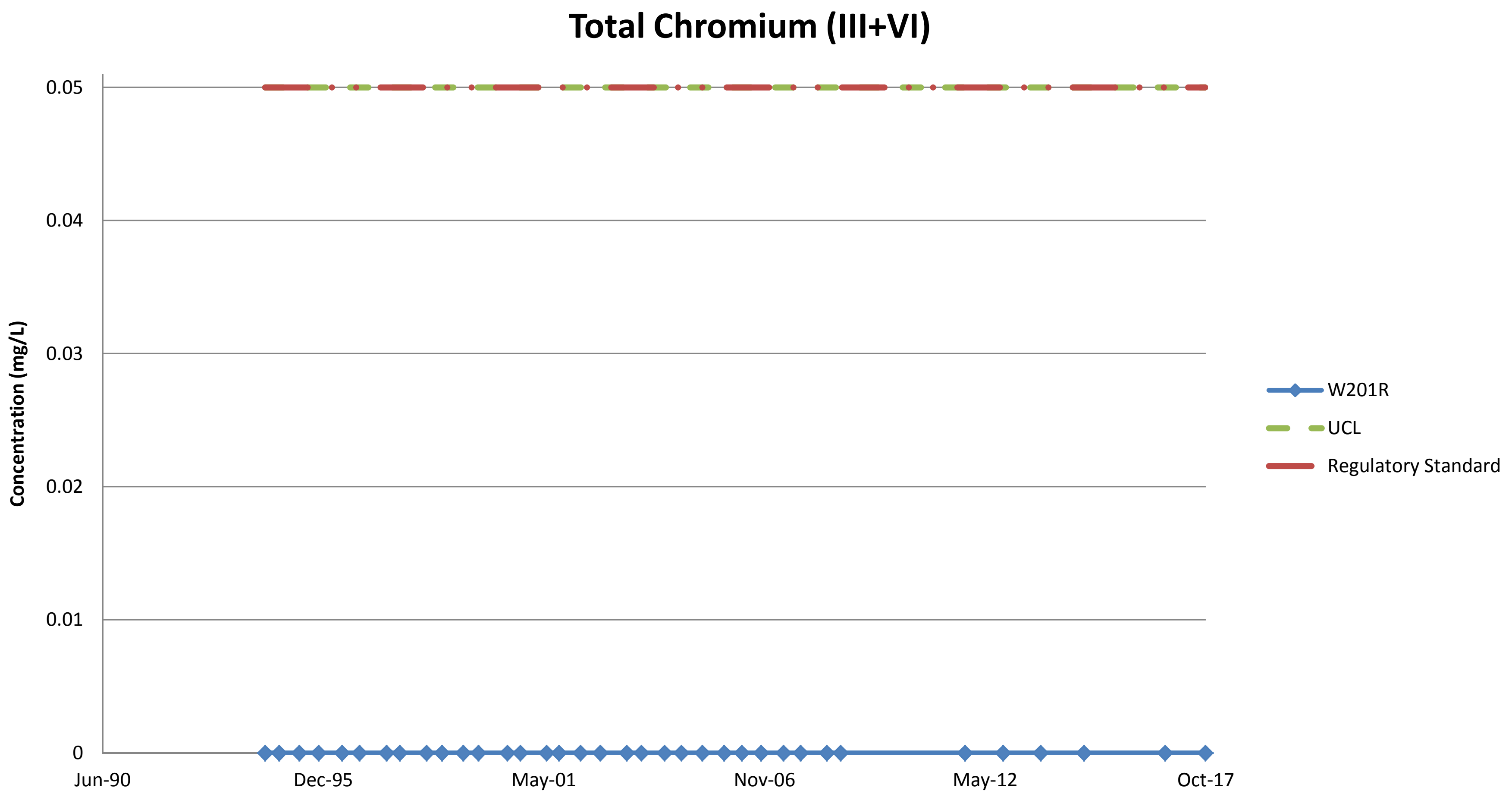


Appendix D

W-105R - Phenols Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

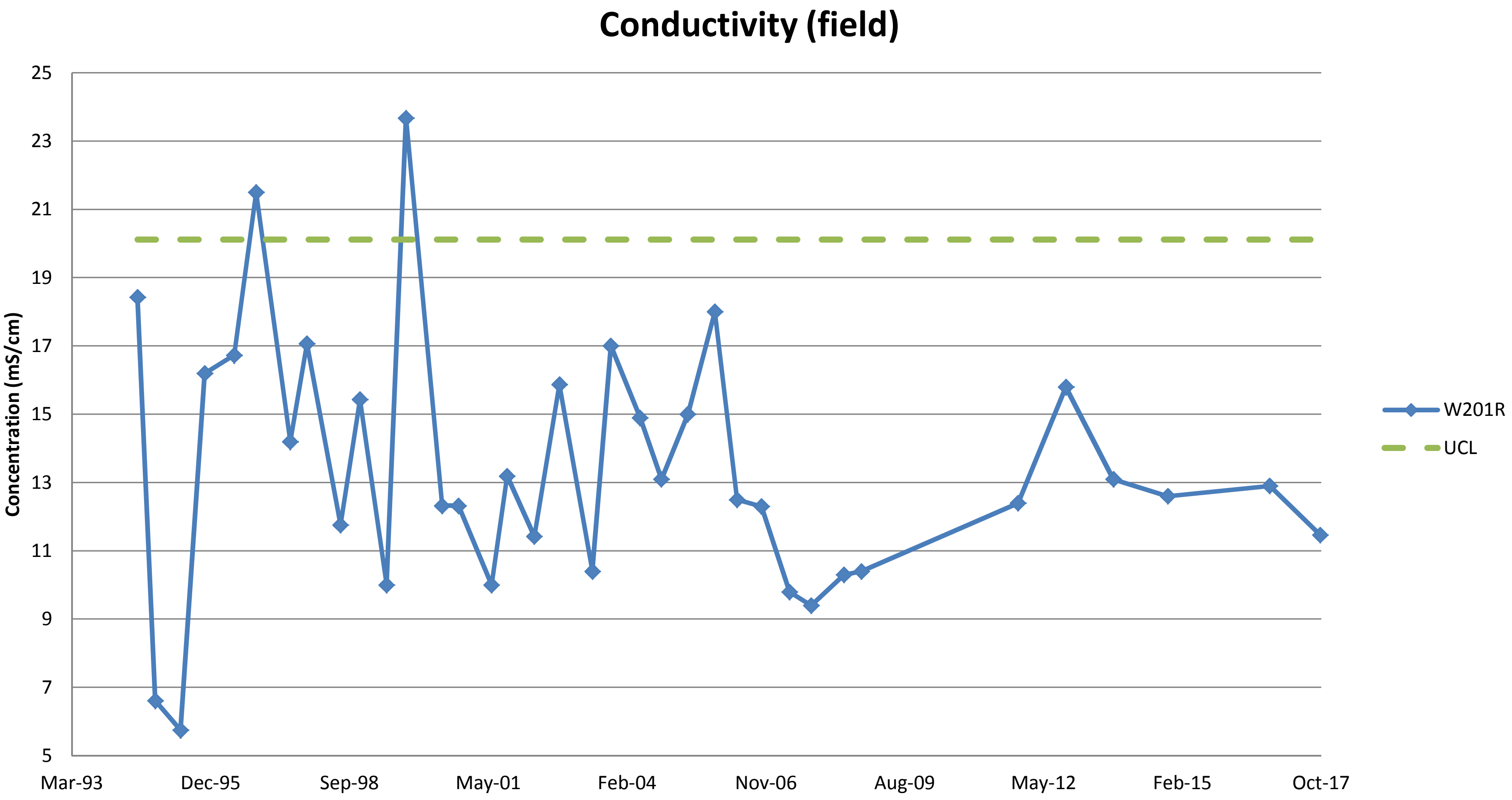


Appendix D

W-201R - Chromium Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

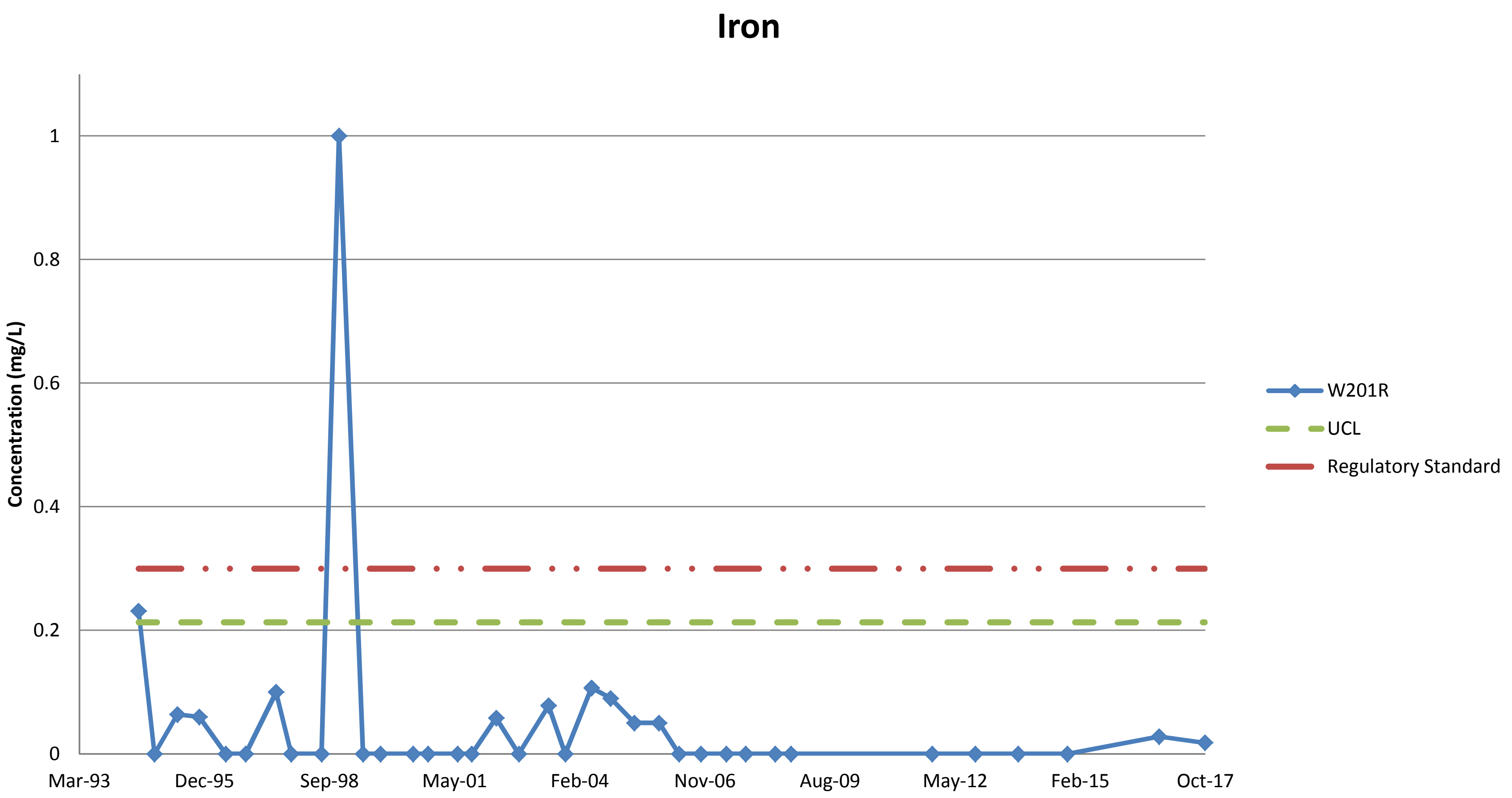


Appendix D

W-201R - Conductivity Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

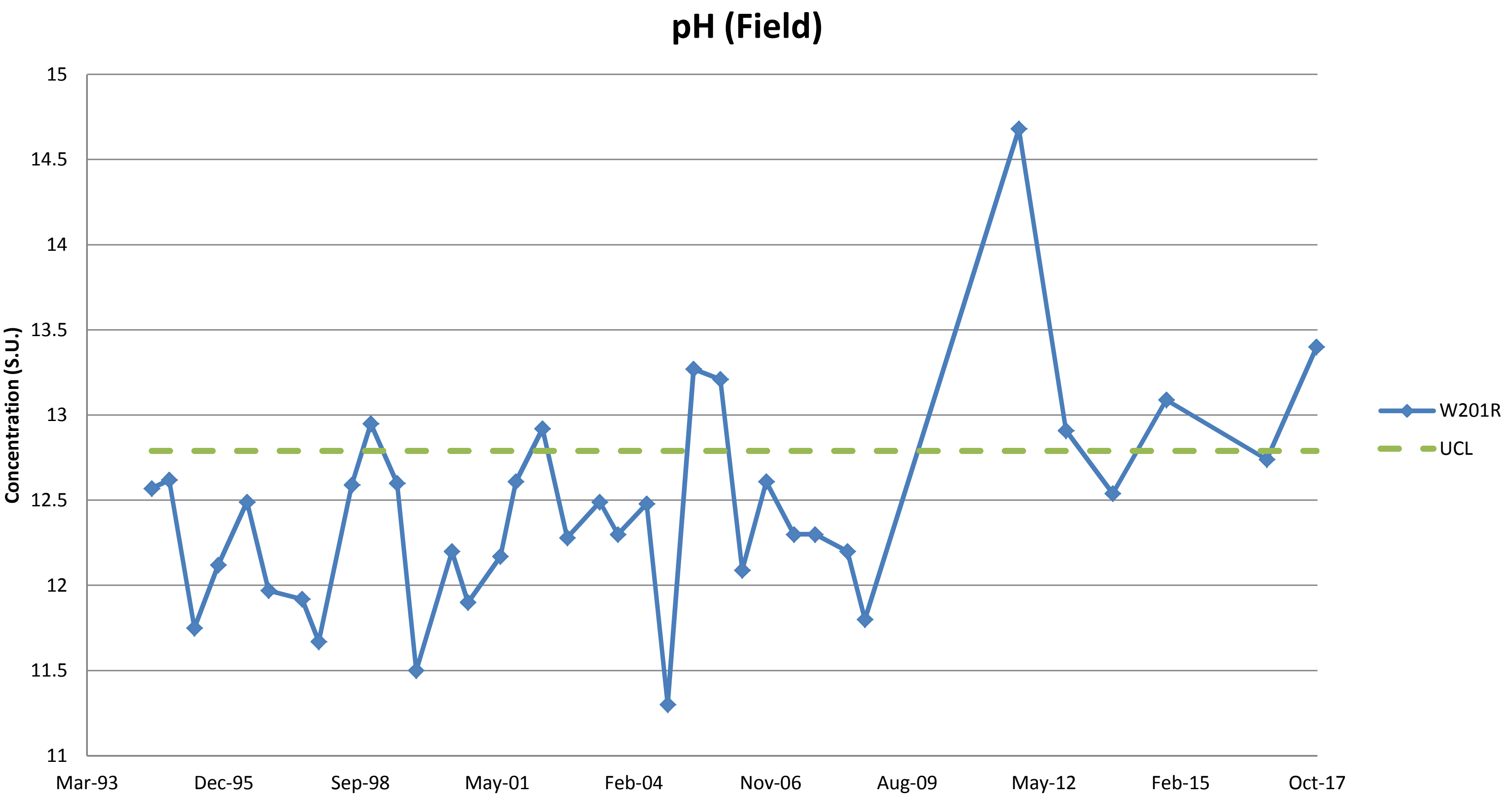


Appendix D

W-201R - Iron Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

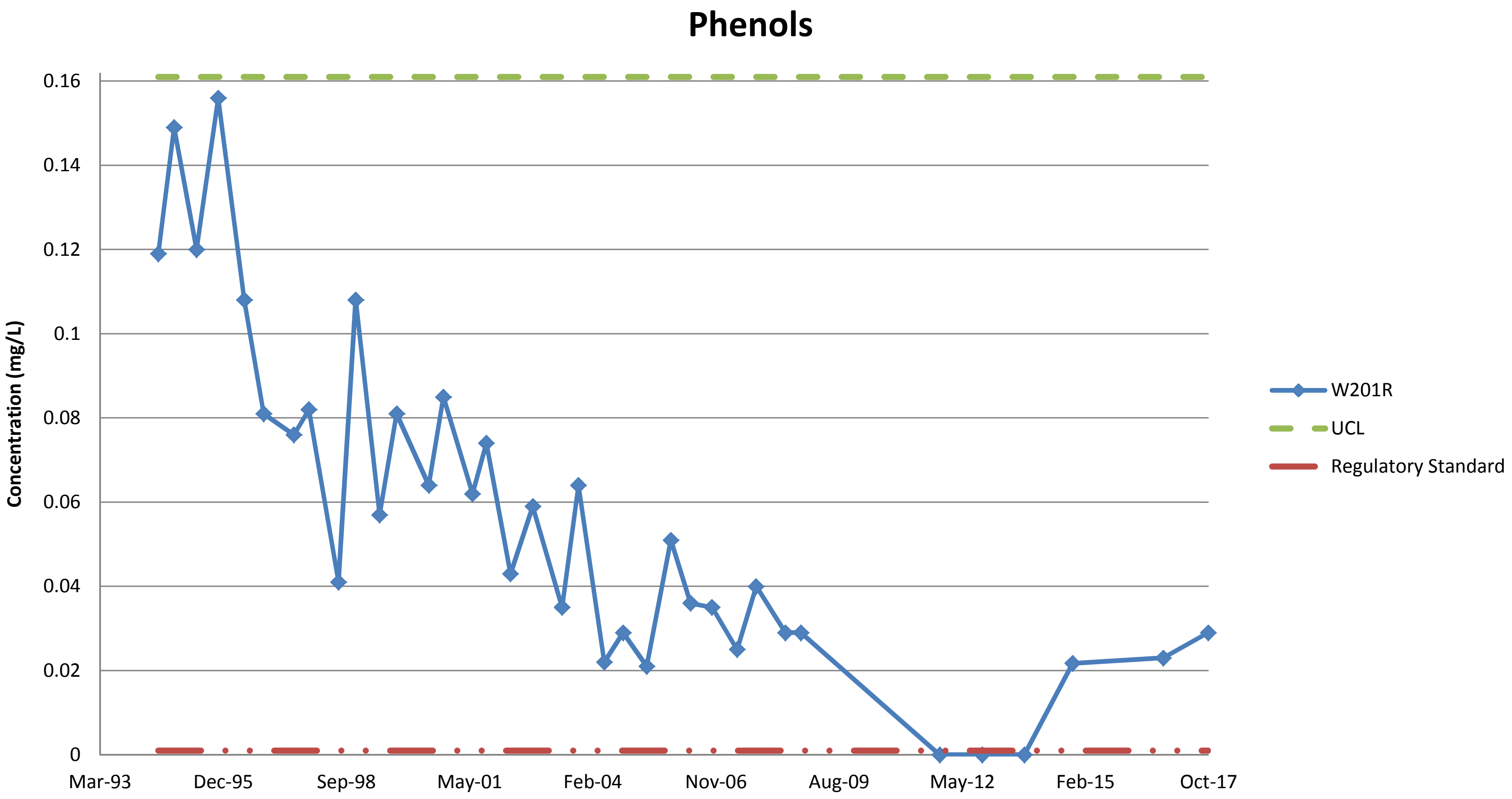


Appendix D

W-201R - pH Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	



Appendix D

W-201R - Phenols Time Series Plot

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

Date: Oct 17	**Drawn:**
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

GHD

Appendix E
Laboratory Analytical Report

ANALYTICAL REPORT

Lab Number:	L1738869
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:	11/03/17

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

Project Name:	GEDDES LANDFILL	**Lab Number:**	L1738869
Project Number:	86-18809	**Report Date:**	11/03/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1738869-01	MS-301.3	WATER	SYRACUSE, NY	10/25/17 09:00	10/25/17
L1738869-02	MS-301.1	WATER	SYRACUSE, NY	10/25/17 09:00	10/25/17
L1738869-03	MS-301.4	WATER	SYRACUSE, NY	10/25/17 10:05	10/25/17
L1738869-04	MS-301.2	WATER	SYRACUSE, NY	10/25/17 10:05	10/25/17
L1738869-05	MS-301.5	WATER	SYRACUSE, NY	10/25/17 10:55	10/25/17
L1738869-06	W-201R	WATER	SYRACUSE, NY	10/25/17 11:15	10/25/17
L1738869-07	W-5.6	WATER	SYRACUSE, NY	10/25/17 12:20	10/25/17
L1738869-08	MS-106.1	WATER	SYRACUSE, NY	10/25/17 13:05	10/25/17
L1738869-09	MS-106.2	WATER	SYRACUSE, NY	10/25/17 13:10	10/25/17
L1738869-10	MS-106.3	WATER	SYRACUSE, NY	10/25/17 13:50	10/25/17
L1738869-11	MS-104.4	WATER	SYRACUSE, NY	10/25/17 14:30	10/25/17
L1738869-12	MS-104.5	WATER	SYRACUSE, NY	10/25/17 15:00	10/25/17
L1738869-13	MS-104.3	WATER	SYRACUSE, NY	10/25/17 15:20	10/25/17
L1738869-14	DUP	WATER	SYRACUSE, NY	10/25/17 00:00	10/25/17
L1738869-15	TRIP BLANK	WATER	SYRACUSE, NY	10/25/17 00:00	10/25/17
L1738869-16	RINSE BLANK 1	WATER	SYRACUSE, NY	10/25/17 15:30	10/25/17
L1738869-17	RINSE BLANK 2	WATER	SYRACUSE, NY	10/25/17 15:45	10/25/17

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.

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

L1738869-08, -11, and -12: The sample was received above the appropriate pH for the Metals analysis. The laboratory added additional HNO3 to a pH <2.

L1738869-16: The sample identified as "FIELD BLANK 1" on the chain of custody was identified as "RINSE BLANK 1" on the container label. At the client's request, the sample is reported as "RINSE BLANK 1".

Sample Receipt

L1738869-17: The sample identified as "FIELD BLANK 2" on the chain of custody was identified as "RINSE BLANK 2" on the container label. At the client's request, the sample is reported as "RINSE BLANK 2".

Total Metals

L1738869-02: The sample has an elevated detection limit for iron due to the dilution required by matrix interferences encountered during analysis.

The WG1056917-3/-4 MS/MSD recoveries, performed on L1738869-02, are outside the acceptance criteria for chromium (62%/64%). A post digestion spike was performed and yielded an unacceptable recovery of 58%. This has been attributed to sample matrix.

The WG1056917-3/-4 MS/MSD recoveries for iron (0%/0%), performed on L1738869-02, do not apply because the sample concentration is greater than four times the spike amount added.

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: Kelly Stenstrom Kelly Stenstrom

Title: Technical Director/Representative Date: 11/03/17

METALS

Project Name:	GEDDES LANDFILL	**Lab Number:**	L1738869
Project Number:	86-18809	**Report Date:**	11/03/17

SAMPLE RESULTS

Lab ID:	L1738869-01	Date Collected:	10/25/17 09:00
Client ID:	MS-301.3	Date Received:	10/25/17
Sample Location:	SYRACUSE, NY	Field Prep:	Not Specified
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	0.004	J	mg/l	0.010	0.002	1	10/27/17 10:30	10/31/17 23:19	EPA 3005A	19,200.7	AB
Iron, Total	19.6		mg/l	0.050	0.009	1	10/27/17 10:30	10/31/17 23:19	EPA 3005A	19,200.7	AB

Project Name: GEDDES LANDFILL

Lab Number: L1738869

Project Number: 86-18809

Report Date: 11/03/17

SAMPLE RESULTS

Lab ID:	L1738869-02	Date Collected:	10/25/17 09:00
Client ID:	MS-301.1	Date Received:	10/25/17
Sample Location:	SYRACUSE, NY	Field Prep:	Not Specified
Matrix:	Water		

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	10/27/17 10:30	10/31/17 19:22	EPA 3005A	19,200.7	AB
Iron, Total	81.8		mg/l	0.500	0.090	10	10/27/17 10:30	10/31/17 21:30	EPA 3005A	19,200.7	AB

Project Name: GEDDES LANDFILL
Lab Number: L1738869
Project Number: 86-18809
Report Date: 11/03/17

SAMPLE RESULTS

Lab ID: L1738869-03
Date Collected: 10/25/17 10:05
Client ID: MS-301.4
Date Received: 10/25/17
Sample Location: SYRACUSE, NY
Field Prep: Not Specified
Matrix: Water

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	10/27/17 10:30	10/31/17 23:24	EPA 3005A	19,200.7	AB
Iron, Total	2.68		mg/l	0.050	0.009	1	10/27/17 10:30	10/31/17 23:24	EPA 3005A	19,200.7	AB

SAMPLE RESULTS

Lab ID: L1738869-04
Client ID: MS-301.2
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 10:05
Date Received: 10/25/17
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	10/27/17 10:30	10/31/17 23:29	EPA 3005A	19,200.7	AB
Iron, Total	80.3		mg/l	0.050	0.009	1	10/27/17 10:30	10/31/17 23:29	EPA 3005A	19,200.7	AB

Project Name: GEDDES LANDFILL
Lab Number: L1738869
Project Number: 86-18809
Report Date: 11/03/17

SAMPLE RESULTS

Lab ID: L1738869-05
Client ID: MS-301.5
Sample Location: SYRACUSE, NY
Matrix: Water
Date Collected: 10/25/17 10:55
Date Received: 10/25/17
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	10/27/17 10:30	10/31/17 23:34	EPA 3005A	19,200.7	AB
Iron, Total	0.186		mg/l	0.050	0.009	1	10/27/17 10:30	10/31/17 23:34	EPA 3005A	19,200.7	AB

Project Name:	GEDDES LANDFILL	**Lab Number:**	L1738869
Project Number:	86-18809	**Report Date:**	11/03/17

SAMPLE RESULTS

Lab ID:	L1738869-06	Date Collected:	10/25/17 11:15
Client ID:	W-201R	Date Received:	10/25/17
Sample Location:	SYRACUSE, NY	Field Prep:	Not Specified
Matrix:	Water		

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	10/27/17 10:30	10/31/17 23:39	EPA 3005A	19,200.7	AB
Iron, Total	0.018	J	mg/l	0.050	0.009	1	10/27/17 10:30	10/31/17 23:39	EPA 3005A	19,200.7	AB

Project Name: GEDDES LANDFILL **Lab Number:** L1738869

Project Number: 86-18809 **Report Date:** 11/03/17

SAMPLE RESULTS

Lab ID: L1738869-07
Client ID: W-5.6
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 12:20
Date Received: 10/25/17
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	10/27/17 10:30	10/31/17 23:44	EPA 3005A	19,200.7	AB
Iron, Total	0.022	J	mg/l	0.050	0.009	1	10/27/17 10:30	10/31/17 23:44	EPA 3005A	19,200.7	AB

SAMPLE RESULTS

Lab ID:	L1738869-08	Date Collected:	10/25/17 13:05
Client ID:	MS-106.1	Date Received:	10/25/17
Sample Location:	SYRACUSE, NY	Field Prep:	Not Specified
Matrix:	Water		

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	10/27/17 10:30	10/31/17 23:49	EPA 3005A	19,200.7	AB
Iron, Total	0.018	J	mg/l	0.050	0.009	1	10/27/17 10:30	10/31/17 23:49	EPA 3005A	19,200.7	AB

Project Name: GEDDES LANDFILL
Lab Number: L1738869
Project Number: 86-18809
Report Date: 11/03/17

SAMPLE RESULTS

Lab ID: L1738869-09
Client ID: MS-106.2
Sample Location: SYRACUSE, NY
Matrix: Water
Date Collected: 10/25/17 13:10
Date Received: 10/25/17
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	10/27/17 10:30	11/01/17 00:12	EPA 3005A	19,200.7	AB
Iron, Total	0.043	J	mg/l	0.050	0.009	1	10/27/17 10:30	11/01/17 00:12	EPA 3005A	19,200.7	AB

Project Name:	GEDDES LANDFILL	**Lab Number:**	L1738869
Project Number:	86-18809	**Report Date:**	11/03/17

SAMPLE RESULTS

Lab ID:	L1738869-10	Date Collected:	10/25/17 13:50
Client ID:	MS-106.3	Date Received:	10/25/17
Sample Location:	SYRACUSE, NY	Field Prep:	Not Specified
Matrix:	Water		

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	10/27/17 10:30	10/31/17 21:50	EPA 3005A	19,200.7	AB
Iron, Total	0.018	J	mg/l	0.050	0.009	1	10/27/17 10:30	10/31/17 21:50	EPA 3005A	19,200.7	AB

Project Name: GEDDES LANDFILL
Lab Number: L1738869
Project Number: 86-18809
Report Date: 11/03/17

SAMPLE RESULTS

Lab ID: L1738869-11
Client ID: MS-104.4
Sample Location: SYRACUSE, NY
Matrix: Water
Date Collected: 10/25/17 14:30
Date Received: 10/25/17
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	10/27/17 10:30	11/01/17 00:17	EPA 3005A	19,200.7	AB
Iron, Total	0.015	J	mg/l	0.050	0.009	1	10/27/17 10:30	11/01/17 00:17	EPA 3005A	19,200.7	AB

Project Name: GEDDES LANDFILL
Lab Number: L1738869
Project Number: 86-18809
Report Date: 11/03/17

SAMPLE RESULTS

Lab ID: L1738869-12
Date Collected: 10/25/17 15:00
Client ID: MS-104.5
Date Received: 10/25/17
Sample Location: SYRACUSE, NY
Field Prep: Not Specified
Matrix: Water

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	10/27/17 10:30	11/01/17 00:22	EPA 3005A	19,200.7	AB
Iron, Total	0.031	J	mg/l	0.050	0.009	1	10/27/17 10:30	11/01/17 00:22	EPA 3005A	19,200.7	AB

SAMPLE RESULTS

Lab ID: L1738869-13
Date Collected: 10/25/17 15:20
Client ID: MS-104.3
Date Received: 10/25/17
Sample Location: SYRACUSE, NY
Field Prep: Not Specified
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Chromium, Total	0.006	J	mg/l	0.010	0.002	1	10/27/17 10:30	11/01/17 00:26	EPA 3005A	19,200.7	AB
Iron, Total	0.066		mg/l	0.050	0.009	1	10/27/17 10:30	11/01/17 00:26	EPA 3005A	19,200.7	AB

Project Name: GEDDES LANDFILL

Lab Number: L1738869

Project Number: 86-18809

Report Date: 11/03/17

SAMPLE RESULTS

Lab ID: L1738869-14
Client ID: DUP
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 00:00
Date Received: 10/25/17
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	0.004	J	mg/l	0.010	0.002	1	10/27/17 10:30	11/01/17 00:31	EPA 3005A	19,200.7	AB
Iron, Total	18.8		mg/l	0.050	0.009	1	10/27/17 10:30	11/01/17 00:31	EPA 3005A	19,200.7	AB

Project Name:	GEDDES LANDFILL	**Lab Number:**	L1738869
Project Number:	86-18809	**Report Date:**	11/03/17

SAMPLE RESULTS

Lab ID:	L1738869-15	Date Collected:	10/25/17 00:00
Client ID:	TRIP BLANK	Date Received:	10/25/17
Sample Location:	SYRACUSE, NY	Field Prep:	Not Specified
Matrix:	Water		

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	10/27/17 10:30	11/01/17 00:36	EPA 3005A	19,200.7	AB
Iron, Total	0.009	J	mg/l	0.050	0.009	1	10/27/17 10:30	11/01/17 00:36	EPA 3005A	19,200.7	AB

Project Name:	GEDDES LANDFILL	**Lab Number:**	L1738869
Project Number:	86-18809	**Report Date:**	11/03/17

SAMPLE RESULTS

Lab ID:	L1738869-16	Date Collected:	10/25/17 15:30
Client ID:	RINSE BLANK 1	Date Received:	10/25/17
Sample Location:	SYRACUSE, NY	Field Prep:	Not Specified
Matrix:	Water		

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	10/27/17 10:30	11/01/17 00:41	EPA 3005A	19,200.7	AB
Iron, Total	0.089		mg/l	0.050	0.009	1	10/27/17 10:30	11/01/17 00:41	EPA 3005A	19,200.7	AB

Project Name: GEDDES LANDFILL
Lab Number: L1738869
Project Number: 86-18809
Report Date: 11/03/17

SAMPLE RESULTS

Lab ID: L1738869-17
Client ID: RINSE BLANK 2
Sample Location: SYRACUSE, NY
Matrix: Water
Date Collected: 10/25/17 15:45
Date Received: 10/25/17
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	10/27/17 10:30	11/01/17 00:46	EPA 3005A	19,200.7	AB
Iron, Total	0.142		mg/l	0.050	0.009	1	10/27/17 10:30	11/01/17 00:46	EPA 3005A	19,200.7	AB

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): 01-17 Batch: WG1056917-1										
Chromium, Total	ND		mg/l	0.010	0.002	1	10/27/17 10:30	10/31/17 19:13	19,200.7	AB
Iron, Total	ND		mg/l	0.050	0.009	1	10/27/17 10:30	10/31/17 21:21	19,200.7	AB

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis
Batch Quality Control

Project Name: GEDDES LANDFILL

Project Number: 86-18809

Lab Number: L1738869

Report Date: 11/03/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-17 Batch: WG1056917-2								
Chromium, Total	100		-		85-115	-		
Iron, Total	109		-		85-115	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1738869
Report Date: 11/03/17

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): 01-17 QC Batch ID: WG1056917-3 WG1056917-4 QC Sample: L1738869-02 Client ID: MS-301.1												
Chromium, Total	ND	0.2	0.125	**62**	Q	0.127	**64**	Q	75-125	2		20
Iron, Total	81.8	1	74.6	**0**	Q	79.7	**0**	Q	75-125	7		20
Total Metals - Mansfield Lab Associated sample(s): 01-17 QC Batch ID: WG1056917-7 QC Sample: L1738869-10 Client ID: MS-106.3												
Chromium, Total	ND	0.2	0.194	97		-	-		75-125	-		20
Iron, Total	0.018J	1	1.06	106		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1738869
Report Date: 11/03/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-17 QC Batch ID: WG1056917-8 QC Sample: L1738869-10 Client ID: MS-106.3						
Chromium, Total	ND	ND	mg/l	NC		20
Iron, Total	0.018J	0.020J	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name:	GEDDES LANDFILL	**Lab Number:**	L1738869
Project Number:	86-18809	**Report Date:**	11/03/17

SAMPLE RESULTS

Lab ID:	L1738869-01	Date Collected:	10/25/17 09:00
Client ID:	MS-301.3	Date Received:	10/25/17
Sample Location:	SYRACUSE, NY	Field Prep:	Not Specified
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	4.0		mg/l	0.30	0.060	10	11/02/17 19:45	11/02/17 23:41	4,420.1	ML

Project Name: GEDDES LANDFILL
Lab Number: L1738869
Project Number: 86-18809
Report Date: 11/03/17

SAMPLE RESULTS

Lab ID: L1738869-02
Client ID: MS-301.1
Sample Location: SYRACUSE, NY
Matrix: Water
Date Collected: 10/25/17 09:00
Date Received: 10/25/17
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	0.006	1	10/30/17 12:44	10/30/17 15:39	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1738869
Report Date: 11/03/17

SAMPLE RESULTS

Lab ID: L1738869-03
Client ID: MS-301.4
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 10:05
Date Received: 10/25/17
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	0.50		mg/l	0.030	0.006	1	10/30/17 12:44	10/30/17 15:42	4,420.1	AW

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1738869
Report Date: 11/03/17

SAMPLE RESULTS

Lab ID: L1738869-04
Client ID: MS-301.2
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 10:05
Date Received: 10/25/17
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	0.006	J	mg/l	0.030	0.006	1	10/30/17 12:44	10/30/17 16:28	4,420.1	AW

SAMPLE RESULTS

Lab ID:	L1738869-05	Date Collected:	10/25/17 10:55
Client ID:	MS-301.5	Date Received:	10/25/17
Sample Location:	SYRACUSE, NY	Field Prep:	Not Specified
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	0.033		mg/l	0.030	0.006	1	10/30/17 12:44	10/30/17 16:29	4,420.1	AW

SAMPLE RESULTS

Lab ID: L1738869-06
Client ID: W-201R
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 11:15
Date Received: 10/25/17
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	0.006	1	10/30/17 12:44	10/30/17 16:30	4,420.1	AW

SAMPLE RESULTS

Lab ID: L1738869-07
Client ID: W-5.6
Sample Location: SYRACUSE, NY
Matrix: Water
Date Collected: 10/25/17 12:20
Date Received: 10/25/17
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	0.040		mg/l	0.030	0.006	1	10/30/17 12:44	10/30/17 16:31	4,420.1	AW

SAMPLE RESULTS

Lab ID: L1738869-08
Client ID: MS-106.1
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 13:05
Date Received: 10/25/17
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	0.019	J	mg/l	0.030	0.006	1	10/30/17 12:44	10/30/17 15:48	4,420.1	AW

Project Name:	GEDDES LANDFILL	**Lab Number:**	L1738869
Project Number:	86-18809	**Report Date:**	11/03/17

SAMPLE RESULTS

Lab ID:	L1738869-09	Date Collected:	10/25/17 13:10
Client ID:	MS-106.2	Date Received:	10/25/17
Sample Location:	SYRACUSE, NY	Field Prep:	Not Specified
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Phenolics, Total	0.017	J	mg/l	0.030	0.006	1	11/02/17 19:45	11/02/17 23:09	4,420.1	ML

SAMPLE RESULTS

Lab ID: L1738869-10
Client ID: MS-106.3
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 13:50
Date Received: 10/25/17
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	0.008	J	mg/l	0.030	0.006	1	11/02/17 19:45	11/02/17 23:10	4,420.1	ML

SAMPLE RESULTS

Lab ID: L1738869-11
Client ID: MS-104.4
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 14:30
Date Received: 10/25/17
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	0.031		mg/l	0.030	0.006	1	11/02/17 19:45	11/02/17 23:11	4,420.1	ML

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1738869
Report Date: 11/03/17

SAMPLE RESULTS

Lab ID: L1738869-12
Client ID: MS-104.5
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 15:00
Date Received: 10/25/17
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	0.006	1	11/02/17 19:45	11/02/17 23:13	4,420.1	ML

SAMPLE RESULTS

Lab ID: L1738869-13
Client ID: MS-104.3
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 15:20
Date Received: 10/25/17
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	0.037		mg/l	0.030	0.006	1	11/02/17 19:45	11/02/17 23:16	4,420.1	ML

SAMPLE RESULTS

Lab ID: L1738869-14
Client ID: DUP
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 00:00
Date Received: 10/25/17
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	4.1		mg/l	0.30	0.060	10	11/02/17 19:45	11/02/17 23:42	4,420.1	ML

SAMPLE RESULTS

Lab ID: L1738869-15
Client ID: TRIP BLANK
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 00:00
Date Received: 10/25/17
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	0.006	1	11/02/17 19:45	11/02/17 23:18	4,420.1	ML

SAMPLE RESULTS

Lab ID: L1738869-16
Client ID: RINSE BLANK 1
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 15:30
Date Received: 10/25/17
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	0.006	1	11/02/17 19:45	11/02/17 23:20	4,420.1	ML

SAMPLE RESULTS

Lab ID: L1738869-17
Client ID: RINSE BLANK 2
Sample Location: SYRACUSE, NY
Matrix: Water

Date Collected: 10/25/17 15:45
Date Received: 10/25/17
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	0.006	1	11/02/17 19:45	11/02/17 23:21	4,420.1	ML

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): 02-08 Batch: WG1057687-1										
Phenolics, Total	0.012	J	mg/l	0.030	0.006	1	10/30/17 12:44	10/30/17 16:26	4,420.1	AW
General Chemistry - Westborough Lab for sample(s): 01,09-17 Batch: WG1058025-1										
Phenolics, Total	ND		mg/l	0.030	0.006	1	11/02/17 19:45	11/02/17 23:02	4,420.1	ML

Lab Control Sample Analysis

Batch Quality Control

Project Name: GEDDES LANDFILL

Project Number: 86-18809

Lab Number: L1738869

Report Date: 11/03/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-08 Batch: WG1057687-2								
Phenolics, Total	90		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 01,09-17 Batch: WG1058025-2								
Phenolics, Total	94		-		70-130	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1738869
Report Date: 11/03/17

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): 02-08 QC Batch ID: WG1057687-4 QC Sample: L1738869-02 Client ID: MS-301.1												
Phenolics, Total	0.011J	0.4	0.32	81		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01,09-17 QC Batch ID: WG1058025-4 QC Sample: L1738869-12 Client ID: MS-104.5												
Phenolics, Total	0.020J	0.4	0.40	101		-	-		70-130	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: GEDDES LANDFILL
Project Number: 86-18809

Lab Number: L1738869
Report Date: 11/03/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02-08 QC Batch ID: WG1057687-3 QC Sample: L1738869-02 Client ID: MS-301.1						
Phenolics, Total	0.011J	0.011J	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01,09-17 QC Batch ID: WG1058025-3 QC Sample: L1738869-12 Client ID: MS-104.5						
Phenolics, Total	0.020J	0.022J	mg/l	NC		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	*Custody Seal*
A	Absent
B	Absent

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L1738869-01A	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-01B	Amber 500ml H2SO4 preserved	B	<2	<2	4.1	Y	Absent		NY-TPHENOL-420(28)
L1738869-02A	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-02A1	Plastic 250ml HNO3 preserved	A	<2	<2	3.2	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-02A2	Plastic 250ml HNO3 preserved	A	<2	<2	3.2	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-02B	Amber 500ml H2SO4 preserved	A	<2	<2	3.2	Y	Absent		NY-TPHENOL-420(28)
L1738869-02B1	Amber 500ml H2SO4 preserved	A	<2	<2	3.2	Y	Absent		NY-TPHENOL-420(28)
L1738869-02B2	Amber 500ml H2SO4 preserved	A	<2	<2	3.2	Y	Absent		NY-TPHENOL-420(28)
L1738869-03A	Plastic 250ml HNO3 preserved	A	<2	<2	3.2	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-03B	Amber 500ml H2SO4 preserved	B	<2	<2	4.1	Y	Absent		NY-TPHENOL-420(28)
L1738869-04A	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-04B	Amber 500ml H2SO4 preserved	B	<2	<2	4.1	Y	Absent		NY-TPHENOL-420(28)
L1738869-05A	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-05B	Amber 500ml H2SO4 preserved	B	<2	<2	4.1	Y	Absent		NY-TPHENOL-420(28)
L1738869-06A	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-06B	Amber 500ml H2SO4 preserved	B	<2	<2	4.1	Y	Absent		NY-TPHENOL-420(28)
L1738869-07A	Plastic 250ml HNO3 preserved	A	<2	<2	3.2	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-07B	Amber 500ml H2SO4 preserved	B	<2	<2	4.1	Y	Absent		NY-TPHENOL-420(28)
L1738869-08A	Plastic 250ml HNO3 preserved	B	4	<2	4.1	N	Absent		FE-UI(180),CR-UI(180)
L1738869-08B	Amber 500ml H2SO4 preserved	B	<2	<2	4.1	Y	Absent		NY-TPHENOL-420(28)
L1738869-09A	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-09B	Amber 500ml H2SO4 preserved	B	<2	<2	4.1	Y	Absent		NY-TPHENOL-420(28)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1738869-10A	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-10B	Amber 500ml H2SO4 preserved	B	<2	<2	4.1	Y	Absent		NY-TPHENOL-420(28)
L1738869-11A	Plastic 250ml HNO3 preserved	B	6	<2	4.1	N	Absent		FE-UI(180),CR-UI(180)
L1738869-11B	Amber 500ml H2SO4 preserved	B	<2	<2	4.1	Y	Absent		NY-TPHENOL-420(28)
L1738869-12A	Plastic 250ml HNO3 preserved	A	11	<2	3.2	N	Absent		FE-UI(180),CR-UI(180)
L1738869-12B	Amber 500ml H2SO4 preserved	B	<2	<2	4.1	Y	Absent		NY-TPHENOL-420(28)
L1738869-13A	Plastic 250ml HNO3 preserved	A	<2	<2	3.2	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-13B	Amber 500ml H2SO4 preserved	A	<2	<2	3.2	Y	Absent		NY-TPHENOL-420(28)
L1738869-14A	Plastic 250ml HNO3 preserved	A	<2	<2	3.2	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-14B	Amber 500ml H2SO4 preserved	A	<2	<2	3.2	Y	Absent		NY-TPHENOL-420(28)
L1738869-15A	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-15B	Amber 500ml H2SO4 preserved	B	<2	<2	4.1	Y	Absent		NY-TPHENOL-420(28)
L1738869-16A	Plastic 250ml HNO3 preserved	A	<2	<2	3.2	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-16B	Amber 500ml H2SO4 preserved	A	<2	<2	3.2	Y	Absent		NY-TPHENOL-420(28)
L1738869-17A	Plastic 250ml HNO3 preserved	A	<2	<2	3.2	Y	Absent		FE-UI(180),CR-UI(180)
L1738869-17B	Amber 500ml H2SO4 preserved	A	<2	<2	3.2	Y	Absent		NY-TPHENOL-420(28)

*Values in parentheses indicate holding time in days

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

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.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

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.

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

Data Qualifiers

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 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.

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, SM9221E.**

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.

ALPHA

NEW YORK CHAIN OF CUSTODY

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 10/26/17

ALPHA Job # L1738869

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

Project Information

Project Name: GEDDES LANDFILL
Project Location: SYRACUSE, NY
Project # 86-18809
(Use Project name as Project #) ☐
Project Manager: IAN MCNAMARA
ALPHAQuote #:

Turn-Around Time

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

Deliverables

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

Billing Information

☒ Same as Client Info
PO #

Client Information

Client: GHD
Address: 1 REMINGTON PARK DR.
CAZENOVIA, NY 13035
Phone: 315-679-5772
Fax: 315-679-5801
Email: ian.mcnamara@ghd.com

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.

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	T PHENOL	TOTAL METALS (Fe, Cr)							Sample Specific Comments	Total Bottle
38869 -01	MS-301.3	10-25-17	9:00	GW	IEM	X	X								2
-02	MS-301.1		9:00		DT									MS/MSD	
-03	MS-301.4		10:05		DT										
-04	MS-301.2		10:05		IEM										
-05	MS-301.5		10:55		DT										
-06	W-201R		11:15		IEM										
-07	W-5.6		12:20		DT										
-08	MS-106.1		13:05		IEM										
-09	MS-106.2		13:10		DT										
-10	MS-106.3		13:50		DT										

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
IEM	10-25-17 17:45		10/25/17 1800
	10/25/17 1800		10/26/17 0530

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)

ALPHA

NEW YORK CHAIN OF CUSTODY

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 10/26/17

ALPHA Job # L1738869

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
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Project Manager: IAN MCNAMARA
ALPHAQuote #:

Deliverables

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

Billing Information

☒ Same as Client Info
PO #

Client Information

Client: GHD
Address: 1 REMINGTON PARK DR
CAZENOVIA, NY 13035
Phone: 315-679-5732
Fax: 315-679-5801
Email: ian.mcnamara@ghd.com

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:

Turn-Around Time

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

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

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	T PHENOL	TOTAL METAL (FE, CR)							Sample Specific Comments	Total Bottle
38869-11	MS-104.4	10-25-17	14:30	GW	IEM	X	X								2
-12	MS-104.5		15:00		DT										
-13	MS-104.3		15:20		IEM										
-14	DUP		0:00		IEM										
-15	TRIP BLANK		0:00		IEM										
-16	FIELD BLANK 1		15:30		IEM										
-17	FIELD BLANK 2		15:45		IEM										

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
IEM	10-25-17 17:45	Michela Rodriguez	10/25/17 18
Michela Rodriguez	10/25/17 1810		10/26/17 0130

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
Inclinometer Report

SJB
SERVICES, INC.
Contract
Drilling
and
Testing

December 4, 2017

GHD Consulting Services, Inc.
1 Remington Park Dr.
Cazenovia NY, 13035
Attn: Ian McNamara

Reference: Inclinometer Monitoring
Crucible Specialty Metals Landfill
Geddes, New York
SJB Project No.: CT-17-099

Dear Mr. McNamara

The purpose of this letter report is to provide you with the results of the work performed by SJB Services, Inc. (SJB) on October 25, 2017 at the Crucible Specialty Metals Landfill in Geddes, New York. Background information provided within is based on previous inclinometer monitoring documents for this site.

Project Background

Four inclinometer casings were installed from July to August 1985 in perimeter areas of the Crucible Specialty Metals Landfill. Inclinometers 1 and 2 were installed on the southwest side, inclinometer 3 was installed on the northwest side and inclinometer 4 was installed on the northeast side of the landfill area. Locations of the inclinometers are shown on the generalized site map included as Figure 1.

Initial monitoring of the inclinometers was performed on August 29, 1985. This data has been used as baseline for comparison in determining displacement. Monitoring of the four inclinometers has continued at a frequency of at one event per year with the exception of 2010, 2012, 2013, 2015 and 2016.

Scope of Services

The scope of services consisted of taking inclinometer probe readings, processing probe readings, and providing a summary report. During processing and reporting, the current monitoring data was compared to baseline data and data from 2009, 2011 and 2014 to determine possible displacement of the inclinometer casing (i.e. movement within the subsurface materials).

Methodology

At each inclinometer the probe was first inserted with the upper wheels of both wheel assemblies in the A0 groove. The A0 groove is the "downhill" groove along the A-axis. Arrows shown on Figure 1 indicate the direction of the A0 groove at each inclinometer. The A-axis is aligned with the expected direction of movement. Once inserted into the casing the probe was lowered to the starting depth of 127 feet. Depth measurements were taken from the cable clamp on the pulley assembly temporarily attached to the top of the casing. Prior to readings the probe was held stable at the starting depth for at least 10 minutes to allow the probe to adjust to the temperature inside the casing.

Inclinometer readings were taken using a manual indicator. Using the manual indicator, the A0 and B0 readings were taken respective to the selection setting of the channel switch. This process was repeated stopping the probe every two feet until the probe was nearly at the top of the casing.

After the first pass, the inclinometer probe was rotated 180 degrees and placed so that the upper wheels of both wheel assemblies were inserted in the A180 groove. The probe was then lowered to the appropriate starting depth and allowed to adjust to the temperature again. Readings for the A180 and B180 directions were taken according to the same procedure described above.

Inclinometer probe readings were processed to determine possible displacement of the inclinometer casings. Data processing includes comparison to 1985 baseline data and to data from 2009, 2011 and 2014.

Discussion

Inclinometer data for the 2017 monitoring event is included for each inclinometer in Attachment 1. Data for this event include the probe readings, calculated terms of difference, deviation, displacement and cumulative displacement. Inclinometer data comparisons for 1985, 2009, 2011, 2014 and 2017 are included in Attachment 2. Data for each inclinometer include the calculated terms of difference, deviation, displacement and cumulative displacement. The term difference is calculated for each inclinometer axis according to the following sample equation:

$$\text{Difference} = A0_{\text{reading}} - A180_{\text{reading}} \qquad (1)$$

Deviation is the translation of the probes angular measurement into lateral distance and is the first step in calculating lateral movement. Lateral deviation is calculated according to the following equation:

$$\text{Deviation} = \text{Measurement Interval} \times \sin\theta \qquad (2)$$

Where: Measurement Interval = 24 inches *(distance between probe wheel assemblies)*

$\sin\theta$ = Difference ÷ (2 × 20,000 *(instrument constant)*)

Plots of cumulative deviation (i.e. deviation values summed from the bottom to the top of the inclinometer) represent the inclinometer casing profile. Even data readings taken from a newly installed inclinometer casing will show deviation as it can never be absolutely vertical and true.

Changes in deviation are referred to as displacements; because the change indicates that the casing has moved from its original position. Displacement is calculated according to the following equation:

$$\text{Displacement} = \text{Measurement Interval} \times \Delta\sin\theta$$

Where: Measurement Interval = 24 inches

$$\Delta\sin\theta = (\text{Difference}_{\text{current}} - \text{Difference}_{1985}) \div (2 \times 20{,}000)$$

Cumulative displacement (i.e. displacement values summed from the bottom to the top of the inclinometer) can be plotted to show a displacement profile. The cumulative displacement plots provide a higher resolution representation of movement and are most useful when shearing is exhibited within discrete depth intervals.

Plots of A-axis displacement and cumulative displacement are shown in Attachment 3. Although, movements along the B-axis are not necessarily anticipated, plots of B-axis displacement and cumulative displacement are also shown in Attachment 4.

Slope Indicator states that for a single reading the random errors are found to be 0.007 inches and the systematic errors are found to be 0.005 inches. Over the entire inclinometer casing, random error accumulates with the square root of the number of readings, and the systematic error accumulates directly with the number of readings. Therefore, the system accuracy (total error) of the inclinometers is ±0.370 inches, considering 63 reading increments.

Findings

The maximum and minimum displacement along the A and B axis of each inclinometer are summarized in the following table:

A-axis

	Inclinometers			
Displacement	1	2	3	4
Maximum	0.186	0.020	0.115	0.223
Minimum	-0.349	-0.109	-0.095	-0.728

B-axis

Displacement	1	2	3	4
Maximum	0.195	0.235	0.300	0.104
Minimum	-0.186	-0.486	-0.143	-0.573

The maximum and minimum displacements for the inclinometers are typically within the system accuracy limits. Deviations are the result of technician discrepancy and will be compared to future observations. The greatest displacements (less than ± 0.8 inches) exceeds the system accuracy and typically occurred near ground surface. Near ground surface displacements can generally be attributed to freeze-thaw cycles (i.e. frost heave).In conclusion, it does not appear the inclinometer casings have shown any detectable change from their original position in 1985.

Cumulative displacement plots do not provide any further evidence of possible displacement. The slight overall tilts displayed in the cumulative displacement plots may be due to the effect of systematic accumulating error.

We appreciate the opportunity to provide this inclinometer monitoring service at the Crucible Specialty Metals Landfill. If you have any questions regarding this report please do not hesitate to contact me in our Cortland office or by email at pakbari@sjbempre.net.

Regards,

SJB Services, Inc.

Parviz Akbari
Project Manager

Chad Hill

Chad Hill
Staff Geologist

Enc.

EMPIRE GEO SERVICES, INC.
A SUBSIDIARY OF SJB SERVICES, INC.

GENERALIZED SITE MAP
Crucible Steel Landfill, Solvay, New York

FIGURE 1

ATTACHMENT 1

October 25, 2017

Inclinometer Monitoring Data

CRUCIBLE STEEL LANDFILL
INCLINOMETER MONITORING
SJB Project No.: CT-17-099
October 25, 2017

Inclinometer 1

	A axis					Cumulative
Depth	A0	A180	Difference	Deviation (inches)	Displacement (inches)	Displacement (inches)
3	800	-1020	1820	1.092	0.178	-0.729
5	260	-500	760	0.456	-0.079	-0.907
7	-200	-20	-180	-0.108	-0.349	-0.827
9	-50	-170	120	0.072	-0.028	-0.479
11	-120	-90	-30	-0.018	-0.031	-0.451
13	-210	-10	-200	-0.120	-0.059	-0.420
15	-200	-20	-180	-0.108	-0.004	-0.361
17	-200	-30	-170	-0.102	-0.020	-0.356
19	-160	-60	-100	-0.060	-0.001	-0.337
21	-180	-50	-130	-0.078	-0.022	-0.335
23	-170	-50	-120	-0.072	-0.021	-0.314
25	-170	-50	-120	-0.072	-0.024	-0.293
27	-200	-20	-180	-0.108	-0.042	-0.269
29	-170	-50	-120	-0.072	-0.010	-0.227
31	-160	-60	-100	-0.060	0.001	-0.217
33	-130	-90	-40	-0.024	-0.002	-0.217
35	-140	-90	-50	-0.030	-0.016	-0.215
37	-160	-60	-100	-0.060	-0.041	-0.199
39	-220	-10	-210	-0.126	-0.022	-0.157
41	-240	20	-260	-0.156	-0.041	-0.135
43	-260	40	-300	-0.180	-0.029	-0.094
45	-280	60	-340	-0.204	-0.034	-0.065
47	-290	80	-370	-0.222	-0.023	-0.031
49	-310	90	-400	-0.240	-0.030	-0.008
51	-260	40	-300	-0.180	0.021	0.022
53	-160	-60	-100	-0.060	0.037	0.001
55	-90	-130	40	0.024	0.009	-0.037
57	-60	-160	100	0.060	0.005	-0.046
59	-10	-210	200	0.120	0.007	-0.051
61	-40	-180	140	0.084	-0.013	-0.058
63	-30	-190	160	0.096	-0.001	-0.045
65	-90	-120	30	0.018	-0.044	-0.044
67	-150	-80	-70	-0.042	-0.032	0.000
69	-220	-10	-210	-0.126	-0.016	0.032
71	-200	10	-210	-0.126	-0.023	0.048
73	-310	140	-450	-0.270	-0.094	0.071
75	-310	90	-400	-0.240	0.040	0.166
77	-160	-50	-110	-0.066	0.078	0.126
79	-120	-90	-30	-0.018	0.001	0.048
81	-130	-90	-40	-0.024	-0.030	0.047
83	-150	-70	-80	-0.048	-0.007	0.077
85	-280	70	-350	-0.210	-0.068	0.084
87	-310	90	-400	-0.240	0.019	0.152
89	-170	-50	-120	-0.072	0.061	0.133
91	-130	-90	-40	-0.024	0.013	0.073
93	-70	-150	80	0.048	0.005	0.060
95	-70	-150	80	0.048	-0.010	0.055
97	-160	-60	-100	-0.060	-0.028	0.065
99	-140	-70	-70	-0.042	0.026	0.092
101	-210	-10	-200	-0.120	-0.008	0.067
103	80	-310	390	0.234	0.186	0.075
105	210	-410	620	0.372	-0.061	-0.111
107	-140	-70	-70	-0.042	-0.137	-0.050
109	-290	-70	-220	-0.132	0.068	0.086
111	-160	-60	-100	-0.060	0.067	0.019
113	-80	-140	60	0.036	0.025	-0.048
115	-30	-190	160	0.096	0.017	-0.073
117	-20	-210	190	0.114	-0.024	-0.090
119	50	-260	310	0.186	0.025	-0.066
121	-70	-150	80	0.048	-0.046	-0.091
123	-140	-70	-70	-0.042	-0.029	-0.045
125	-220	0	-220	-0.132	-0.016	-0.016
127	-240	20	-260	-0.156	-0.001	-0.001

B axis					Cumulative
B0	B180	Difference	Deviation (inches)	Displacement (inches)	Displacement (inches)
-136	-16	-120	-0.072	-0.186	-0.900
15	-51	66	0.040	-0.020	-0.714
-50	-178	128	0.077	0.027	-0.694
-1	-147	146	0.088	0.053	-0.721
-47	-147	100	0.060	0.010	-0.774
-66	-163	97	0.058	-0.032	-0.784
-58	-172	114	0.068	-0.029	-0.752
-67	-136	69	0.041	-0.066	-0.722
-65	-68	3	0.002	-0.070	-0.656
-80	-50	-30	-0.018	-0.049	-0.587
-25	-81	56	0.034	-0.020	-0.538
-16	-98	82	0.049	-0.045	-0.517
-57	-92	35	0.021	-0.058	-0.472
-90	-70	-20	-0.012	-0.043	-0.414
-65	-75	10	0.006	0.019	-0.371
-73	-98	25	0.015	-0.004	-0.391
-107	-50	-57	-0.034	-0.046	-0.387
-124	-6	-118	-0.071	-0.030	-0.341
-134	12	-146	-0.088	-0.025	-0.311
-138	25	-163	-0.098	-0.027	-0.286
-115	-36	-79	-0.047	0.006	-0.259
-163	32	-195	-0.117	-0.074	-0.265
-300	134	-434	-0.260	-0.139	-0.191
-400	223	-623	-0.374	-0.060	-0.052
-352	176	-528	-0.317	0.043	0.008
-273	113	-386	-0.232	0.053	-0.035
-217	56	-273	-0.164	0.031	-0.088
-219	3	-222	-0.133	0.018	-0.119
-215	-18	-197	-0.118	0.055	-0.137
-88	-97	9	0.005	0.122	-0.193
65	-174	239	0.143	0.093	-0.314
168	-195	363	0.218	-0.011	-0.407
81	-112	193	0.116	-0.164	-0.397
5	-57	62	0.037	-0.125	-0.233
-3	-57	54	0.032	-0.067	-0.107
-91	60	-151	-0.091	-0.160	-0.041
-154	52	-206	-0.124	-0.090	0.119
-209	18	-227	-0.136	-0.049	0.209
-236	24	-260	-0.156	0.000	0.257
-274	48	-322	-0.193	-0.027	0.257
-182	32	-214	-0.128	0.049	0.284
-240	114	-354	-0.212	-0.035	0.236
-378	163	-541	-0.325	-0.080	0.271
-346	102	-448	-0.269	0.061	0.352
-256	55	-311	-0.187	0.094	0.290
-84	-78	-6	-0.004	0.148	0.196
-58	-87	29	0.017	-0.002	0.049
-152	-11	-141	-0.085	-0.133	0.051
-214	42	-256	-0.154	-0.042	0.184
-174	2	-176	-0.106	0.025	0.226
-271	-114	-157	-0.094	0.034	0.201
-114	-121	7	0.004	0.195	0.167
22	-48	70	0.042	0.010	-0.028
-52	-21	-31	-0.019	-0.150	-0.037
-215	3	-218	-0.131	-0.115	0.113
-322	35	-357	-0.214	-0.019	0.228
-352	30	-382	-0.229	0.061	0.247
-313	0	-313	-0.188	0.129	0.186
-212	-50	-162	-0.097	0.133	0.057
-217	-4	-213	-0.128	0.010	-0.076
-299	83	-382	-0.229	-0.050	-0.086
-306	134	-440	-0.264	-0.011	-0.036
-319	147	-466	-0.280	-0.025	-0.025

CRUCIBLE STEEL LANDFILL
INCLINOMETER MONITORING
SJB Project No.: CT-17-099
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Inclinometer 2

A axis

Depth	A0	A180	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)
3	-270	50	-320	-0.192	-0.004	-1.094
5	-280	60	-340	-0.204	-0.047	-1.090
7	-280	50	-330	-0.198	-0.100	-1.043
9	-250	30	-280	-0.168	-0.052	-0.944
11	-310	90	-400	-0.240	-0.019	-0.892
13	-320	90	-410	-0.246	-0.014	-0.873
15	-230	10	-240	-0.144	-0.004	-0.859
17	-140	-90	-50	-0.030	-0.022	-0.856
19	-110	-110	0	0.000	-0.026	-0.834
21	-150	-60	-90	-0.054	-0.021	-0.808
23	-140	-70	-70	-0.042	-0.016	-0.787
25	-140	-70	-70	-0.042	-0.018	-0.771
27	-110	-110	0	0.000	-0.019	-0.753
29	-10	-220	210	0.126	0.002	-0.734
31	60	-280	340	0.204	-0.016	-0.736
33	90	-310	400	0.240	-0.013	-0.720
35	140	-360	500	0.300	-0.017	-0.707
37	140	-360	500	0.300	-0.014	-0.690
39	30	-230	260	0.156	-0.028	-0.676
41	-100	-120	20	0.012	-0.019	-0.649
43	-130	-80	-50	-0.030	-0.019	-0.630
45	-250	50	-300	-0.180	-0.019	-0.611
47	-410	210	-620	-0.372	-0.026	-0.592
49	-520	300	-820	-0.492	-0.021	-0.565
51	-480	270	-750	-0.450	-0.001	-0.544
53	-440	210	-650	-0.390	-0.014	-0.543
55	-300	90	-390	-0.234	-0.021	-0.529
57	-140	-100	-40	-0.024	-0.004	-0.508
59	-50	-170	120	0.072	-0.013	-0.505
61	-90	-130	40	0.024	-0.011	-0.491
63	-50	-170	120	0.072	-0.004	-0.481
65	-40	-260	220	0.132	-0.044	-0.477
67	-40	-250	210	0.126	-0.065	-0.433
69	-30	-180	150	0.090	0.006	-0.368
71	-210	10	-220	-0.132	0.004	-0.374
73	-320	90	-410	-0.246	0.009	-0.378
75	-300	80	-380	-0.228	-0.005	-0.387
77	-270	60	-330	-0.198	0.020	-0.382
79	-280	40	-320	-0.192	-0.011	-0.403
81	-40	-180	140	0.084	0.014	-0.392
83	-30	-200	170	0.102	0.006	-0.406
85	50	-260	310	0.186	-0.036	-0.412
87	60	-270	330	0.198	-0.025	-0.376
89	0	-220	220	0.132	0.011	-0.350
91	-70	-150	80	0.048	-0.037	-0.362
93	-70	-300	230	0.138	-0.064	-0.325
95	-130	-340	210	0.126	-0.109	-0.262
97	-30	-240	210	0.126	-0.029	-0.153
99	-130	-80	-50	-0.030	-0.014	-0.124
101	-280	70	-350	-0.210	-0.003	-0.110
103	-160	-70	-90	-0.054	0.010	-0.107
105	-110	-90	-20	-0.012	0.013	-0.117
107	-310	80	-390	-0.234	-0.012	-0.130
109	-290	110	-400	-0.240	-0.001	-0.118
111	-440	200	-640	-0.384	0.001	-0.117
113	-230	20	-250	-0.150	0.004	-0.118
115	-260	40	-300	-0.180	0.007	-0.122
117	-190	30	-220	-0.132	-0.037	-0.130
119	-120	50	-170	-0.102	-0.092	-0.092
121	-70	-150	80	0.048	0.000	-0.001
123	-20	-200	180	0.108	-0.003	-0.001
125	90	-330	420	0.252	-0.005	0.002
127	140	-370	510	0.306	0.008	0.008

B axis

B0	B180	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)
-247	128	-375	-0.225	-0.486	0.425
-251	148	-399	-0.239	-0.292	0.911
-194	87	-281	-0.169	-0.124	1.203
-198	83	-281	-0.169	-0.074	1.327
-228	115	-343	-0.206	-0.068	1.400
-225	103	-328	-0.197	-0.007	1.468
-209	84	-293	-0.176	0.034	1.475
-188	74	-262	-0.157	0.111	1.442
-305	183	-488	-0.293	0.121	1.331
-283	179	-462	-0.277	0.229	1.210
-210	115	-325	-0.195	0.203	0.982
-130	48	-178	-0.107	0.109	0.779
-50	-60	10	0.006	0.071	0.670
-54	62	-116	-0.070	0.022	0.599
-23	32	-55	-0.033	0.128	0.577
48	-57	105	0.063	0.132	0.448
143	-195	338	0.203	0.144	0.316
204	-354	558	0.335	0.056	0.172
87	-313	400	0.240	-0.088	0.116
29	-248	277	0.166	-0.058	0.204
-27	-212	185	0.111	-0.071	0.262
-132	-151	19	0.011	-0.095	0.334
-269	-49	-220	-0.132	-0.181	0.429
-144	-292	148	0.089	-0.023	0.610
-159	-245	86	0.052	-0.152	0.633
-143	-171	28	0.017	-0.121	0.785
-117	-80	-37	-0.022	-0.061	0.907
-63	-14	-49	-0.029	0.017	0.967
-77	-12	-65	-0.039	0.045	0.950
-87	-2	-85	-0.051	0.028	0.905
-149	192	-341	-0.205	0.006	0.878
-210	374	-584	-0.350	0.115	0.872
-262	491	-753	-0.452	0.177	0.757
-266	296	-562	-0.337	0.235	0.580
-175	17	-192	-0.115	0.133	0.344
-162	-77	-85	-0.051	-0.022	0.211
-60	-209	149	0.089	-0.004	0.233
64	-486	550	0.330	0.012	0.238
100	-426	526	0.316	-0.215	0.226
9	-161	170	0.102	-0.146	0.440
3	-65	68	0.041	0.035	0.587
-44	60	-104	-0.062	0.047	0.552
-15	2	-17	-0.010	0.109	0.505
-68	0	-68	-0.041	0.064	0.396
-65	36	-101	-0.061	0.073	0.332
59	-63	122	0.073	0.119	0.260
79	-145	224	0.134	0.095	0.141
51	-195	246	0.148	0.028	0.046
-28	-234	206	0.124	-0.073	0.017
-28	-276	248	0.149	-0.092	0.090
47	-243	290	0.174	-0.043	0.182
-103	-51	-52	-0.031	-0.191	0.225
-42	-110	68	0.041	-0.076	0.416
-272	19	-291	-0.175	-0.220	0.492
-248	125	-373	-0.224	-0.084	0.712
-182	62	-244	-0.146	0.067	0.796
-186	65	-251	-0.151	-0.052	0.729
-208	122	-330	-0.198	0.048	0.781
-207	165	-372	-0.223	0.118	0.733
-188	234	-422	-0.253	0.136	0.616
-109	176	-285	-0.171	0.173	0.479
16	24	-8	-0.005	0.180	0.306
66	-78	144	0.086	0.126	0.126

CRUCIBLE STEEL LANDFILL
INCLINOMETER MONITORING
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Inclinometer 3

	A axis					
Depth	A0	A180	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)
3	-220	10	-230	-0.138	-0.017	-0.212
5	-250	30	-280	-0.168	0.043	-0.196
7	-160	-60	-100	-0.060	0.096	-0.239
9	-100	-120	20	0.012	0.044	-0.335
11	-50	-170	120	0.072	0.038	-0.379
13	-50	-170	120	0.072	-0.034	-0.417
15	-60	-160	100	0.060	-0.053	-0.383
17	-80	-140	60	0.036	-0.086	-0.331
19	-70	-150	80	0.048	-0.034	-0.245
21	-40	-180	140	0.084	0.050	-0.211
23	-80	-150	70	0.042	0.017	-0.261
25	-110	-110	0	0.000	-0.009	-0.278
27	-160	-60	-100	-0.060	-0.014	-0.269
29	-190	-30	-160	-0.096	0.006	-0.254
31	-160	-50	-110	-0.066	0.011	-0.260
33	-210	-10	-200	-0.120	-0.031	-0.272
35	-270	50	-320	-0.192	-0.017	-0.241
37	-200	-20	-180	-0.108	0.062	-0.223
39	80	-290	370	0.222	0.115	-0.285
41	150	-370	520	0.312	0.019	-0.400
43	70	-290	360	0.216	-0.046	-0.418
45	-50	-160	110	0.066	-0.053	-0.372
47	-130	-80	-50	-0.030	-0.035	-0.319
49	-270	50	-320	-0.192	-0.039	-0.284
51	-230	10	-240	-0.144	0.020	-0.245
53	-190	-40	-150	-0.090	0.012	-0.265
55	-150	-70	-80	-0.048	0.010	-0.277
57	-90	-130	40	0.024	0.029	-0.287
59	-20	-190	170	0.102	0.009	-0.316
61	30	-240	270	0.162	0.011	-0.325
63	20	-230	250	0.150	-0.009	-0.337
65	-70	-140	70	0.042	-0.046	-0.328
67	-120	-100	-20	-0.012	-0.016	-0.281
69	10	-230	240	0.144	0.047	-0.265
71	10	-230	240	0.144	0.001	-0.312
73	0	-220	220	0.132	-0.012	-0.313
75	-60	-160	100	0.060	-0.030	-0.301
77	-60	-150	90	0.054	-0.020	-0.271
79	-110	-110	0	0.000	-0.002	-0.251
81	-120	-90	-30	-0.018	-0.008	-0.249
83	-90	-130	40	0.024	0.020	-0.241
85	-90	-120	30	0.018	-0.008	-0.261
87	-120	-90	-30	-0.018	-0.024	-0.253
89	-170	-10	-160	-0.096	-0.013	-0.229
91	-170	-50	-120	-0.072	0.001	-0.215
93	-100	-120	20	0.012	0.020	-0.217
95	-50	-170	120	0.072	0.010	-0.237
97	110	-300	410	0.246	0.074	-0.247
99	80	-310	390	0.234	-0.014	-0.321
101	60	-290	350	0.210	-0.017	-0.307
103	10	-250	260	0.156	-0.047	-0.289
105	-50	-190	140	0.084	-0.031	-0.242
107	-40	-170	130	0.078	-0.001	-0.211
109	-20	-180	160	0.096	-0.003	-0.210
111	50	-230	280	0.168	0.036	-0.207
113	60	-290	350	0.210	0.010	-0.243
115	40	-250	290	0.174	-0.025	-0.253
117	0	-270	270	0.162	-0.027	-0.228
119	-130	-130	0	0.000	-0.095	-0.201
121	-190	-50	-140	-0.084	-0.040	-0.106
123	-250	0	-250	-0.150	-0.042	-0.066
125	-300	80	-380	-0.228	-0.041	-0.024
127	-300	70	-370	-0.222	0.017	0.017

B axis					
B0	B180	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)
-20	-145	125	0.075	0.058	-0.290
23	-191	214	0.128	0.044	-0.348
-77	-92	15	0.009	-0.039	-0.392
-320	158	-478	-0.287	-0.123	-0.353
-363	214	-577	-0.346	-0.039	-0.230
-355	204	-559	-0.335	-0.010	-0.191
-340	185	-525	-0.315	-0.021	-0.181
-315	171	-486	-0.292	-0.026	-0.160
-240	92	-332	-0.199	0.014	-0.134
-202	46	-248	-0.149	0.066	-0.148
-251	91	-342	-0.205	0.002	-0.214
-295	139	-434	-0.260	-0.008	-0.216
-217	67	-284	-0.170	0.062	-0.208
-67	-95	28	0.017	0.040	-0.271
-174	2	-176	-0.106	-0.054	-0.311
-295	134	-429	-0.257	-0.052	-0.257
-309	152	-461	-0.277	-0.007	-0.205
-261	115	-376	-0.226	0.027	-0.198
-169	25	-194	-0.116	0.039	-0.225
-161	1	-162	-0.097	-0.002	-0.264
-239	66	-305	-0.183	-0.050	-0.262
-390	237	-627	-0.376	-0.080	-0.212
-472	309	-781	-0.469	-0.034	-0.131
-462	310	-772	-0.463	0.023	-0.098
-384	228	-612	-0.367	0.020	-0.121
-236	84	-320	-0.192	0.058	-0.142
-187	33	-220	-0.132	0.014	-0.199
-168	14	-182	-0.109	-0.001	-0.213
-185	34	-219	-0.131	-0.016	-0.212
-161	2	-163	-0.098	0.005	-0.197
-189	19	-208	-0.125	-0.026	-0.202
-237	65	-302	-0.181	-0.026	-0.176
-267	116	-383	-0.230	-0.021	-0.151
-262	106	-368	-0.221	-0.009	-0.130
-283	125	-408	-0.245	-0.014	-0.121
-245	90	-335	-0.201	0.019	-0.106
-198	41	-239	-0.143	0.019	-0.125
-128	-29	-99	-0.059	0.037	-0.145
-50	-121	71	0.043	0.014	-0.181
-165	-11	-154	-0.092	-0.064	-0.195
-316	142	-458	-0.275	-0.085	-0.131
-476	305	-781	-0.469	-0.081	-0.046
-655	498	-1153	-0.692	-0.075	0.035
-618	460	-1078	-0.647	0.026	0.110
-567	404	-971	-0.583	0.011	0.083
-405	245	-650	-0.390	0.065	0.072
-250	97	-347	-0.208	0.067	0.007
-140	-27	-113	-0.068	0.029	-0.060
-316	142	-458	-0.275	-0.090	-0.089
-370	200	-570	-0.342	-0.040	0.001
-396	234	-630	-0.378	-0.009	0.040
-393	231	-624	-0.374	-0.017	0.049
-415	248	-663	-0.398	-0.007	0.066
-460	305	-765	-0.459	-0.037	0.073
-442	284	-726	-0.436	0.007	0.110
-406	244	-650	-0.390	0.004	0.103
-337	178	-515	-0.309	0.025	0.099
-244	91	-335	-0.201	0.045	0.074
-173	-7	-166	-0.100	-0.007	0.029
-318	140	-458	-0.275	-0.099	0.036
-577	380	-957	-0.574	-0.143	0.135
-87	652	-739	-0.443	0.300	0.278
-916	743	-1659	-0.995	-0.022	-0.022

CRUCIBLE STEEL LANDFILL
INCLINOMETER MONITORING
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October 25, 2017

Inclinometer 4

	A axis						B axis					
Depth	A0	A180	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	B0	B180	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)
3	-300	70	-370	-0.222	-0.728	-1.318	-747	608	-1355	-0.813	-0.573	-1.703
5	-270	50	-320	-0.192	-0.256	-0.589	-225	62	-287	-0.172	-0.280	-1.130
7	-120	-90	-30	-0.018	0.044	-0.333	27	-194	221	0.133	-0.108	-0.850
9	-60	-160	100	0.060	0.082	-0.377	28	-181	209	0.125	-0.056	-0.742
11	-50	-170	120	0.072	0.036	-0.459	80	-229	309	0.185	0.085	-0.685
13	-20	-210	190	0.114	0.057	-0.495	49	-195	244	0.146	0.038	-0.770
15	60	-280	340	0.204	0.061	-0.552	76	-220	296	0.178	0.007	-0.808
17	70	-290	360	0.216	0.000	-0.613	105	-264	369	0.221	-0.045	-0.815
19	40	-270	310	0.186	-0.004	-0.613	40	-195	235	0.141	-0.092	-0.770
21	30	-250	280	0.168	-0.012	-0.610	12	-172	184	0.110	-0.037	-0.679
23	-60	-160	100	0.060	-0.111	-0.598	-42	-112	70	0.042	-0.066	-0.641
25	-150	-70	-80	-0.048	-0.100	-0.487	-80	-74	-6	-0.004	-0.056	-0.575
27	-190	-30	-160	-0.096	-0.049	-0.387	-80	-52	-28	-0.017	-0.026	-0.520
29	-270	50	-320	-0.192	-0.079	-0.338	-32	-112	80	0.048	0.052	-0.494
31	-250	30	-280	-0.168	0.011	-0.259	-2	-141	139	0.083	0.042	-0.546
33	-210	-10	-200	-0.120	0.037	-0.271	53	-205	258	0.155	0.057	-0.588
35	-190	-30	-160	-0.096	0.020	-0.307	28	-182	210	0.126	-0.028	-0.645
37	-170	-40	-130	-0.078	0.014	-0.328	-53	-114	61	0.037	-0.096	-0.617
39	-120	-110	-10	-0.006	0.063	-0.341	-98	-48	-50	-0.030	-0.079	-0.521
41	-80	-140	60	0.036	0.048	-0.404	-90	-59	-31	-0.019	0.017	-0.442
43	70	-290	360	0.216	0.155	-0.452	-28	-120	92	0.055	0.057	-0.460
45	130	-350	480	0.288	0.050	-0.608	28	-180	208	0.125	0.049	-0.517
47	110	-340	450	0.270	-0.020	-0.658	88	-227	315	0.189	0.058	-0.566
49	-40	-260	220	0.132	-0.133	-0.638	105	-257	362	0.217	0.019	-0.624
51	-20	-200	180	0.108	-0.065	-0.505	67	-222	289	0.173	-0.050	-0.643
53	-50	-170	120	0.072	-0.027	-0.439	17	-180	197	0.118	-0.070	-0.593
55	-40	-180	140	0.084	0.007	-0.412	-34	-134	100	0.060	-0.071	-0.523
57	-60	-160	100	0.060	-0.027	-0.419	-50	-92	42	0.025	-0.041	-0.452
59	-130	-90	-40	-0.024	-0.070	-0.392	-36	-115	79	0.047	0.008	-0.411
61	-150	-70	-80	-0.048	-0.024	-0.322	-65	-86	21	0.013	-0.049	-0.419
63	-160	-60	-100	-0.060	-0.003	-0.298	-81	-78	-3	-0.002	-0.027	-0.371
65	-100	-120	20	0.012	0.074	-0.295	-82	-75	-7	-0.004	-0.015	-0.344
67	-80	-140	60	0.036	0.027	-0.369	20	-169	189	0.113	0.089	-0.329
69	-40	-180	140	0.084	0.035	-0.396	96	-264	360	0.216	0.089	-0.418
71	-80	-140	60	0.036	-0.053	-0.431	0	-164	164	0.098	-0.114	-0.506
73	-50	-170	120	0.072	0.020	-0.379	-7	-150	143	0.086	-0.031	-0.392
75	-70	-150	80	0.048	-0.019	-0.399	-30	-128	98	0.059	-0.018	-0.362
77	-30	-190	160	0.096	0.043	-0.380	-13	-155	142	0.085	0.016	-0.344
79	-90	-130	40	0.024	-0.077	-0.422	-22	-148	126	0.076	-0.004	-0.359
81	-170	-50	-120	-0.072	-0.097	-0.346	-4	-160	156	0.094	0.007	-0.356
83	-280	60	-340	-0.204	-0.110	-0.248	-12	-160	148	0.089	-0.008	-0.362
85	-290	70	-360	-0.216	-0.032	-0.139	-51	-125	74	0.044	-0.049	-0.354
87	-240	10	-250	-0.150	0.059	-0.107	-54	-107	53	0.032	-0.017	-0.305
89	-120	-100	-20	-0.012	0.122	-0.166	-8	-160	152	0.091	0.049	-0.287
91	-20	-200	180	0.108	0.074	-0.288	19	-191	210	0.126	0.005	-0.337
93	-40	-190	150	0.090	-0.034	-0.362	-6	-165	159	0.095	-0.035	-0.342
95	-120	-100	-20	-0.012	-0.085	-0.328	-38	-144	106	0.064	-0.041	-0.307
97	-180	-40	-140	-0.084	-0.054	-0.243	-111	-69	-42	-0.025	-0.097	-0.266
99	-80	-140	60	0.036	0.089	-0.189	-166	-12	-154	-0.092	-0.089	-0.169
101	-130	-90	-40	-0.024	-0.049	-0.278	-120	-60	-60	-0.036	0.037	-0.080
103	-140	-80	-60	-0.036	-0.035	-0.229	-10	-173	163	0.098	0.104	-0.117
105	-150	-70	-80	-0.048	-0.002	-0.194	-69	-120	51	0.031	-0.079	-0.221
107	-60	-170	110	0.066	0.066	-0.191	-74	-117	43	0.026	-0.056	-0.143
109	180	-400	580	0.348	0.223	-0.257	-108	-73	-35	-0.021	-0.057	-0.087
111	180	-410	590	0.354	-0.004	-0.481	-103	-88	-15	-0.009	-0.011	-0.030
113	80	-300	380	0.228	-0.107	-0.476	-107	-85	-22	-0.013	-0.035	-0.019
115	-40	-180	140	0.084	-0.112	-0.369	-75	-120	45	0.027	-0.017	0.017
117	-30	-200	170	0.102	0.037	-0.257	-31	-160	129	0.077	0.038	0.034
119	-50	-270	220	0.132	0.019	-0.293	11	-202	213	0.128	0.037	-0.004
121	-130	-100	-30	-0.018	-0.153	-0.312	29	-226	255	0.153	0.011	-0.041
123	-180	-50	-130	-0.078	-0.106	-0.159	42	-240	282	0.169	-0.012	-0.052
125	-230	10	-240	-0.144	-0.066	-0.053	64	-265	329	0.197	-0.005	-0.040
127	-230	60	-290	-0.174	0.013	0.013	36	-260	296	0.178	-0.034	-0.034

ATTACHMENT 2

Data Comparison: Baseline (1985), 2009, 2011, 2014 and 2017

CRUCIBLE STEEL LANDFILL
INCLINOMETER MONITORING
SJB Project No.: CT-17-099

INCLINOMETER 1
A-AXIS

August 29, 1985		December 17, 2009				December 13, 2011				October 21, 2014				October 25, 2017			
Depth	Difference	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)
3	1524	1865	1.119	0.205	-0.568	1956	1.174	0.259	-0.460	1706	1.024	0.109	-1.219	1820	1.092	0.178	-0.729
5	892	1010	0.606	0.071	-0.772	988	0.593	0.058	-0.719	365	0.219	-0.316	-1.328	760	0.456	-0.079	-0.907
7	401	101	0.061	-0.180	-0.843	43	0.026	-0.215	-0.777	-7	-0.004	-0.245	-1.012	-180	-0.108	-0.349	-0.827
9	167	48	0.029	-0.071	-0.663	54	0.032	-0.068	-0.562	88	0.053	-0.047	-0.767	120	0.072	-0.028	-0.479
11	21	-56	-0.034	-0.046	-0.592	-68	-0.041	-0.053	-0.494	-159	-0.095	-0.108	-0.720	-30	-0.018	-0.031	-0.451
13	-101	-205	-0.123	-0.062	-0.545	-209	-0.125	-0.065	-0.441	-203	-0.122	-0.061	-0.612	-200	-0.120	-0.059	-0.420
15	-173	-193	-0.116	-0.012	-0.483	-188	-0.113	-0.009	-0.376	-168	-0.101	0.003	-0.551	-180	-0.108	-0.004	-0.361
17	-137	-173	-0.104	-0.022	-0.471	-173	-0.104	-0.022	-0.367	-146	-0.088	-0.005	-0.554	-170	-0.102	-0.020	-0.356
19	-98	-100	-0.060	-0.001	-0.449	-103	-0.062	-0.003	-0.346	-114	-0.068	-0.010	-0.548	-100	-0.060	-0.001	-0.337
21	-94	-132	-0.079	-0.023	-0.448	-132	-0.079	-0.023	-0.343	-140	-0.084	-0.028	-0.539	-130	-0.078	-0.022	-0.335
23	-85	-111	-0.067	-0.016	-0.425	-108	-0.065	-0.014	-0.320	-104	-0.062	-0.011	-0.511	-120	-0.072	-0.021	-0.314
25	-80	-112	-0.067	-0.019	-0.410	-114	-0.068	-0.020	-0.306	-147	-0.088	-0.040	-0.500	-120	-0.072	-0.024	-0.293
27	-110	-177	-0.106	-0.040	-0.391	-180	-0.108	-0.042	-0.286	-146	-0.088	-0.022	-0.460	-180	-0.108	-0.042	-0.269
29	-103	-115	-0.069	-0.007	-0.350	-118	-0.071	-0.009	-0.244	-138	-0.083	-0.021	-0.438	-120	-0.072	-0.010	-0.227
31	-101	-95	-0.057	0.004	-0.343	-88	-0.053	0.008	-0.235	-55	-0.033	0.028	-0.417	-100	-0.060	0.001	-0.217
33	-36	-34	-0.020	0.001	-0.347	-31	-0.019	0.003	-0.242	-41	-0.025	-0.003	-0.445	-40	-0.024	-0.002	-0.217
35	-23	-48	-0.029	-0.015	-0.348	-49	-0.029	-0.016	-0.245	-55	-0.033	-0.019	-0.442	-50	-0.030	-0.016	-0.215
37	-31	-98	-0.059	-0.040	-0.333	-104	-0.062	-0.044	-0.230	-196	-0.118	-0.099	-0.422	-100	-0.060	-0.041	-0.199
39	-173	-231	-0.139	-0.035	-0.293	-231	-0.139	-0.035	-0.186	-227	-0.136	-0.032	-0.323	-210	-0.126	-0.022	-0.157
41	-192	-252	-0.151	-0.036	-0.258	-254	-0.152	-0.037	-0.151	-275	-0.165	-0.050	-0.291	-260	-0.156	-0.041	-0.135
43	-252	-293	-0.176	-0.025	-0.222	-295	-0.177	-0.026	-0.114	-309	-0.185	-0.034	-0.241	-300	-0.180	-0.029	-0.094
45	-283	-337	-0.202	-0.032	-0.197	-338	-0.203	-0.033	-0.088	-361	-0.217	-0.047	-0.207	-340	-0.204	-0.034	-0.065
47	-332	-367	-0.220	-0.021	-0.165	-365	-0.219	-0.020	-0.055	-430	-0.258	-0.059	-0.160	-370	-0.222	-0.023	-0.031
49	-350	-392	-0.235	-0.025	-0.144	-382	-0.229	-0.019	-0.035	-366	-0.220	-0.010	-0.101	-400	-0.240	-0.030	-0.008
51	-335	-285	-0.171	0.030	-0.119	-271	-0.163	0.038	-0.016	-186	-0.112	0.089	-0.092	-300	-0.180	0.021	0.022
53	-162	-89	-0.053	0.044	-0.149	-71	-0.043	0.055	-0.055	-7	-0.004	0.093	-0.181	-100	-0.060	0.037	0.001
55	25	40	0.024	0.009	-0.193	52	0.031	0.016	-0.109	66	0.040	0.025	-0.274	40	0.024	0.009	-0.037
57	91	97	0.058	0.004	-0.202	106	0.064	0.009	-0.125	160	0.096	0.041	-0.299	100	0.060	0.005	-0.046
59	189	195	0.117	0.004	-0.205	195	0.117	0.004	-0.134	148	0.089	-0.025	-0.340	200	0.120	0.007	-0.051
61	161	142	0.085	-0.011	-0.209	149	0.089	-0.007	-0.138	173	0.104	0.007	-0.316	140	0.084	-0.013	-0.058
63	162	160	0.096	-0.001	-0.197	156	0.094	-0.004	-0.131	103	0.062	-0.035	-0.323	160	0.096	-0.001	-0.045
65	103	22	0.013	-0.049	-0.196	10	0.006	-0.056	-0.127	-32	-0.019	-0.081	-0.287	30	0.018	-0.044	-0.044
67	-16	-92	-0.055	-0.046	-0.148	-108	-0.065	-0.055	-0.071	-188	-0.113	-0.103	-0.206	-70	-0.042	-0.032	0.000
69	-184	-218	-0.131	-0.020	-0.102	-213	-0.128	-0.017	-0.016	-195	-0.117	-0.007	-0.103	-210	-0.126	-0.016	0.032
71	-171	-189	-0.113	-0.011	-0.082	-191	-0.115	-0.012	0.001	-253	-0.152	-0.049	-0.097	-210	-0.126	-0.023	0.048
73	-293	-439	-0.263	-0.088	-0.071	-453	-0.272	-0.096	0.013	-501	-0.301	-0.125	-0.047	-450	-0.270	-0.094	0.071
75	-466	-395	-0.237	0.043	0.017	-374	-0.224	0.055	0.109	-256	-0.154	0.126	0.077	-400	-0.240	0.040	0.166
77	-240	-108	-0.065	0.079	-0.026	-92	-0.055	0.089	0.054	-59	-0.035	0.109	-0.049	-110	-0.066	0.078	0.126
79	-32	-22	-0.013	0.006	-0.105	-19	-0.011	0.008	-0.035	-8	-0.005	0.014	-0.157	-30	-0.018	0.001	0.048
81	10	-37	-0.022	-0.028	-0.111	-36	-0.022	-0.028	-0.043	-57	-0.034	-0.040	-0.172	-40	-0.024	-0.030	0.047
83	-68	-211	-0.127	-0.086	-0.083	-99	-0.059	-0.019	-0.015	-204	-0.122	-0.082	-0.131	-80	-0.048	-0.007	0.077
85	-236	-363	-0.218	-0.076	0.003	-377	-0.226	-0.085	0.004	-431	-0.259	-0.117	-0.050	-350	-0.210	-0.068	0.084
87	-432	-375	-0.225	0.034	0.079	-351	-0.211	0.049	0.088	-233	-0.140	0.119	0.067	-400	-0.240	0.019	0.152
89	-221	-114	-0.068	0.064	0.045	-105	-0.063	0.070	0.040	-98	-0.059	0.074	-0.052	-120	-0.072	0.061	0.133
91	-61	-33	-0.020	0.017	-0.019	-22	-0.013	0.023	-0.030	32	0.019	0.056	-0.126	-40	-0.024	0.013	0.073
93	72	78	0.047	0.004	-0.036	92	0.055	0.012	-0.053	106	0.064	0.020	-0.182	80	0.048	0.005	0.060
95	96	79	0.047	-0.010	-0.040	67	0.040	-0.017	-0.065	-29	-0.017	-0.075	-0.202	80	0.048	-0.010	0.055
97	-54	-125	-0.075	-0.043	-0.029	-120	-0.072	-0.040	-0.048	-101	-0.061	-0.028	-0.127	-100	-0.060	-0.028	0.065
99	-113	-82	-0.049	0.019	0.013	-88	-0.053	0.015	-0.008	-169	-0.101	-0.034	-0.099	-70	-0.042	0.026	0.092
101	-186	-189	-0.113	-0.002	-0.005	-172	-0.103	0.008	-0.023	-10	-0.006	0.106	-0.065	-200	-0.120	-0.008	0.067
103	80	434	0.260	0.212	-0.004	460	0.276	0.228	-0.032	672	0.403	0.355	-0.171	390	0.234	0.186	0.075
105	721	584	0.350	-0.082	-0.216	531	0.319	-0.114	-0.260	263	0.158	-0.275	-0.526	620	0.372	-0.061	-0.111
107	158	-112	-0.067	-0.162	-0.134	-155	-0.093	-0.188	-0.146	-307	-0.184	-0.279	-0.251	-70	-0.042	-0.137	-0.050
109	-333	-357	-0.214	-0.014	0.028	-336	-0.202	-0.002	0.042	-240	-0.144	0.056	0.028	-220	-0.132	0.068	0.086
111	-211	-88	-0.053	0.074	0.043	-69	-0.041	0.085	0.044	-6	-0.004	0.123	-0.028	-100	-0.060	0.067	0.019
113	19	65	0.039	0.028	-0.031	76	0.046	0.034	-0.041	109	0.065	0.054	-0.151	60	0.036	0.025	-0.048
115	131	174	0.104	0.026	-0.059	190	0.114	0.035	-0.076	206	0.124	0.045	-0.205	160	0.096	0.017	-0.073
117	230	209	0.125	-0.013	-0.085	226	0.136	-0.002	-0.111	259	0.155	0.017	-0.250	190	0.114	-0.024	-0.090
119	269	289	0.173	0.012	-0.072	283	0.170	0.008	-0.109	204	0.122	-0.039	-0.268	310	0.186	0.025	-0.066
121	156	129	0.077	-0.016	-0.084	61	0.037	-0.057	-0.117	-3	-0.002	-0.095	-0.229	80	0.048	-0.046	-0.091
123	-22	-90	-0.054	-0.041	-0.068	-94	-0.056	-0.043	-0.060	-161	-0.097	-0.083	-0.133	-70	-0.042	-0.029	-0.045
125	-194	-226	-0.136	-0.019	-0.027	-223	-0.134	-0.017	-0.017	-247	-0.148	-0.032	-0.050	-220	-0.132	-0.016	-0.016
127	-259	-272	-0.163	-0.008	-0.008	-258	-0.155	0.001	0.001	-289	-0.173	-0.018	-0.018	-260	-0.156	-0.001	-0.001

CRUCIBLE STEEL LANDFILL
INCLINOMETER MONITORING
SJB Project No.: CT-17-099

INCLINOMETER 1
B-AXIS

August 29, 1985		December 17, 2009				December 13, 2011				October 21, 2014				October 25, 2017			
Depth	Difference	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)
3	190	257	0.154	0.040	0.377	352	0.211	0.097	0.080	-180	-0.108	-0.222	-0.503	-120	-0.072	-0.186	-0.900
5	99	172	0.103	0.044	0.337	193	0.116	0.056	-0.017	51	0.031	-0.029	-0.281	66	0.040	-0.020	-0.714
7	83	-17	-0.010	-0.060	0.293	-38	-0.023	-0.073	-0.073	177	0.106	0.056	-0.253	128	0.077	0.027	-0.694
9	58	39	0.023	-0.011	0.353	71	0.043	0.008	-0.001	86	0.052	0.017	-0.309	146	0.088	0.053	-0.721
11	84	114	0.068	0.018	0.365	124	0.074	0.024	-0.008	130	0.078	0.028	-0.326	100	0.060	0.010	-0.774
13	150	145	0.087	-0.003	0.347	147	0.088	-0.002	-0.032	155	0.093	0.003	-0.353	97	0.058	-0.032	-0.784
15	163	172	0.103	0.005	0.350	170	0.102	0.004	-0.031	166	0.100	0.002	-0.356	114	0.068	-0.029	-0.752
17	179	150	0.090	-0.017	0.344	127	0.076	-0.031	-0.035	113	0.068	-0.040	-0.358	69	0.041	-0.066	-0.722
19	119	147	0.088	0.017	0.362	96	0.058	-0.014	-0.004	71	0.043	-0.029	-0.319	3	0.002	-0.070	-0.656
21	52	62	0.037	0.006	0.345	78	0.047	0.016	0.010	106	0.064	0.032	-0.290	-30	-0.018	-0.049	-0.587
23	90	127	0.076	0.022	0.339	136	0.082	0.028	-0.005	170	0.102	0.048	-0.322	56	0.034	-0.020	-0.538
25	157	181	0.109	0.014	0.317	148	0.089	-0.005	-0.033	106	0.064	-0.031	-0.370	82	0.049	-0.045	-0.517
27	132	121	0.073	-0.007	0.302	80	0.048	-0.031	-0.028	26	0.016	-0.064	-0.340	35	0.021	-0.058	-0.472
29	51	41	0.025	-0.006	0.309	-12	-0.007	-0.038	0.004	-2	-0.001	-0.032	-0.276	-20	-0.012	-0.043	-0.414
31	-22	16	0.010	0.023	0.315	28	0.017	0.030	0.041	36	0.022	0.035	-0.244	10	0.006	0.019	-0.371
33	31	51	0.031	0.012	0.292	34	0.020	0.002	0.011	11	0.007	-0.012	-0.279	25	0.015	-0.004	-0.391
35	20	-5	-0.003	-0.015	0.280	-34	-0.020	-0.032	0.010	-75	-0.045	-0.057	-0.267	-57	-0.034	-0.046	-0.387
37	-68	-98	-0.059	-0.018	0.295	-96	-0.058	-0.017	0.042	-97	-0.058	-0.017	-0.210	-118	-0.071	-0.030	-0.341
39	-105	18	0.011	0.074	0.313	-86	-0.052	0.011	0.059	-106	-0.064	-0.001	-0.193	-146	-0.088	-0.025	-0.311
41	-118	-110	-0.066	0.005	0.239	-99	-0.059	0.011	0.047	-80	-0.048	0.023	-0.192	-163	-0.098	-0.027	-0.286
43	-89	-49	-0.029	0.024	0.235	-63	-0.038	0.016	0.036	-68	-0.041	0.013	-0.215	-79	-0.047	0.006	-0.259
45	-72	-79	-0.047	-0.004	0.211	-108	-0.065	-0.022	0.020	-192	-0.115	-0.072	-0.227	-195	-0.117	-0.074	-0.265
47	-202	-279	-0.167	-0.046	0.215	-346	-0.208	-0.086	0.042	-524	-0.314	-0.193	-0.155	-434	-0.260	-0.139	-0.191
49	-523	-517	-0.310	0.004	0.261	-608	-0.365	-0.051	0.128	-603	-0.362	-0.048	0.038	-623	-0.374	-0.060	-0.052
51	-599	-570	-0.342	0.017	0.257	-546	-0.328	0.032	0.179	-485	-0.291	0.068	0.086	-528	-0.317	0.043	0.008
53	-475	-425	-0.255	0.030	0.240	-396	-0.238	0.047	0.148	-330	-0.198	0.087	0.017	-386	-0.232	0.053	-0.035
55	-325	-284	-0.170	0.025	0.210	-267	-0.160	0.035	0.100	-257	-0.154	0.041	-0.070	-273	-0.164	0.031	-0.088
57	-252	-252	-0.151	0.000	0.185	-265	-0.159	-0.008	0.065	-287	-0.172	-0.021	-0.110	-222	-0.133	0.018	-0.119
59	-289	-296	-0.178	-0.004	0.185	-274	-0.164	0.009	0.073	-203	-0.122	0.052	-0.089	-197	-0.118	0.055	-0.137
61	-194	-88	-0.053	0.064	0.190	-49	-0.029	0.087	0.064	27	0.016	0.133	-0.141	9	0.005	0.122	-0.193
63	84	185	0.111	0.061	0.126	239	0.143	0.093	-0.023	370	0.222	0.172	-0.274	239	0.143	0.093	-0.314
65	381	494	0.296	0.068	0.065	510	0.306	0.077	-0.116	496	0.298	0.069	-0.445	363	0.218	-0.011	-0.407
67	466	430	0.258	-0.022	-0.002	389	0.233	-0.046	-0.193	295	0.177	-0.103	-0.514	193	0.116	-0.164	-0.397
69	271	204	0.122	-0.040	0.019	197	0.118	-0.044	-0.147	176	0.106	-0.057	-0.412	62	0.037	-0.125	-0.233
71	165	192	0.115	0.016	0.059	191	0.115	0.016	-0.103	141	0.085	-0.014	-0.355	54	0.032	-0.067	-0.107
73	115	69	0.041	-0.028	0.043	42	0.025	-0.044	-0.118	-35	-0.021	-0.090	-0.340	-151	-0.091	-0.160	-0.041
75	-56	104	0.062	0.096	0.071	-122	-0.073	-0.040	-0.074	-156	-0.094	-0.060	-0.250	-206	-0.124	-0.090	0.119
77	-146	-156	-0.094	-0.006	-0.025	-199	-0.119	-0.032	-0.035	-294	-0.176	-0.089	-0.190	-227	-0.136	-0.049	0.209
79	-260	-317	-0.190	-0.034	-0.019	-301	-0.181	-0.025	-0.003	-309	-0.185	-0.029	-0.101	-260	-0.156	0.000	0.257
81	-277	-328	-0.197	-0.031	0.015	-346	-0.208	-0.041	0.022	-362	-0.217	-0.051	-0.072	-322	-0.193	-0.027	0.257
83	-295	-299	-0.179	-0.002	0.046	-262	-0.157	0.020	0.063	-155	-0.093	0.084	-0.021	-214	-0.128	0.049	0.284
85	-295	-167	-0.100	0.077	0.048	-213	-0.128	0.049	0.043	-357	-0.214	-0.037	-0.105	-354	-0.212	-0.035	0.236
87	-407	-523	-0.314	-0.070	-0.029	-559	-0.335	-0.091	-0.006	-573	-0.344	-0.100	-0.068	-541	-0.325	-0.080	0.271
89	-550	-542	-0.325	0.005	0.041	-520	-0.312	0.018	0.085	-488	-0.293	0.037	0.032	-448	-0.269	0.061	0.352
91	-468	-424	-0.254	0.026	0.036	-391	-0.235	0.046	0.067	-306	-0.184	0.097	-0.005	-311	-0.187	0.094	0.290
93	-252	-127	-0.076	0.075	0.010	-79	-0.047	0.104	0.021	31	0.019	0.170	-0.103	-6	-0.004	0.148	0.196
95	33	88	0.053	0.033	-0.065	73	0.044	0.024	-0.083	52	0.031	0.011	-0.272	29	0.017	-0.002	0.049
97	81	-13	-0.008	-0.056	-0.098	-50	-0.030	-0.079	-0.107	-141	-0.085	-0.133	-0.284	-141	-0.085	-0.133	0.051
99	-186	-230	-0.138	-0.026	-0.042	-233	-0.140	-0.028	-0.028	-239	-0.143	-0.032	-0.151	-256	-0.154	-0.042	0.184
101	-218	-159	-0.095	0.035	-0.016	-142	-0.085	0.046	0.000	-171	-0.103	0.028	-0.119	-176	-0.106	0.025	0.226
103	-213	-288	-0.173	-0.045	-0.051	-311	-0.187	-0.059	-0.046	-358	-0.215	-0.087	-0.147	-157	-0.094	0.034	0.201
105	-318	-218	-0.131	0.060	-0.006	-154	-0.092	0.098	0.013	-23	-0.014	0.177	-0.060	7	0.004	0.195	0.167
107	54	147	0.088	0.056	-0.066	187	0.112	0.080	-0.085	230	0.138	0.106	-0.237	70	0.042	0.010	-0.028
109	219	195	0.117	-0.014	-0.122	149	0.089	-0.042	-0.165	33	0.020	-0.112	-0.343	-31	-0.019	-0.150	-0.037
111	-26	-123	-0.074	-0.058	-0.107	-158	-0.095	-0.079	-0.123	-271	-0.163	-0.147	-0.231	-218	-0.131	-0.115	0.113
113	-326	-402	-0.241	-0.046	-0.049	-430	-0.258	-0.062	-0.044	-485	-0.291	-0.095	-0.084	-357	-0.214	-0.019	0.228
115	-483	-514	-0.308	-0.019	-0.004	-518	-0.311	-0.021	0.019	-520	-0.312	-0.022	0.011	-382	-0.229	0.061	0.247
117	-528	-500	-0.300	0.017	0.015	-491	-0.295	0.022	0.040	-428	-0.257	0.060	0.034	-313	-0.188	0.129	0.186
119	-384	-291	-0.175	0.056	-0.002	-265	-0.159	0.071	0.017	-223	-0.134	0.097	-0.026	-162	-0.097	0.133	0.057
121	-229	-204	-0.122	0.015	-0.058	-229	-0.137	0.000	-0.054	-270	-0.162	-0.025	-0.123	-213	-0.128	0.010	-0.076
123	-299	-354	-0.212	-0.033	-0.073	-385	-0.231	-0.052	-0.054	-426	-0.256	-0.076	-0.098	-382	-0.229	-0.050	-0.086
125	-421	-477	-0.286	-0.034	-0.040	-408	-0.245	0.008	-0.002	-434	-0.260	-0.008	-0.022	-440	-0.264	-0.011	-0.036
127	-425	-435	-0.261	-0.006	-0.006	-442	-0.265	-0.010	-0.010	-449	-0.269	-0.014	-0.014	-466	-0.280	-0.025	-0.025

CRUCIBLE STEEL LANDFILL
INCLINOMETER MONITORING
SJB Project No.: CT-17-099

INCLINOMETER 2
A-AXIS

August 29, 1985		December 17, 2009				December 13, 2011				October 21, 2014				October 25, 2017			
Depth	Difference	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)
3	-314	-252	-0.151	-1.066	-2.309	279	0.167	0.356	0.233	65	0.039	0.227	0.668	-320	-0.192	-0.004	-1.094
5	-262	198	0.119	-0.416	-1.244	259	0.155	0.313	-0.122	-165	-0.099	0.058	0.440	-340	-0.204	-0.047	-1.090
7	-164	-10	-0.006	-0.247	-0.827	-33	-0.020	0.079	-0.435	-248	-0.149	-0.050	0.382	-330	-0.198	-0.100	-1.043
9	-194	-264	-0.158	-0.259	-0.581	-285	-0.171	-0.055	-0.514	-404	-0.242	-0.126	0.433	-280	-0.168	-0.052	-0.944
11	-368	-387	-0.232	-0.245	-0.322	-413	-0.248	-0.027	-0.459	-418	-0.251	-0.030	0.559	-400	-0.240	-0.019	-0.892
13	-387	-403	-0.242	-0.181	-0.077	-424	-0.254	-0.022	-0.432	-273	-0.164	0.068	0.589	-410	-0.246	-0.014	-0.873
15	-234	-271	-0.163	-0.059	0.104	-267	-0.160	-0.020	-0.410	-66	-0.040	0.101	0.520	-240	-0.144	-0.004	-0.859
17	-14	-74	-0.044	0.038	0.163	-58	-0.035	-0.026	-0.390	1	0.001	0.009	0.419	-50	-0.030	-0.022	-0.856
19	43	-31	-0.019	0.040	0.125	-7	-0.004	-0.030	-0.364	-68	-0.041	-0.067	0.410	0	0.000	-0.026	-0.834
21	-55	-65	-0.039	0.017	0.085	-73	-0.044	-0.011	-0.334	-58	-0.035	-0.002	0.477	-90	-0.054	-0.021	-0.808
23	-43	-67	-0.040	0.011	0.067	-56	-0.034	-0.008	-0.323	-68	-0.041	-0.015	0.479	-70	-0.042	-0.016	-0.787
25	-40	-59	-0.035	0.013	0.057	-66	-0.040	-0.016	-0.315	-7	-0.004	0.020	0.494	-70	-0.042	-0.018	-0.771
27	32	-12	-0.007	-0.020	0.044	-7	-0.004	-0.023	-0.299	170	0.102	0.083	0.474	0	0.000	-0.019	-0.753
29	207	169	0.101	0.017	0.064	188	0.113	-0.011	-0.276	332	0.199	0.075	0.391	210	0.126	0.002	-0.734
31	366	335	0.201	-0.004	0.047	331	0.199	-0.021	-0.265	390	0.234	0.014	0.316	340	0.204	-0.016	-0.736
33	422	296	0.178	0.004	0.051	395	0.237	-0.016	-0.244	495	0.297	0.044	0.302	400	0.240	-0.013	-0.720
35	528	476	0.286	-0.001	0.047	498	0.299	-0.018	-0.227	494	0.296	-0.020	0.258	500	0.300	-0.017	-0.707
37	523	462	0.277	-0.004	0.048	487	0.292	-0.022	-0.209	487	0.292	-0.022	0.278	500	0.300	-0.014	-0.690
39	306	83	0.050	0.009	0.052	258	0.155	-0.029	-0.188	257	0.154	-0.029	0.300	260	0.156	-0.028	-0.676
41	51	-6	-0.004	0.029	0.043	11	0.007	-0.024	-0.159	-33	-0.020	-0.050	0.329	20	0.012	-0.019	-0.649
43	-18	-132	-0.079	-0.014	-0.069	-48	-0.029	-0.018	-0.135	-53	-0.032	-0.021	0.380	-50	-0.030	-0.019	-0.630
45	-268	-441	-0.265	0.012	-0.055	-299	-0.179	-0.019	-0.117	-311	-0.187	-0.026	0.401	-300	-0.180	-0.019	-0.611
47	-576	-779	-0.467	-0.001	-0.067	-626	-0.376	-0.030	-0.098	-827	-0.496	-0.151	0.427	-620	-0.372	-0.026	-0.592
49	-785	-771	-0.463	0.000	-0.066	-825	-0.495	-0.024	-0.068	-755	-0.453	0.018	0.577	-820	-0.492	-0.021	-0.565
51	-748	-727	-0.436	0.012	-0.066	-756	-0.454	-0.005	-0.044	-662	-0.397	0.052	0.559	-750	-0.450	-0.001	-0.544
53	-627	-530	-0.318	0.014	-0.078	-647	-0.388	-0.012	-0.040	-530	-0.318	0.058	0.508	-650	-0.390	-0.014	-0.543
55	-355	-232	-0.139	-0.025	-0.092	-367	-0.220	-0.007	-0.028	-79	-0.047	0.166	0.449	-390	-0.234	-0.021	-0.529
57	-34	107	0.064	0.010	-0.067	-42	-0.025	-0.005	-0.020	131	0.079	0.099	0.284	-40	-0.024	-0.004	-0.508
59	142	49	0.029	-0.084	-0.076	118	0.071	-0.014	-0.016	39	0.023	-0.062	0.185	120	0.072	-0.013	-0.505
61	58	59	0.035	-0.061	0.008	38	0.023	-0.012	-0.001	105	0.063	0.028	0.247	40	0.024	-0.011	-0.491
63	126	197	0.118	0.021	0.069	124	0.074	-0.001	0.011	284	0.170	0.095	0.218	120	0.072	-0.004	-0.481
65	294	313	0.188	0.043	0.048	300	0.180	0.004	0.012	303	0.182	0.005	0.124	220	0.132	-0.044	-0.477
67	318	319	0.191	0.025	0.005	307	0.184	-0.007	0.008	208	0.125	-0.066	0.118	210	0.126	-0.065	-0.433
69	140	-88	-0.053	0.012	-0.020	161	0.097	0.013	0.015	-197	-0.118	-0.202	0.184	150	0.090	0.006	-0.368
71	-227	-316	-0.190	0.046	-0.032	-224	-0.134	0.002	0.002	-404	-0.242	-0.106	0.386	-220	-0.132	0.004	-0.374
73	-425	-433	-0.260	-0.022	-0.078	-417	-0.250	0.005	0.001	-395	-0.237	0.018	0.493	-410	-0.246	0.009	-0.378
75	-372	-333	-0.200	0.004	-0.056	-383	-0.230	-0.007	-0.004	-326	-0.196	0.028	0.475	-380	-0.228	-0.005	-0.387
77	-364	-420	-0.252	-0.108	-0.060	-343	-0.206	0.013	0.002	-370	-0.222	-0.004	0.447	-330	-0.198	0.020	-0.382
79	-302	-47	-0.028	-0.009	0.048	-316	-0.190	-0.008	-0.010	120	0.072	0.253	0.451	-320	-0.192	-0.011	-0.403
81	117	125	0.075	0.030	0.057	132	0.079	0.009	-0.002	154	0.092	0.022	0.197	140	0.084	0.014	-0.392
83	160	275	0.165	0.009	0.027	170	0.102	0.006	-0.011	314	0.188	0.092	0.175	170	0.102	0.006	-0.406
85	370	319	0.191	-0.043	0.018	322	0.193	-0.029	-0.017	331	0.199	-0.023	0.083	310	0.186	-0.036	-0.412
87	372	304	0.182	-0.007	0.061	332	0.199	-0.024	0.012	233	0.140	-0.083	0.106	330	0.198	-0.025	-0.376
89	201	128	0.077	0.040	0.068	212	0.127	0.007	0.036	77	0.046	-0.074	0.190	220	0.132	0.011	-0.350
91	141	177	0.106	0.004	0.028	87	0.052	-0.032	0.029	330	0.198	0.113	0.264	80	0.048	-0.037	-0.362
93	336	444	0.266	0.077	0.024	369	0.221	0.020	0.062	470	0.282	0.080	0.151	230	0.138	-0.064	-0.325
95	391	383	0.230	0.066	-0.053	453	0.272	0.037	0.042	292	0.175	-0.059	0.070	210	0.126	-0.109	-0.262
97	259	178	0.107	0.020	-0.119	258	0.155	-0.001	0.005	15	0.009	-0.146	0.130	210	0.126	-0.029	-0.153
99	-27	-237	-0.142	0.046	-0.139	-47	-0.028	-0.012	0.005	-343	-0.206	-0.190	0.276	-50	-0.030	-0.014	-0.124
101	-345	-312	-0.187	0.030	-0.185	-356	-0.214	-0.007	0.017	-159	-0.095	0.112	0.466	-350	-0.210	-0.003	-0.110
103	-107	55	0.033	-0.015	-0.215	-100	-0.060	0.004	0.024	38	0.023	0.087	0.354	-90	-0.054	0.010	-0.107
105	-41	-309	-0.185	-0.033	-0.200	-38	-0.023	0.002	0.020	-419	-0.251	-0.227	0.267	-20	-0.012	0.013	-0.117
107	-370	-202	-0.121	-0.108	-0.167	-378	-0.227	-0.005	0.018	-265	-0.159	0.063	0.494	-390	-0.234	-0.012	-0.130
109	-399	-691	-0.415	-0.009	-0.059	-413	-0.248	-0.008	0.023	-720	-0.432	-0.193	0.431	-400	-0.240	-0.001	-0.118
111	-642	-375	-0.225	-0.038	-0.050	-634	-0.380	0.005	0.031	-245	-0.147	0.238	0.623	-640	-0.384	0.001	-0.117
113	-257	-324	-0.194	-0.014	-0.012	-252	-0.151	0.003	0.026	-320	-0.192	-0.038	0.385	-250	-0.150	0.004	-0.118
115	-312	-252	-0.151	-0.001	0.002	-301	-0.181	0.007	0.023	-179	-0.107	0.080	0.423	-300	-0.180	0.007	-0.122
117	-158	-100	-0.060	-0.035	0.003	-154	-0.092	0.002	0.017	-28	-0.017	0.078	0.343	-220	-0.132	-0.037	-0.130
119	-17	40	0.024	-0.033	0.038	-16	-0.010	0.001	0.014	75	0.045	0.055	0.265	-170	-0.102	-0.092	-0.092
121	80	107	0.064	0.009	0.071	96	0.058	0.010	0.014	157	0.094	0.046	0.210	80	0.048	0.000	-0.001
123	185	289	0.173	0.014	0.062	194	0.116	0.005	0.004	388	0.233	0.122	0.164	180	0.108	-0.003	-0.001
125	429	478	0.287	0.035	0.048	429	0.257	0.000	-0.001	498	0.299	0.041	0.042	420	0.252	-0.005	0.002
127	497	498	0.299	0.013	0.013	495	0.297	-0.001	-0.001	498	0.299	0.001	0.001	510	0.306	0.008	0.008

CRUCIBLE STEEL LANDFILL
INCLINOMETER MONITORING
SJB Project No.: CT-17-099

INCLINOMETER 2
B-AXIS

August 29, 1985		December 17, 2009				December 13, 2011				October 21, 2014				October 25, 2017			
Depth	Difference	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)
3	435	-81	-0.049	-0.310	-0.668	351	0.211	-0.050	-0.259	-363	-0.218	-0.479	-1.828	-375	-0.225	-0.486	0.425
5	88	75	0.045	-0.008	-0.358	9	0.005	-0.047	-0.208	-199	-0.119	-0.172	-1.349	-399	-0.239	-0.292	0.911
7	-75	-213	-0.128	-0.083	-0.350	-183	-0.110	-0.065	-0.161	-184	-0.110	-0.065	-1.177	-281	-0.169	-0.124	1.203
9	-158	-163	-0.098	-0.003	-0.268	-193	-0.116	-0.021	-0.096	-237	-0.142	-0.047	-1.111	-281	-0.169	-0.074	1.327
11	-230	-198	-0.119	0.019	-0.265	-240	-0.144	-0.006	-0.075	-278	-0.167	-0.029	-1.064	-343	-0.206	-0.068	1.400
13	-316	-234	-0.140	0.049	-0.284	-283	-0.170	0.020	-0.069	-331	-0.199	-0.009	-1.035	-328	-0.197	-0.007	1.468
15	-349	-310	-0.186	0.023	-0.333	-341	-0.205	0.005	-0.089	-335	-0.201	0.008	-1.026	-293	-0.176	0.034	1.475
17	-447	-429	-0.257	0.011	-0.356	-481	-0.289	-0.020	-0.094	-478	-0.287	-0.019	-1.034	-262	-0.157	0.111	1.442
19	-689	-679	-0.407	0.006	-0.367	-723	-0.434	-0.020	-0.073	-697	-0.418	-0.005	-1.016	-488	-0.293	0.121	1.331
21	-843	-826	-0.496	0.010	-0.373	-869	-0.521	-0.016	-0.053	-869	-0.521	-0.016	-1.011	-462	-0.277	0.229	1.210
23	-663	-672	-0.403	-0.005	-0.383	-658	-0.395	0.003	-0.037	-667	-0.400	-0.002	-0.995	-325	-0.195	0.203	0.982
25	-360	-395	-0.237	-0.021	-0.378	-365	-0.219	-0.003	-0.040	-373	-0.224	-0.008	-0.993	-178	-0.107	0.109	0.779
27	-108	-135	-0.081	-0.016	-0.357	-92	-0.055	0.010	-0.037	-140	-0.084	-0.019	-0.985	10	0.006	0.071	0.670
29	-153	-148	-0.089	0.003	-0.341	-164	-0.098	-0.007	-0.047	-152	-0.091	0.001	-0.966	-116	-0.070	0.022	0.599
31	-269	-239	-0.143	0.018	-0.344	-260	-0.156	0.005	-0.040	-262	-0.157	0.004	-0.967	-55	-0.033	0.128	0.577
33	-115	-118	-0.071	-0.002	-0.362	-108	-0.065	0.004	-0.046	-112	-0.067	0.002	-0.971	105	0.063	0.132	0.448
35	98	101	0.061	0.002	-0.360	97	0.058	-0.001	-0.050	84	0.050	-0.008	-0.973	338	0.203	0.144	0.316
37	465	394	0.236	-0.043	-0.362	462	0.277	-0.002	-0.049	461	0.277	-0.002	-0.964	558	0.335	0.056	0.172
39	546	477	0.286	-0.041	-0.319	543	0.326	-0.002	-0.047	362	0.217	-0.110	-0.962	400	0.240	-0.088	0.116
41	374	348	0.209	-0.016	-0.278	352	0.211	-0.013	-0.046	309	0.185	-0.039	-0.851	277	0.166	-0.058	0.204
43	304	272	0.163	-0.019	-0.262	299	0.179	-0.003	-0.032	292	0.175	-0.007	-0.812	185	0.111	-0.071	0.262
45	178	160	0.096	-0.011	-0.243	161	0.097	-0.010	-0.029	156	0.094	-0.013	-0.805	19	0.011	-0.095	0.334
47	81	-14	-0.008	-0.057	-0.232	57	0.034	-0.014	-0.019	130	0.078	0.029	-0.792	-220	-0.132	-0.181	0.429
49	187	419	0.251	0.139	-0.175	180	0.108	-0.004	-0.005	377	0.226	0.114	-0.821	148	0.089	-0.023	0.610
51	340	337	0.202	-0.002	-0.314	354	0.212	0.008	-0.001	363	0.218	0.014	-0.935	86	0.052	-0.152	0.633
53	230	209	0.125	-0.013	-0.313	237	0.142	0.004	-0.009	229	0.137	-0.001	-0.949	28	0.017	-0.121	0.785
55	64	16	0.010	-0.029	-0.300	57	0.034	-0.004	-0.013	64	0.038	0.000	-0.949	-37	-0.022	-0.061	0.907
57	-77	-122	-0.073	-0.027	-0.271	-96	-0.058	-0.011	-0.009	-131	-0.079	-0.032	-0.949	-49	-0.029	0.017	0.967
59	-140	-111	-0.067	0.017	-0.244	-137	-0.082	0.002	0.002	-128	-0.077	0.007	-0.916	-65	-0.039	0.045	0.950
61	-131	-138	-0.083	-0.004	-0.262	-127	-0.076	0.002	0.001	-307	-0.184	-0.106	-0.923	-85	-0.051	0.028	0.905
63	-351	-505	-0.303	-0.092	-0.257	-350	-0.210	0.001	-0.002	-723	-0.434	-0.223	-0.818	-341	-0.205	0.006	0.878
65	-776	-878	-0.527	-0.061	-0.165	-774	-0.464	0.001	-0.002	-1041	-0.625	-0.159	-0.595	-584	-0.350	0.115	0.872
67	-1048	-1115	-0.669	-0.040	-0.104	-1076	-0.646	-0.017	-0.004	-1007	-0.604	0.025	-0.436	-753	-0.452	0.177	0.757
69	-954	-738	-0.443	0.007	-0.064	-971	-0.583	-0.010	0.013	-980	-0.588	-0.016	-0.460	-562	-0.337	0.235	0.580
71	-414	-203	-0.122	0.061	-0.071	-381	-0.229	0.020	0.023	-400	-0.240	0.008	-0.445	-192	-0.115	0.133	0.344
73	-48	10	0.006	0.035	-0.132	-43	-0.026	0.003	0.004	-48	-0.029	0.000	-0.453	-85	-0.051	-0.022	0.211
75	156	236	0.142	0.048	-0.166	153	0.092	-0.002	0.001	159	0.095	0.002	-0.453	149	0.089	-0.004	0.233
77	530	825	0.495	0.035	-0.214	587	0.352	0.034	0.002	586	0.352	0.034	-0.455	550	0.330	0.012	0.238
79	884	714	0.428	-0.102	-0.249	836	0.502	-0.029	-0.032	463	0.278	-0.253	-0.488	526	0.316	-0.215	0.226
81	414	196	0.118	-0.131	-0.147	393	0.236	-0.013	-0.003	36	0.022	-0.227	-0.236	170	0.102	-0.146	0.440
83	10	-10	-0.006	-0.012	-0.017	30	0.018	0.012	0.010	-177	-0.106	-0.112	-0.009	68	0.041	0.035	0.587
85	-182	-259	-0.155	-0.046	-0.005	-229	-0.137	-0.028	-0.002	-201	-0.121	-0.011	0.103	-104	-0.062	0.047	0.552
87	-199	-160	-0.096	0.023	0.042	-196	-0.118	0.002	0.026	-89	-0.053	0.066	0.115	-17	-0.010	0.109	0.505
89	-174	-148	-0.089	0.016	0.018	-109	-0.065	0.039	0.024	-120	-0.072	0.032	0.049	-68	-0.041	0.064	0.396
91	-222	-233	-0.140	-0.007	0.003	-261	-0.157	-0.023	-0.015	-112	-0.067	0.066	0.016	-101	-0.061	0.073	0.332
93	-76	-27	-0.016	0.029	0.009	-82	-0.049	-0.004	0.008	63	0.038	0.083	-0.050	122	0.073	0.119	0.260
95	65	124	0.074	0.035	-0.020	83	0.050	0.011	0.012	212	0.127	0.088	-0.133	224	0.134	0.095	0.141
97	199	217	0.130	0.011	-0.056	222	0.133	0.014	0.001	298	0.179	0.059	-0.221	246	0.148	0.028	0.046
99	327	363	0.218	0.022	-0.066	310	0.186	-0.010	-0.013	403	0.242	0.046	-0.281	206	0.124	-0.073	0.017
101	401	406	0.244	0.003	-0.088	406	0.244	0.003	-0.002	344	0.206	-0.034	-0.326	248	0.149	-0.092	0.090
103	362	345	0.207	-0.010	-0.091	344	0.206	-0.011	-0.005	306	0.184	-0.034	-0.292	290	0.174	-0.043	0.182
105	266	184	0.110	-0.049	-0.081	270	0.162	0.002	0.005	168	0.101	-0.059	-0.259	-52	-0.031	-0.191	0.225
107	195	242	0.145	0.028	-0.032	197	0.118	0.001	0.003	155	0.093	-0.024	-0.200	68	0.041	-0.076	0.416
109	75	-97	-0.058	-0.103	-0.060	51	0.031	-0.014	0.002	-199	-0.119	-0.164	-0.176	-291	-0.175	-0.220	0.492
111	-233	-358	-0.215	-0.075	0.043	-229	-0.137	0.002	0.016	-396	-0.238	-0.098	-0.011	-373	-0.224	-0.084	0.712
113	-355	-180	-0.108	0.105	0.118	-359	-0.215	-0.002	0.014	-122	-0.073	0.140	0.086	-244	-0.146	0.067	0.796
115	-164	-217	-0.130	-0.032	0.013	-141	-0.085	0.014	0.016	-142	-0.085	0.013	-0.053	-251	-0.151	-0.052	0.729
117	-410	-483	-0.290	-0.044	0.045	-429	-0.257	-0.011	0.002	-546	-0.328	-0.082	-0.067	-330	-0.198	0.048	0.781
119	-568	-611	-0.367	-0.026	0.089	-578	-0.347	-0.006	0.014	-635	-0.381	-0.040	0.015	-372	-0.223	0.118	0.733
121	-649	-624	-0.374	0.015	0.115	-630	-0.378	0.011	0.020	-598	-0.359	0.031	0.055	-422	-0.253	0.136	0.616
123	-574	-528	-0.317	0.028	0.100	-572	-0.343	0.001	0.008	-582	-0.349	-0.005	0.025	-285	-0.171	0.173	0.479
125	-308	-216	-0.130	0.038	0.072	-305	-0.183	0.002	0.007	-315	-0.189	-0.004	0.029	-8	-0.005	0.180	0.306
127	-66	-9	-0.005	0.034	0.034	-57	-0.034	0.005	0.005	-10	-0.006	0.034	0.034	144	0.086	0.126	0.126

CRUCIBLE STEEL LANDFILL
INCLINOMETER MONITORING
SJB Project No.: CT-17-099

INCLINOMETER 3
A-AXIS

August 29, 1985		December 17, 2009				December 13, 2011				October 21, 2014				October 25, 2017			
Depth	Difference	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)
3	-202	-121	-0.073	0.049	-0.280	-1	-0.0006	0.121	0.080	-176	-0.106	0.016	-0.056	-230	-0.138	-0.017	-0.212
5	-352	-286	-0.172	0.040	-0.329	-185	-0.111	0.100	-0.041	-182	-0.109	0.102	-0.072	-280	-0.168	0.043	-0.196
7	-260	-97	-0.058	0.098	-0.368	-221	-0.1326	0.023	-0.141	-25	-0.015	0.141	-0.174	-100	-0.060	0.096	-0.239
9	-54	31	0.019	0.051	-0.466	-3	-0.0018	0.031	-0.164	88	0.053	0.085	-0.315	20	0.012	0.044	-0.335
11	57	126	0.076	0.041	-0.517	92	0.0552	0.021	-0.195	125	0.075	0.041	-0.400	120	0.072	0.038	-0.379
13	176	114	0.068	-0.037	-0.559	145	0.087	-0.019	-0.216	105	0.063	-0.043	-0.441	120	0.072	-0.034	-0.417
15	188	90	0.054	-0.059	-0.521	96	0.0576	-0.055	-0.197	77	0.046	-0.067	-0.398	100	0.060	-0.053	-0.383
17	203	52	0.031	-0.091	-0.463	77	0.0462	-0.076	-0.142	65	0.039	-0.083	-0.332	60	0.036	-0.086	-0.331
19	136	72	0.043	-0.038	-0.372	64	0.0384	-0.043	-0.067	102	0.061	-0.020	-0.249	80	0.048	-0.034	-0.245
21	57	123	0.074	0.040	-0.334	113	0.0678	0.034	-0.023	90	0.054	0.020	-0.229	140	0.084	0.050	-0.211
23	42	52	0.031	0.006	-0.373	100	0.06	0.035	-0.057	18	0.011	-0.014	-0.248	70	0.042	0.017	-0.261
25	15	-22	-0.013	-0.022	-0.379	15	0.009	0.000	-0.092	-77	-0.046	-0.055	-0.234	0	0.000	-0.009	-0.278
27	-76	-126	-0.076	-0.030	-0.357	-81	-0.0486	-0.003	-0.092	-143	-0.086	-0.040	-0.179	-100	-0.060	-0.014	-0.269
29	-170	-179	-0.107	-0.005	-0.327	-169	-0.1014	0.001	-0.089	-158	-0.095	0.007	-0.139	-160	-0.096	0.006	-0.254
31	-129	-130	-0.078	-0.001	-0.322	-142	-0.0852	-0.008	-0.089	-174	-0.104	-0.027	-0.146	-110	-0.066	0.011	-0.260
33	-148	-224	-0.134	-0.046	-0.321	-164	-0.0984	-0.010	-0.082	-271	-0.163	-0.074	-0.119	-200	-0.120	-0.031	-0.272
35	-291	-327	-0.196	-0.022	-0.275	-302	-0.1812	-0.007	-0.072	-248	-0.149	0.026	-0.045	-320	-0.192	-0.017	-0.241
37	-283	-148	-0.089	0.081	-0.254	-285	-0.171	-0.001	-0.065	108	0.065	0.235	-0.071	-180	-0.108	0.062	-0.223
39	179	392	0.235	0.128	-0.335	191	0.1146	0.007	-0.064	445	0.267	0.160	-0.305	370	0.222	0.115	-0.285
41	489	499	0.299	0.006	-0.463	482	0.2892	-0.004	-0.071	414	0.248	-0.045	-0.465	520	0.312	0.019	-0.400
43	437	323	0.194	-0.068	-0.469	425	0.255	-0.007	-0.067	212	0.127	-0.135	-0.420	360	0.216	-0.046	-0.418
45	198	88	0.053	-0.066	-0.400	185	0.111	-0.008	-0.060	15	0.009	-0.110	-0.285	110	0.066	-0.053	-0.372
47	9	-86	-0.052	-0.057	-0.334	8	0.0048	-0.001	-0.052	-199	-0.119	-0.125	-0.175	-50	-0.030	-0.035	-0.319
49	-255	-340	-0.204	-0.051	-0.277	-261	-0.1566	-0.004	-0.052	-286	-0.172	-0.019	-0.050	-320	-0.192	-0.039	-0.284
51	-274	-235	-0.141	0.023	-0.226	-272	-0.1632	0.001	-0.048	-192	-0.115	0.049	-0.032	-240	-0.144	0.020	-0.245
53	-170	-150	-0.090	0.012	-0.250	-188	-0.1128	-0.011	-0.049	-118	-0.071	0.031	-0.081	-150	-0.090	0.012	-0.265
55	-96	-77	-0.046	0.011	-0.262	-109	-0.0654	-0.008	-0.038	-16	-0.010	0.048	-0.112	-80	-0.048	0.010	-0.277
57	-9	52	0.031	0.037	-0.273	-13	-0.0078	-0.002	-0.031	117	0.070	0.076	-0.160	40	0.024	0.029	-0.287
59	155	178	0.107	0.014	-0.310	148	0.0888	-0.004	-0.028	219	0.131	0.038	-0.236	170	0.102	0.009	-0.316
61	251	254	0.152	0.002	-0.323	235	0.141	-0.010	-0.024	248	0.149	-0.002	-0.274	270	0.162	0.011	-0.325
63	265	231	0.139	-0.020	-0.325	259	0.1554	-0.004	-0.014	152	0.091	-0.068	-0.272	250	0.150	-0.009	-0.337
65	147	48	0.029	-0.059	-0.305	138	0.0828	-0.005	-0.011	19	0.011	-0.077	-0.205	70	0.042	-0.046	-0.328
67	7	-2	-0.001	-0.005	-0.245	-10	-0.006	-0.010	-0.005	126	0.076	0.071	-0.128	-20	-0.012	-0.016	-0.281
69	162	246	0.148	0.050	-0.240	165	0.099	0.002	0.005	237	0.142	0.045	-0.199	240	0.144	0.047	-0.265
71	239	232	0.139	-0.004	-0.290	235	0.141	-0.002	0.003	224	0.134	-0.009	-0.244	240	0.144	0.001	-0.312
73	240	196	0.118	-0.026	-0.286	254	0.1524	0.008	0.005	159	0.095	-0.049	-0.235	220	0.132	-0.012	-0.313
75	150	105	0.063	-0.027	-0.260	112	0.0672	-0.023	-0.003	94	0.056	-0.034	-0.187	100	0.060	-0.030	-0.301
77	123	71	0.043	-0.031	-0.233	123	0.0738	0.000	0.020	34	0.020	-0.053	-0.153	90	0.054	-0.020	-0.271
79	3	-15	-0.009	-0.011	-0.202	-2	-0.0012	-0.003	0.020	-18	-0.011	-0.013	-0.100	0	0.000	-0.002	-0.251
81	-17	-22	-0.013	-0.003	-0.191	-18	-0.0108	-0.001	0.023	5	0.003	0.013	-0.087	-30	-0.018	-0.008	-0.249
83	7	36	0.022	0.017	-0.188	6	0.0036	-0.001	0.023	31	0.019	0.014	-0.100	40	0.024	0.020	-0.241
85	44	23	0.014	-0.013	-0.205	43	0.0258	-0.001	0.024	2	0.001	-0.025	-0.115	30	0.018	-0.008	-0.261
87	10	-51	-0.031	-0.037	-0.193	10	0.006	0.000	0.025	-97	-0.058	-0.064	-0.089	-30	-0.018	-0.024	-0.253
89	-138	-173	-0.104	-0.021	-0.156	-144	-0.0864	-0.004	0.025	-149	-0.089	-0.007	-0.025	-160	-0.096	-0.013	-0.229
91	-122	-118	-0.071	0.002	-0.135	-131	-0.0786	-0.005	0.028	-40	-0.024	0.049	-0.019	-120	-0.072	0.001	-0.215
93	-14	45	0.027	0.035	-0.137	-16	-0.0096	-0.001	0.034	87	0.052	0.061	-0.068	20	0.012	0.020	-0.217
95	103	158	0.095	0.033	-0.173	110	0.066	0.004	0.035	267	0.160	0.098	-0.128	120	0.072	0.010	-0.237
97	287	407	0.244	0.072	-0.206	296	0.1776	0.005	0.031	395	0.237	0.065	-0.227	410	0.246	0.074	-0.247
99	414	382	0.229	-0.019	-0.278	429	0.2574	0.009	0.025	385	0.231	-0.017	-0.292	390	0.234	-0.014	-0.321
101	379	361	0.217	-0.011	-0.259	376	0.2256	-0.002	0.016	330	0.198	-0.029	-0.274	350	0.210	-0.017	-0.307
103	339	266	0.160	-0.044	-0.248	332	0.1992	-0.004	0.018	228	0.137	-0.067	-0.245	260	0.156	-0.047	-0.289
105	191	148	0.089	-0.026	-0.204	205	0.123	0.008	0.022	150	0.090	-0.025	-0.178	140	0.084	-0.031	-0.242
107	132	134	0.080	0.001	-0.178	123	0.0738	-0.005	0.014	146	0.088	0.008	-0.154	130	0.078	-0.001	-0.211
109	165	156	0.094	-0.005	-0.179	152	0.0912	-0.008	0.019	201	0.121	0.022	-0.162	160	0.096	-0.003	-0.210
111	220	261	0.157	0.025	-0.174	218	0.1308	-0.001	0.027	313	0.188	0.056	-0.184	280	0.168	0.036	-0.207
113	333	367	0.220	0.020	-0.199	353	0.2118	0.012	0.028	338	0.203	0.003	-0.239	350	0.210	0.010	-0.243
115	332	288	0.173	-0.026	-0.219	322	0.1932	-0.006	0.016	313	0.188	-0.011	-0.242	290	0.174	-0.025	-0.253
117	315	306	0.184	-0.0054	-0.193	306	0.1836	-0.0054	0.022	176	0.106	-0.083	-0.231	270	0.162	-0.027	-0.228
119	159	-3	-0.002	-0.097	-0.187	152	0.0912	-0.004	0.028	-38	-0.023	-0.118	-0.148	0	0.000	-0.095	-0.201
121	-74	-130	-0.078	-0.034	-0.090	-72	-0.0432	0.001	0.032	-114	-0.068	-0.024	-0.029	-140	-0.084	-0.040	-0.106
123	-180	-240	-0.144	-0.036	-0.056	-179	-0.1074	0.001	0.031	-215	-0.129	-0.021	-0.005	-250	-0.150	-0.042	-0.066
125	-311	-372	-0.223	-0.037	-0.020	-310	-0.186	0.001	0.030	-325	-0.195	-0.008	0.016	-380	-0.228	-0.041	-0.024
127	-399	-372	-0.223	0.016	0.016	-350	-0.21	0.029	0.029	-359	-0.215	0.024	0.024	-370	-0.222	0.017	0.017

CRUCIBLE STEEL LANDFILL
INCLINOMETER MONITORING
SJB Project No.: CT-17-099

INCLINOMETER 3
B-AXIS

August 29, 1985		December 17, 2009				December 13, 2011				October 21, 2014				October 25, 2017			
Depth	Difference	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)
3	28	360	0.216	0.199	-0.731	428	0.257	0.240	0.319	413	0.248	0.231	0.152	125	0.075	0.058	-0.290
5	140	237	0.142	0.058	-0.930	418	0.251	0.167	0.079	147	0.088	0.004	-0.079	214	0.128	0.044	-0.348
7	80	51	0.031	-0.017	-0.988	129	0.077	0.029	-0.088	-275	-0.165	-0.213	-0.083	15	0.009	-0.039	-0.392
9	-273	-484	-0.290	-0.127	-0.971	-310	-0.186	-0.022	-0.117	-529	-0.317	-0.154	0.130	-478	-0.287	-0.123	-0.353
11	-512	-574	-0.344	-0.037	-0.844	-541	-0.325	-0.017	-0.095	-551	-0.331	-0.023	0.283	-577	-0.346	-0.039	-0.230
13	-542	-576	-0.346	-0.020	-0.807	-550	-0.330	-0.005	-0.077	-523	-0.314	0.011	0.307	-559	-0.335	-0.010	-0.191
15	-490	-534	-0.320	-0.026	-0.787	-526	-0.316	-0.022	-0.073	-480	-0.288	0.006	0.295	-525	-0.315	-0.021	-0.181
17	-442	-483	-0.290	-0.025	-0.760	-510	-0.306	-0.041	-0.051	-383	-0.230	0.035	0.289	-486	-0.292	-0.026	-0.160
19	-355	-350	-0.210	0.003	-0.736	-351	-0.211	0.002	-0.010	-290	-0.174	0.039	0.254	-332	-0.199	0.014	-0.134
21	-358	-276	-0.166	0.049	-0.739	-268	-0.161	0.054	-0.013	-286	-0.172	0.043	0.215	-248	-0.149	0.066	-0.148
23	-346	-362	-0.217	-0.010	-0.788	-303	-0.182	0.026	-0.067	-396	-0.238	-0.030	0.172	-342	-0.205	0.002	-0.214
25	-421	-446	-0.268	-0.015	-0.778	-421	-0.253	0.000	-0.092	-338	-0.203	0.050	0.202	-434	-0.260	-0.008	-0.216
27	-388	-315	-0.189	0.044	-0.763	-396	-0.238	-0.005	-0.092	-391	-0.235	-0.002	0.152	-284	-0.170	0.062	-0.208
29	-39	-3	-0.002	0.022	-0.807	-31	-0.019	0.005	-0.088	-79	-0.047	-0.024	0.154	28	0.017	0.040	-0.271
31	-86	-199	-0.119	-0.007	-0.829	-85	-0.051	0.001	-0.092	-314	-0.188	-0.137	0.178	-176	-0.106	-0.054	-0.311
33	-342	-438	-0.263	0.007	-0.822	-356	-0.214	-0.008	-0.093	-433	-0.260	-0.055	0.314	-429	-0.257	-0.052	-0.257
35	-450	-472	-0.283	-0.013	-0.829	-450	-0.270	0.000	-0.085	-411	-0.247	0.023	0.369	-461	-0.277	-0.007	-0.205
37	-421	-402	-0.241	0.011	-0.816	-412	-0.247	0.005	-0.085	-278	-0.167	0.086	0.346	-376	-0.226	0.027	-0.198
39	-259	-234	-0.140	0.015	-0.827	-243	-0.146	0.010	-0.090	-184	-0.110	0.045	0.260	-194	-0.116	0.039	-0.225
41	-158	-187	-0.112	-0.017	-0.842	-156	-0.094	0.001	-0.100	-163	-0.098	-0.003	0.215	-162	-0.097	-0.002	-0.264
43	-222	-327	-0.196	0.007	-0.825	-219	-0.131	0.002	-0.101	-232	-0.139	-0.006	0.218	-305	-0.183	-0.050	-0.262
45	-493	-615	-0.369	0.017	-0.832	-501	-0.301	-0.005	-0.103	-513	-0.308	-0.012	0.224	-627	-0.376	-0.080	-0.212
47	-725	-781	-0.469	0.007	-0.849	-732	-0.439	-0.004	-0.098	-741	-0.445	-0.010	0.236	-781	-0.469	-0.034	-0.131
49	-811	-749	-0.449	0.037	-0.856	-828	-0.497	-0.010	-0.094	-685	-0.411	0.076	0.245	-772	-0.463	0.023	-0.098
51	-646	-576	-0.346	0.042	-0.893	-664	-0.398	-0.011	-0.083	-457	-0.274	0.113	0.170	-612	-0.367	0.020	-0.121
53	-416	-325	-0.195	0.055	-0.935	-418	-0.251	-0.001	-0.073	-269	-0.161	0.088	0.056	-320	-0.192	0.058	-0.142
55	-243	-228	-0.137	0.009	-0.989	-237	-0.142	0.004	-0.071	-191	-0.115	0.031	-0.032	-220	-0.132	0.014	-0.199
57	-181	-206	-0.124	-0.015	-0.998	-190	-0.114	-0.005	-0.075	-187	-0.112	-0.004	-0.063	-182	-0.109	-0.001	-0.213
59	-193	-339	-0.203	-0.003	-0.983	-206	-0.124	-0.008	-0.070	-184	-0.110	0.005	-0.059	-219	-0.131	-0.016	-0.212
61	-172	-278	-0.167	0.017	-0.980	-172	-0.103	0.000	-0.062	-179	-0.107	-0.004	-0.065	-163	-0.098	0.005	-0.197
63	-165	-319	-0.191	-0.092	-0.997	-187	-0.112	-0.013	-0.062	-252	-0.151	-0.052	-0.061	-208	-0.125	-0.026	-0.202
65	-259	-412	-0.247	-0.092	-0.905	-246	-0.148	0.008	-0.049	-331	-0.199	-0.043	-0.008	-302	-0.181	-0.026	-0.176
67	-348	-501	-0.301	-0.092	-0.813	-360	-0.216	-0.007	-0.056	-369	-0.221	-0.013	0.035	-383	-0.230	-0.021	-0.151
69	-353	-476	-0.286	-0.074	-0.721	-350	-0.210	0.002	-0.049	-373	-0.224	-0.012	0.047	-368	-0.221	-0.009	-0.130
71	-384	-524	-0.314	-0.084	-0.648	-387	-0.232	-0.002	-0.051	-352	-0.211	0.019	0.059	-408	-0.245	-0.014	-0.121
73	-367	-461	-0.277	0.042	-0.564	-359	-0.215	0.005	-0.049	-273	-0.164	0.056	0.040	-335	-0.201	0.019	-0.106
75	-271	-378	-0.227	0.035	-0.606	-256	-0.154	0.009	-0.054	-159	-0.095	0.067	-0.016	-239	-0.143	0.019	-0.125
77	-160	-253	-0.152	0.031	-0.641	-161	-0.097	-0.001	-0.063	-17	-0.010	0.086	-0.083	-99	-0.059	0.037	-0.145
79	48	-65	-0.039	0.010	-0.672	72	0.043	0.014	-0.062	82	0.049	0.020	-0.169	71	0.043	0.014	-0.181
81	-48	-270	-0.162	0.010	-0.682	-47	-0.028	0.001	-0.077	-61	-0.037	-0.008	-0.190	-154	-0.092	-0.064	-0.195
83	-316	-572	-0.343	0.007	-0.692	-332	-0.199	-0.010	-0.077	-345	-0.207	-0.017	-0.182	-458	-0.275	-0.085	-0.131
85	-646	-859	-0.515	-0.003	-0.699	-622	-0.373	0.014	-0.068	-597	-0.358	0.029	-0.164	-781	-0.469	-0.081	-0.046
87	-1028	-1218	-0.731	-0.014	-0.696	-1019	-0.611	0.005	-0.082	-992	-0.595	0.022	-0.194	-1153	-0.692	-0.075	0.035
89	-1122	-1164	-0.698	-0.025	-0.682	-1127	-0.676	-0.003	-0.088	-1147	-0.688	-0.015	-0.215	-1078	-0.647	0.026	0.110
91	-990	-1073	-0.644	-0.050	-0.656	-1011	-0.607	-0.013	-0.085	-983	-0.590	0.004	-0.200	-971	-0.583	0.011	0.083
93	-759	-778	-0.467	-0.011	-0.607	-785	-0.471	-0.016	-0.072	-791	-0.475	-0.019	-0.205	-650	-0.390	0.065	0.072
95	-458	-501	-0.301	-0.026	-0.595	-464	-0.278	-0.004	-0.056	-479	-0.287	-0.013	-0.185	-347	-0.208	0.067	0.007
97	-162	-256	-0.154	-0.056	-0.569	-135	-0.081	0.016	-0.053	-144	-0.086	0.011	-0.173	-113	-0.068	0.029	-0.060
99	-308	-583	-0.350	0.007	-0.513	-291	-0.175	0.010	-0.069	-314	-0.188	-0.004	-0.184	-458	-0.275	-0.090	-0.089
101	-504	-723	-0.434	-0.059	-0.520	-516	-0.310	-0.007	-0.079	-608	-0.365	-0.062	-0.180	-570	-0.342	-0.040	0.001
103	-615	-792	-0.475	-0.017	-0.461	-628	-0.377	-0.008	-0.072	-642	-0.385	-0.016	-0.118	-630	-0.378	-0.009	0.040
105	-596	-776	-0.466	-0.042	-0.444	-609	-0.365	-0.008	-0.064	-642	-0.385	-0.028	-0.101	-624	-0.374	-0.017	0.049
107	-652	-807	-0.484	-0.007	-0.402	-636	-0.382	0.010	-0.056	-705	-0.423	-0.032	-0.074	-663	-0.398	-0.007	0.066
109	-703	-945	-0.567	-0.045	-0.395	-729	-0.437	-0.016	-0.066	-733	-0.440	-0.018	-0.042	-765	-0.459	-0.037	0.073
111	-737	-930	-0.558	-0.052	-0.350	-725	-0.435	0.007	-0.050	-680	-0.408	0.034	-0.024	-726	-0.436	0.007	0.110
113	-657	-857	-0.514	-0.038	-0.298	-666	-0.400	-0.005	-0.058	-586	-0.352	0.043	-0.058	-650	-0.390	0.004	0.103
115	-557	-734	-0.440	-0.038	-0.260	-573	-0.344	-0.010	-0.052	-440	-0.264	0.070	-0.101	-515	-0.309	0.025	0.099
117	-410	-601	-0.361	-0.034	-0.222	-418	-0.251	-0.005	-0.043	-260	-0.156	0.090	-0.171	-335	-0.201	0.045	0.074
119	-154	-402	-0.241	-0.042	-0.188	-138	-0.083	0.010	-0.038	-256	-0.154	-0.061	-0.261	-166	-0.100	-0.007	0.029
121	-293	-689	-0.413	-0.047	-0.146	-290	-0.174	0.002	-0.047	-397	-0.238	-0.062	-0.200	-458	-0.275	-0.099	0.036
123	-719	-1176	-0.706	-0.047	-0.099	-697	-0.418	0.013	-0.049	-871	-0.523	-0.091	-0.137	-957	-0.574	-0.143	0.135
125	-1239	-1674	-1.004	-0.023	-0.052	-1259	-0.755	-0.012	-0.062	-1308	-0.785	-0.041	-0.046	-739	-0.443	0.300	0.278
127	-1622	-1871	-1.123	-0.029	-0.029	-1706	-1.024	-0.050	-0.050	-1630	-0.978	-0.005	-0.005	-1659	-0.995	-0.022	-0.022

CRUCIBLE STEEL LANDFILL
INCLINOMETER MONITORING
SJB Project No.: CT-17-099

INCLINOMETER 4
A-AXIS

August 29, 1985		December 17, 2009				December 13, 2011				October 21, 2014				October 25, 2017			
Depth	Difference	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)
3	844	-27	-0.016	-0.523	-0.441	-146	-0.088	-0.594	-1.513	-428	-0.257	-0.763	-1.551	-370	-0.222	-0.728	-1.318
5	107	-439	-0.263	-0.328	0.082	-510	-0.306	-0.370	-0.919	-280	-0.168	-0.232	-0.788	-320	-0.192	-0.256	-0.589
7	-103	-301	-0.181	-0.119	0.409	-68	-0.041	0.021	-0.549	-41	-0.025	0.037	-0.556	-30	-0.018	0.044	-0.333
9	-37	-8	-0.005	0.017	0.528	11	0.007	0.029	-0.570	65	0.039	0.061	-0.593	100	0.060	0.082	-0.377
11	60	122.5	0.074	0.038	0.511	82	0.049	0.013	-0.599	84	0.050	0.014	-0.654	120	0.072	0.036	-0.459
13	95	138.5	0.083	0.026	0.473	104	0.062	0.005	-0.612	182	0.109	0.052	-0.668	190	0.114	0.057	-0.495
15	238	285	0.171	0.028	0.447	272	0.163	0.020	-0.617	321	0.193	0.050	-0.721	340	0.204	0.061	-0.552
17	360	452.5	0.272	0.056	0.419	347	0.208	-0.008	-0.638	329	0.197	-0.019	-0.770	360	0.216	0.000	-0.613
19	316	456.5	0.274	0.020	0.363	283	0.170	-0.020	-0.630	280	0.168	-0.022	-0.752	310	0.186	-0.004	-0.613
21	300	400.5	0.240	0.012	0.343	290	0.174	-0.006	-0.610	247	0.148	-0.032	-0.730	280	0.168	-0.012	-0.610
23	285	359.5	0.216	-0.009	0.331	152	0.091	-0.080	-0.604	63	0.038	-0.133	-0.698	100	0.060	-0.111	-0.598
25	86	114	0.068	0.017	0.340	-45	-0.027	-0.079	-0.524	-104	-0.062	-0.114	-0.565	-80	-0.048	-0.100	-0.487
27	-79	-88.5	-0.053	-0.006	0.324	-128	-0.077	-0.029	-0.446	-209	-0.125	-0.078	-0.451	-160	-0.096	-0.049	-0.387
29	-188	-225	-0.135	-0.064	0.329	-326	-0.196	-0.083	-0.416	-339	-0.203	-0.091	-0.373	-320	-0.192	-0.079	-0.338
31	-299	-374.5	-0.225	-0.045	0.393	-332	-0.199	-0.020	-0.334	-294	-0.176	0.003	-0.283	-280	-0.168	0.011	-0.259
33	-261	-316	-0.190	-0.033	0.439	-241	-0.145	0.012	-0.314	-215	-0.129	0.028	-0.286	-200	-0.120	0.037	-0.271
35	-194	-224	-0.134	-0.018	0.472	-198	-0.119	-0.002	-0.326	-187	-0.112	0.004	-0.313	-160	-0.096	0.020	-0.307
37	-153	-181.5	-0.109	-0.017	0.490	-160	-0.096	-0.004	-0.323	-137	-0.082	0.010	-0.317	-130	-0.078	0.014	-0.328
39	-115	-118	-0.071	-0.002	0.507	-60	-0.036	0.033	-0.319	-31	-0.019	0.050	-0.327	-10	-0.006	0.063	-0.341
41	-20	3	0.002	0.014	0.508	-15	-0.009	0.003	-0.352	79	0.047	0.059	-0.377	60	0.036	0.048	-0.404
43	101	151.5	0.091	0.030	0.495	241	0.145	0.084	-0.355	363	0.218	0.157	-0.437	360	0.216	0.155	-0.452
45	396	507	0.304	0.027	0.464	447	0.268	0.031	-0.439	458	0.275	0.037	-0.594	480	0.288	0.050	-0.608
47	484	626	0.376	0.018	0.437	457	0.274	-0.016	-0.470	419	0.251	-0.039	-0.631	450	0.270	-0.020	-0.658
49	442	565	0.339	0.023	0.419	328	0.197	-0.068	-0.454	269	0.161	-0.104	-0.592	220	0.132	-0.133	-0.638
51	289	383.5	0.230	0.018	0.396	200	0.120	-0.053	-0.385	148	0.089	-0.085	-0.488	180	0.108	-0.065	-0.505
53	165	224	0.134	0.005	0.378	122	0.073	-0.026	-0.332	110	0.066	-0.033	-0.404	120	0.072	-0.027	-0.439
55	128	186	0.112	0.014	0.373	115	0.069	-0.008	-0.306	136	0.082	0.005	-0.371	140	0.084	0.007	-0.412
57	145	216.5	0.130	0.023	0.359	133	0.080	-0.007	-0.298	72	0.043	-0.044	-0.376	100	0.060	-0.027	-0.419
59	77	116.5	0.070	0.024	0.336	-23	-0.014	-0.060	-0.291	-44	-0.026	-0.073	-0.332	-40	-0.024	-0.070	-0.392
61	-40	-15	-0.009	0.015	0.313	-71	-0.043	-0.019	-0.231	-99	-0.059	-0.035	-0.259	-80	-0.048	-0.024	-0.322
63	-95	-84.5	-0.051	0.006	0.298	-119	-0.071	-0.014	-0.212	-112	-0.067	-0.010	-0.224	-100	-0.060	-0.003	-0.298
65	-103	-89	-0.053	0.008	0.291	-43	-0.026	0.036	-0.198	10	0.006	0.068	-0.214	20	0.012	0.074	-0.295
67	15	64	0.038	0.029	0.283	17	0.010	0.001	-0.234	63	0.038	0.029	-0.281	60	0.036	0.027	-0.369
69	81	132.5	0.080	0.031	0.254	135	0.081	0.032	-0.235	147	0.088	0.040	-0.310	140	0.084	0.035	-0.396
71	148	228	0.137	-0.005	0.223	97	0.058	-0.031	-0.268	69	0.041	-0.047	-0.350	60	0.036	-0.053	-0.431
73	86	132	0.079	0.028	0.228	103	0.062	0.010	-0.237	120	0.072	0.020	-0.302	120	0.072	0.020	-0.379
75	112	186.5	0.112	0.045	0.200	87	0.052	-0.015	-0.247	77	0.046	-0.021	-0.323	80	0.048	-0.019	-0.399
77	89	142	0.085	0.032	0.155	119	0.071	0.018	-0.232	160	0.096	0.043	-0.302	160	0.096	0.043	-0.380
79	168	251	0.151	-0.020	0.124	125	0.075	-0.026	-0.250	28	0.017	-0.084	-0.344	40	0.024	-0.077	-0.422
81	42	65	0.039	0.014	0.144	-74	-0.044	-0.070	-0.224	-132	-0.079	-0.104	-0.260	-120	-0.072	-0.097	-0.346
83	-157	-153	-0.092	0.002	0.130	-251	-0.151	-0.056	-0.155	-335	-0.201	-0.107	-0.156	-340	-0.204	-0.110	-0.248
85	-307	-378.5	-0.227	-0.043	0.127	-372	-0.223	-0.039	-0.098	-363	-0.218	-0.034	-0.049	-360	-0.216	-0.032	-0.139
87	-349	-402.5	-0.242	-0.032	0.170	-314	-0.188	0.021	-0.059	-224	-0.134	0.075	-0.016	-250	-0.150	0.059	-0.107
89	-223	-213	-0.128	0.006	0.202	-74	-0.044	0.089	-0.080	12	0.007	0.141	-0.091	-20	-0.012	0.122	-0.166
91	57	94	0.056	0.022	0.196	137	0.082	0.048	-0.170	198	0.119	0.085	-0.232	180	0.108	0.074	-0.288
93	207	304	0.182	-0.020	0.174	191	0.115	-0.010	-0.218	132	0.079	-0.045	-0.316	150	0.090	-0.034	-0.362
95	121	182.5	0.110	-0.023	0.194	27	0.016	-0.056	-0.208	-31	-0.019	-0.091	-0.271	-20	-0.012	-0.085	-0.328
97	-50	-17	-0.010	0.020	0.217	-130	-0.078	-0.048	-0.152	-133	-0.080	-0.050	-0.180	-140	-0.084	-0.054	-0.243
99	-88	-96	-0.058	-0.005	0.197	10	0.006	0.059	-0.104	67	0.040	0.093	-0.130	60	0.036	0.089	-0.189
101	42	113.5	0.068	0.043	0.202	5	0.003	-0.022	-0.163	-32	-0.019	-0.044	-0.223	-40	-0.024	-0.049	-0.278
103	-2	14	0.008	0.010	0.159	-22	-0.013	-0.012	-0.140	-65	-0.039	-0.038	-0.179	-60	-0.036	-0.035	-0.229
105	-76	-65.5	-0.039	0.006	0.150	-127	-0.076	-0.031	-0.128	-55	-0.033	0.013	-0.141	-80	-0.048	-0.002	-0.194
107	0	4	0.002	0.002	0.143	47	0.028	0.028	-0.098	150	0.090	0.090	-0.154	110	0.066	0.066	-0.191
109	208	321	0.193	0.018	0.141	471	0.283	0.158	-0.126	597	0.358	0.233	-0.244	580	0.348	0.223	-0.257
111	597	795	0.477	0.045	0.123	629	0.377	0.019	-0.284	579	0.347	-0.011	-0.477	590	0.354	-0.004	-0.481
113	559	744	0.446	0.027	0.078	471	0.283	-0.053	-0.303	365	0.219	-0.116	-0.466	380	0.228	-0.107	-0.476
115	327	444	0.266	0.023	0.051	202	0.121	-0.075	-0.250	128	0.077	-0.119	-0.350	140	0.084	-0.112	-0.369
117	109	203	0.122	0.027	0.028	88	0.053	-0.013	-0.175	196	0.118	0.052	-0.230	170	0.102	0.037	-0.257
119	189	352	0.211	0.023	0.001	369	0.221	0.108	-0.163	278	0.167	0.053	-0.283	220	0.132	0.019	-0.293
121	225	336.5	0.202	0.045	-0.022	53	0.032	-0.103	-0.271	-41	-0.025	-0.160	-0.336	-30	-0.018	-0.153	-0.312
123	47	-14.5	-0.009	-0.037	-0.067	-111	-0.067	-0.095	-0.167	-135	-0.081	-0.109	-0.176	-130	-0.078	-0.106	-0.159
125	-130	-132	-0.079	-0.001	-0.030	-198	-0.119	-0.041	-0.073	-266	-0.160	-0.082	-0.067	-240	-0.144	-0.066	-0.053
127	-312	-329	-0.197	-0.029	-0.029	-365	-0.219	-0.032	-0.032	-288	-0.173	0.014	0.014	-290	-0.174	0.013	0.013

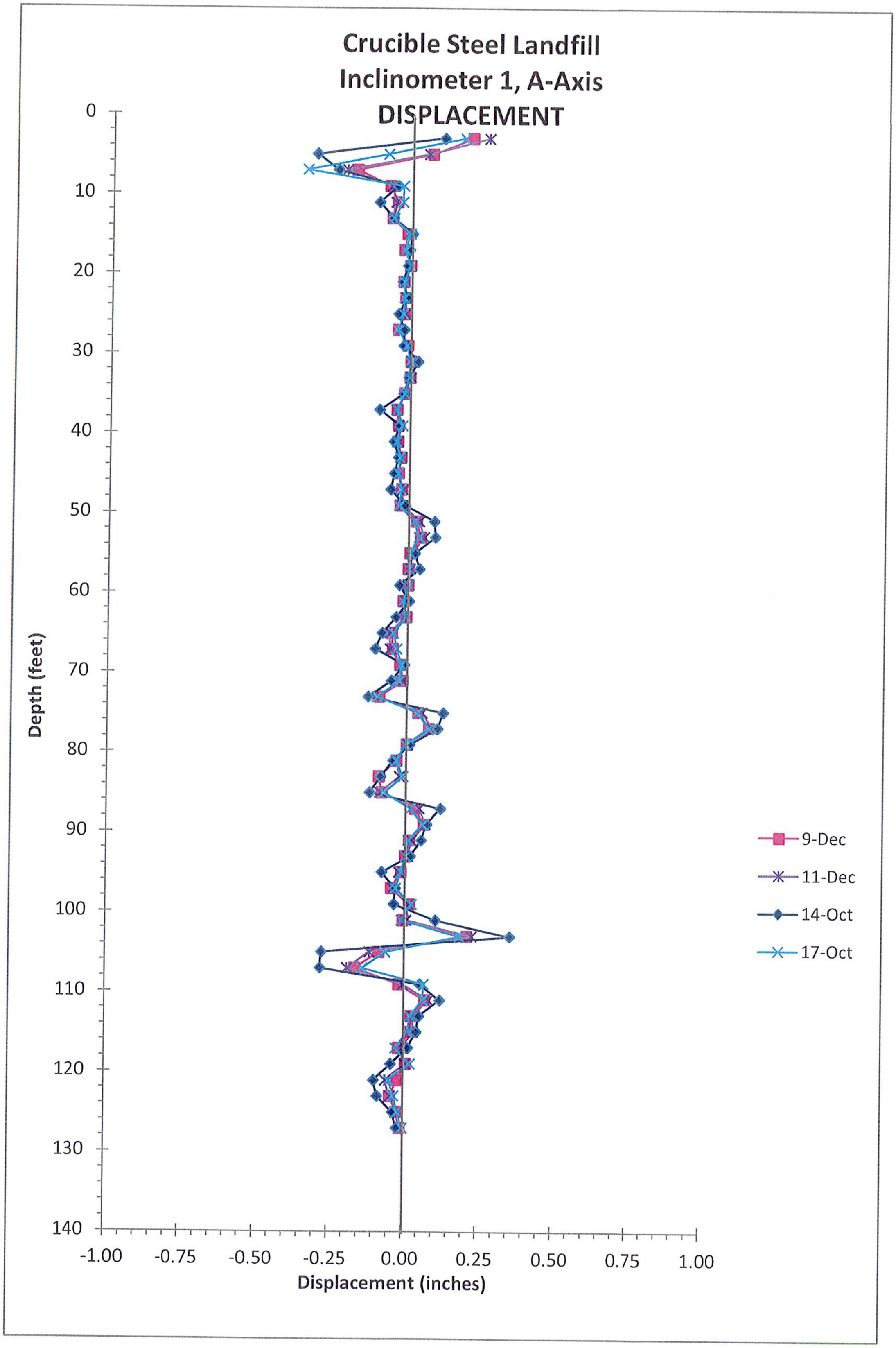
CRUCIBLE STEEL LANDFILL
INCLINOMETER MONITORING
SJB Project No.: CT-17-099

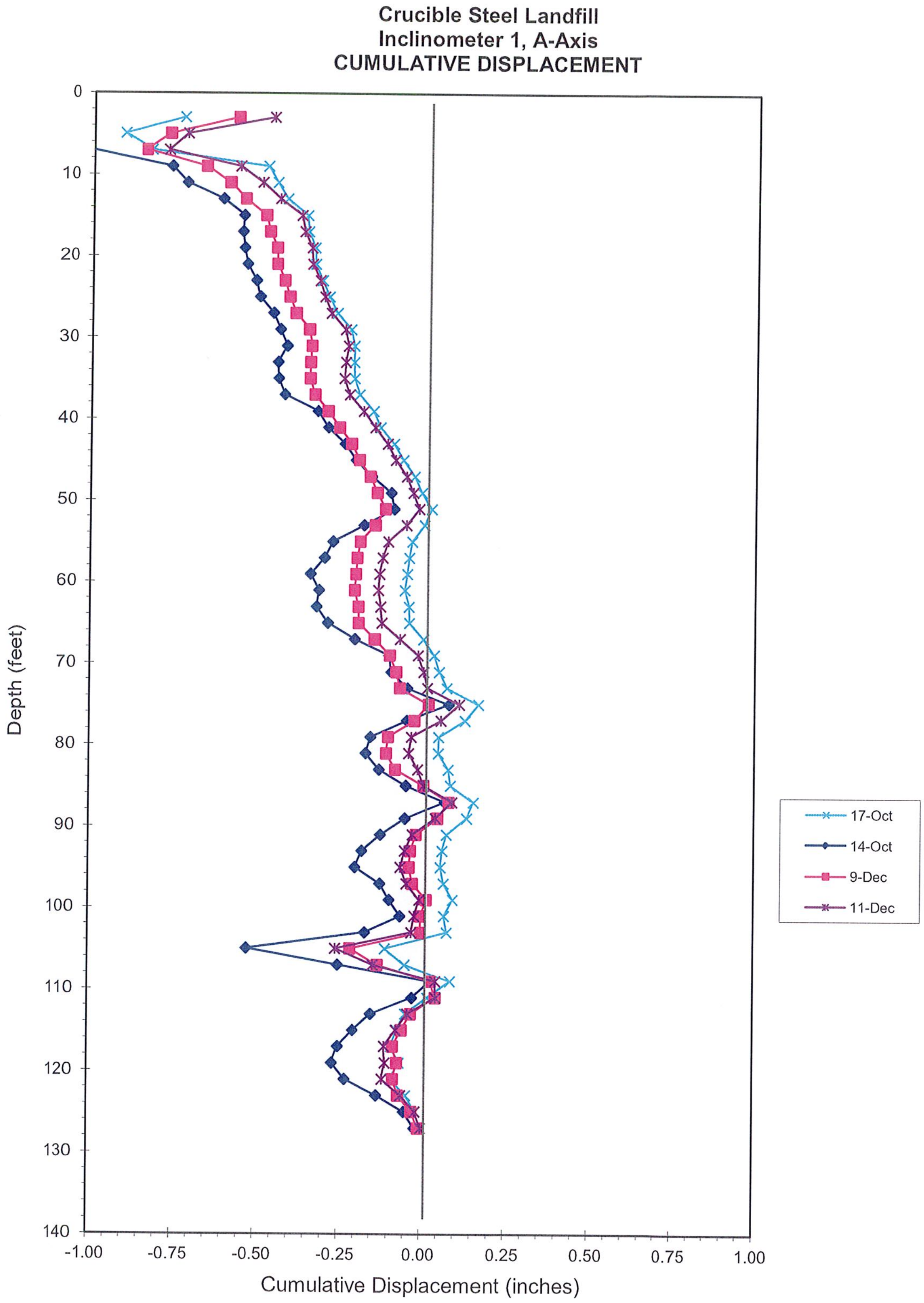
INCLINOMETER 4
B-AXIS

August 29, 1985		December 17, 2009				December 13, 2011				October 21, 2014				October 25, 2017			
Depth	Difference	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)	Difference	Deviation (inches)	Displacement (inches)	Cumulative Displacement (inches)
3	-400	-684	-0.410	-0.173	-0.400	-629	-0.377	-0.137	-0.123	-366	-0.220	0.020	0.110	-1355	-0.813	-0.573	-1.703
5	180	-179	-0.107	-0.219	-0.190	-26	-0.016	-0.124	0.014	307	0.184	0.076	0.090	-287	-0.172	-0.280	-1.130
7	401	351	0.211	-0.030	0.058	386	0.232	-0.009	0.138	251	0.151	-0.090	0.014	221	0.133	-0.108	-0.850
9	303	327	0.196	0.015	0.117	206	0.124	-0.058	0.147	217	0.130	-0.052	0.104	209	0.125	-0.056	-0.742
11	167	247	0.148	0.049	0.131	281	0.169	0.068	0.205	300	0.180	0.080	0.155	309	0.185	0.085	-0.685
13	181	336	0.202	0.095	0.110	278	0.167	0.058	0.137	285	0.171	0.062	0.076	244	0.146	0.038	-0.770
15	284	327	0.196	0.026	0.044	312	0.187	0.017	0.079	359	0.215	0.045	0.013	296	0.178	0.007	-0.808
17	444	402	0.241	-0.025	0.046	403	0.242	-0.025	0.062	399	0.239	-0.027	-0.032	369	0.221	-0.045	-0.815
19	388	437	0.262	0.030	0.100	306	0.184	-0.049	0.086	235	0.141	-0.092	-0.005	235	0.141	-0.092	-0.770
21	246	305	0.183	0.036	0.099	232	0.139	-0.008	0.136	189	0.113	-0.034	0.087	184	0.110	-0.037	-0.679
23	180	245	0.147	0.040	0.091	130	0.078	-0.030	0.144	84	0.050	-0.058	0.121	70	0.042	-0.066	-0.641
25	87	140	0.084	0.033	0.080	28	0.017	-0.035	0.174	0	0.000	-0.052	0.179	-6	-0.004	-0.056	-0.575
27	15	60	0.036	0.028	0.076	-10	-0.006	-0.015	0.209	-9	-0.005	-0.014	0.231	-28	-0.017	-0.026	-0.520
29	-7	41	0.025	0.030	0.077	50	0.030	0.034	0.224	106	0.064	0.068	0.245	80	0.048	0.052	-0.494
31	69	134	0.081	0.040	0.076	129	0.077	0.036	0.190	175	0.105	0.064	0.178	139	0.083	0.042	-0.546
33	163	221	0.133	0.036	0.065	233	0.140	0.042	0.154	250	0.150	0.052	0.114	258	0.155	0.057	-0.588
35	257	314	0.189	0.035	0.058	252	0.151	-0.003	0.112	225	0.135	-0.019	0.062	210	0.126	-0.028	-0.645
37	221	274	0.165	0.033	0.052	154	0.092	-0.040	0.115	68	0.041	-0.092	0.081	61	0.037	-0.096	-0.617
39	81	117	0.070	0.022	0.048	-34	-0.020	-0.069	0.155	-30	-0.018	-0.067	0.173	-50	-0.030	-0.079	-0.521
41	-60	4	0.003	0.039	0.054	-26	-0.016	0.020	0.224	2	0.001	0.037	0.239	-31	-0.019	0.017	-0.442
43	-3	49	0.030	0.032	0.044	76	0.046	0.047	0.204	130	0.078	0.080	0.202	92	0.055	0.057	-0.460
45	126	172	0.103	0.028	0.040	189	0.113	0.038	0.157	238	0.143	0.067	0.122	208	0.125	0.049	-0.517
47	218	280	0.168	0.038	0.041	294	0.176	0.046	0.119	332	0.199	0.068	0.055	315	0.189	0.058	-0.566
49	330	388	0.233	0.036	0.031	388	0.233	0.035	0.073	362	0.217	0.019	-0.013	362	0.217	0.019	-0.624
51	372	431	0.259	0.036	0.024	329	0.197	-0.026	0.038	301	0.181	-0.043	-0.032	289	0.173	-0.050	-0.643
53	314	359	0.216	0.027	0.017	247	0.148	-0.040	0.064	298	0.179	-0.010	0.010	197	0.118	-0.070	-0.593
55	218	261	0.157	0.026	0.018	150	0.090	-0.041	0.104	100	0.060	-0.071	0.020	100	0.060	-0.071	-0.523
57	111	171	0.103	0.036	0.020	61	0.037	-0.030	0.145	71	0.043	-0.024	0.091	42	0.025	-0.041	-0.452
59	65	134	0.081	0.042	0.012	118	0.071	0.032	0.175	93	0.056	0.017	0.115	79	0.047	0.008	-0.411
61	102	141	0.085	0.024	-0.001	58	0.035	-0.026	0.143	44	0.026	-0.035	0.098	21	0.013	-0.049	-0.419
63	42	88	0.053	0.028	0.003	35	0.021	-0.004	0.170	22	0.013	-0.012	0.133	-3	-0.002	-0.027	-0.371
65	18	62	0.037	0.027	0.003	13	0.008	-0.003	0.174	19	0.011	0.001	0.145	-7	-0.004	-0.015	-0.344
67	41	71	0.043	0.018	0.005	93	0.056	0.031	0.177	199	0.119	0.095	0.144	189	0.113	0.089	-0.329
69	212	267	0.160	0.033	0.015	343	0.206	0.079	0.146	368	0.221	0.094	0.049	360	0.216	0.089	-0.418
71	354	416	0.250	0.037	0.010	292	0.175	-0.037	0.067	164	0.098	-0.114	-0.044	164	0.098	-0.114	-0.506
73	194	214	0.129	0.012	0.001	145	0.087	-0.029	0.104	139	0.083	-0.033	0.070	143	0.086	-0.031	-0.392
75	128	189	0.114	0.037	0.017	119	0.071	-0.005	0.134	123	0.074	-0.003	0.103	98	0.059	-0.018	-0.362
77	116	167	0.100	0.031	0.008	163	0.098	0.028	0.139	145	0.087	0.017	0.106	142	0.085	0.016	-0.344
79	132	192	0.115	0.036	0.005	115	0.069	-0.010	0.111	128	0.077	-0.002	0.088	126	0.076	-0.004	-0.359
81	145	197	0.118	0.031	-0.003	155	0.093	0.006	0.121	144	0.086	-0.001	0.091	156	0.094	0.007	-0.356
83	162	218	0.131	0.034	-0.006	159	0.095	-0.002	0.115	148	0.089	-0.008	0.091	148	0.089	-0.008	-0.362
85	156	221	0.133	0.039	-0.012	122	0.073	-0.020	0.117	83	0.050	-0.044	0.100	74	0.044	-0.049	-0.354
87	82	135	0.081	0.032	-0.023	48	0.029	-0.020	0.137	74	0.044	-0.005	0.143	53	0.032	-0.017	-0.305
89	70	138	0.083	0.041	-0.026	178	0.107	0.065	0.158	185	0.111	0.069	0.148	152	0.091	0.049	-0.287
91	201	231	0.139	0.018	-0.039	232	0.139	0.019	0.093	231	0.139	0.018	0.079	210	0.126	0.005	-0.337
93	217	275	0.165	0.035	-0.029	187	0.112	-0.018	0.074	175	0.105	-0.025	0.061	159	0.095	-0.035	-0.342
95	175	230	0.138	0.033	-0.036	174	0.104	-0.001	0.092	143	0.086	-0.019	0.086	106	0.064	-0.041	-0.307
97	119	187	0.112	0.041	-0.041	49	0.029	-0.042	0.093	-13	-0.008	-0.079	0.106	-42	-0.025	-0.097	-0.266
99	-6	-79	-0.047	-0.044	-0.054	-109	-0.065	-0.062	0.135	-114	-0.068	-0.065	0.185	-154	-0.092	-0.089	-0.169
101	-121	-77	-0.046	0.027	0.018	-99	-0.059	0.013	0.197	-52	-0.031	0.041	0.250	-60	-0.036	0.037	-0.080
103	-11	29	0.018	0.024	0.019	153	0.092	0.098	0.184	178	0.107	0.113	0.208	163	0.098	0.104	-0.117
105	182	242	0.145	0.036	0.023	152	0.091	-0.018	0.085	87	0.052	-0.057	0.095	51	0.031	-0.079	-0.221
107	136	135	0.081	0.000	0.015	89	0.053	-0.028	0.103	70	0.042	-0.040	0.152	43	0.026	-0.056	-0.143
109	60	110	0.066	0.030	0.044	12	0.007	-0.029	0.131	3	0.002	-0.034	0.191	-35	-0.021	-0.057	-0.087
111	4	47	0.028	0.026	0.042	35	0.021	0.019	0.160	24	0.014	0.012	0.226	-15	-0.009	-0.011	-0.030
113	37	69	0.042	0.019	0.044	24	0.014	-0.008	0.142	25	0.015	-0.007	0.214	-22	-0.013	-0.035	-0.019
115	73	62	0.037	-0.006	0.053	27	0.016	-0.028	0.149	85	0.051	0.007	0.221	45	0.027	-0.017	0.017
117	66	157	0.094	0.055	0.087	180	0.108	0.068	0.177	168	0.101	0.061	0.214	129	0.077	0.038	0.034
119	152	225	0.135	0.044	0.061	212	0.127	0.036	0.109	265	0.159	0.068	0.152	213	0.128	0.037	-0.004
121	237	314	0.189	0.046	0.045	304	0.182	0.040	0.073	317	0.190	0.048	0.085	255	0.153	0.011	-0.041
123	302	356	0.214	0.033	0.027	322	0.193	0.012	0.032	335	0.201	0.020	0.037	282	0.169	-0.012	-0.052
125	338	395	0.237	0.034	0.022	373	0.224	0.021	0.020	372	0.223	0.020	0.017	329	0.197	-0.005	-0.040
127	353	426	0.256	0.044	0.016	352	0.211	-0.001	-0.001	347	0.208	-0.004	-0.004	296	0.178	-0.034	-0.034

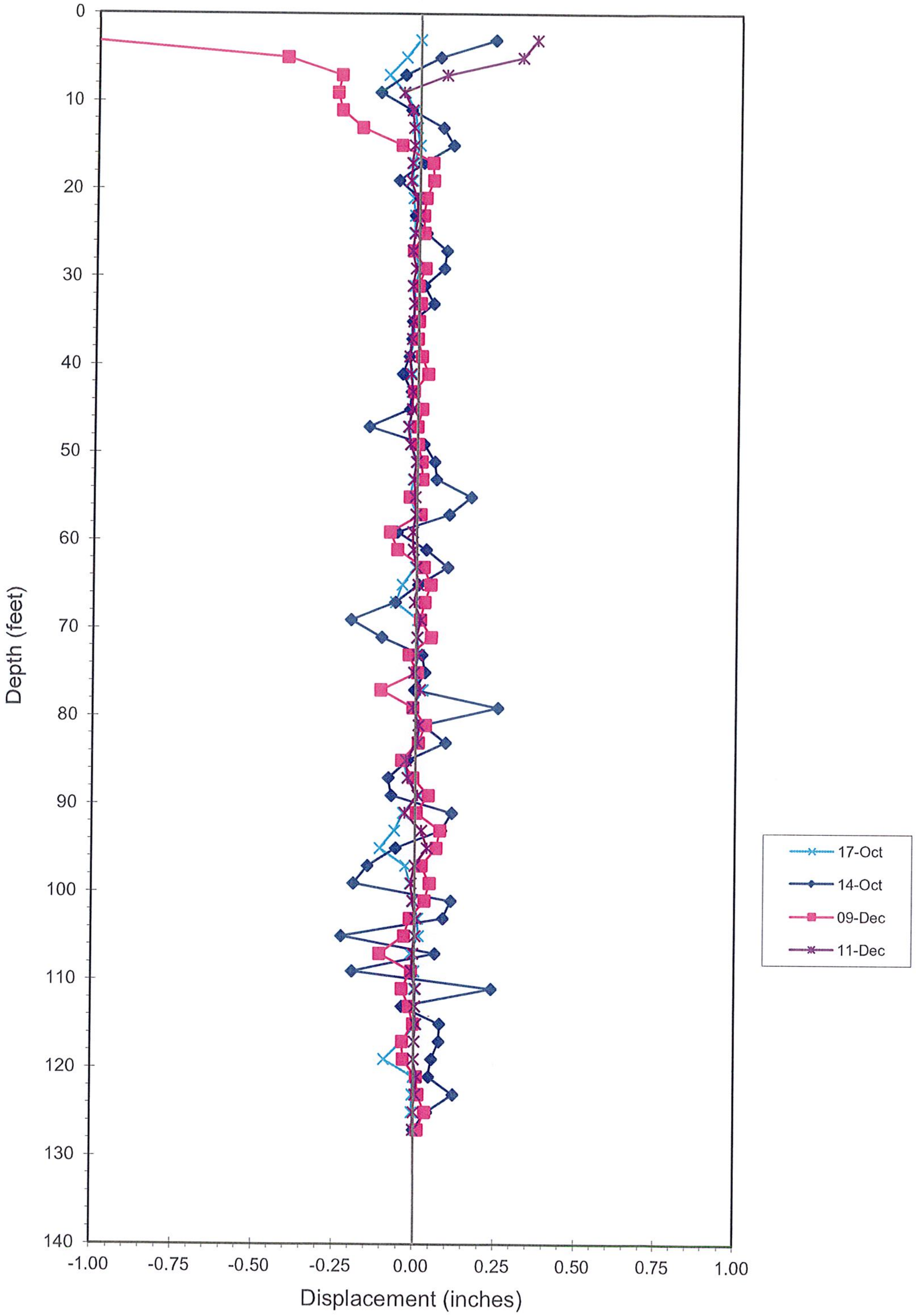
ATTACHMENT 3

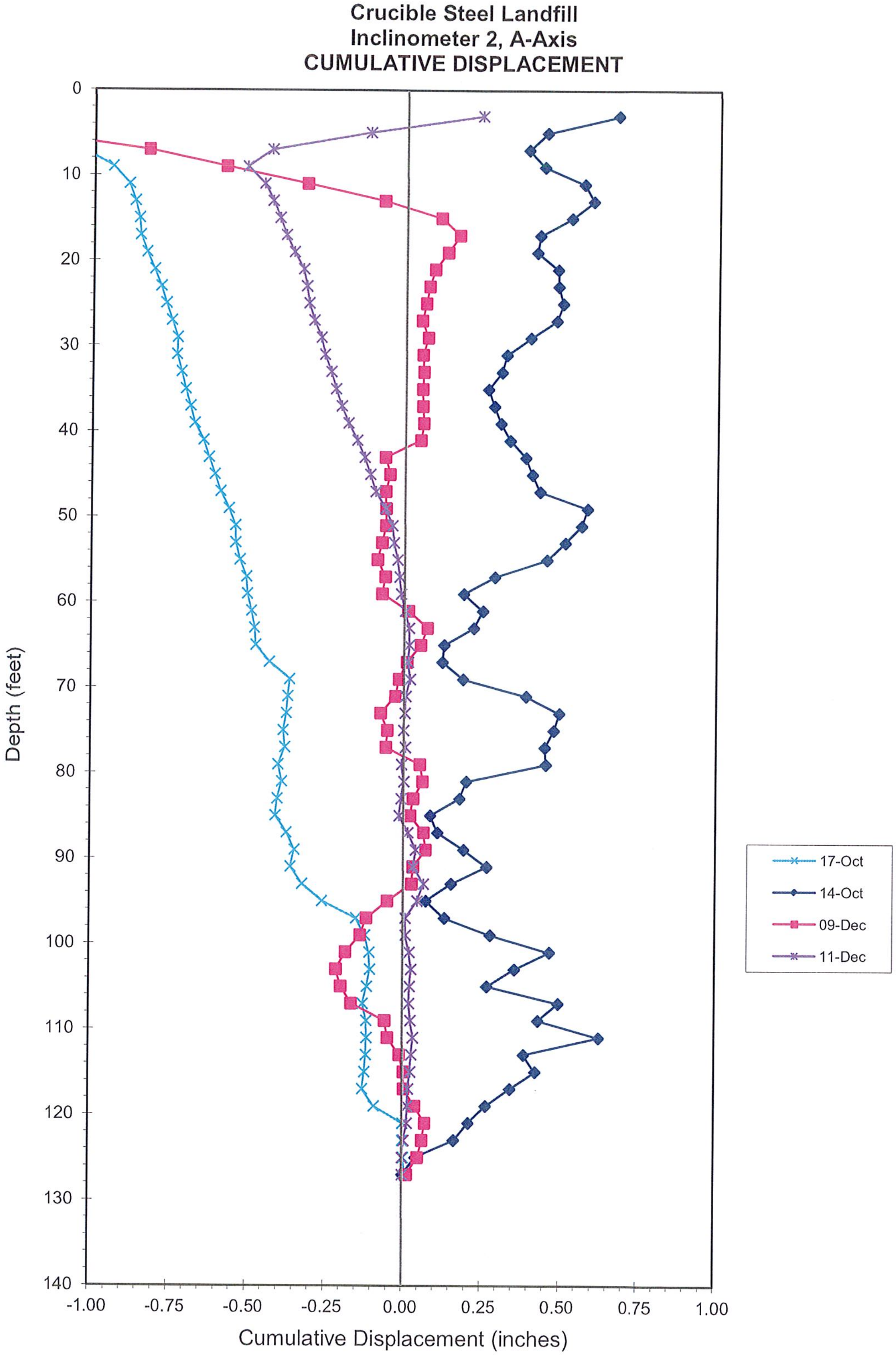
A-axis Displacement and Cumulative Displacement Plots


Crucible Steel Landfill
Inclinometer 1, A-Axis
DISPLACEMENT
Depth (feet)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Displacement (inches)
9-Dec
11-Dec
14-Oct
17-Oct

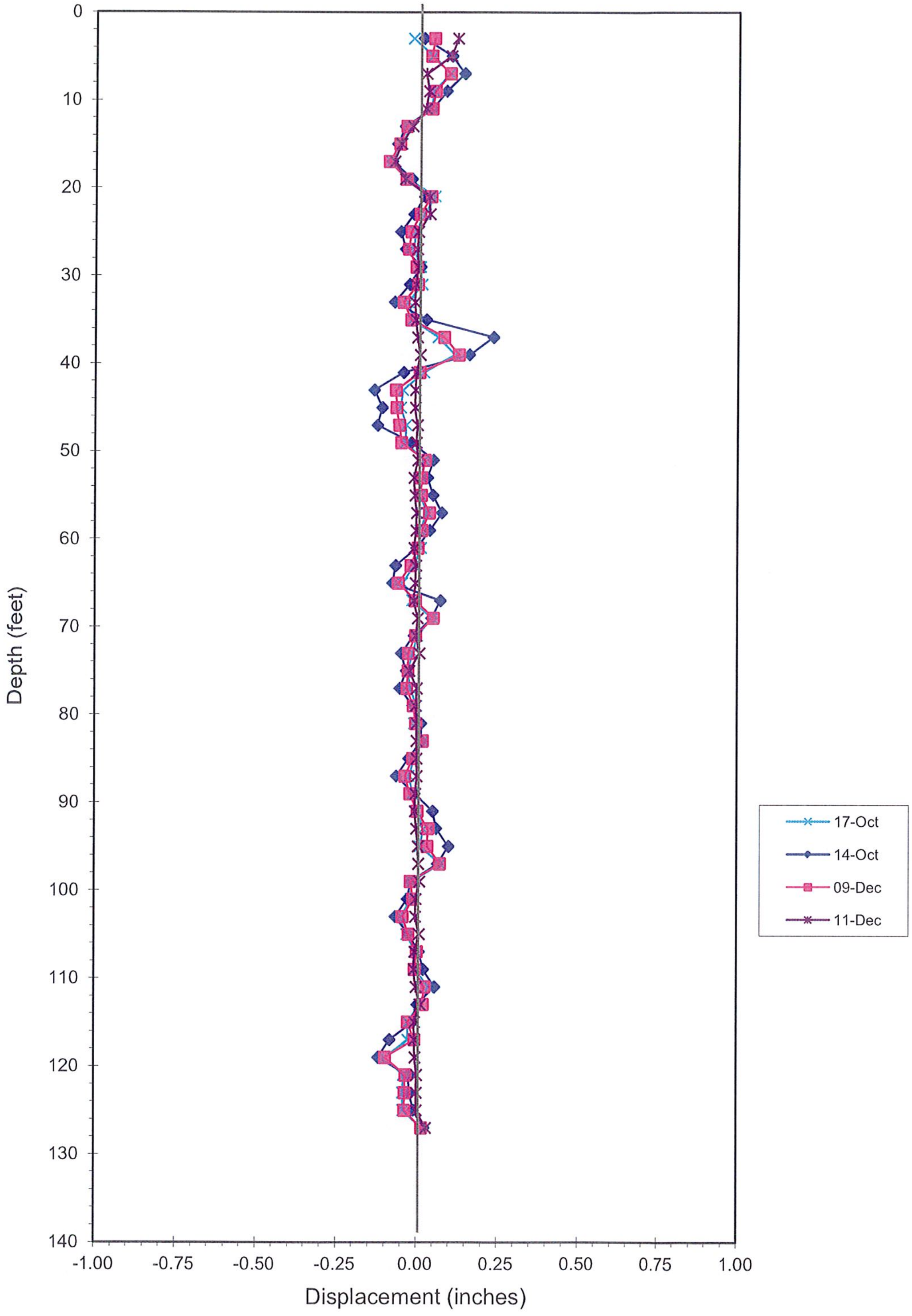

Crucible Steel Landfill
Inclinometer 1, A-Axis
CUMULATIVE DISPLACEMENT
Depth (feet)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Cumulative Displacement (inches)
17-Oct
14-Oct
9-Dec
11-Dec

Crucible Steel Landfill
Inclinometer 2, A-Axis
DISPLACEMENT

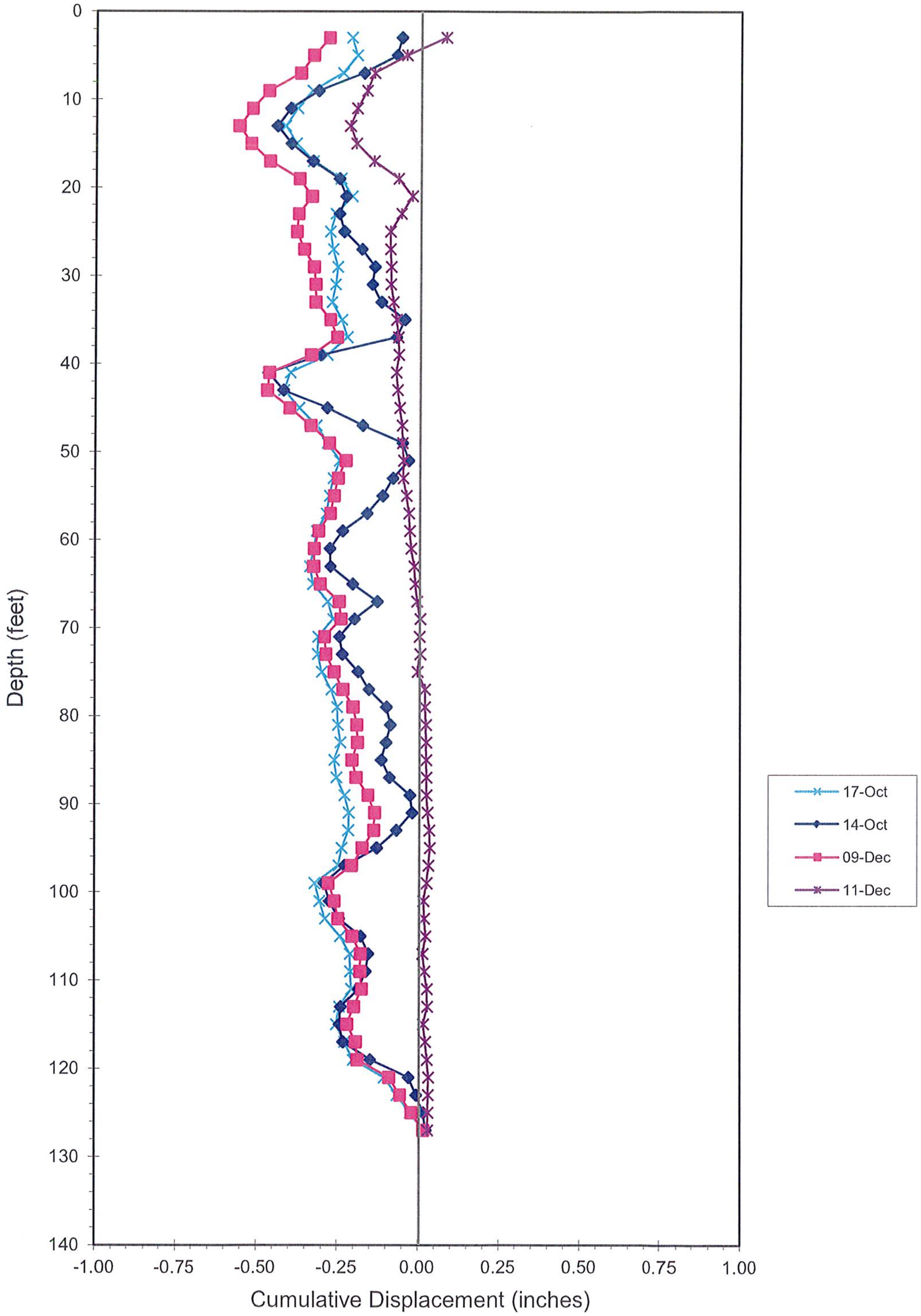


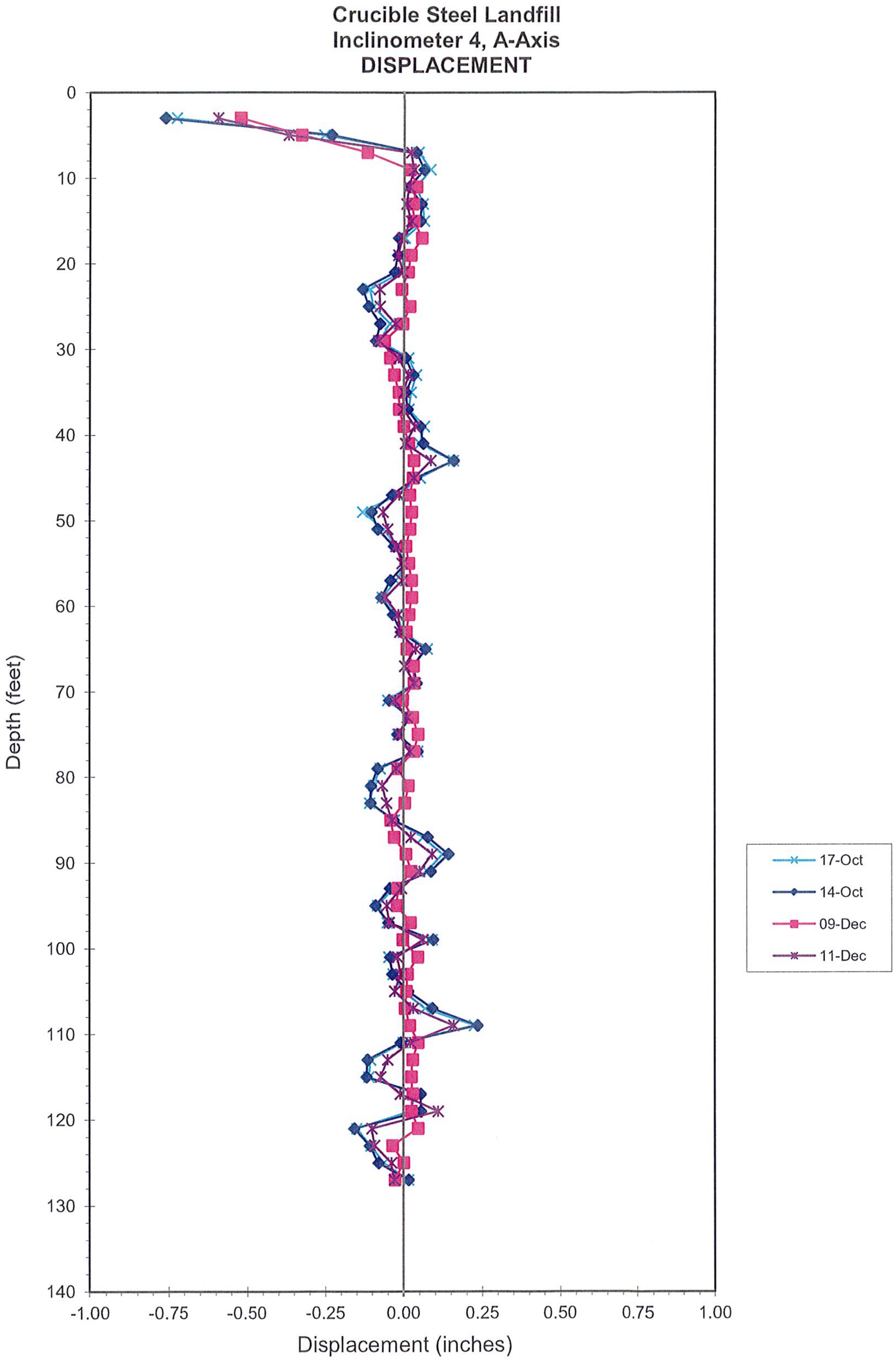

Crucible Steel Landfill
Inclinometer 2, A-Axis
CUMULATIVE DISPLACEMENT
Depth (feet)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Cumulative Displacement (inches)
17-Oct
14-Oct
09-Dec
11-Dec

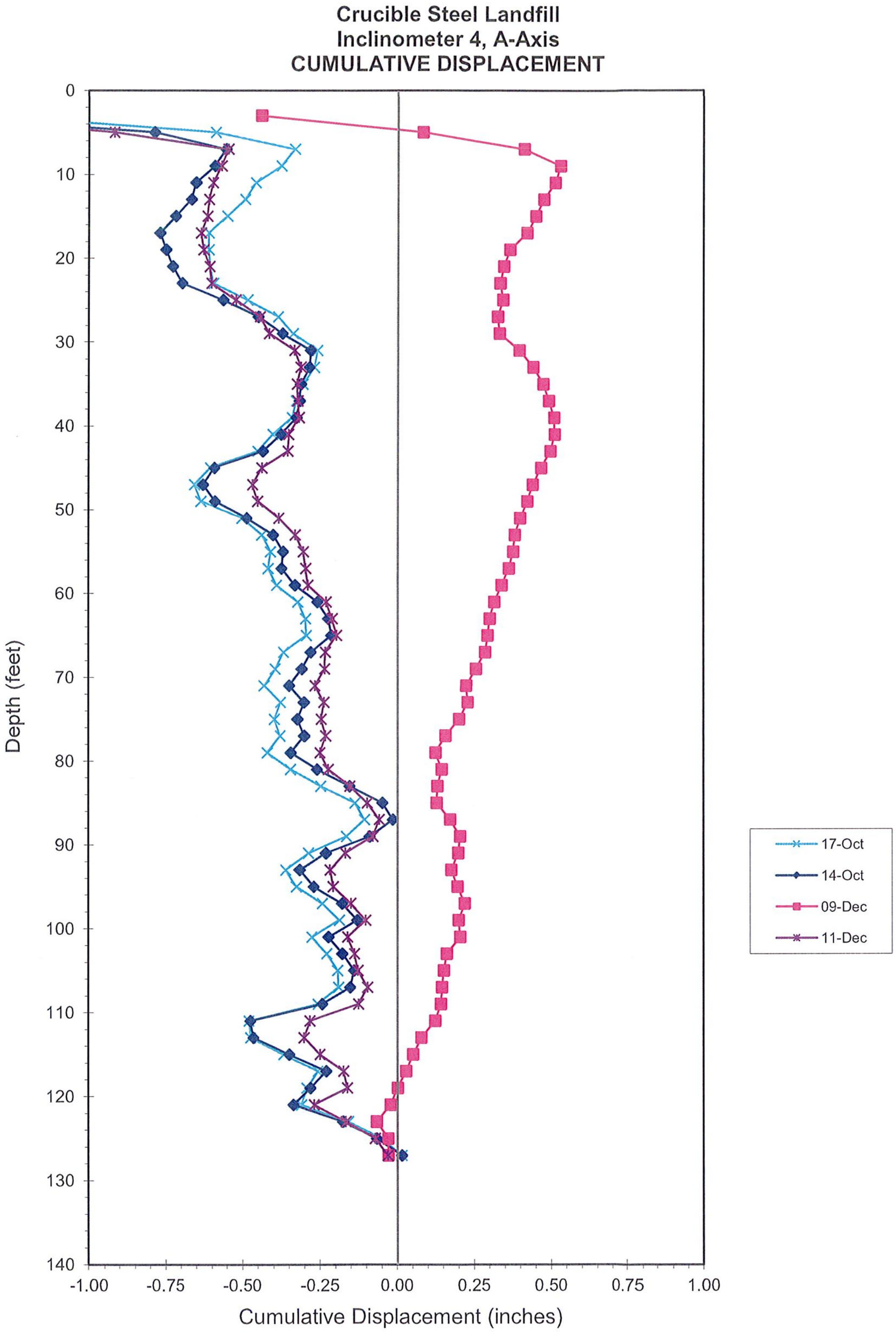
Crucible Steel Landfill
Inclinometer 3, A-Axis
DISPLACEMENT



Crucible Steel Landfill
Inclinometer 3, A-Axis
CUMULATIVE DISPLACEMENT



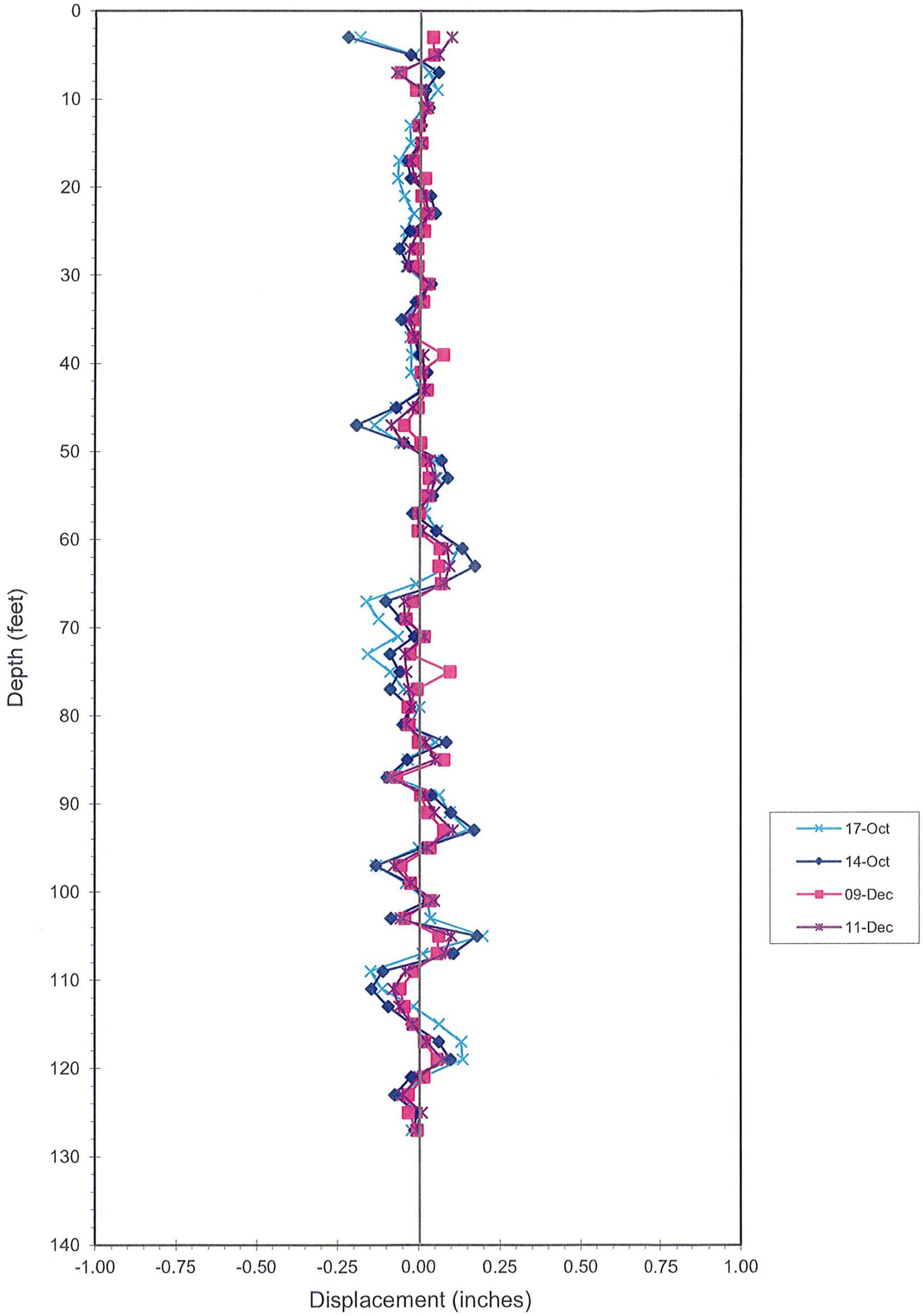

Crucible Steel Landfill
Inclinometer 4, A-Axis
DISPLACEMENT
Depth (feet)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Displacement (inches)
17-Oct
14-Oct
09-Dec
11-Dec

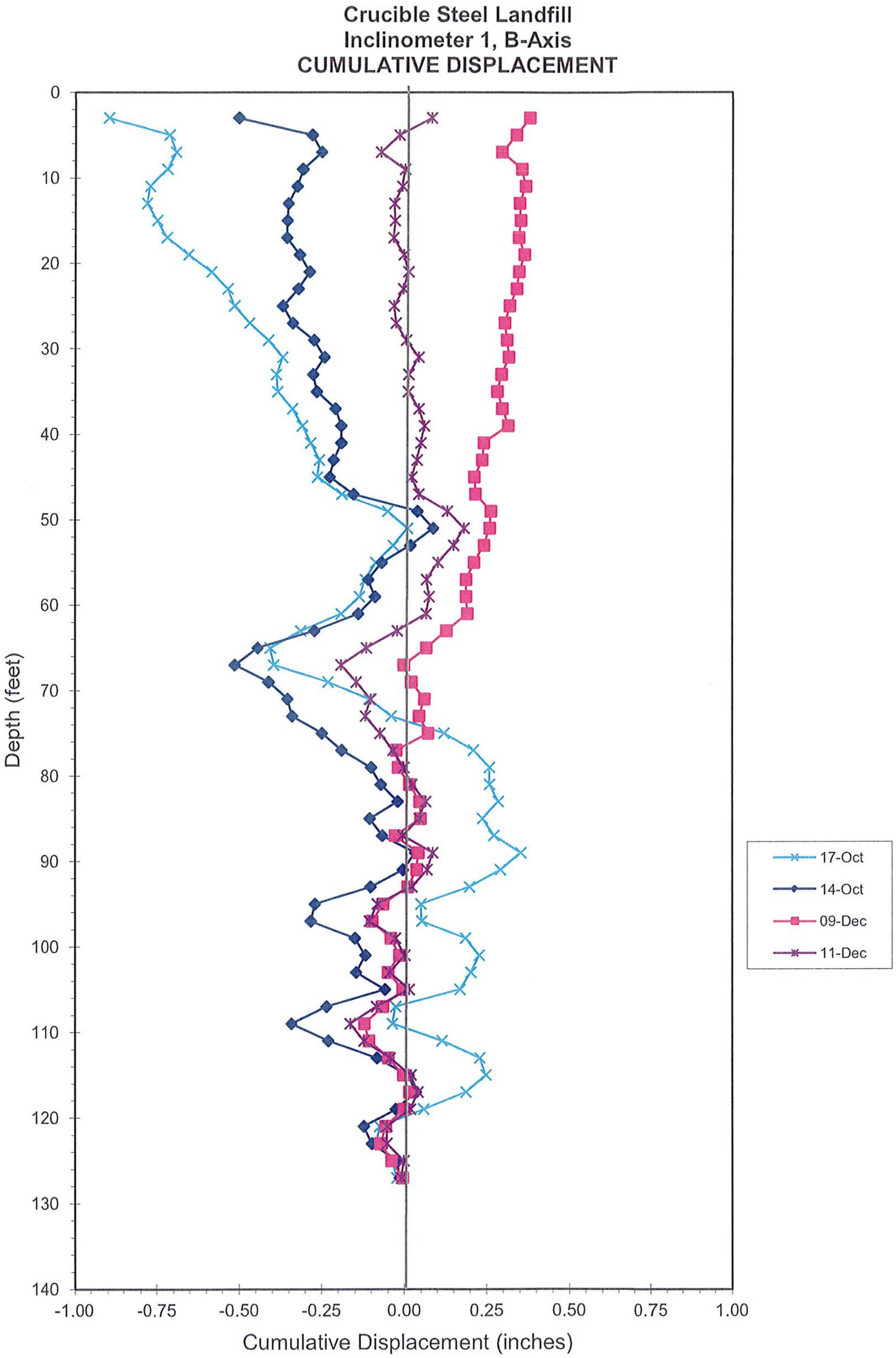

Crucible Steel Landfill
Inclinometer 4, A-Axis
CUMULATIVE DISPLACEMENT
Depth (feet)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Cumulative Displacement (inches)
17-Oct
14-Oct
09-Dec
11-Dec

ATTACHMENT 4

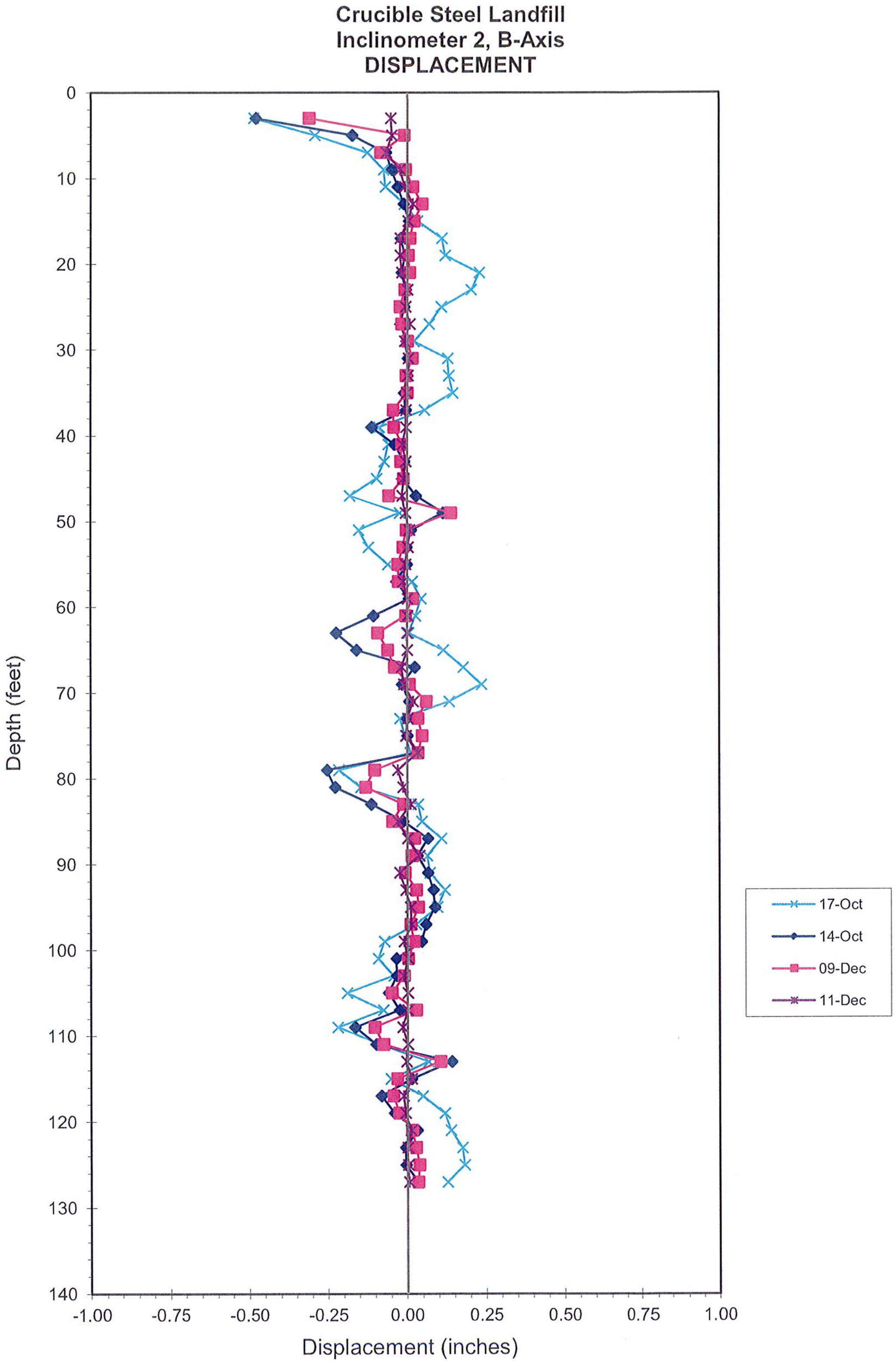
B-axis Displacement and Cumulative Displacement Plots

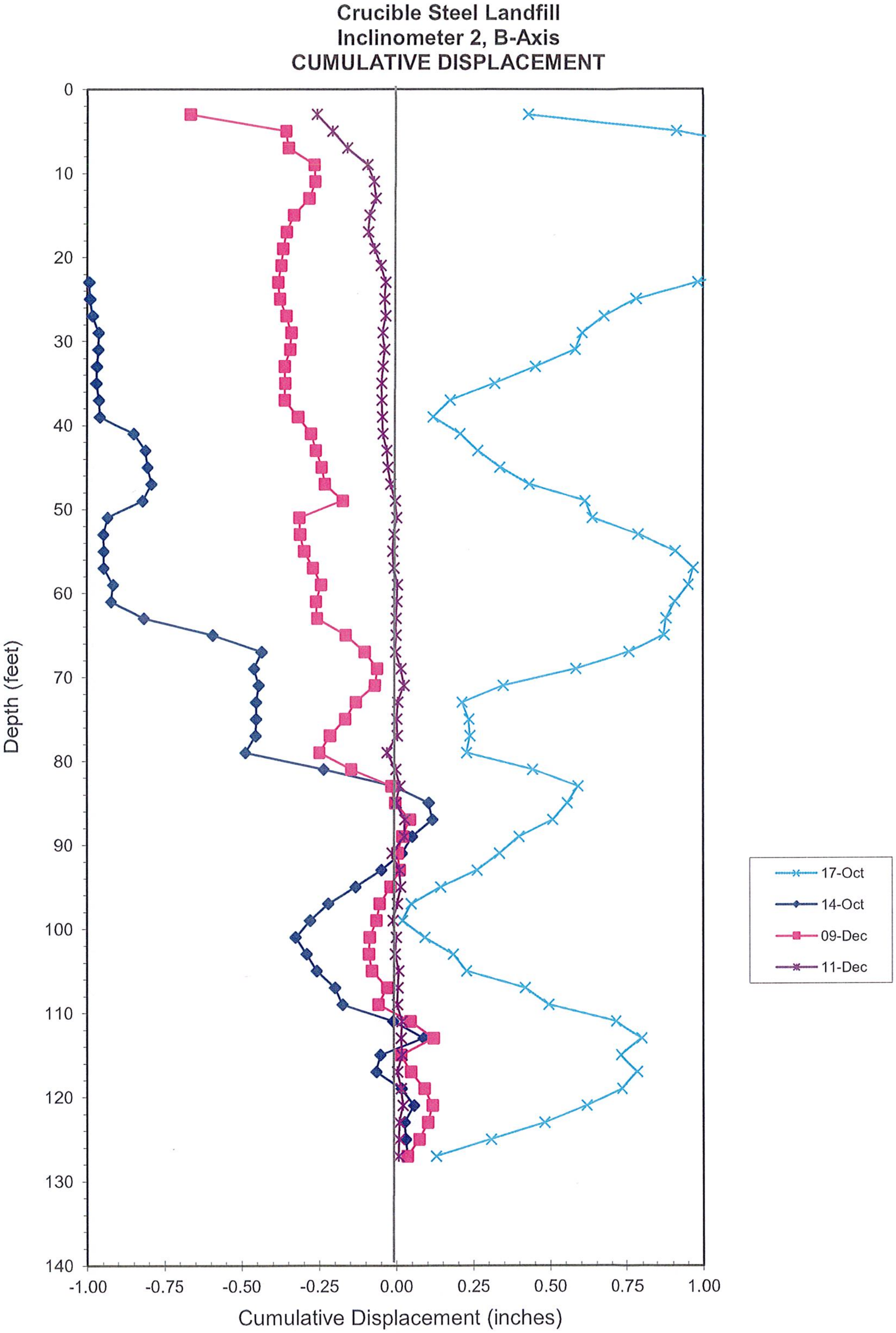
Crucible Steel Landfill
Inclinometer 1, B-Axis
DISPLACEMENT

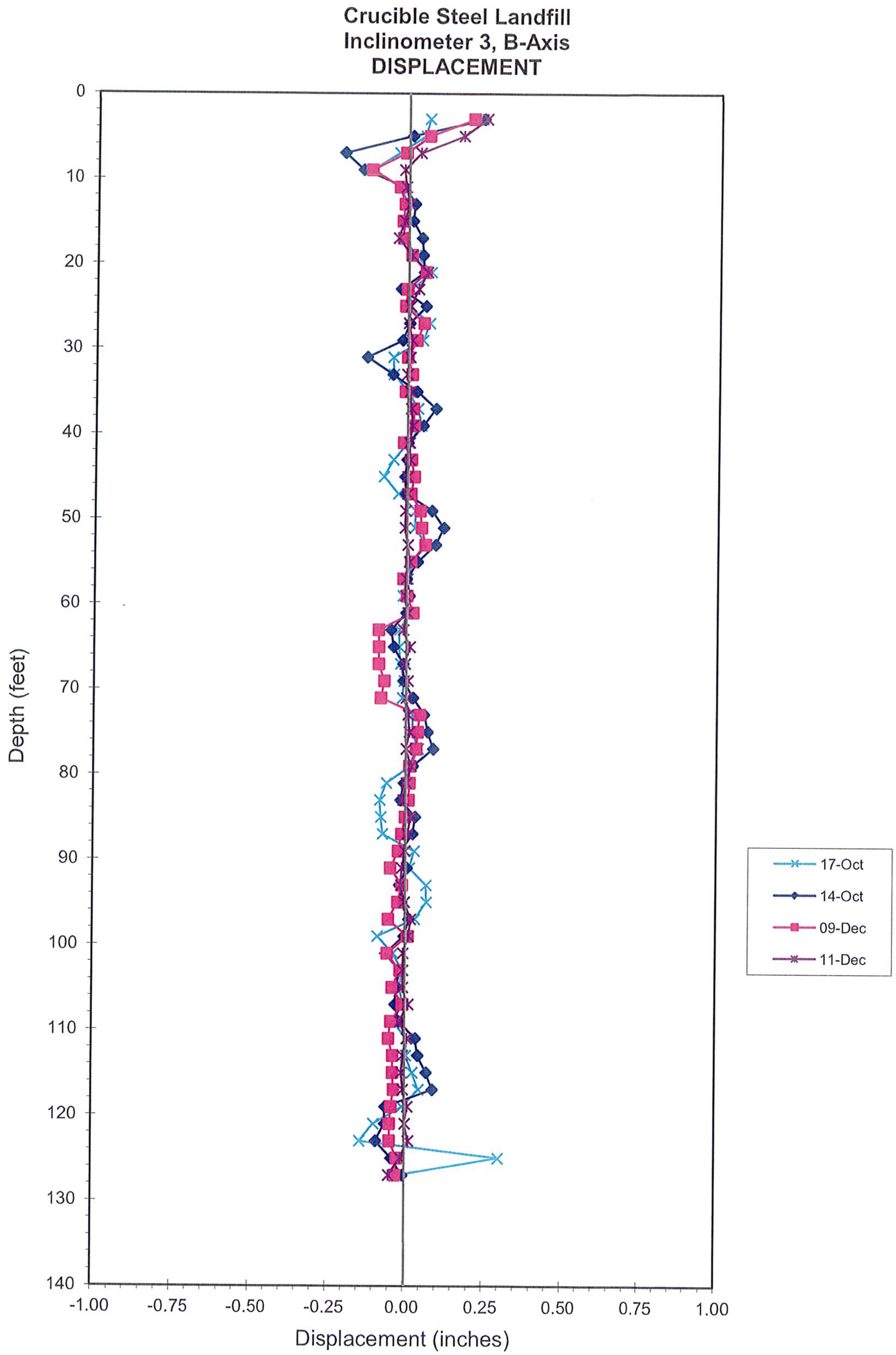


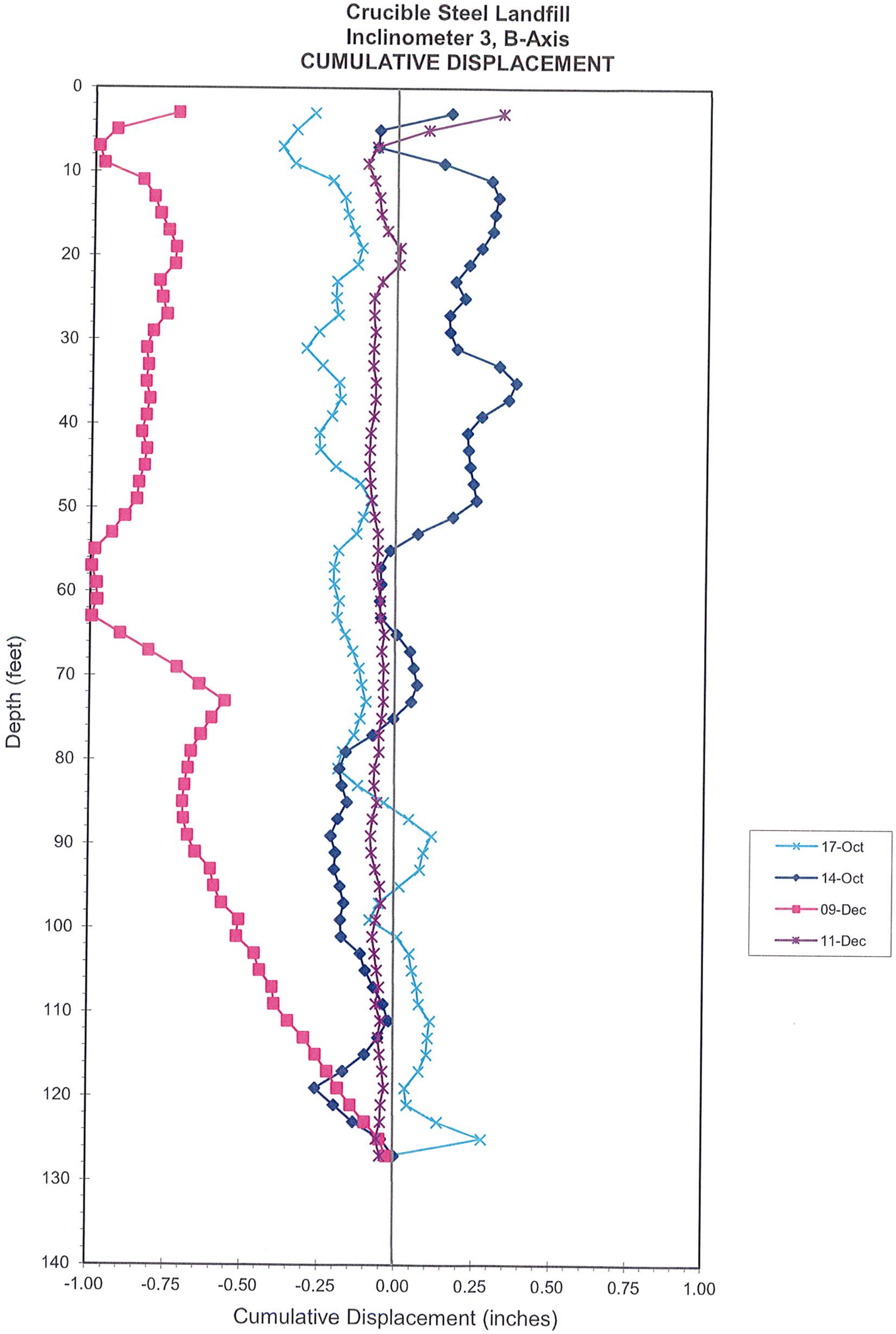


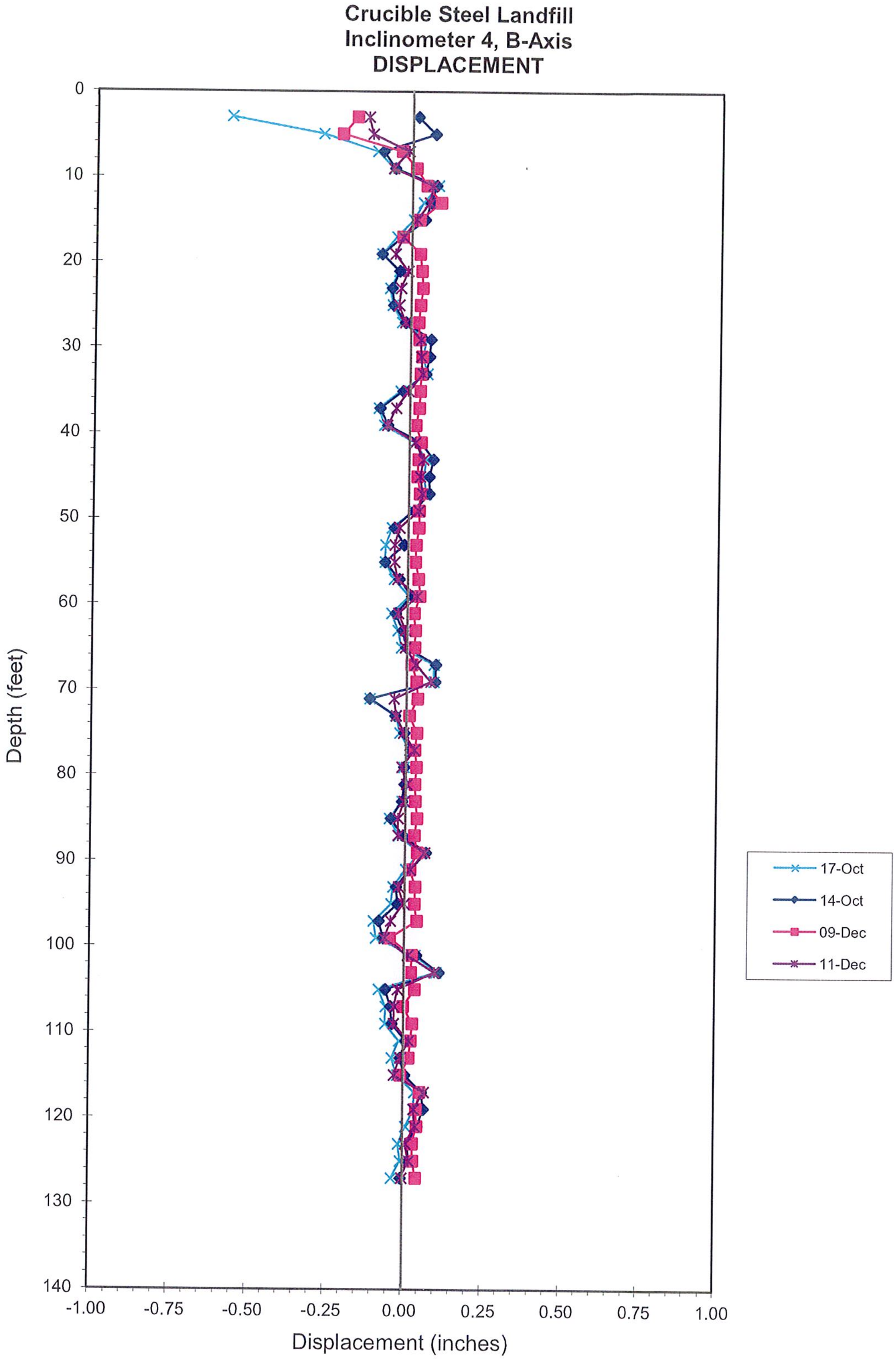
Crucible Steel Landfill
Inclinometer 1, B-Axis
CUMULATIVE DISPLACEMENT


Crucible Steel Landfill
Inclinometer 2, B-Axis
DISPLACEMENT
Depth (feet)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Displacement (inches)
17-Oct
14-Oct
09-Dec
11-Dec

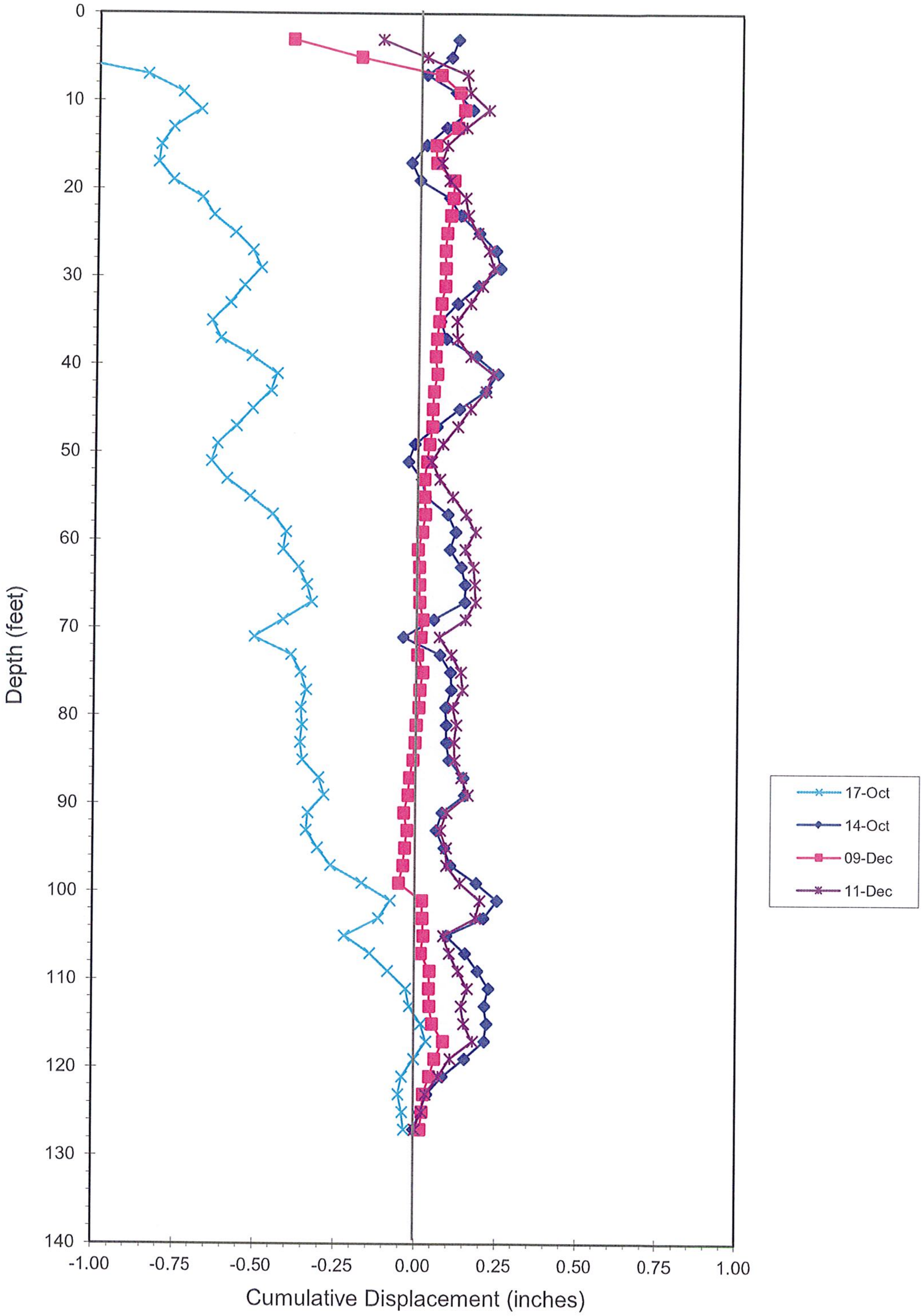

Crucible Steel Landfill
Inclinometer 2, B-Axis
CUMULATIVE DISPLACEMENT
Depth (feet)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Cumulative Displacement (inches)
17-Oct
14-Oct
09-Dec
11-Dec


Crucible Steel Landfill
Inclinometer 3, B-Axis
DISPLACEMENT
Depth (feet)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Displacement (inches)
17-Oct
14-Oct
09-Dec
11-Dec


Crucible Steel Landfill
Inclinometer 3, B-Axis
CUMULATIVE DISPLACEMENT
Depth (feet)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Cumulative Displacement (inches)
17-Oct
14-Oct
09-Dec
11-Dec


Crucible Steel Landfill
Inclinometer 4, B-Axis
DISPLACEMENT
Depth (feet)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
-1.00
-0.75
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Displacement (inches)
17-Oct
14-Oct
09-Dec
11-Dec

Crucible Steel Landfill
Inclinometer 4, B-Axis
CUMULATIVE DISPLACEMENT



Appendix G
Summary of Settlement Plate Data

Appendix G

Settlement Plate Data
October 2017 Monitoring Event

Plate No.		8/1/1987(1)	11/6/2001	11/14/2002	12/31/2003	12/8/2004	10/19/2005	12/8/2006	11/2/2007	9/17/2008	11/3/2009	11/8/2011	10/17/2014	11/20/2017
1	P	424.0												427.86
	G													423.96
2	P													
	G													
3	P	424.5												426.49
	G													423.71
4	P	424.2												424.93
	G													424.42
5	P													
	G													
6	P													
	G													
7	P													
	G													
8	P													
	G													
9	P													
	G													
10	P													
	G													
11	P	423.9												427.63
	G													424.21
12	P		431.81	431.82	431.78	431.79	431.78	431.76	431.78	431.73	431.72	431.70	431.67	431.65
	G		428.90	428.80	428.80	428.70	428.80	428.80	428.80	428.70	428.60	428.60	428.70	428.56
13	P		437.00	437.00	436.94	436.97	436.95	436.95	436.97	436.93	436.94	436.91	436.89	436.88
	G		433.60	433.70	433.50	433.60	433.70	433.80	433.70	433.60	433.60	433.60	433.60	433.48
14	P		431.95	431.94	431.80	431.94	431.92	431.90	431.93	431.89	431.88	431.84	431.86	431.83
	G		429.00	429.10	428.70	428.90	428.90	429.10	429.10	429.10	428.90	428.80	429.00	428.95
15	P		435.00	434.97	434.91	434.96	434.90	434.92	434.94	434.88	434.86	434.83	434.81	434.82
	G		432.30	432.30	432.20	432.30	432.20	432.20	432.20	432.20	432.20	432.10	432.20	432.10
16	P		430.66	430.63	430.57	430.60	430.65	430.59	430.58	430.53	430.51	***430.51***	***430.44***	***430.45***
	G		427.70	427.70	427.70	427.60	427.80	427.60	427.60	427.50	427.50	***427.50***	***427.40***	***427.61***
17	P		432.93	432.92	432.86	432.90	432.84	***432.88***	432.84	432.79	432.82	432.75	432.71	432.69
	G		431.50	431.60	431.60	431.60	431.60	431.60	431.50	431.50	431.50	431.50	431.40	431.45
18	P		429.64	429.58	429.56	429.59	429.56	429.58	429.53	429.49	429.48	429.49	429.42	429.42
	G		426.40	426.40	426.40	426.40	426.40	426.50	426.40	426.40	426.40	426.40	426.20	426.18
19	P		429.88	429.85	429.80	429.82	429.78	429.77	429.75	429.68	429.65	429.65	429.55	429.56
	G		426.90	426.90	426.80	426.80	426.90	426.80	426.70	426.70	426.70	426.70	426.60	426.62
20	P		433.11	433.09	433.07	433.05	433.02	433.00	432.99	432.93	432.90	432.87	432.83	432.80
	G		431.20	431.20	431.10	431.20	431.10	431.10	431.10	431.00	431.00	431.00	431.00	430.96
21	P		429.73	429.71	429.69	429.70	429.66	429.67	429.65	429.63	429.61	429.61	429.57	429.50
	G		427.10	427.20	427.30	427.20	427.20	427.30	427.20	427.20	427.20	427.20	427.10	427.04
22	P		435.89	435.88	435.83	435.84	435.82	435.83	435.82	435.79	435.77	435.73	435.72	435.72
	G		433.70	433.80	433.70	433.60	433.70	433.60	433.60	433.60	433.60	433.50	433.50	433.57
23	P		437.28	437.25	437.20	437.23	437.20	437.21	437.19	437.16	437.12	437.13	437.12	437.07
	G		434.50	434.50	434.40	434.50	434.50	434.50	434.50	434.50	434.40	434.40	434.40	434.39
24	P		434.13	434.11	434.08	434.12	434.09	434.09	434.11	434.07	434.07	434.03	434.02	434.02
	G		430.90	430.90	430.80	430.90	430.90	431.00	430.90	430.90	430.80	430.80	430.80	430.79
25	P													
	G													

Plate No.		8/1/1987$^{(1)}$	11/6/2001	11/14/2002	12/31/2003	12/8/2004	10/19/2005	12/8/2006	11/2/2007	9/17/2008	11/3/2009	11/8/2011	10/17/2014	11/20/2017
26	P		432.61	432.60	432.58	432.57	432.55	432.60	432.59	432.56	432.54	432.55	432.49	432.53
	G		429.60	429.60	429.50	429.50	429.50	429.50	429.50	429.50	429.40	429.40	429.50	429.49
27	P		432.93	432.92	432.90	432.90	432.88	432.88	432.91	432.88	432.85	***432.84***	***432.83***	***432.84***
	G		430.00	430.00	430.00	430.00	430.10	430.10	430.10	430.10	430.10	***430.00***	***430.00***	***430.01***
28	P		429.78	429.77	429.78	429.77	429.73	429.76	429.78	429.74	429.73	429.74	429.67	429.70
	G		428.70	428.50	428.50	428.50	428.40	428.50	428.50	428.40	428.40	428.40	428.50	428.35
29	P		433.23	433.23	433.17	433.21	433.18	433.21	433.22	433.19	***433.16***	***432.90***	***432.89***	***432.88***
	G		429.80	429.90	429.90	429.90	429.80	429.90	429.90	429.90	***429.90***	***429.80***	***429.90***	***429.71***
30	P		437.87	437.84	437.82	437.82	437.80	437.82	437.83	437.79	437.75	***437.75***	***437.73***	***437.70***
	G		434.60	434.50	434.60	434.20	434.20	434.30	434.30	434.30	434.30	***434.30***	***434.40***	***434.44***
31	P		433.29	433.29	433.27	433.27	433.25	433.27	433.28	433.25	433.22	433.21	433.21	433.22
	G		429.90	429.90	429.90	429.90	429.90	429.90	429.90	429.90	429.80	429.90	429.90	429.73
32	P		435.61	435.58	435.56	435.59	435.57	435.57	435.58	435.55	435.53	435.55	435.51	435.57
	G		433.30	433.30	433.20	433.30	433.30	433.30	433.30	433.30	433.20	433.30	433.30	433.30
33	P		433.14	433.13	433.11	433.11	433.11	433.10	433.11	433.09	433.04	433.07	433.08	433.07
	G		429.70	429.70	429.70	429.70	429.70	429.80	429.80	429.70	429.60	429.70	429.80	429.73
34	P		437.87	437.83	437.81	437.82	437.82	437.81	437.82	437.80	437.74	437.75	437.74	437.25
	G		434.60	434.50	434.50	434.50	434.50	434.50	434.50	434.50	434.40	434.60	434.50	434.50
35	P		432.84	432.81	432.78	432.77	432.77	432.79	432.80	432.91	432.83	432.82	432.81	***432.79***
	G		428.70	428.60	428.70	428.70	428.80	428.80	428.80	428.90	428.70	428.70	428.60	428.56
36	P		434.01	434.02	434.01	433.99	433.98	433.99	434.00	433.97	433.95	433.92	433.93	***433.94***
	G		429.90	430.00	429.90	430.00	430.00	430.00	430.00	430.00	430.00	429.90	430.00	429.78
37	P		432.28	432.26	432.26	432.25	432.25	432.24	432.25	432.23	432.20	432.21	432.18	432.19
	G		429.00	429.10	429.10	429.00	429.10	429.00	429.10	428.90	428.90	428.90	428.90	428.85
38	P		438.51	438.48	438.47	438.47	438.48	438.46	438.47	438.45	438.40	438.42	438.39	438.39
	G		434.70	435.30	435.30	435.30	435.40	435.40	435.40	435.40	435.30	435.30	435.30	435.33
39	P		433.48	433.27	433.45	433.46	433.45	433.45	433.46	433.46	***433.41***	***433.40***	***433.35***	***433.69***
	G		429.70	429.80	429.70	429.70	429.80	429.80	429.80	429.80	***429.70***	***429.60***	***429.70***	***429.67***
40	P		438.28	438.25	438.24	438.24	438.24	438.22	438.24	438.23	438.16	438.17	438.13	438.14
	G		434.40	434.40	434.40	434.40	434.40	434.40	434.40	434.40	434.40	434.30	434.30	434.30
41	P		432.39	432.38	432.30	432.34	432.30	432.32	432.31	432.32	432.29	432.30	432.25	432.26
	G		429.00	429.00	428.90	428.90	429.00	429.10	429.10	429.00	429.00	428.90	429.00	428.98
42	P		436.76	436.75	436.70	436.72	436.70	436.70	436.71	436.71	436.72	436.68	436.67	436.65
	G		433.90	433.90	433.70	433.70	433.80	433.90	433.50	433.50	433.50	433.60	433.80	433.77
43	P		435.36	435.31	435.28	435.30	435.28	435.31	435.30	435.25	435.26	435.23	435.21	435.20
	G		432.50	432.40	432.40	432.40	432.40	432.40	432.40	432.40	432.40	432.30	432.30	432.32
44	P		431.26	431.29	431.23	431.24	431.22	431.26	431.24	431.20	431.19	431.17	431.11	431.13
	G		428.50	428.60	428.30	428.50	428.40	428.60	428.50	428.50	428.50	428.50	428.40	428.36
45	P		436.59	436.57	436.53	436.53	436.50	436.51	436.51	436.49	436.49	436.44	436.42	436.43
	G		433.90	433.90	433.70	433.80	433.80	433.80	433.80	433.80	433.80	433.70	433.80	433.77
46	P		431.57	431.56	431.53	431.52	431.51	431.55	431.53	431.49	431.46	431.46	431.42	431.46
	G		428.30	428.30	428.20	428.20	428.20	428.40	428.30	428.30	428.30	428.30	428.30	428.25
47	P		428.82	428.82	428.78	428.77	428.74	428.79	428.78	428.72	428.72	***428.48***	***428.47***	***428.50***
	G		427.00	426.90	426.80	427.00	426.90	427.00	427.00	426.90	426.90	***426.80***	***426.80***	***426.65***
48	P		433.87	433.87	433.82	433.84	433.79	433.81	433.81	433.75	433.74	433.72	433.66	433.68
	G		431.20	431.20	431.00	431.10	431.20	431.20	431.20	431.20	431.10	431.10	431.10	431.07
49	P		430.34	430.31	430.26	430.26	430.23	430.20	430.19	430.18	430.17	430.13	***430.04***	***430.05***
	G		427.40	427.50	427.40	427.50	427.50	427.50	427.50	427.50	427.50	427.40	***427.30***	***427.34***
50	P		436.58	436.61	436.48	436.46	436.39	***436.29***	**	**	**	**	**	
	G		433.90	433.90	433.80	433.90	433.90	433.90	**	**	**	**	**	

(1)	Information provided by NYSDEC and is reportedly from C&S Companies Final Closure Drawings dated August 1987.
(2)	Surveyed elevations of Plates 1, 3, 4, and 11 were taken at top of pipe as no stripe was visible at the time of monitoring.
428.5	Pipe is bent.
**	Settlement Plate is destroyed.
P	Plate elevation at top of stripe unless otherwise indicated.
G	Ground elevation on north side of plate.

NOTES:

1. NUMBERS INDICATE DIFFERENCE BETWEEN 2001 BASELINE ELEVATIONS AND 2017 SURVEYED ELEVATIONS.
2. * - NO STRIPE IDENTIFIABLE ON SETTLEMENT PLATE, SURVEYED TOP OF PIPE.
3. ** - SETTLEMENT PLATE CUT DOWN DURING AMPHITHEATER CONSTRUCTION, SURVEYED TOP OF PIPE.
4. *** - SETTLEMENT PLATE BASELINE ELEVATION FROM 1987 AND APPEARS TO BE REFERENCING A DIFFERENT DATUM BASED ON OBSERVED INCREASE IN PLATE ELEVATION. ALSO TOP OF PIPE WAS SURVEYED BECAUSE NO STRIPE WAS IDENTIFIABLE ON THE SETTLEMENT PLATE.
5. 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.
6. 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
2017 Annual Groundwater Monitoring

Appendix G
Settlement Plate Data

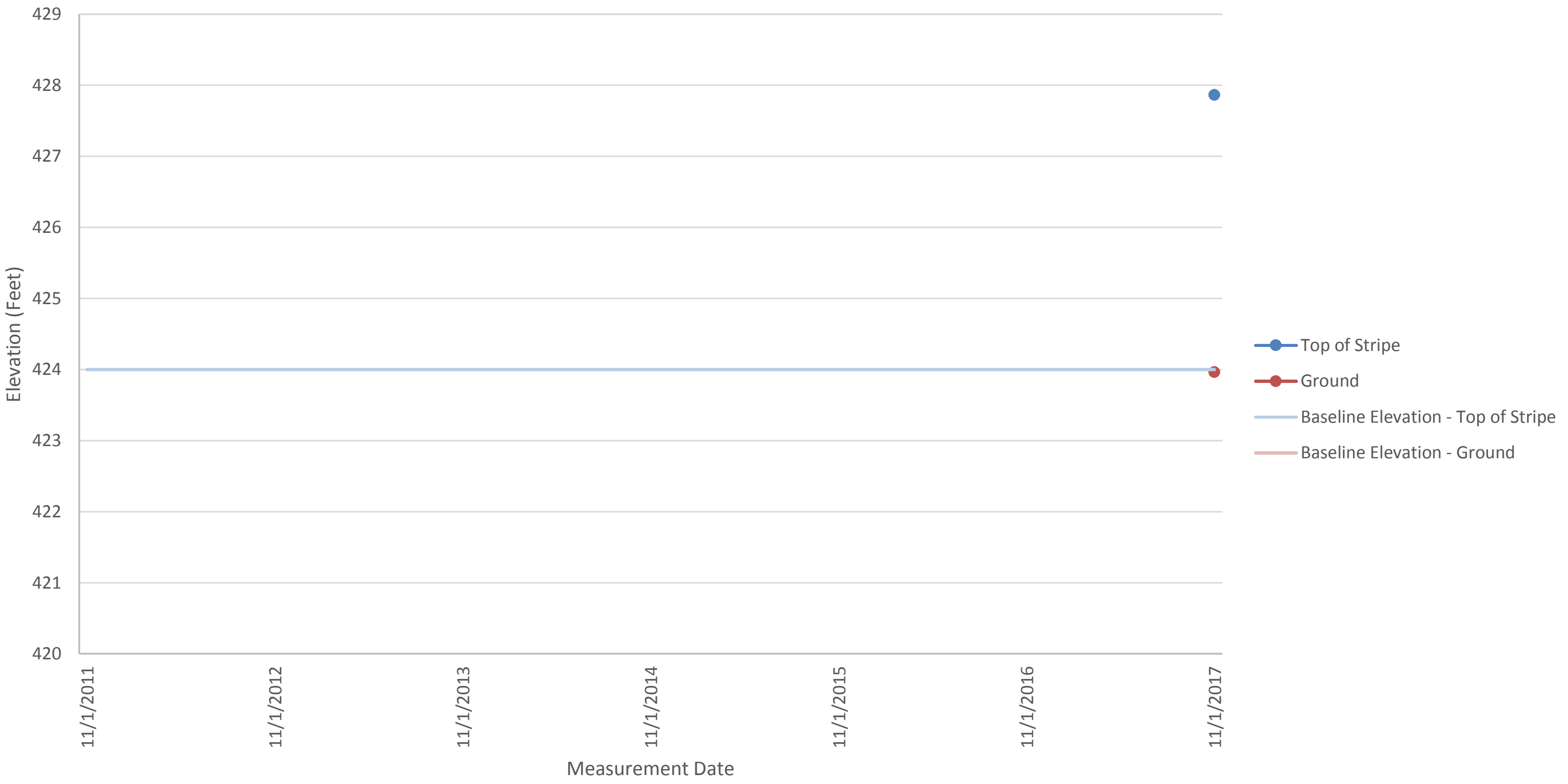
Job Number	86-18809
Revision	A
Date	01.12.2018

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: 16 January 2018 - 4:05 PM Cad File No: G:\86\18809\Groundwater Monitoring\2017 Annual\Figures\Appendix G - Settlement Map.dwg

Appendix G
Settlement Plate Plots
October 2017 Monitoring Event



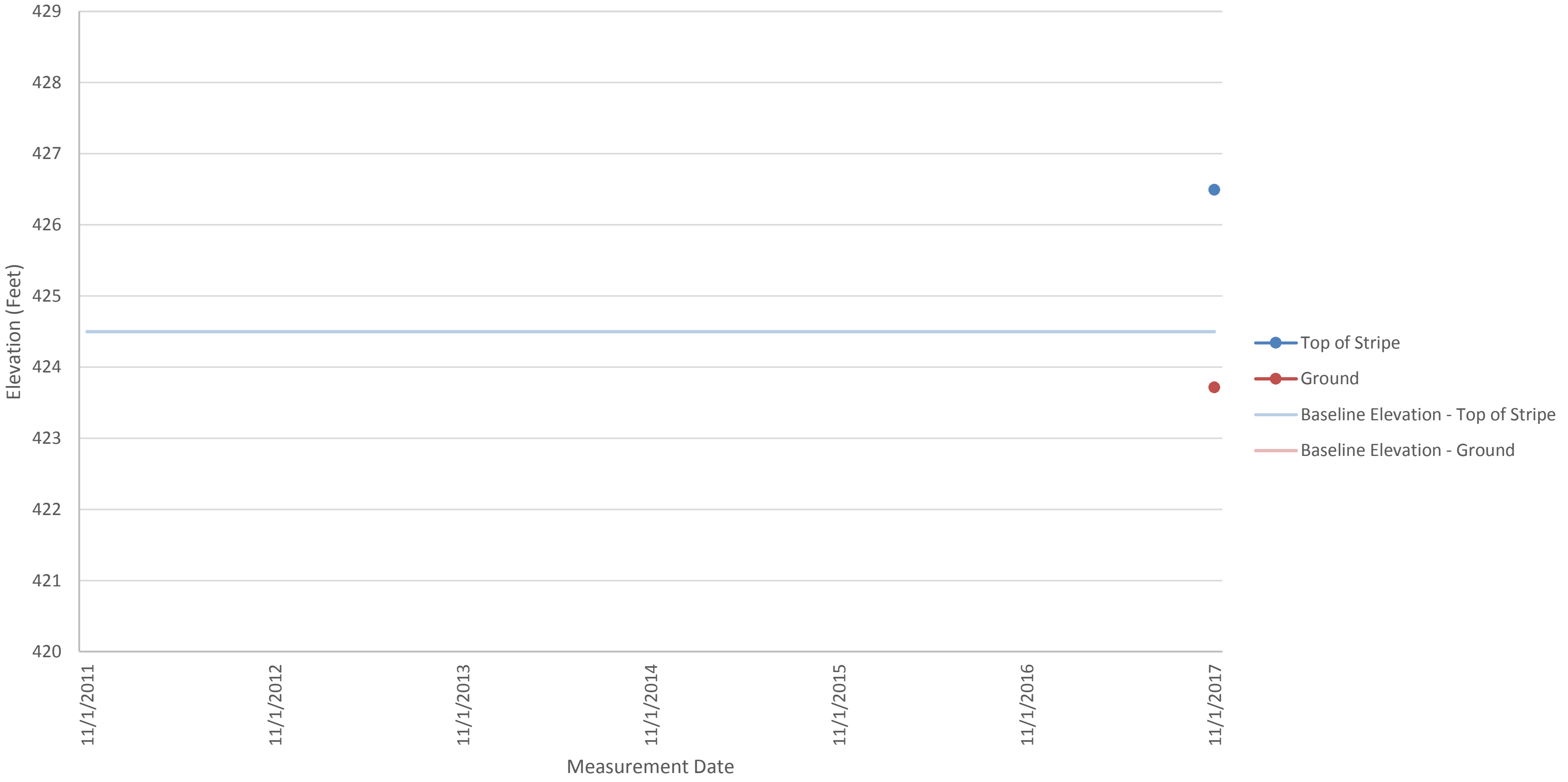
Appendix G - Settlement Plate Plots
Plate No. 1

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 1987 measurement

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

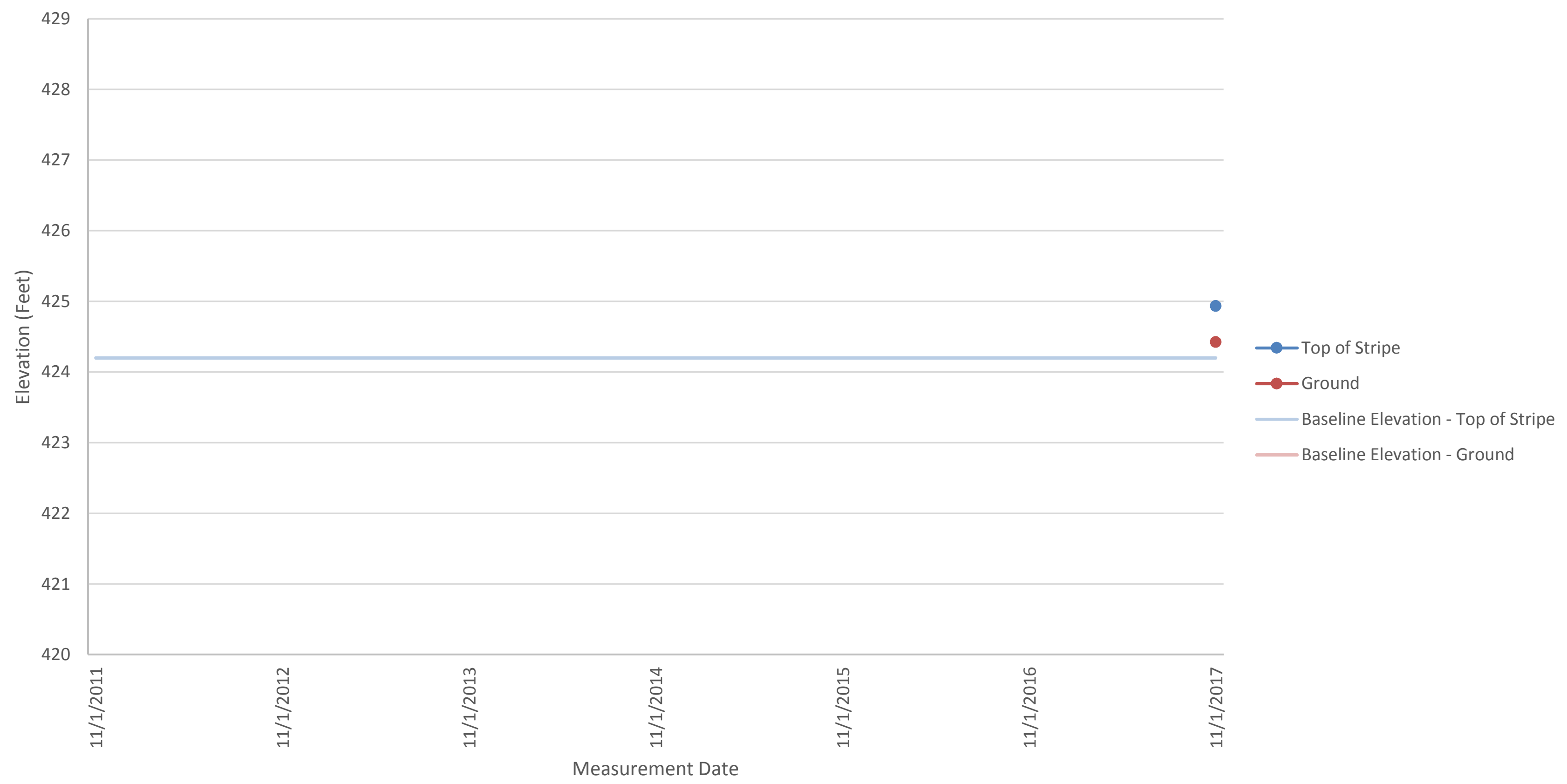
Plate No. 3

Baseline elevation is 1987 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

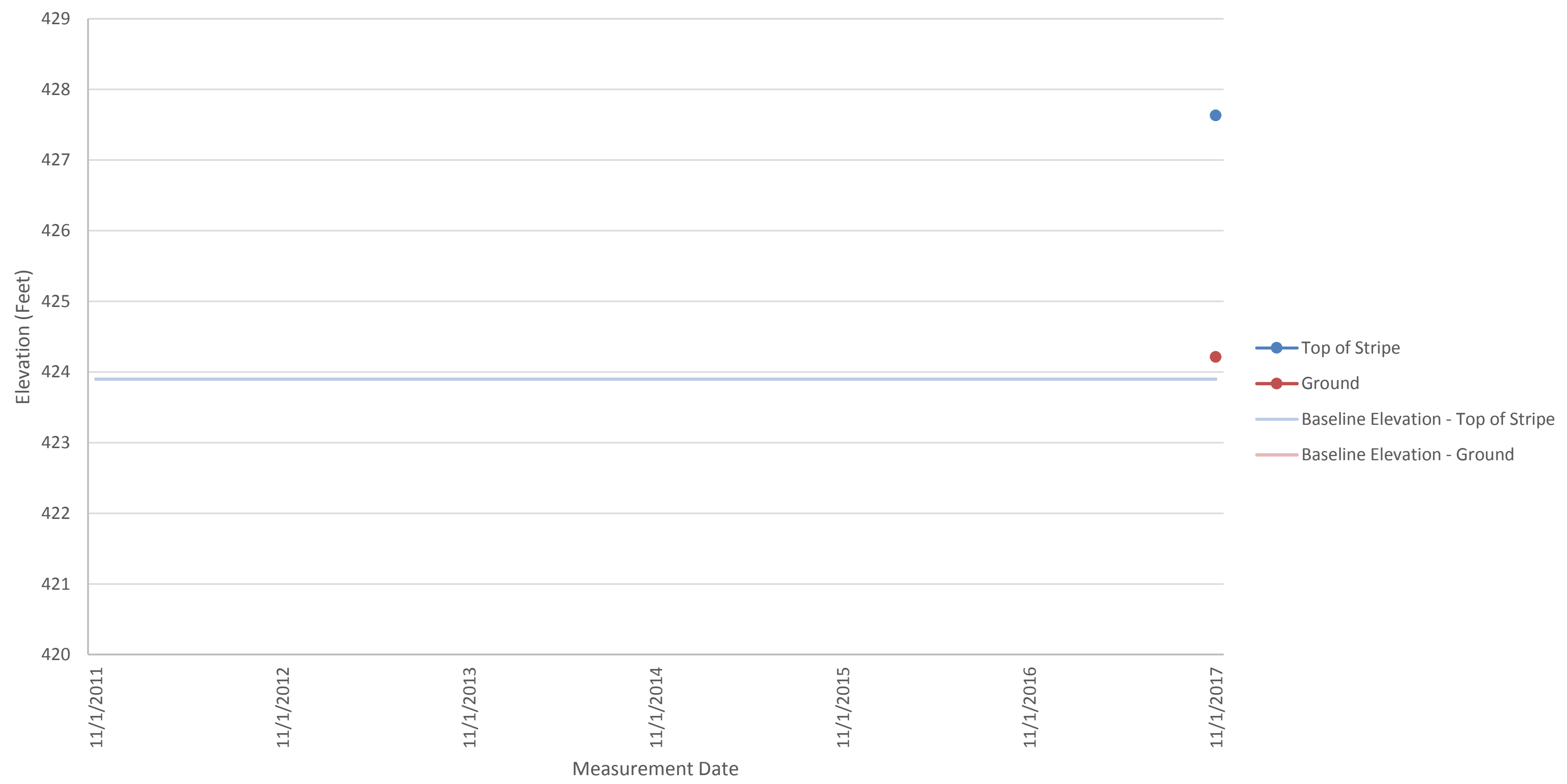
Plate No. 4

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 1987 measurement

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event

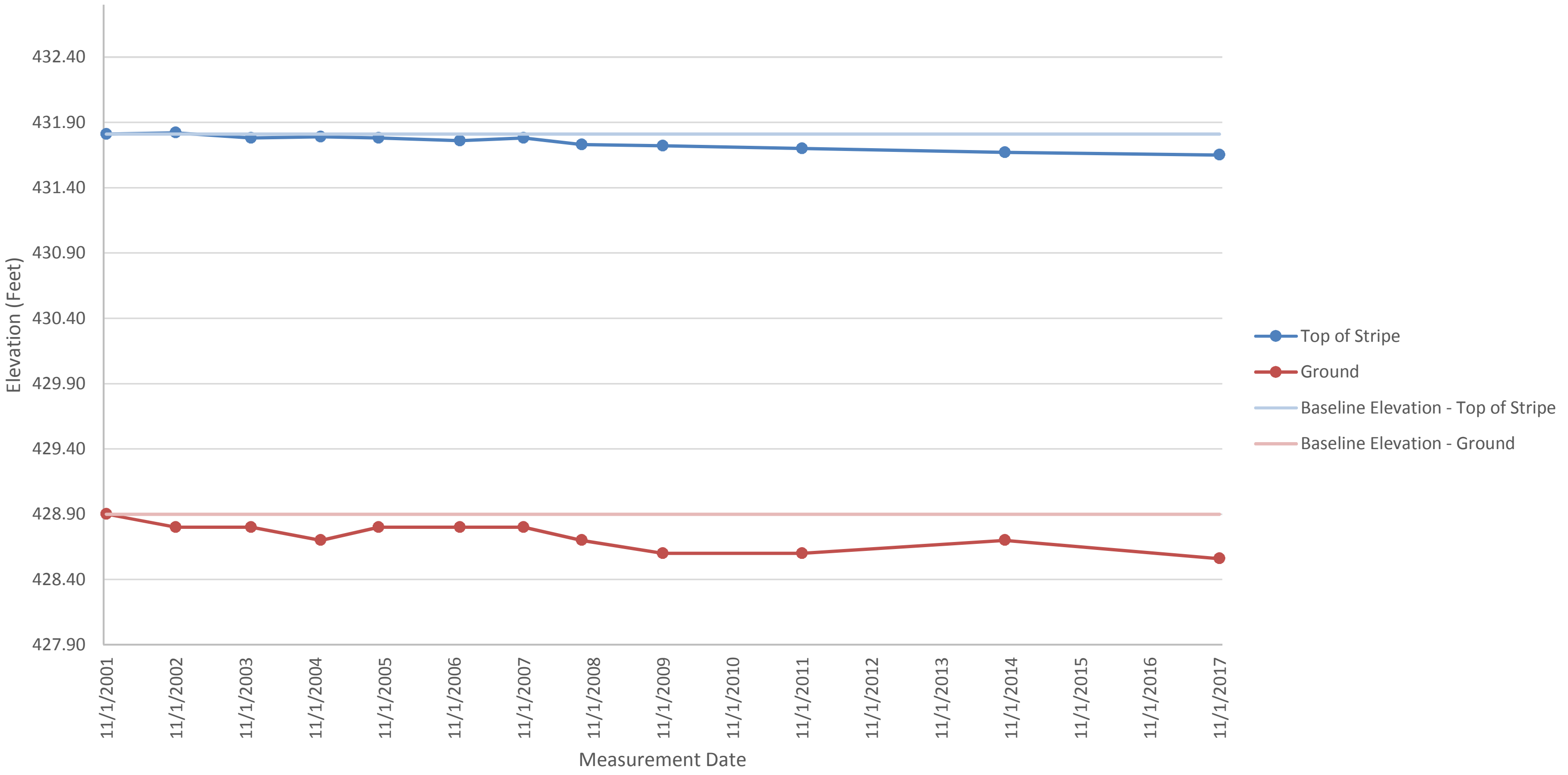


Appendix G - Settlement Plate Plots

Plate No. 11

Baseline elevation is 1987 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	



Appendix G - Settlement Plate Plots

Plate No. 12

Date: Nov 17
Drawn: mlw
Scale: nts
Chk'd:
Original:
Rev:
File Reference:

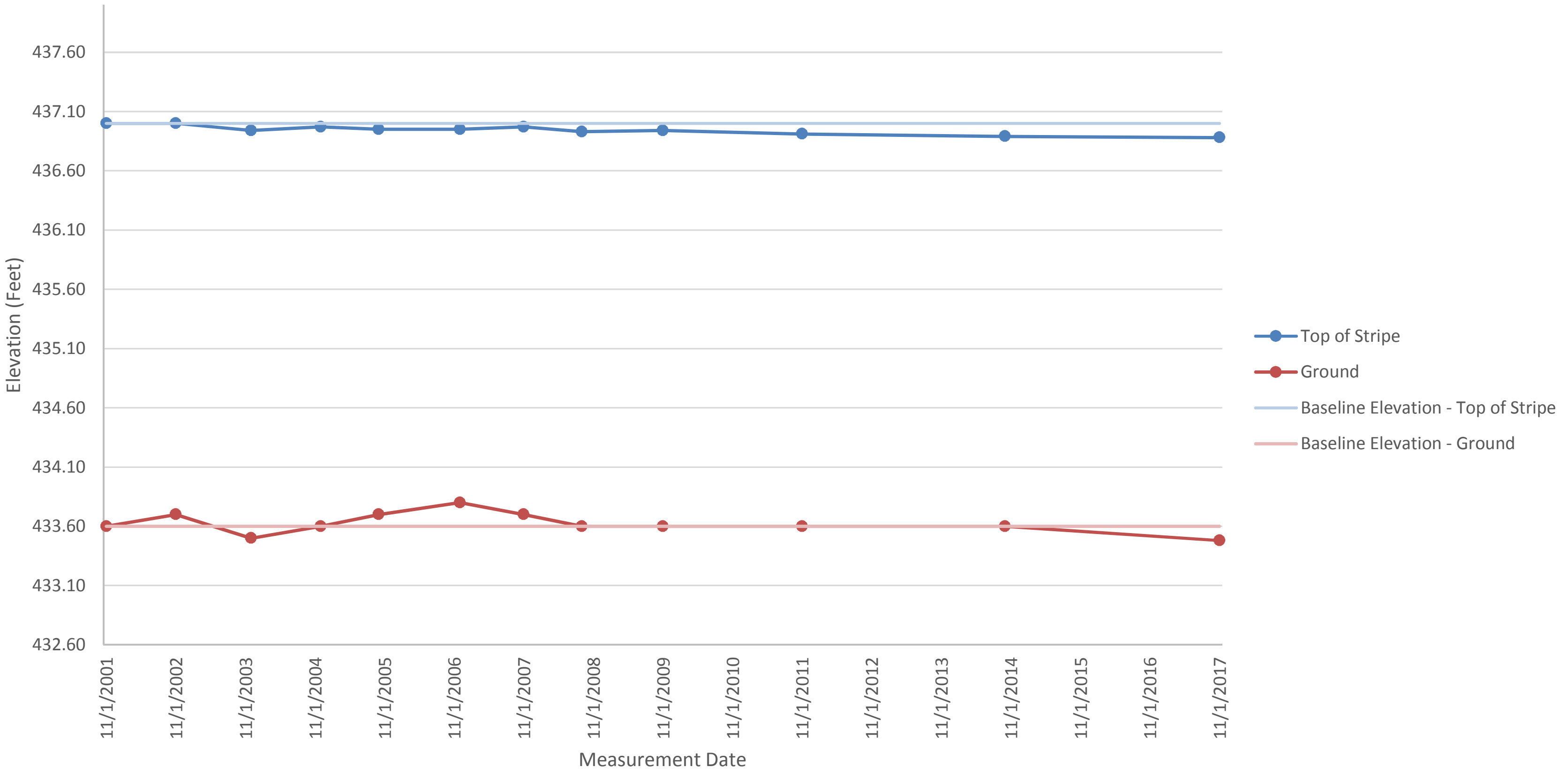
Baseline elevation is 2001 measurement

Appendix G

Settlement Plate Plots

October 2017 Monitoring Event

EnPro Holdings, Inc.
Former Crucible Specialty Metals Landfill
86-18809



Appendix G - Settlement Plate Plots

Plate No. 13

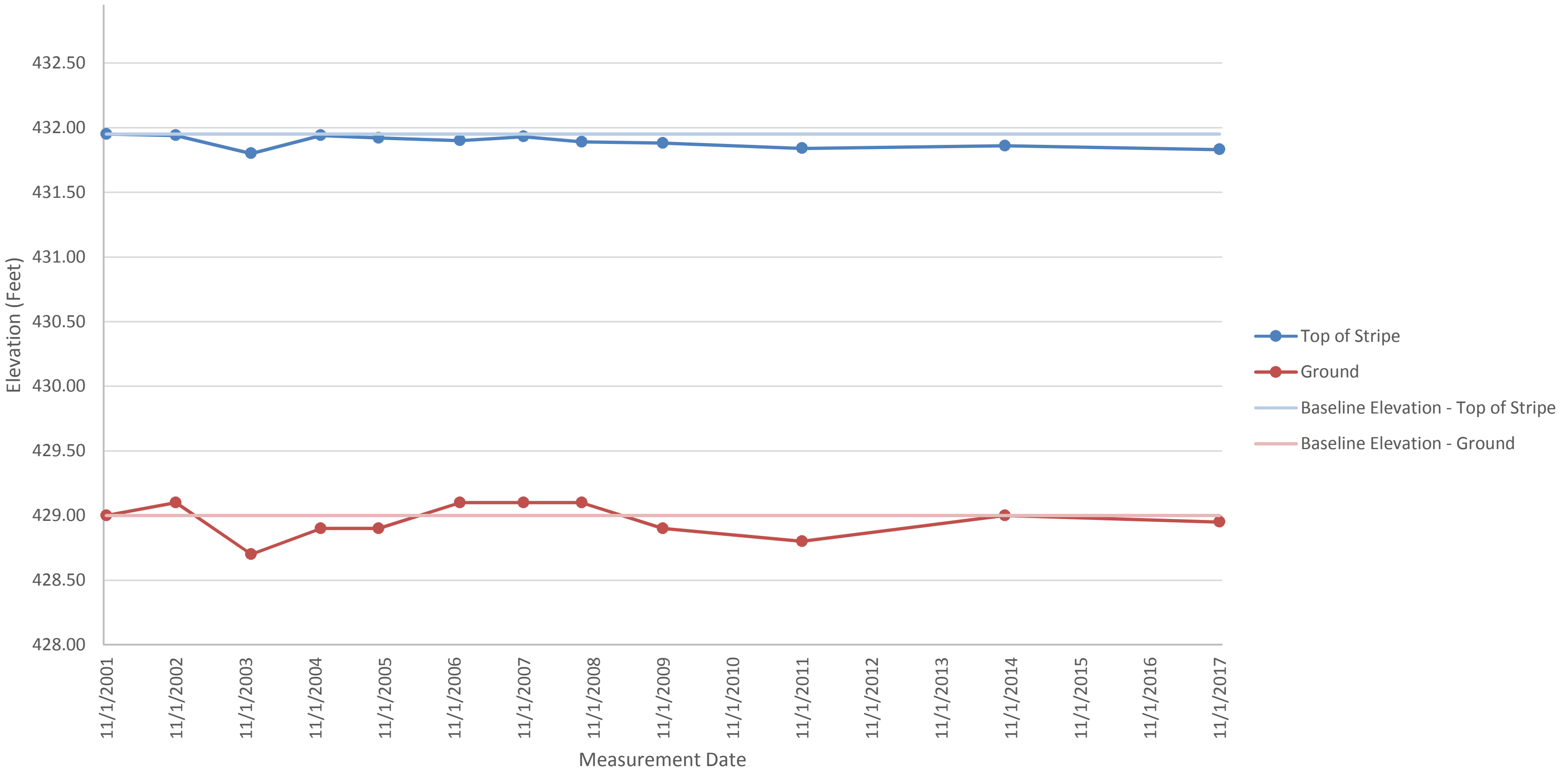
Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

G:\86\18809\Groundwater Monitoring\2017 Annual\Appendices\Appendix G - Settlement Plate Plots with Ground

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

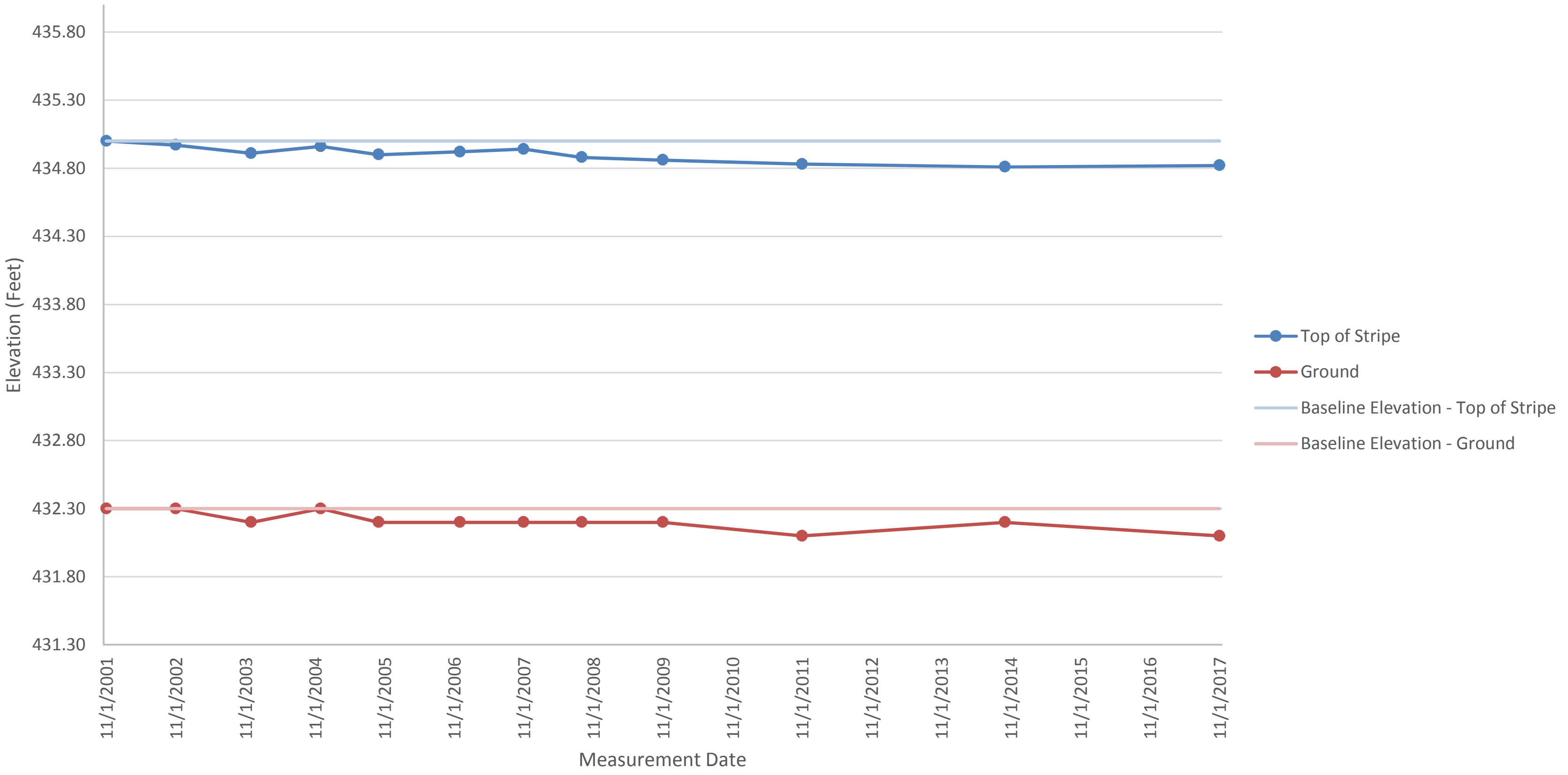
Plate No. 14

Baseline elevation is 2001 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

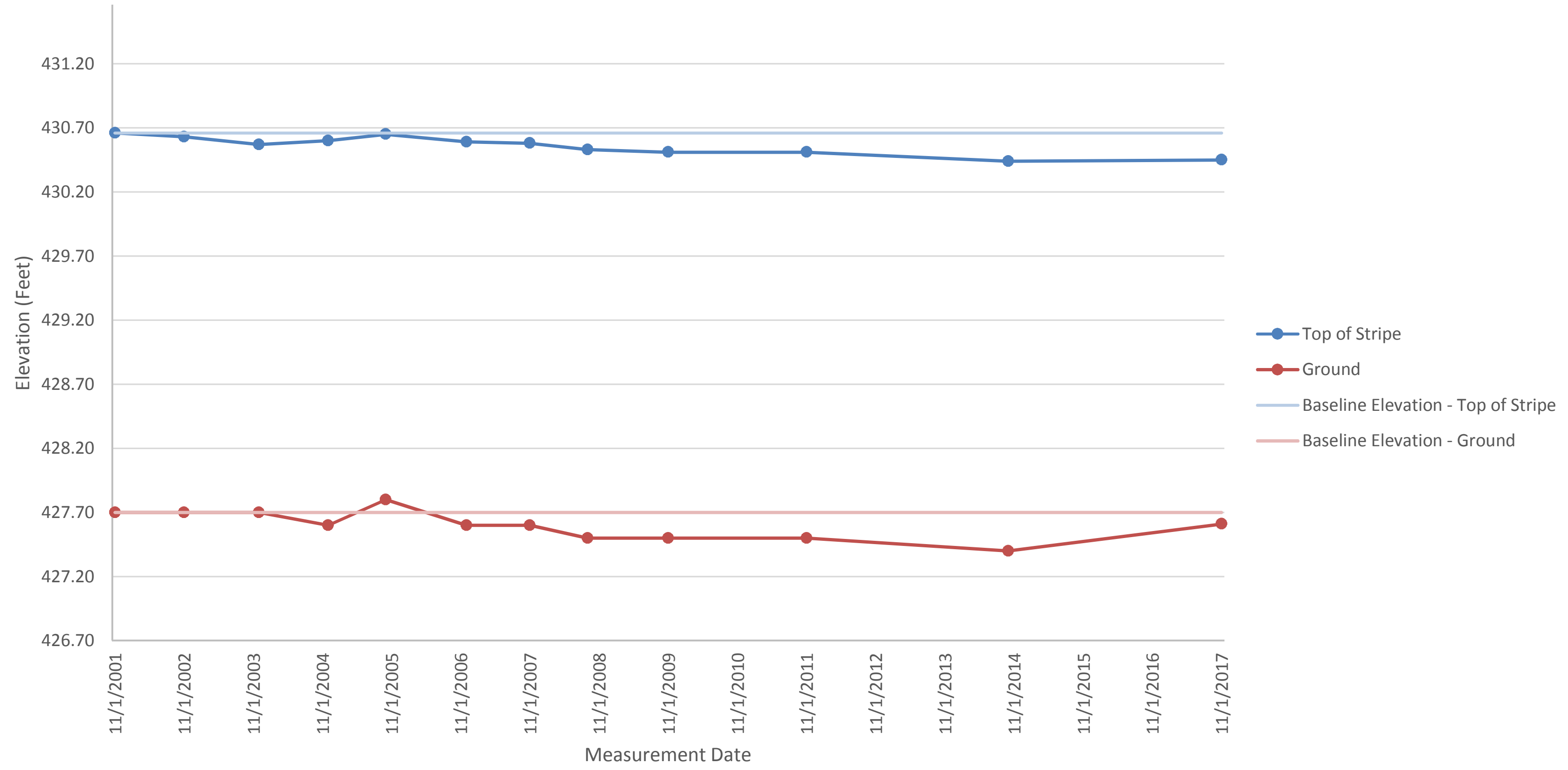
Plate No. 15

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

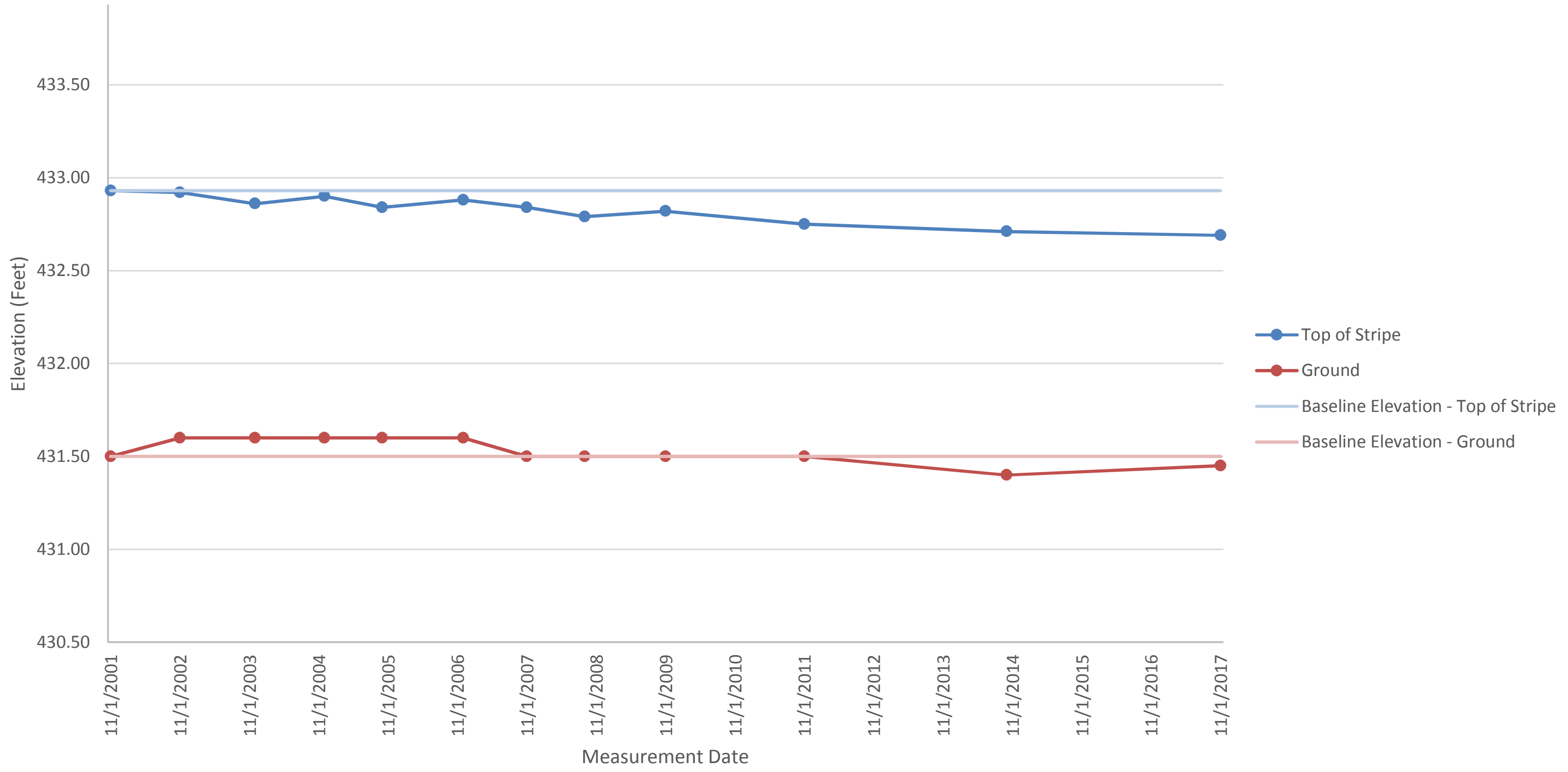
Plate No. 16

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

Plate No. 17

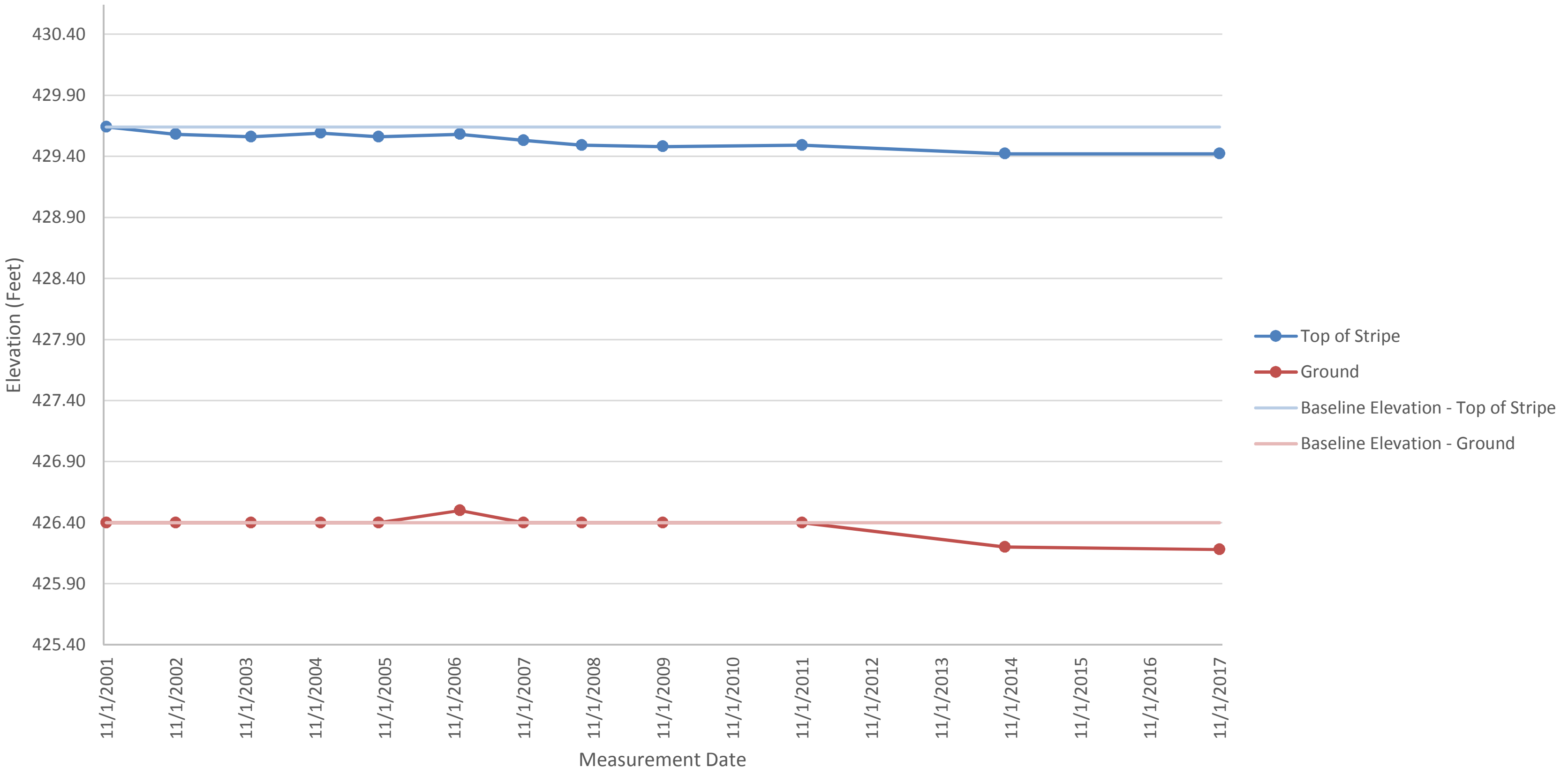
Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event

EnPro Holdings, Inc.
Former Crucible Specialty Metals Landfill
86-18809



Appendix G - Settlement Plate Plots

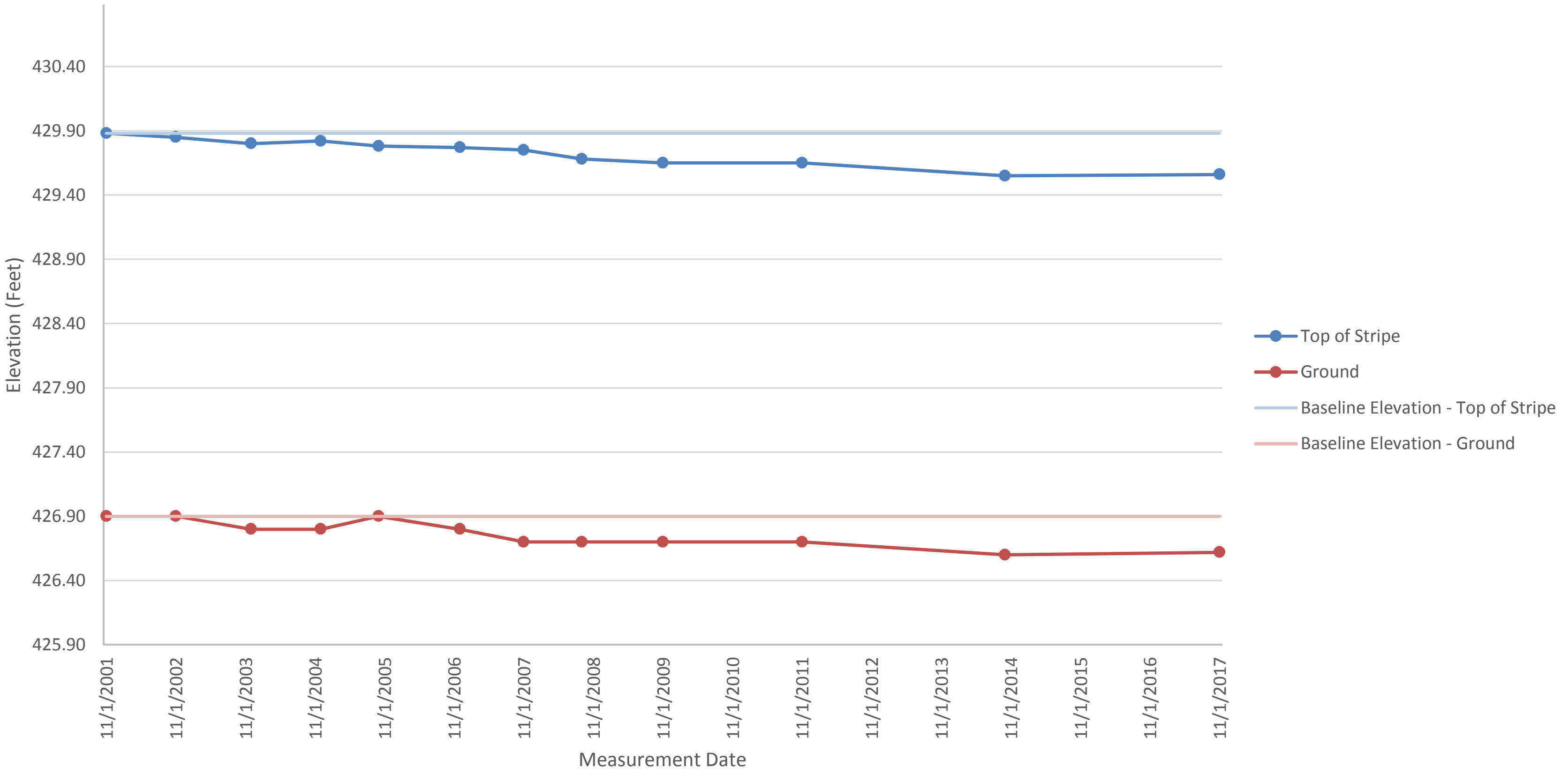
Plate No. 18

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



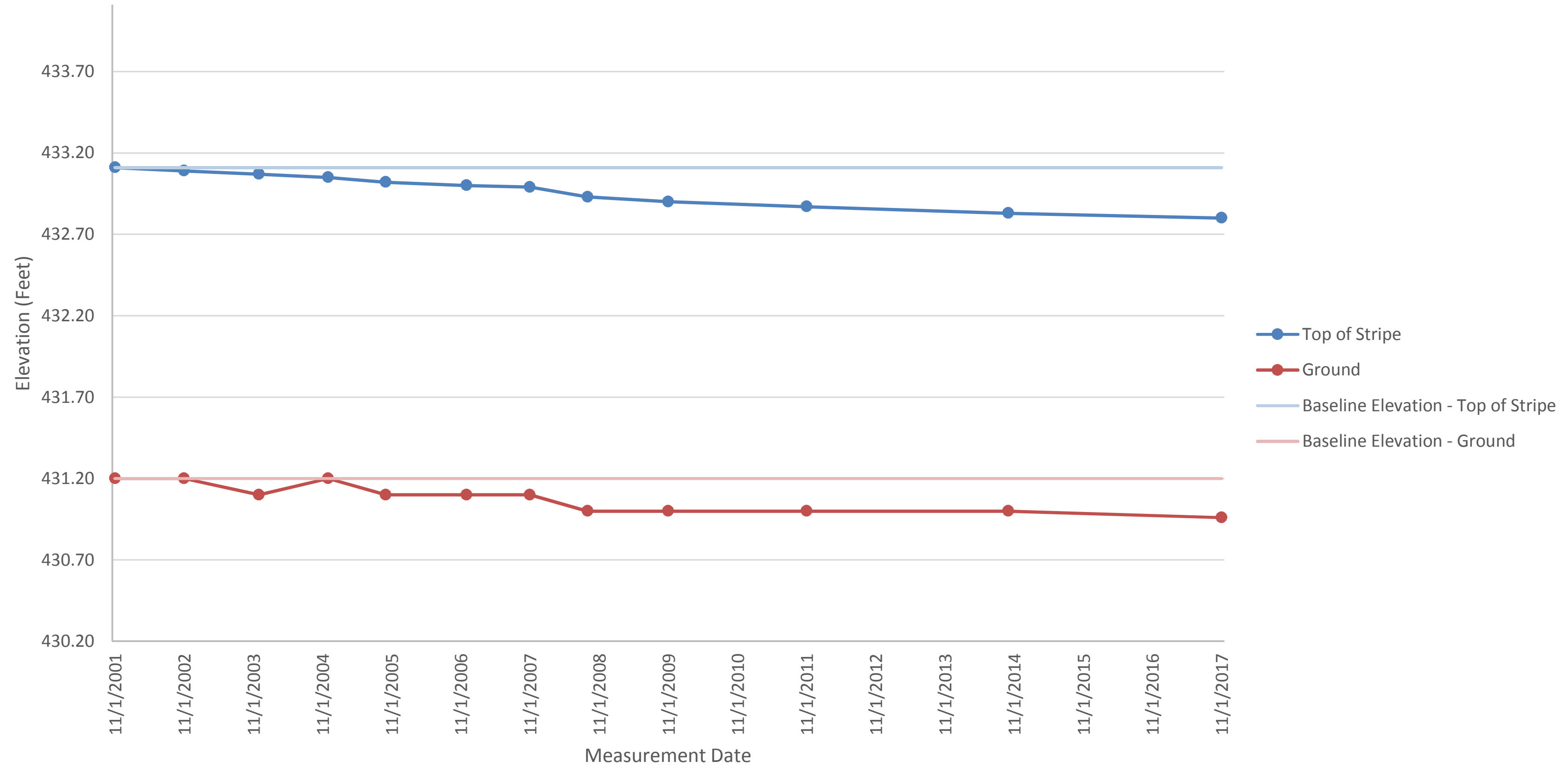
Appendix G - Settlement Plate Plots

Plate No. 19

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

Appendix G
Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

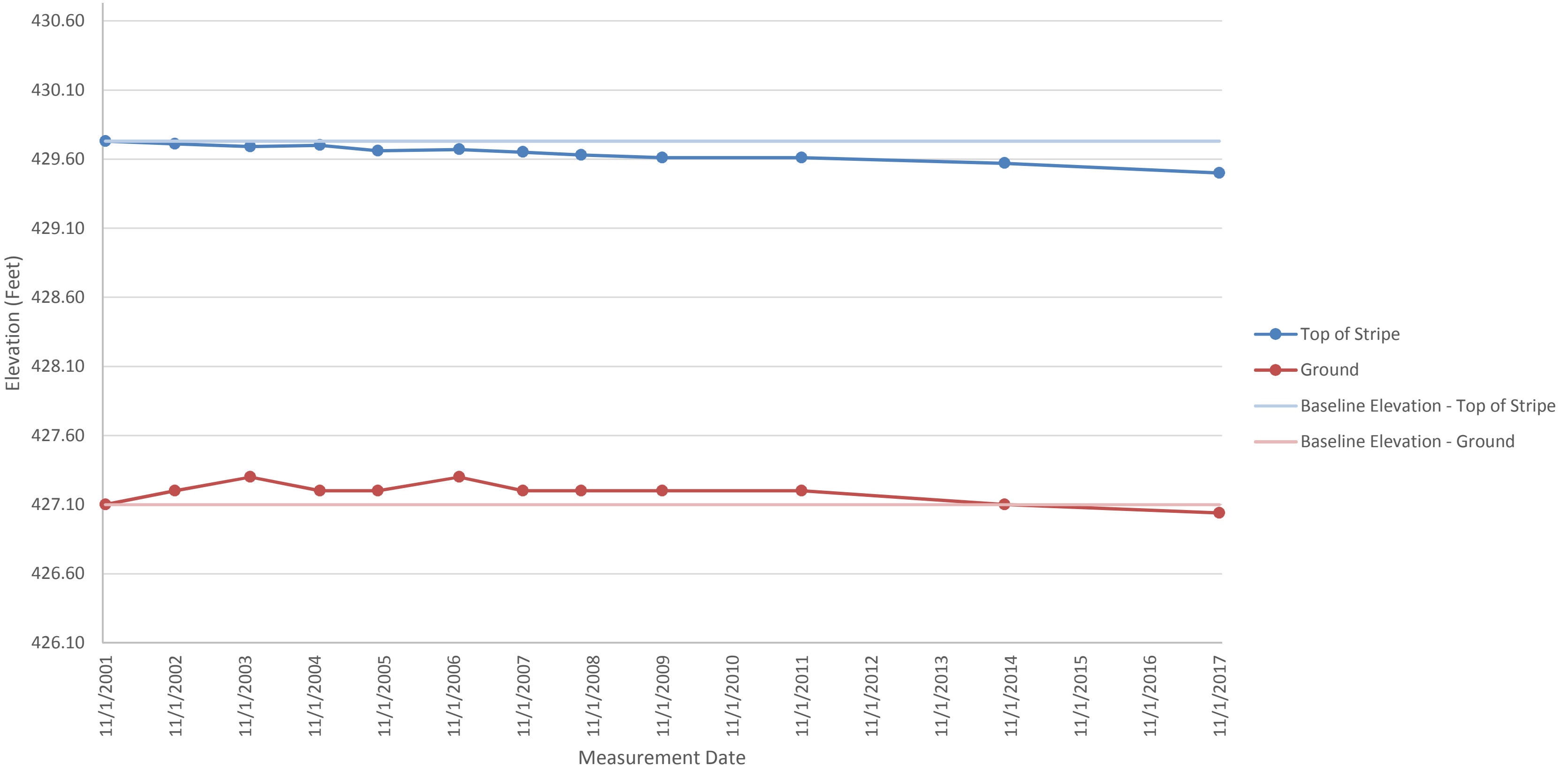
Plate No. 20

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

Plate No. 21

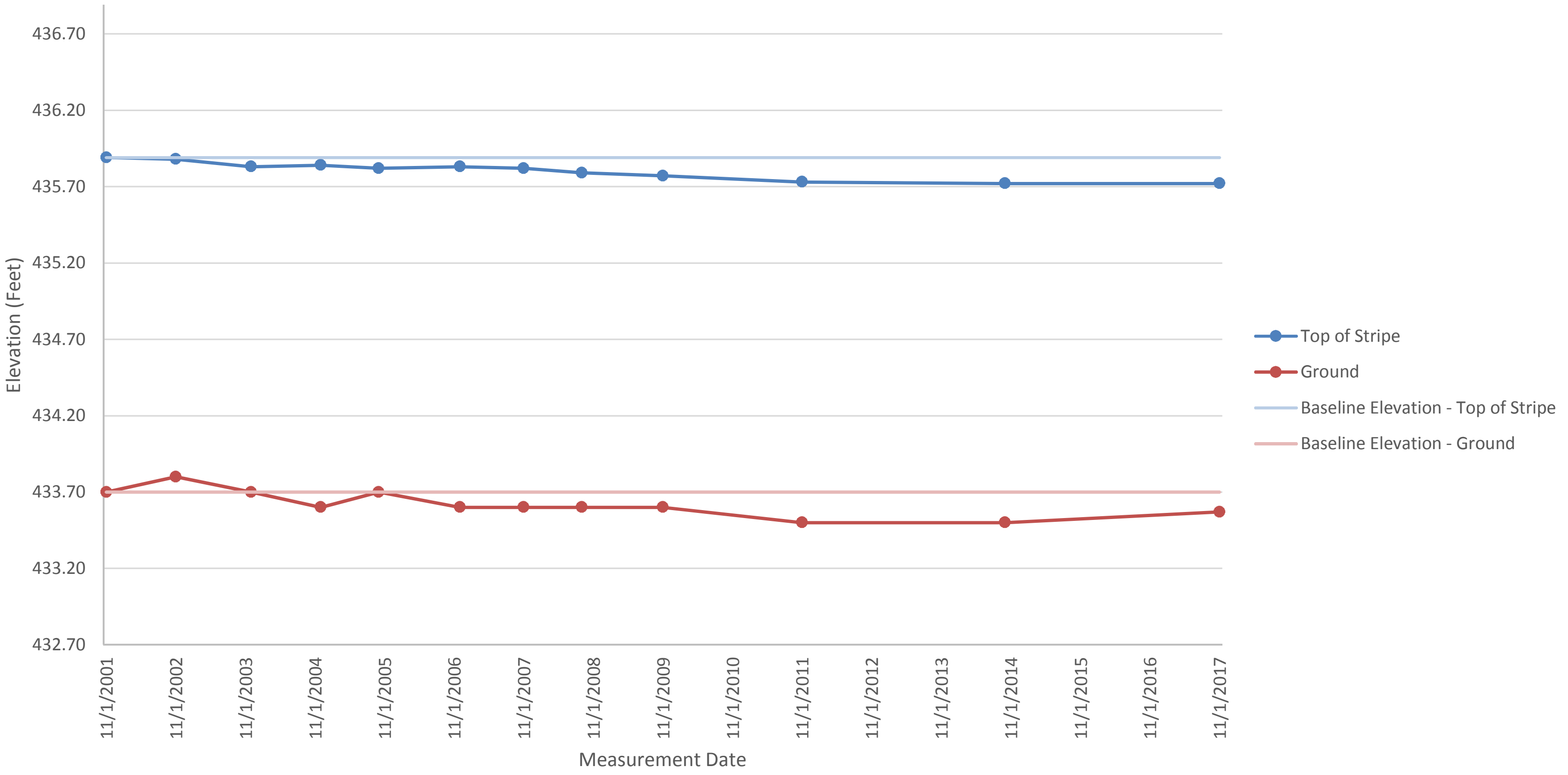
Baseline elevation is 2001 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event

EnPro Holdings, Inc.
Former Crucible Specialty Metals Landfill
86-18809



Appendix G - Settlement Plate Plots

Plate No. 22

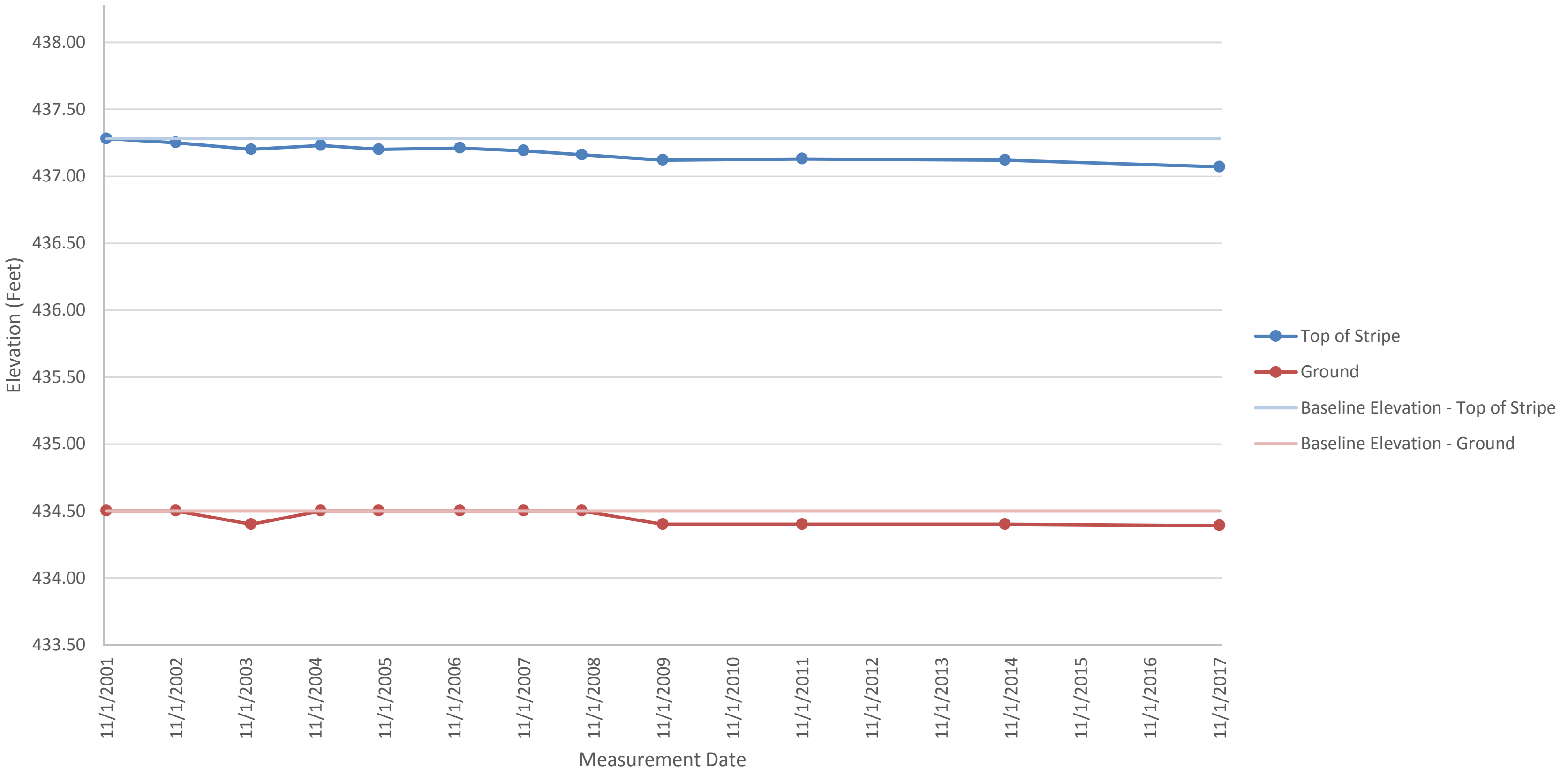
Baseline elevation is 2001 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

G:\86\18809\Groundwater Monitoring\2017 Annual\Appendices\Appendix G - Settlement Plate Plots with Ground

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

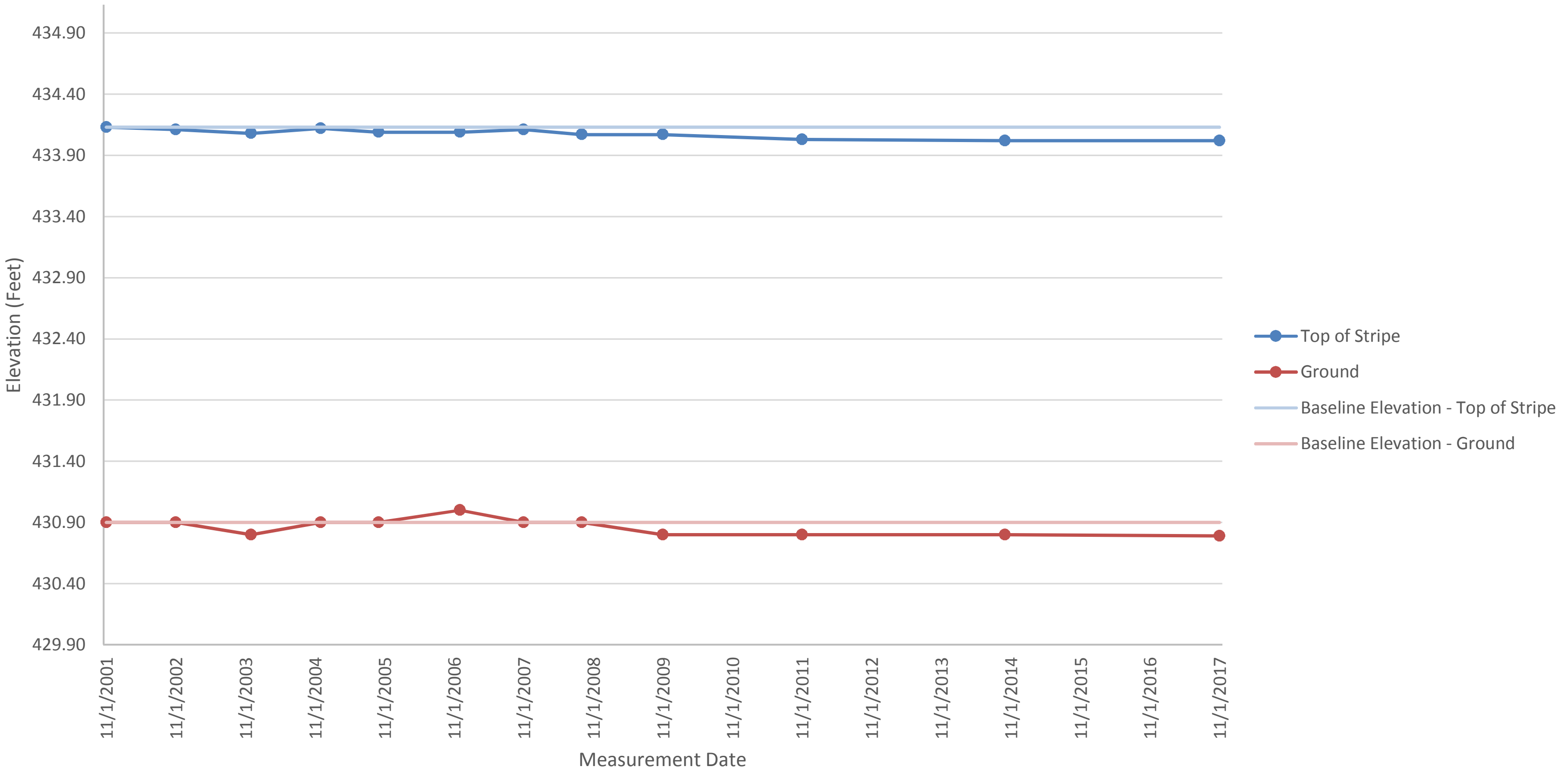
Plate No. 23

Baseline elevation is 2001 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

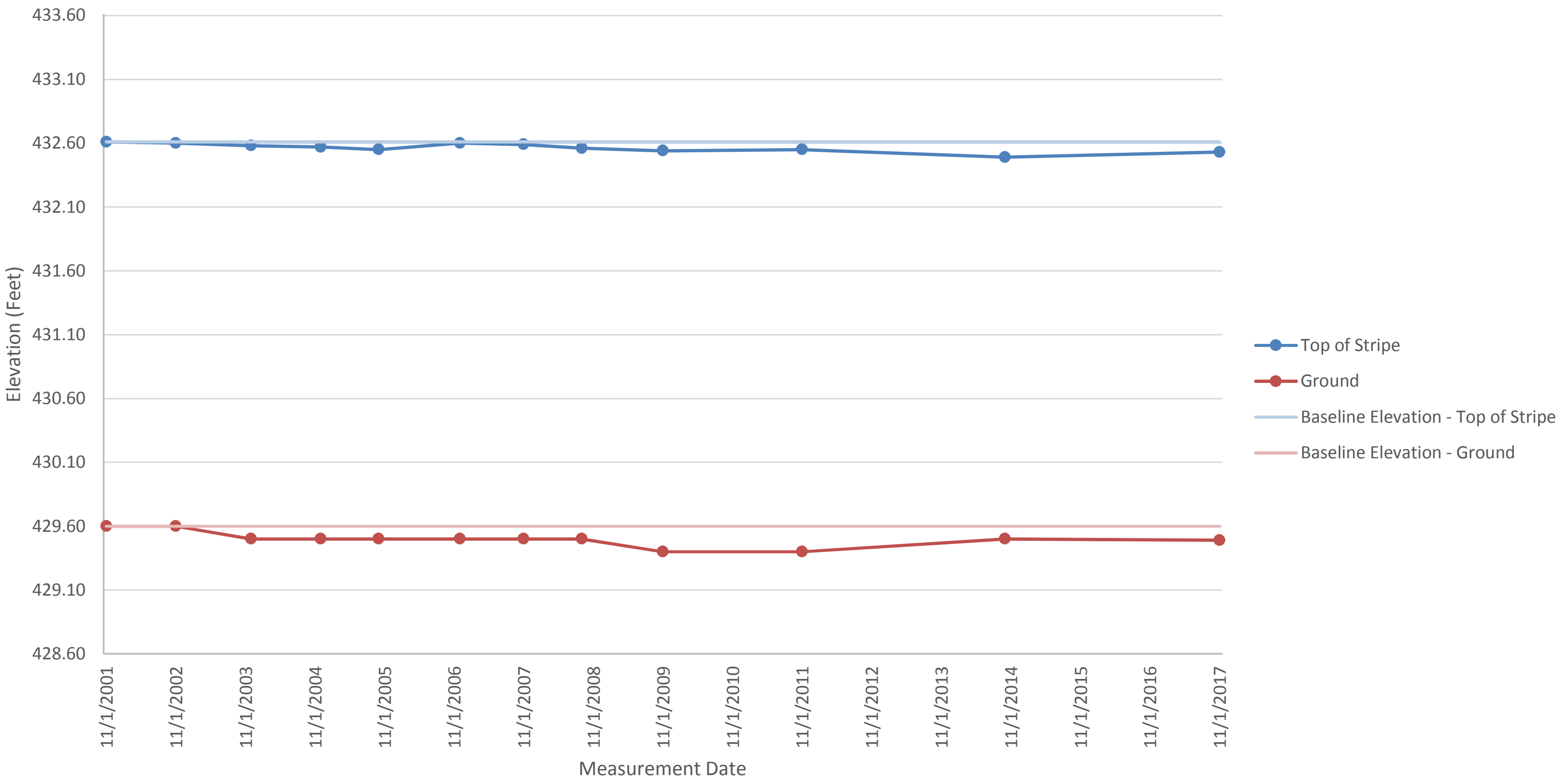
Plate No. 24

Baseline elevation is 2001 measurement

Date: Nov 17	Drawn: mlw
Scale: nts	Chk'd:
Original:	Rev:
File Reference:	

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



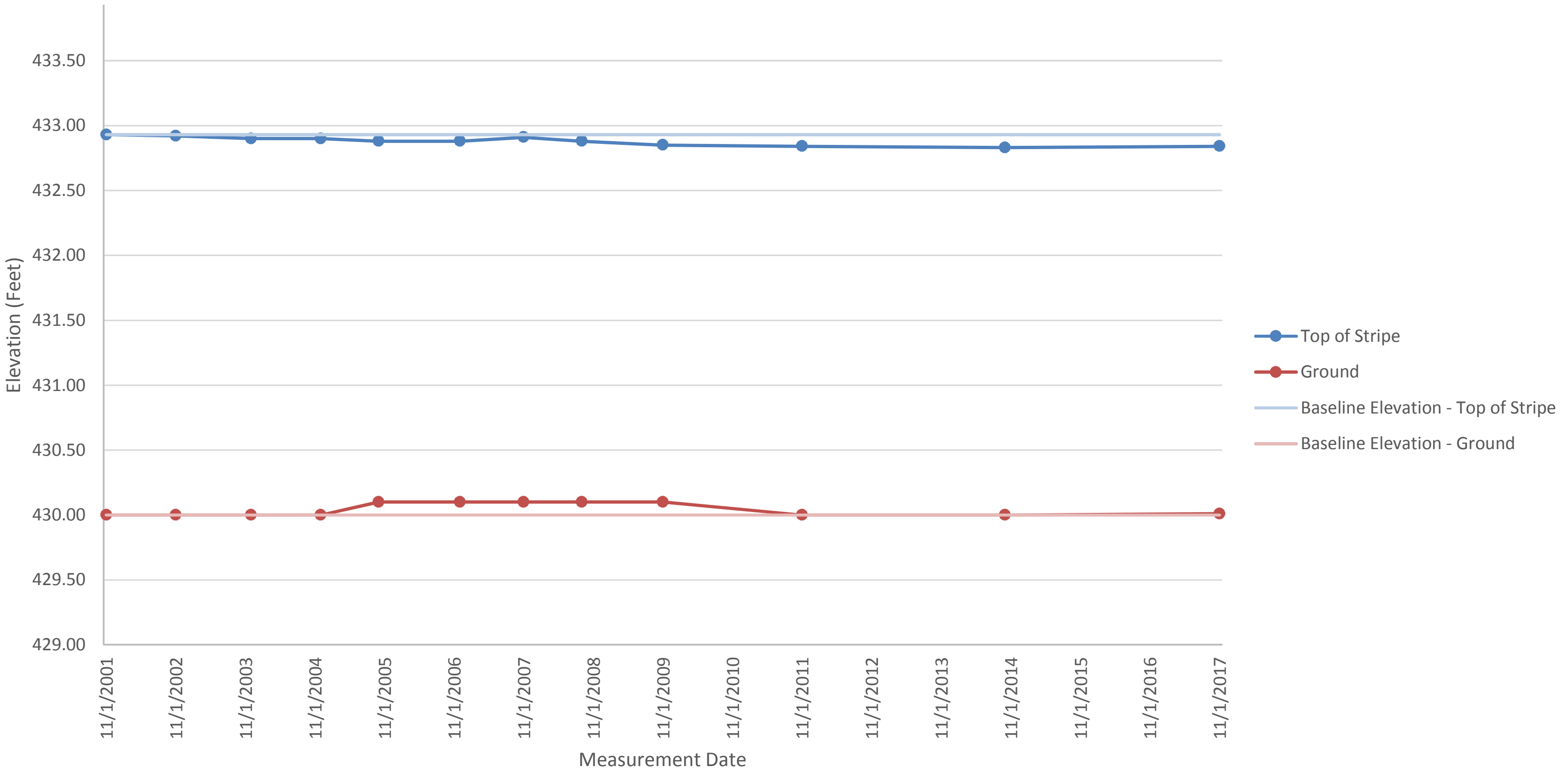
Appendix G - Settlement Plate Plots

Plate No. 26

Baseline elevation is 2001 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Appendix G
Settlement Plate Plots
October 2017 Monitoring Event



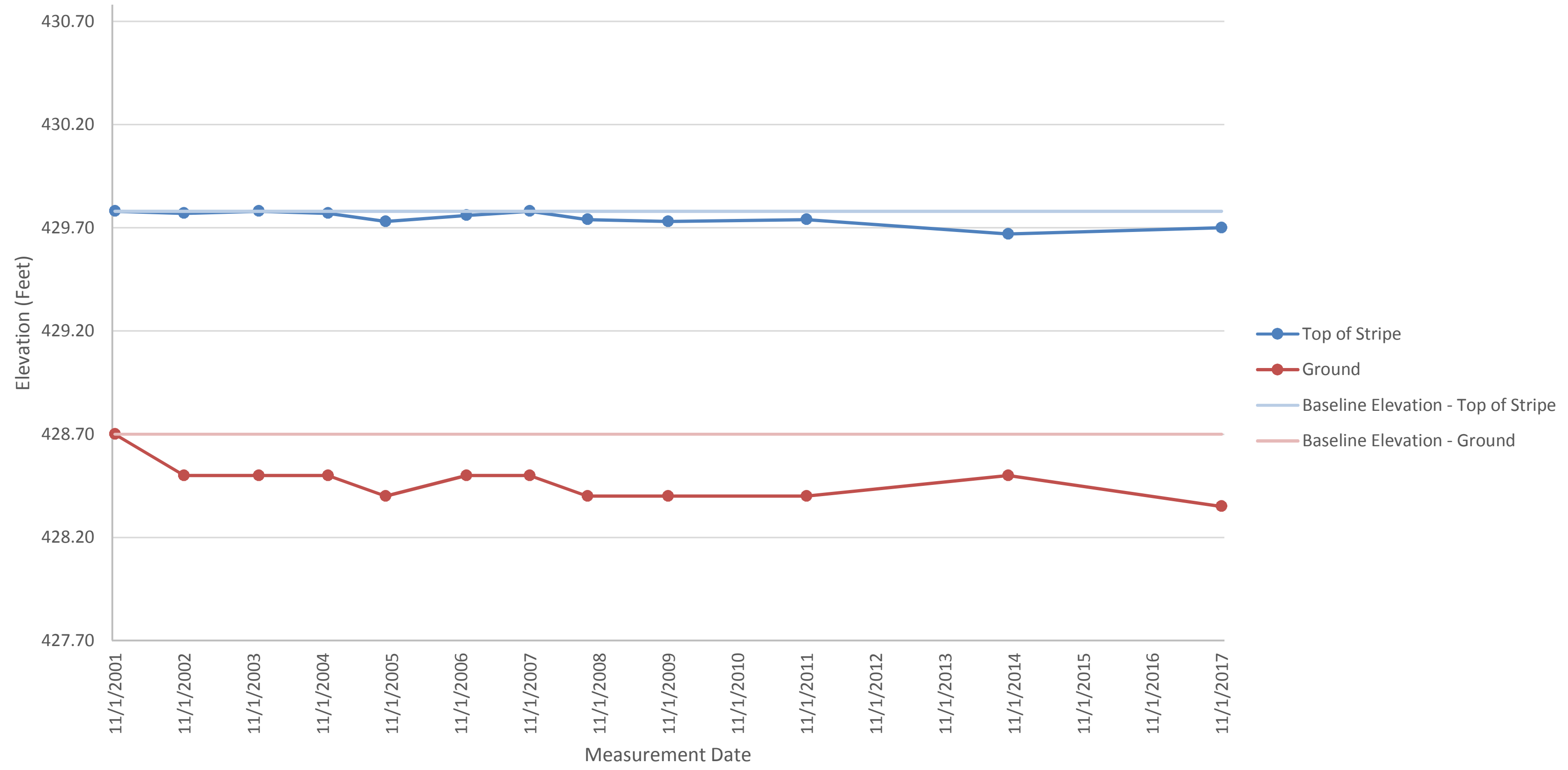
Appendix G - Settlement Plate Plots

Plate No. 27

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

Appendix G
Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

Plate No. 28

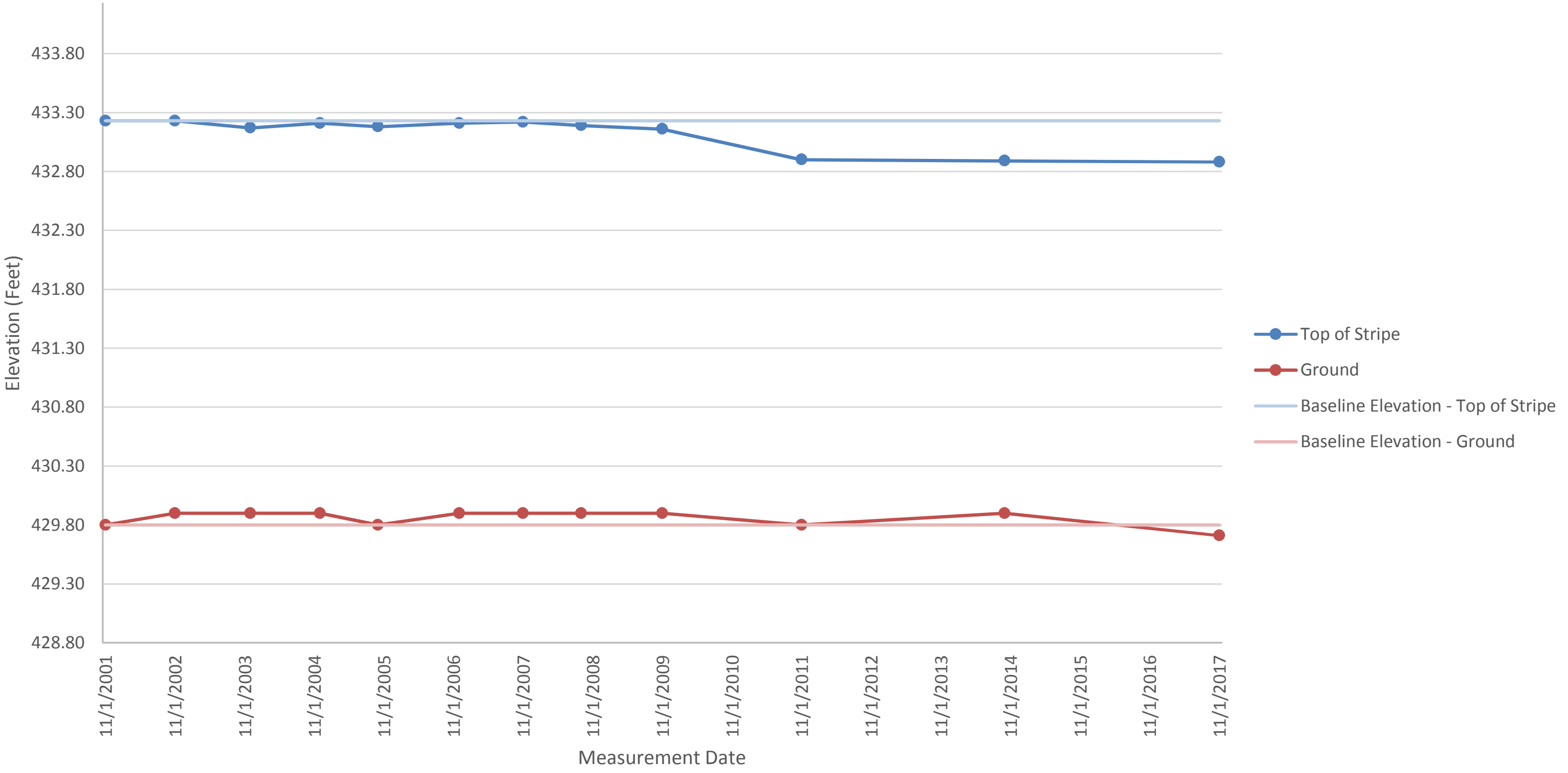
Baseline elevation is 2001 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event

EnPro Holdings, Inc.
Former Crucible Specialty Metals Landfill
86-18809

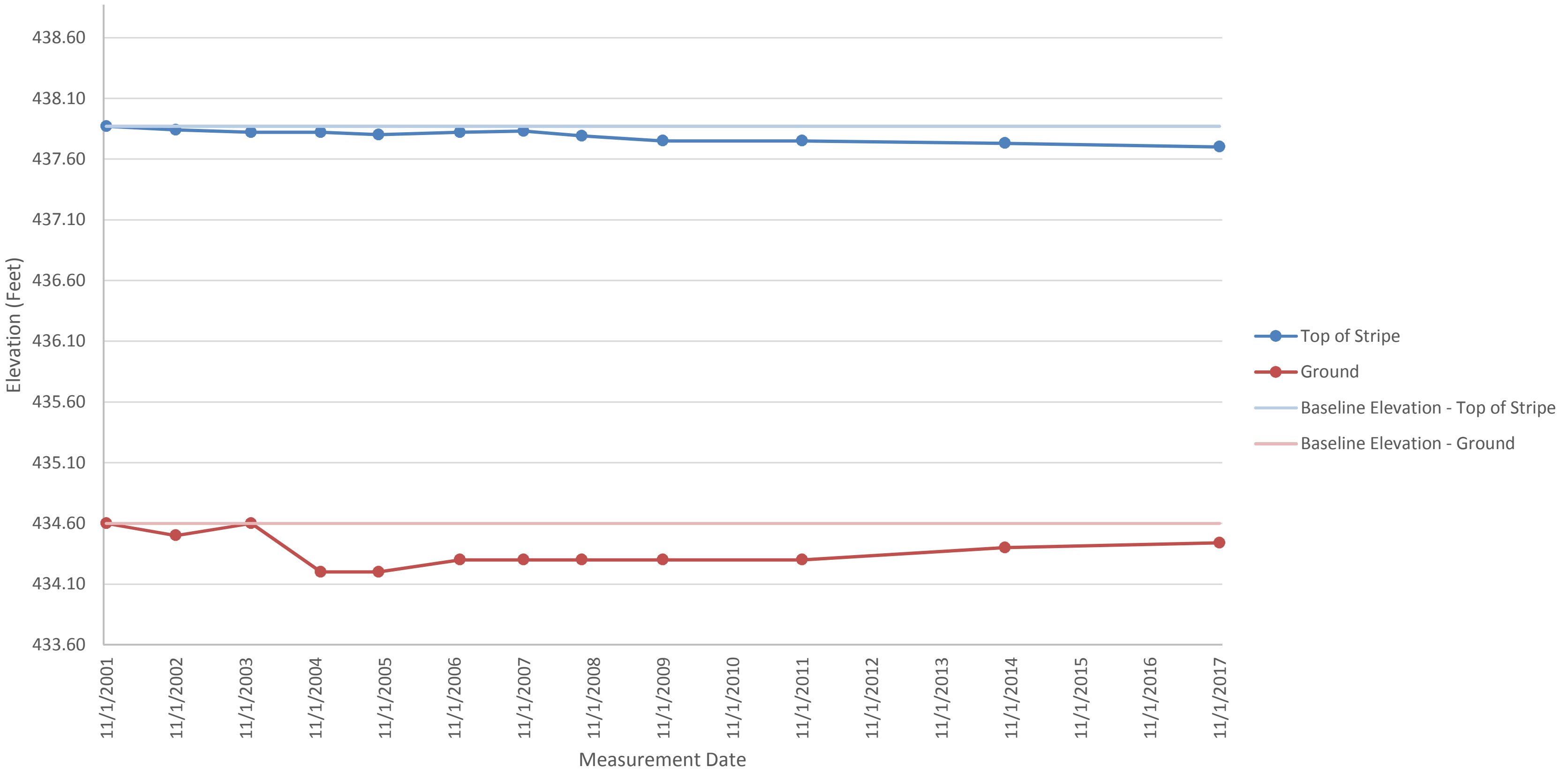


Appendix G - Settlement Plate Plots

Plate No. 29

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement



Appendix G - Settlement Plate Plots

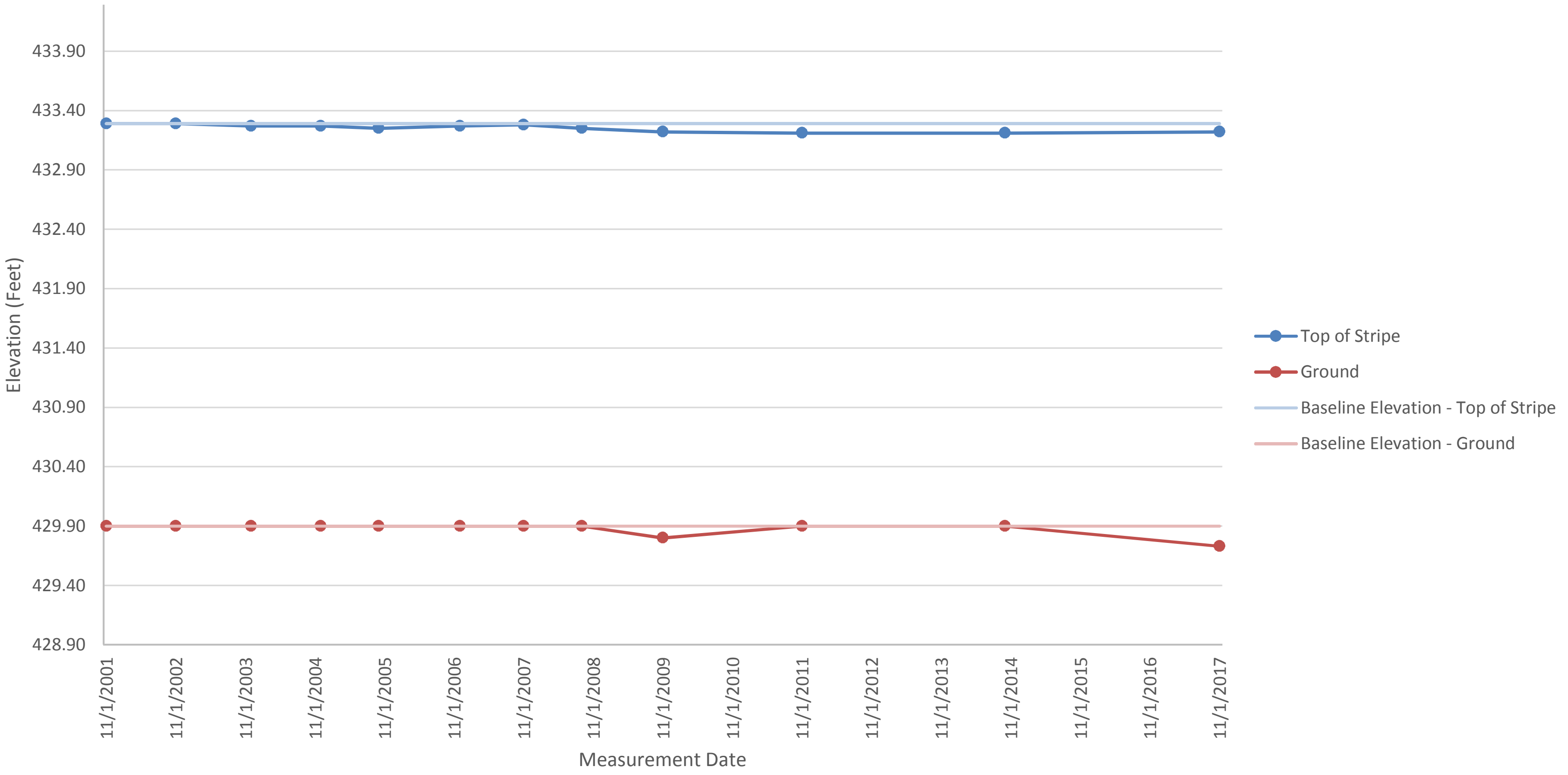
Plate No. 30

Baseline elevation is 2001 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

Plate No. 31

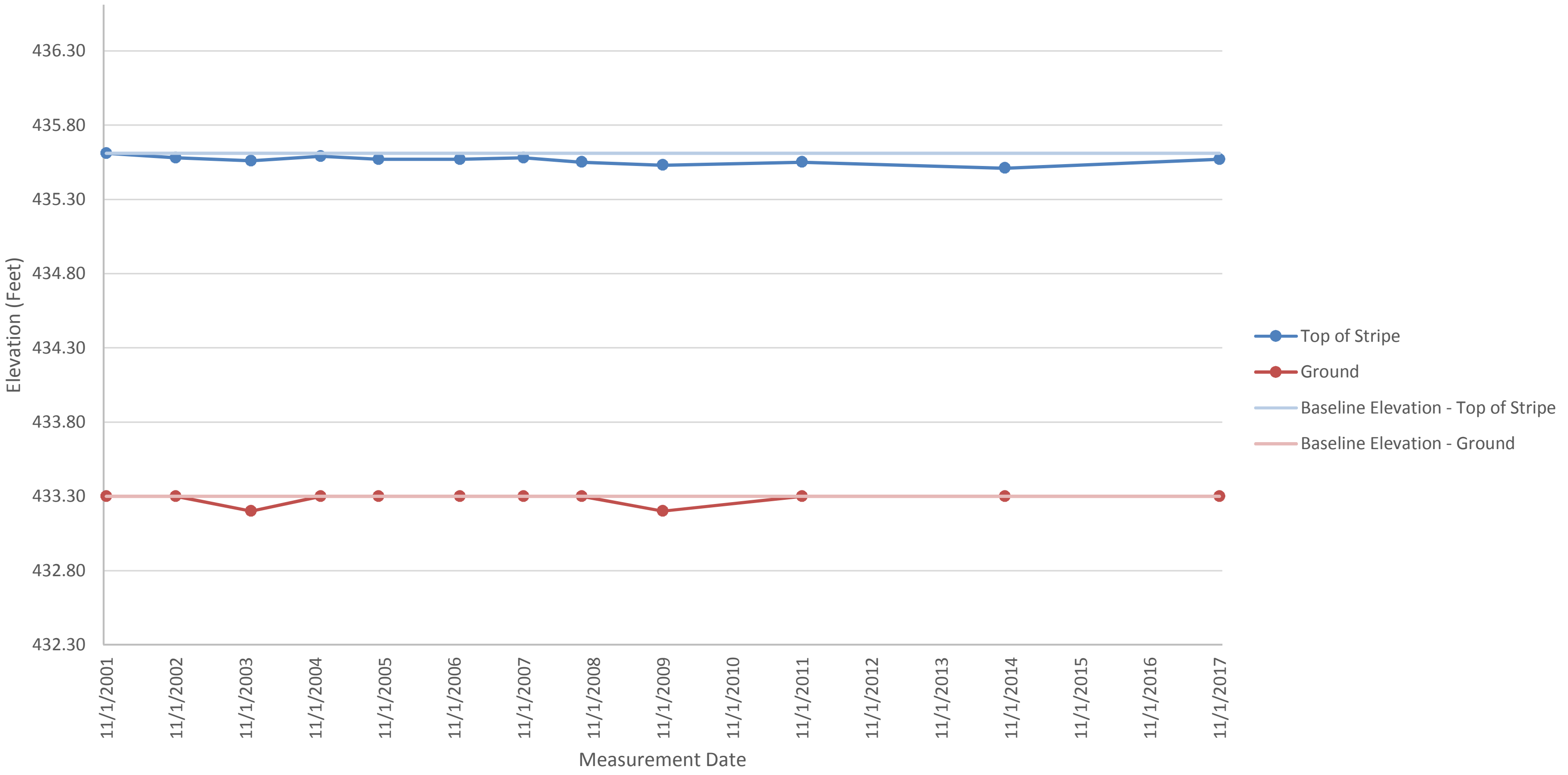
Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event

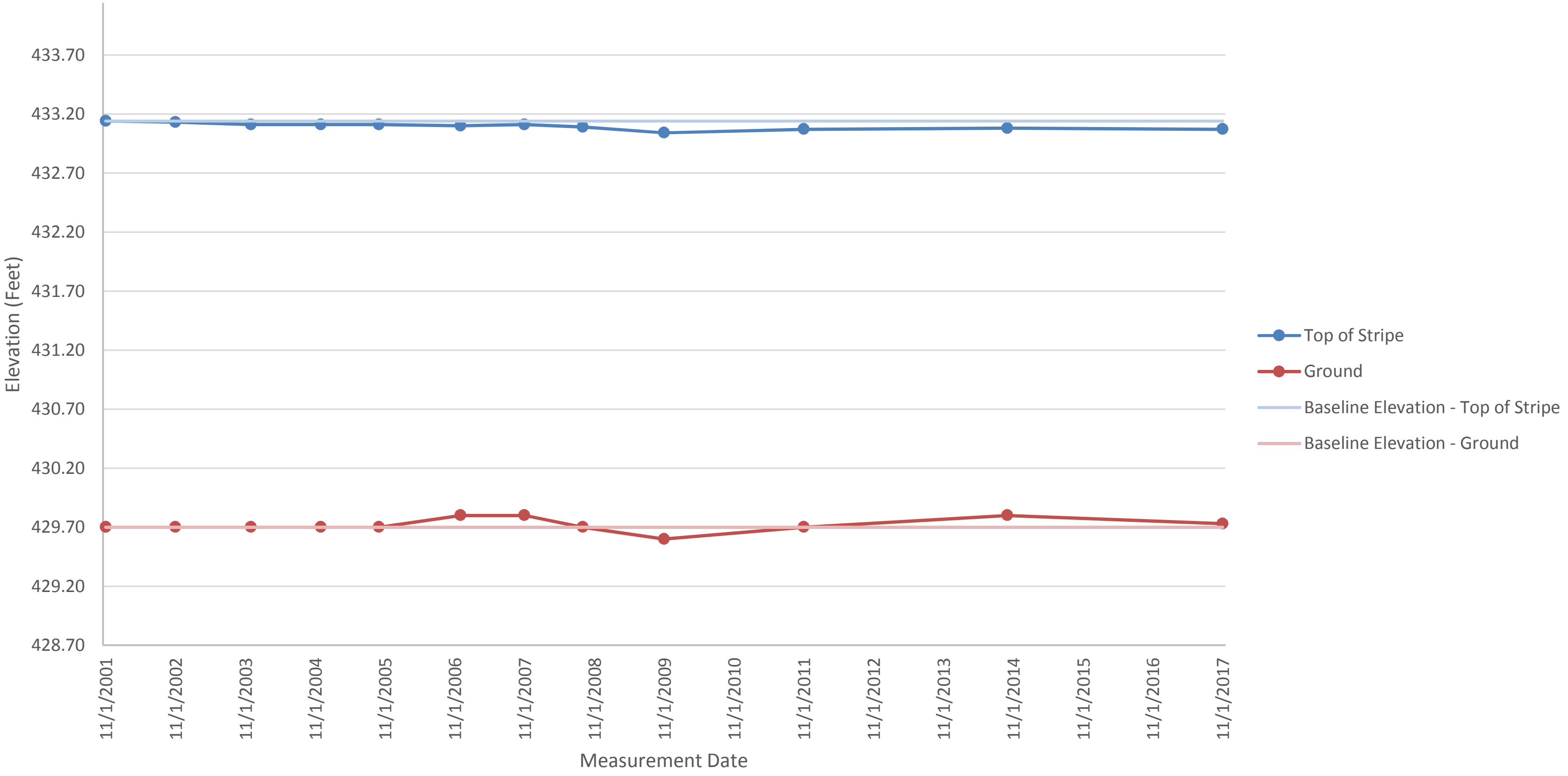
EnPro Holdings, Inc.
Former Crucible Specialty Metals Landfill
86-18809



Appendix G - Settlement Plate Plots **Plate No. 32**	**Date:** Nov 17	**Drawn:** mlw	GHD
	Scale: nts	**Chk'd:**	
	Original:	**Rev:**	
Baseline elevation is 2001 measurement	**File Reference:**		

EnPro Holdings, Inc.
Former Crucible Specialty Metals Landfill
86-18809

Appendix G
Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

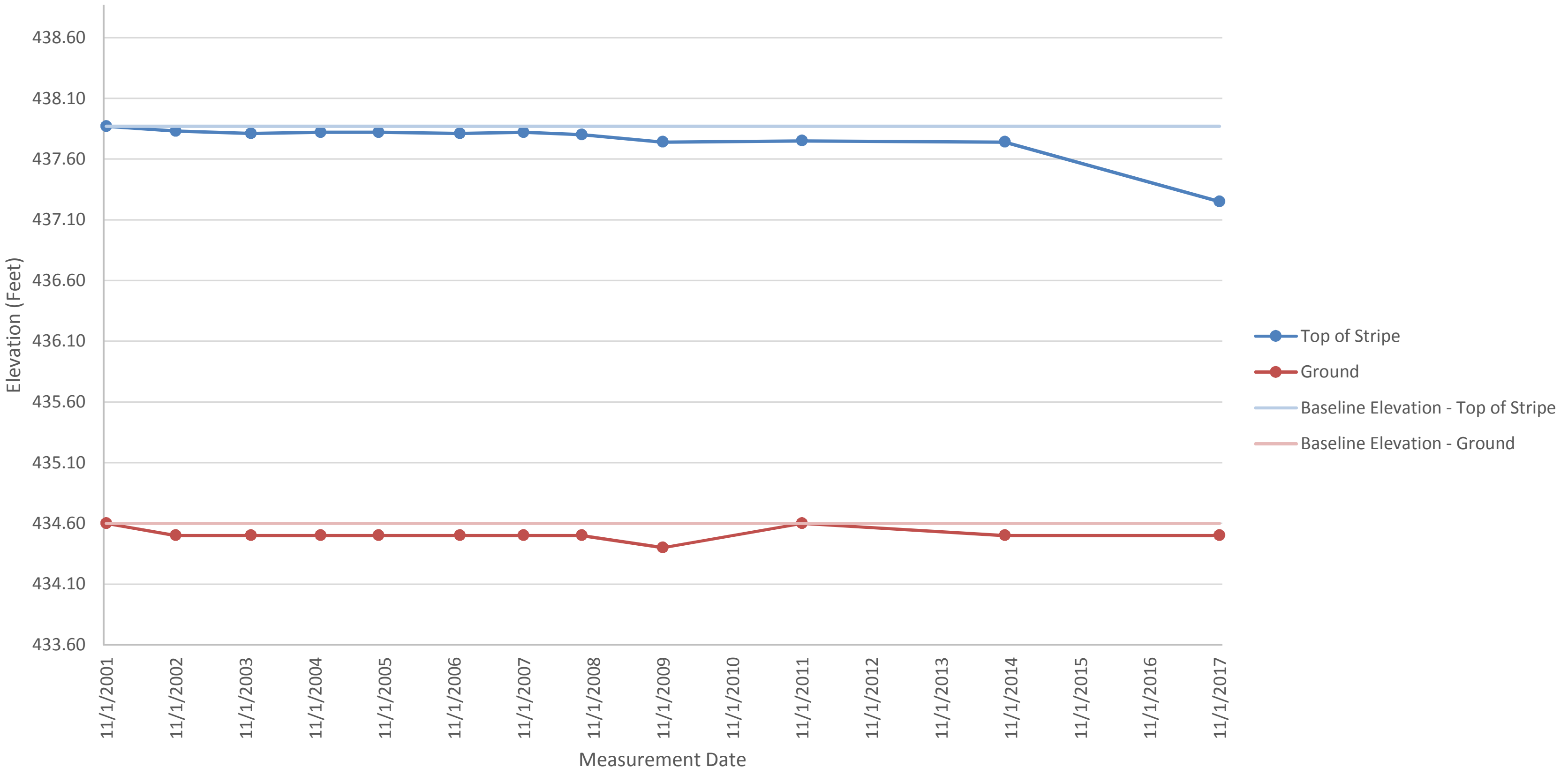
Plate No. 33

Baseline elevation is 2001 measurement

Date: Nov 17
Drawn: mlw
Scale: nts
Chk'd:
Original:
Rev:
File Reference:

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

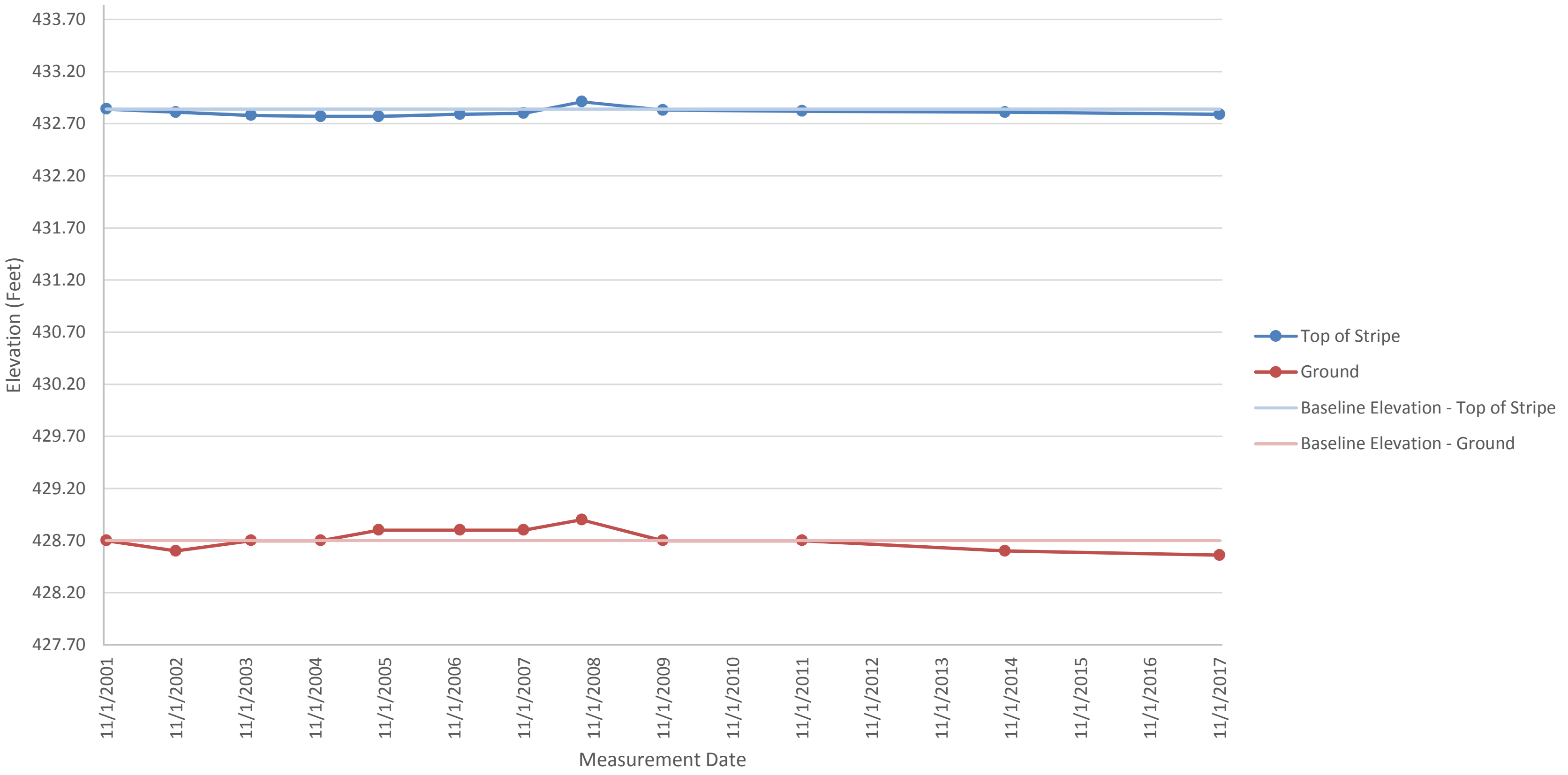
Plate No. 34

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

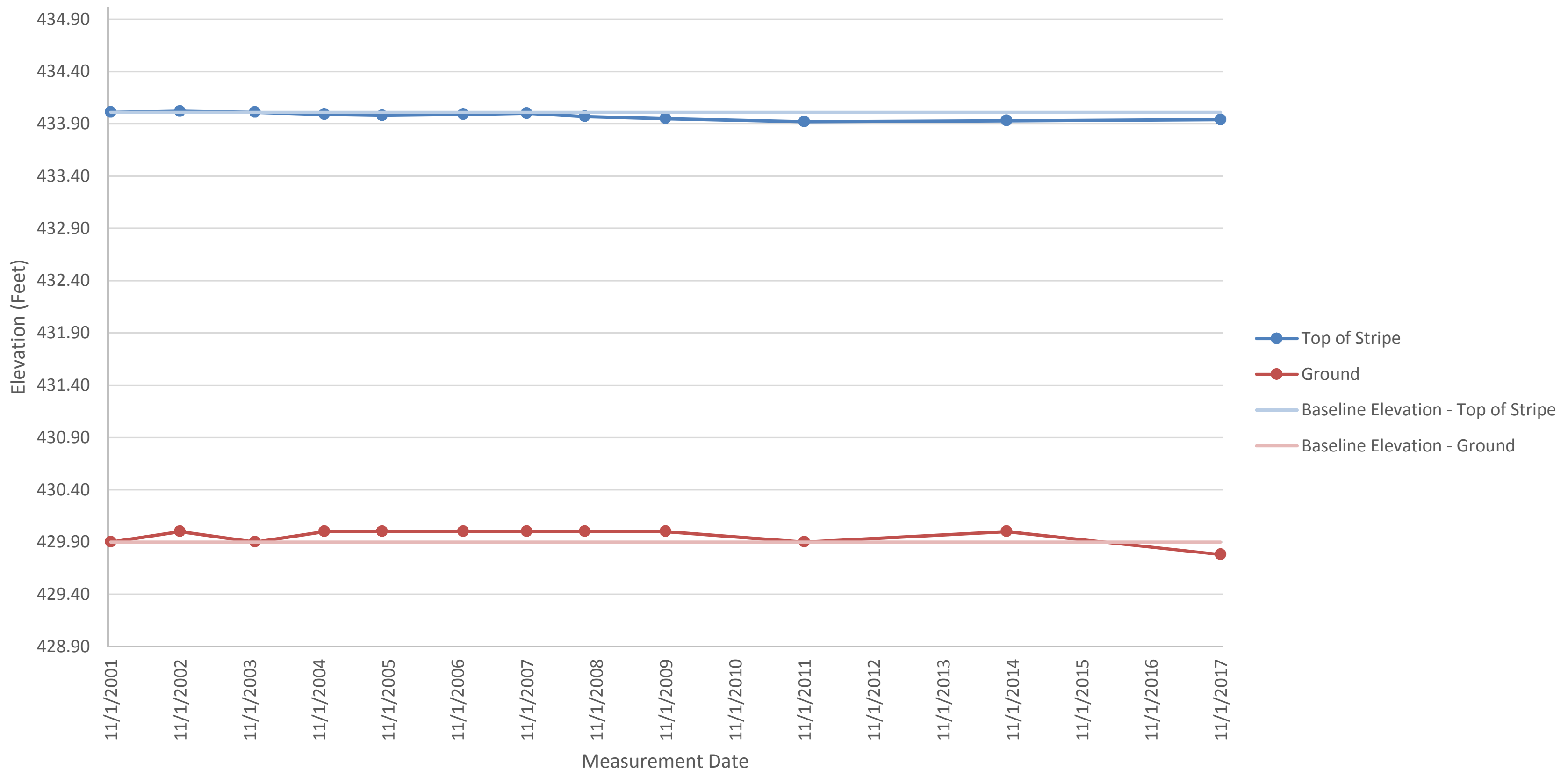
Plate No. 35

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

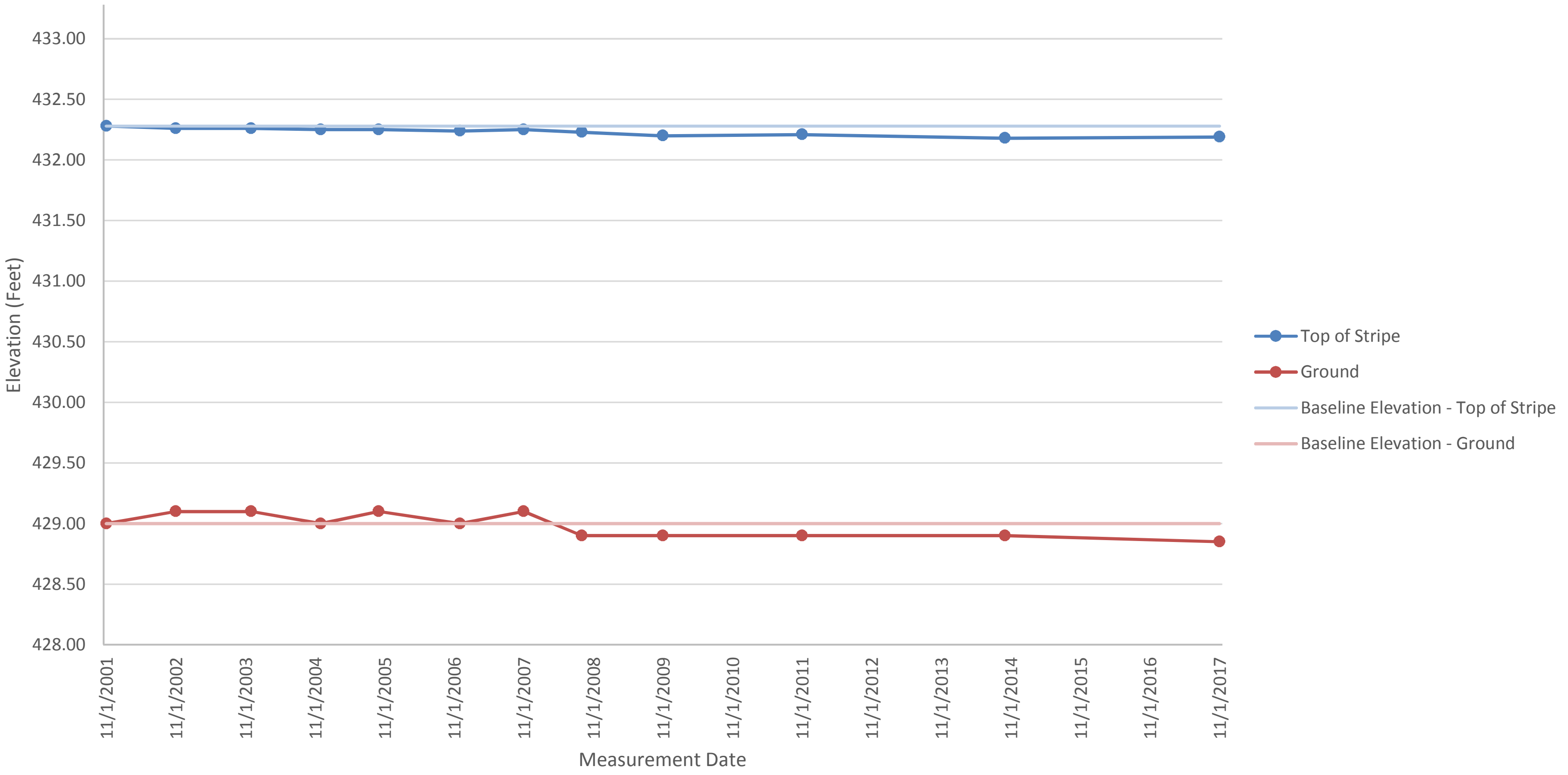
Plate No. 36

Baseline elevation is 2001 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

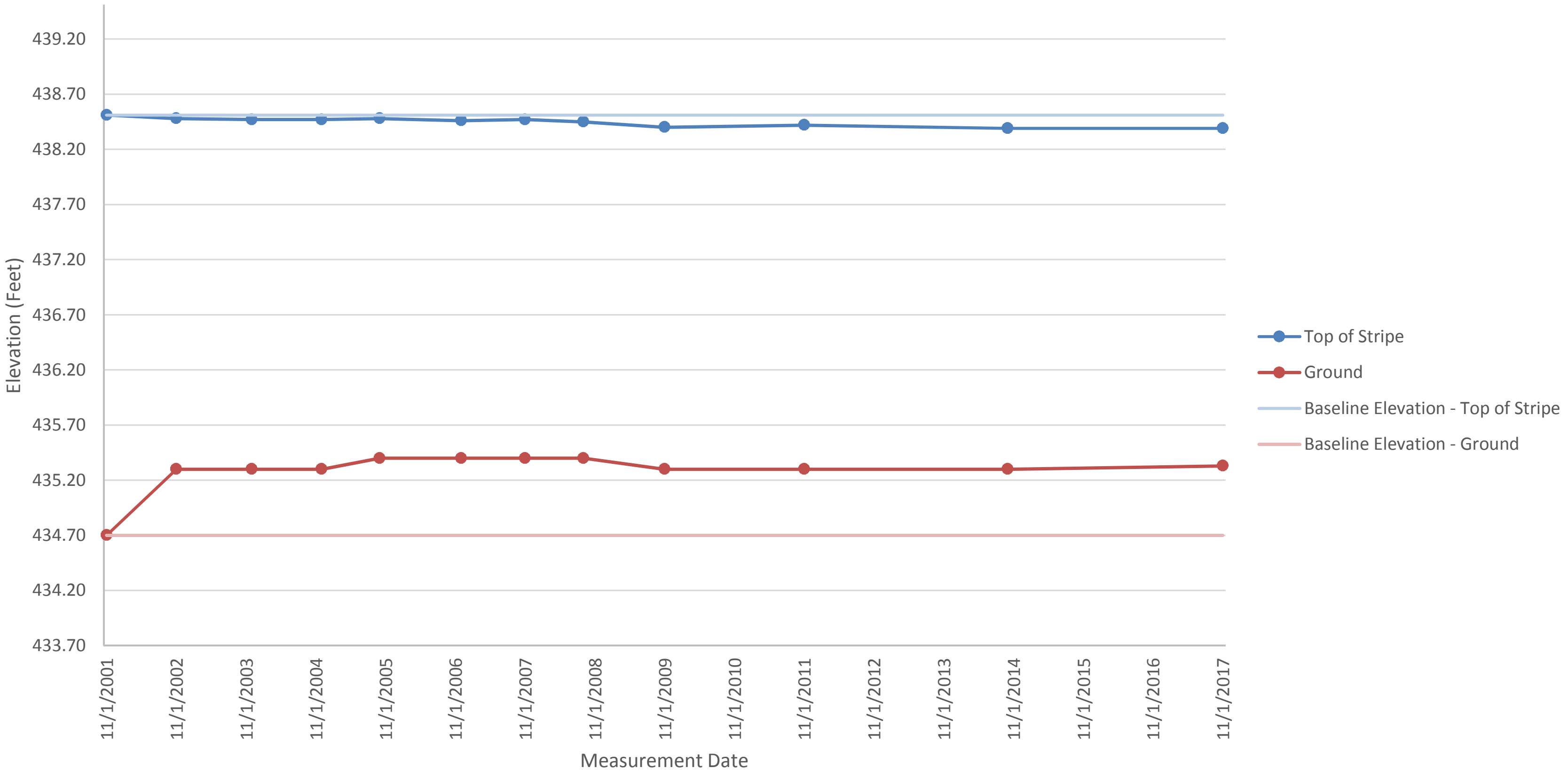
Plate No. 37

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

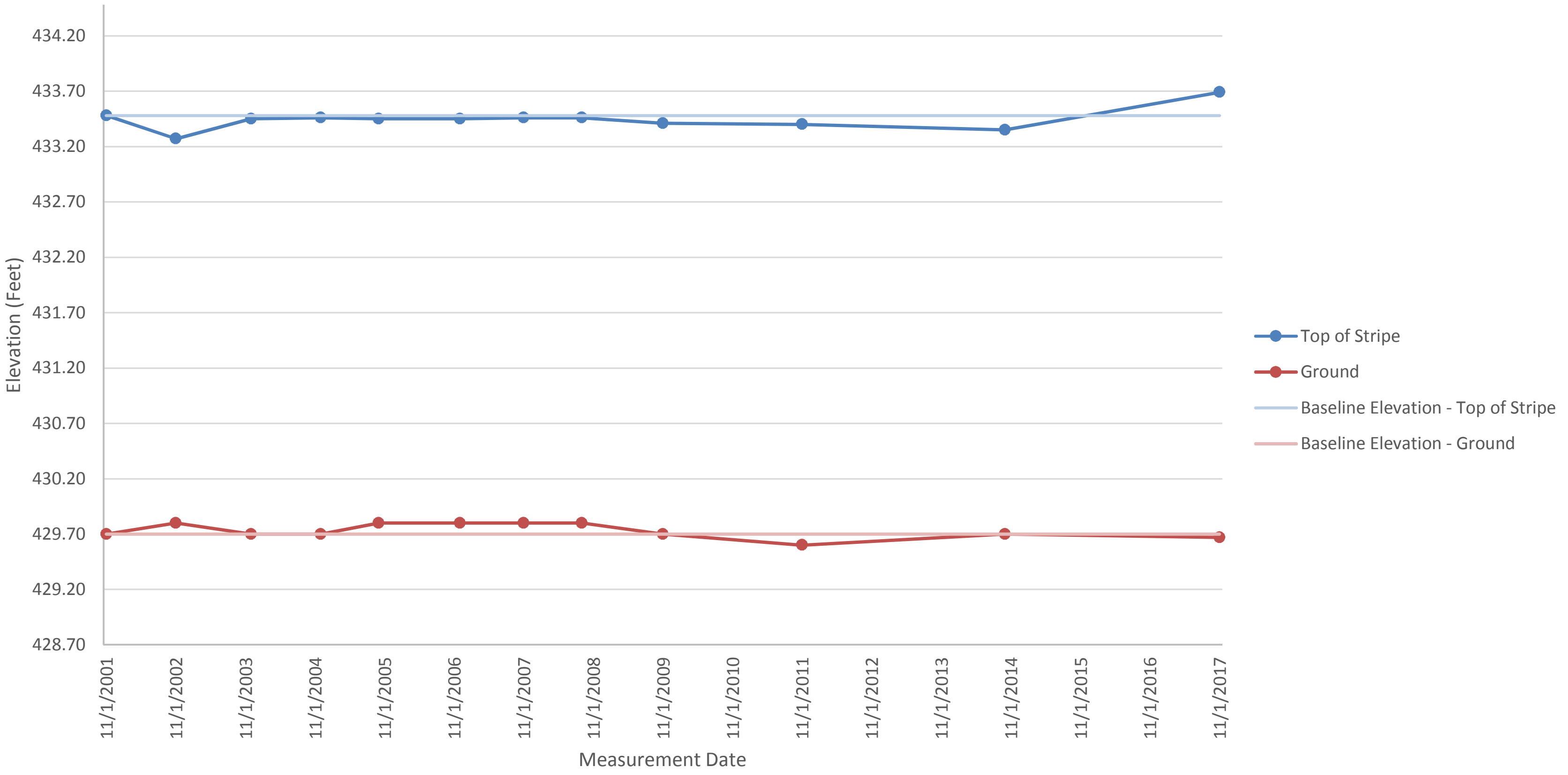
Plate No. 38

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

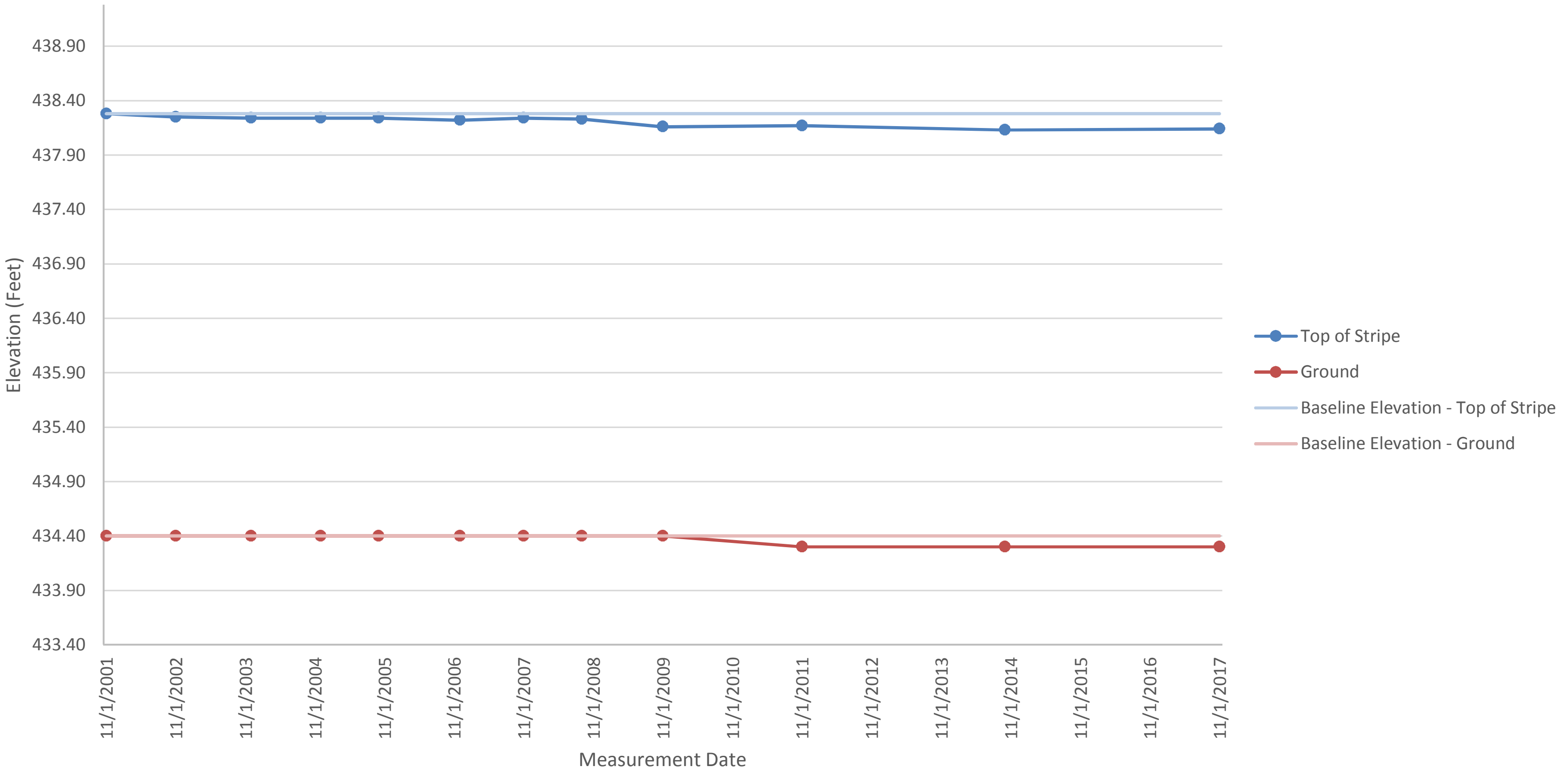
Plate No. 39

Baseline elevation is 2001 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event

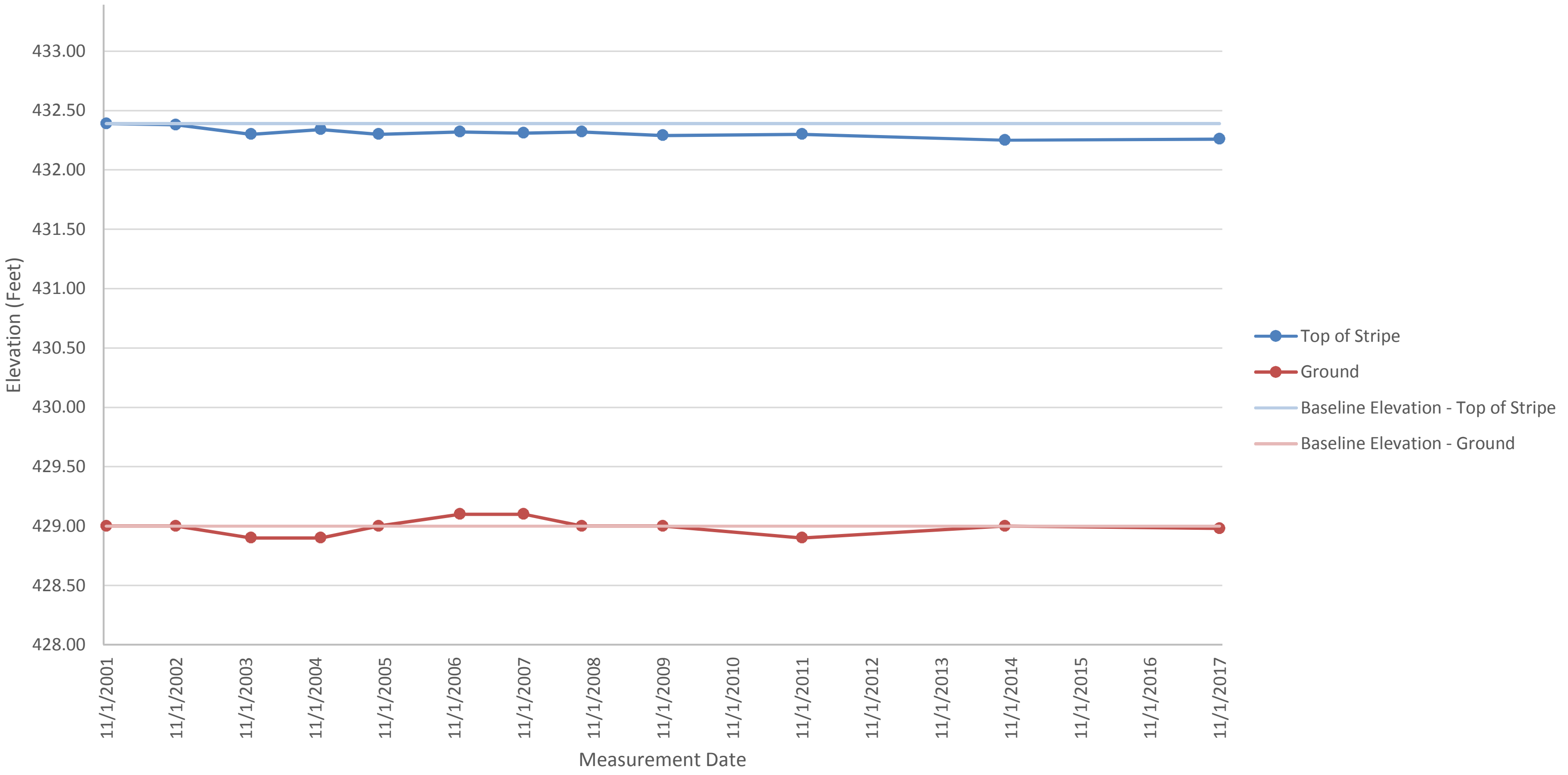


Appendix G - Settlement Plate Plots

Plate No. 40

Baseline elevation is 2001 measurement

Date: Nov 17
Drawn: mlw
Scale: nts
Chk'd:
Original:
Rev:
File Reference:



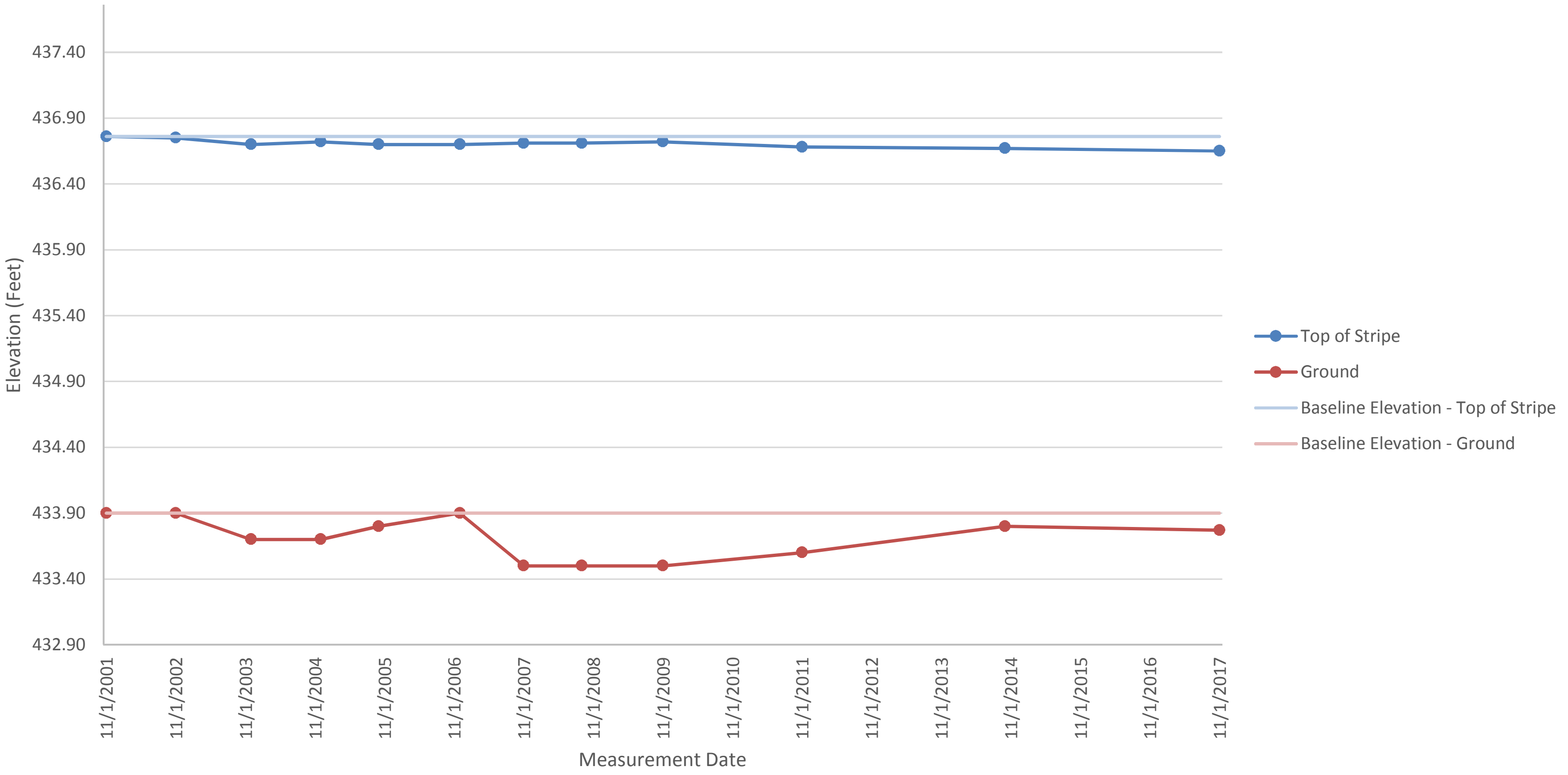
Appendix G - Settlement Plate Plots

Plate No. 41

Baseline elevation is 2001 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Appendix G
Settlement Plate Plots
October 2017 Monitoring Event

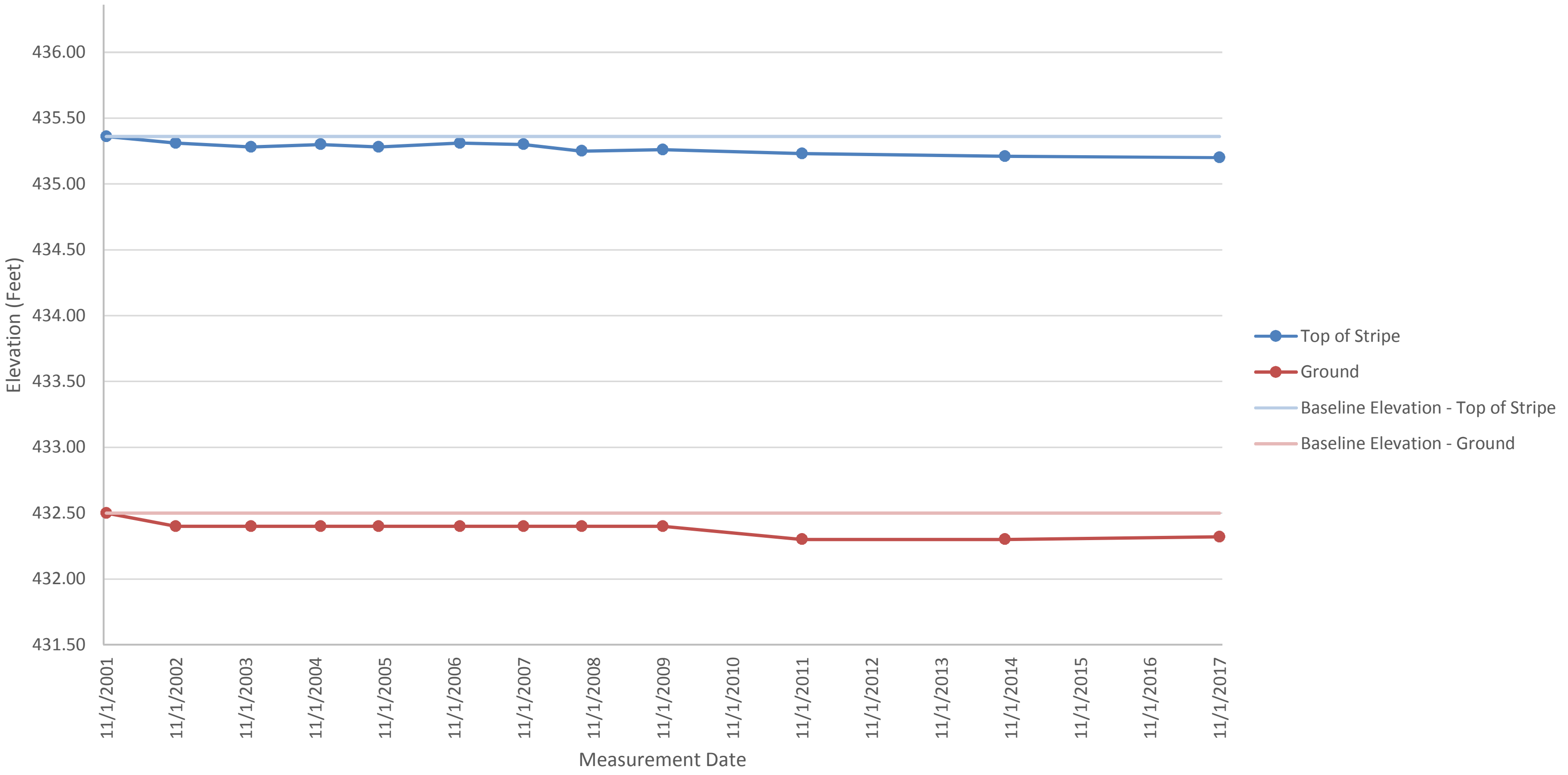


Appendix G - Settlement Plate Plots

Plate No. 42

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement



Appendix G - Settlement Plate Plots

Plate No. 43

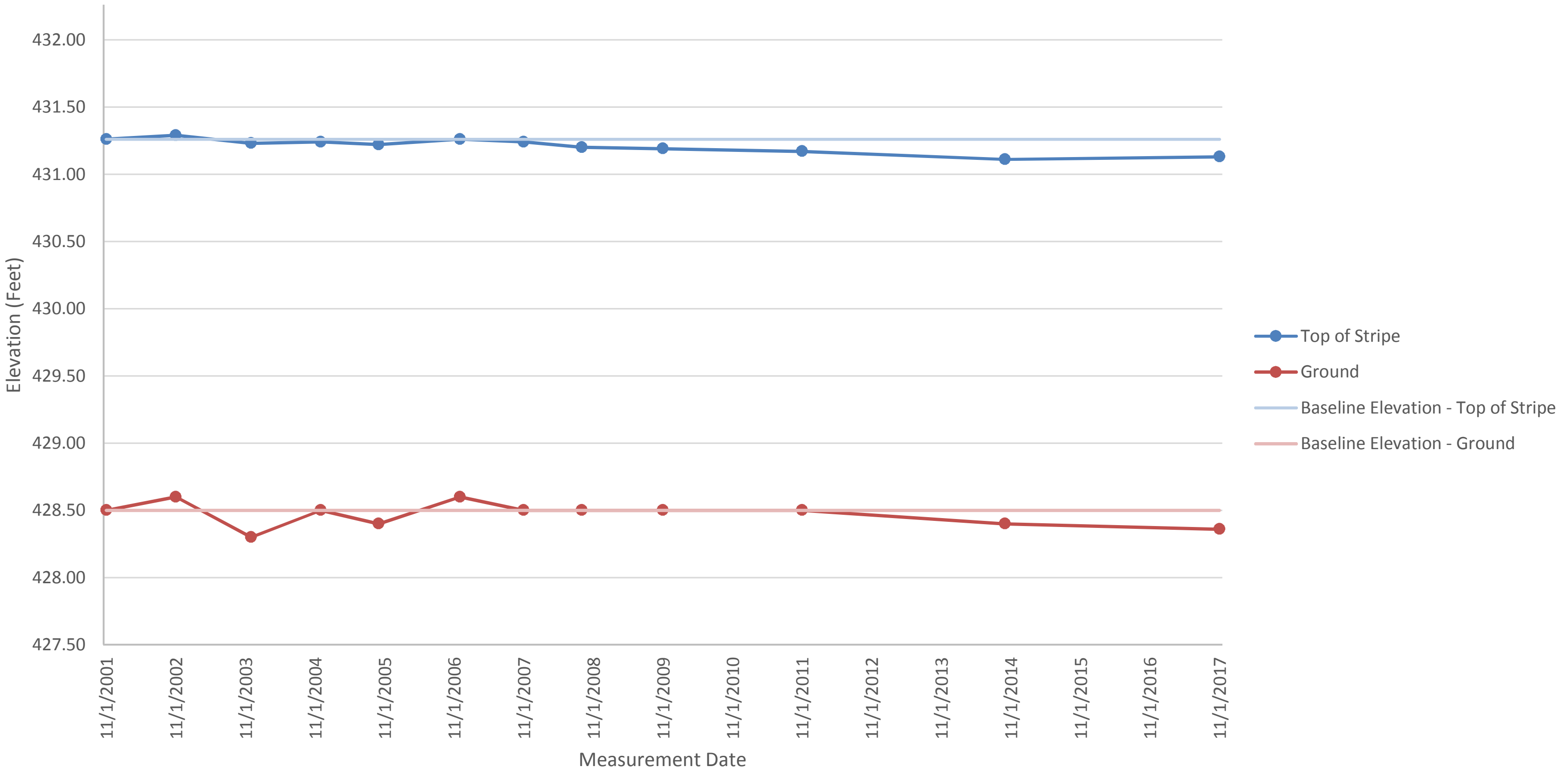
Baseline elevation is 2001 measurement

Date: Nov 17
Drawn: mlw
Scale: nts
Chk'd:
Original:
Rev:
File Reference:

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event

EnPro Holdings, Inc.
Former Crucible Specialty Metals Landfill
86-18809



Appendix G - Settlement Plate Plots

Plate No. 44

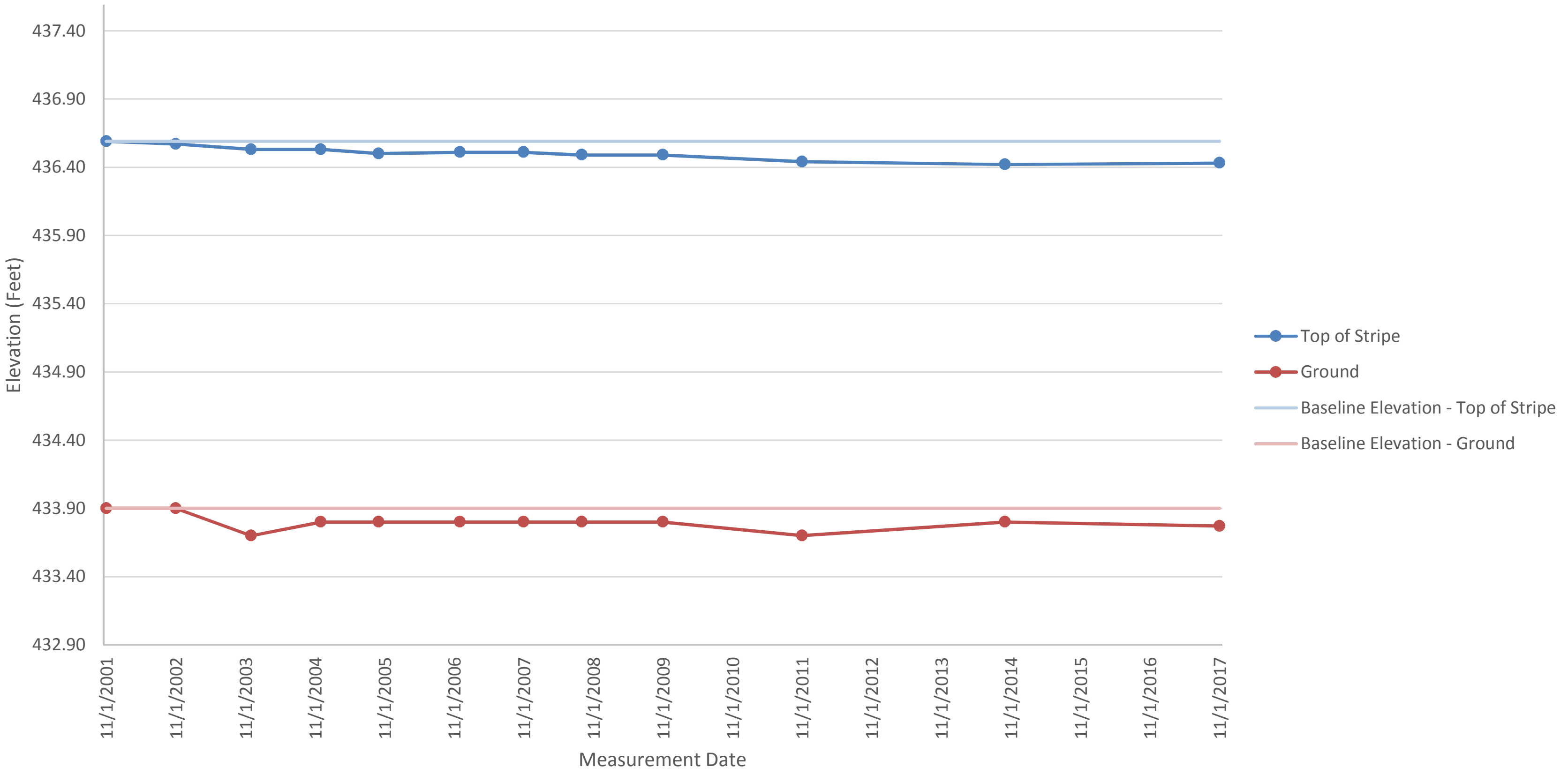
Baseline elevation is 2001 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

G:\86\18809\Groundwater Monitoring\2017 Annual\Appendices\Appendix G - Settlement Plate Plots with Ground

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

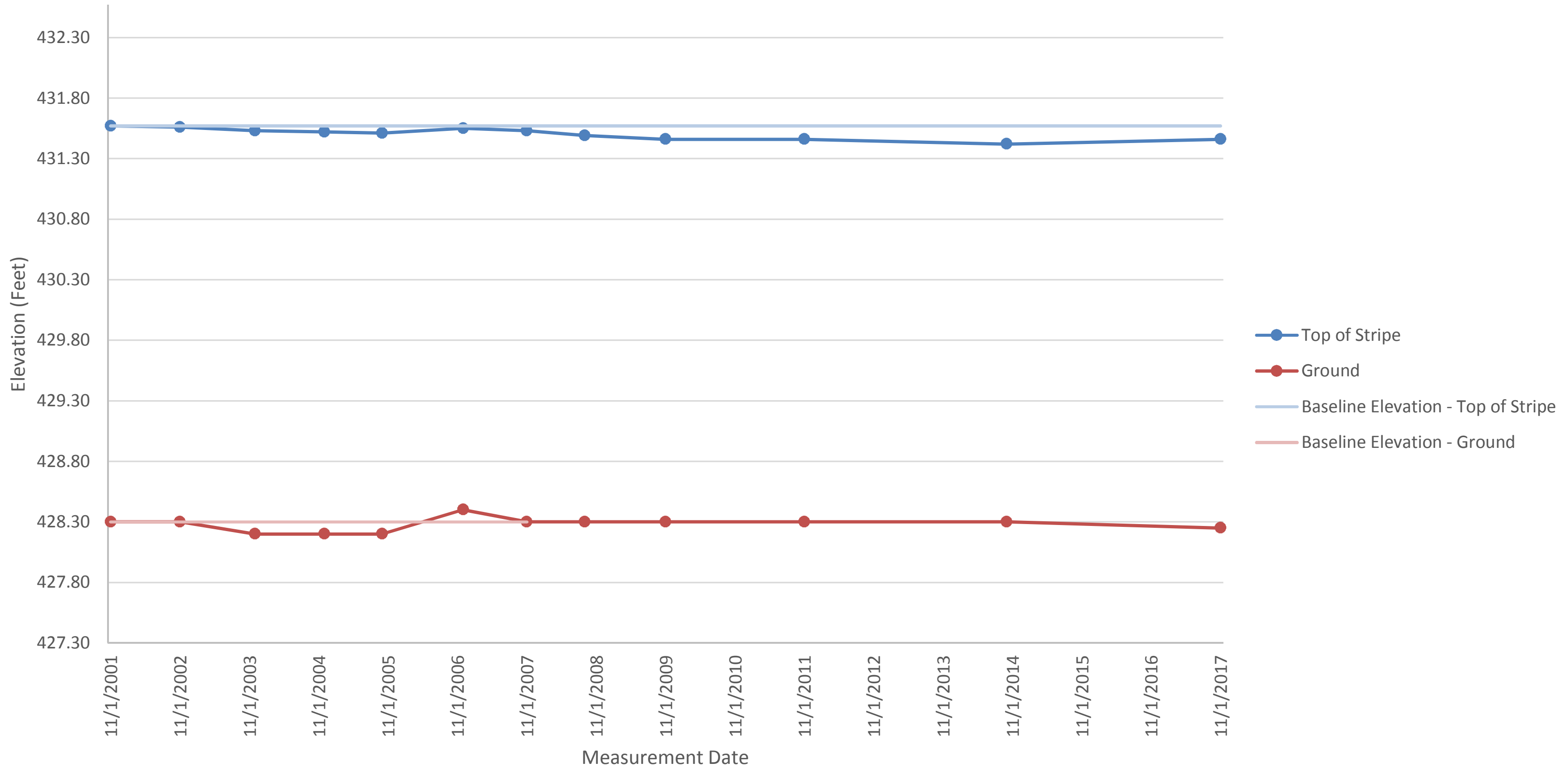
Plate No. 45

Baseline elevation is 2001 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

Plate No. 46

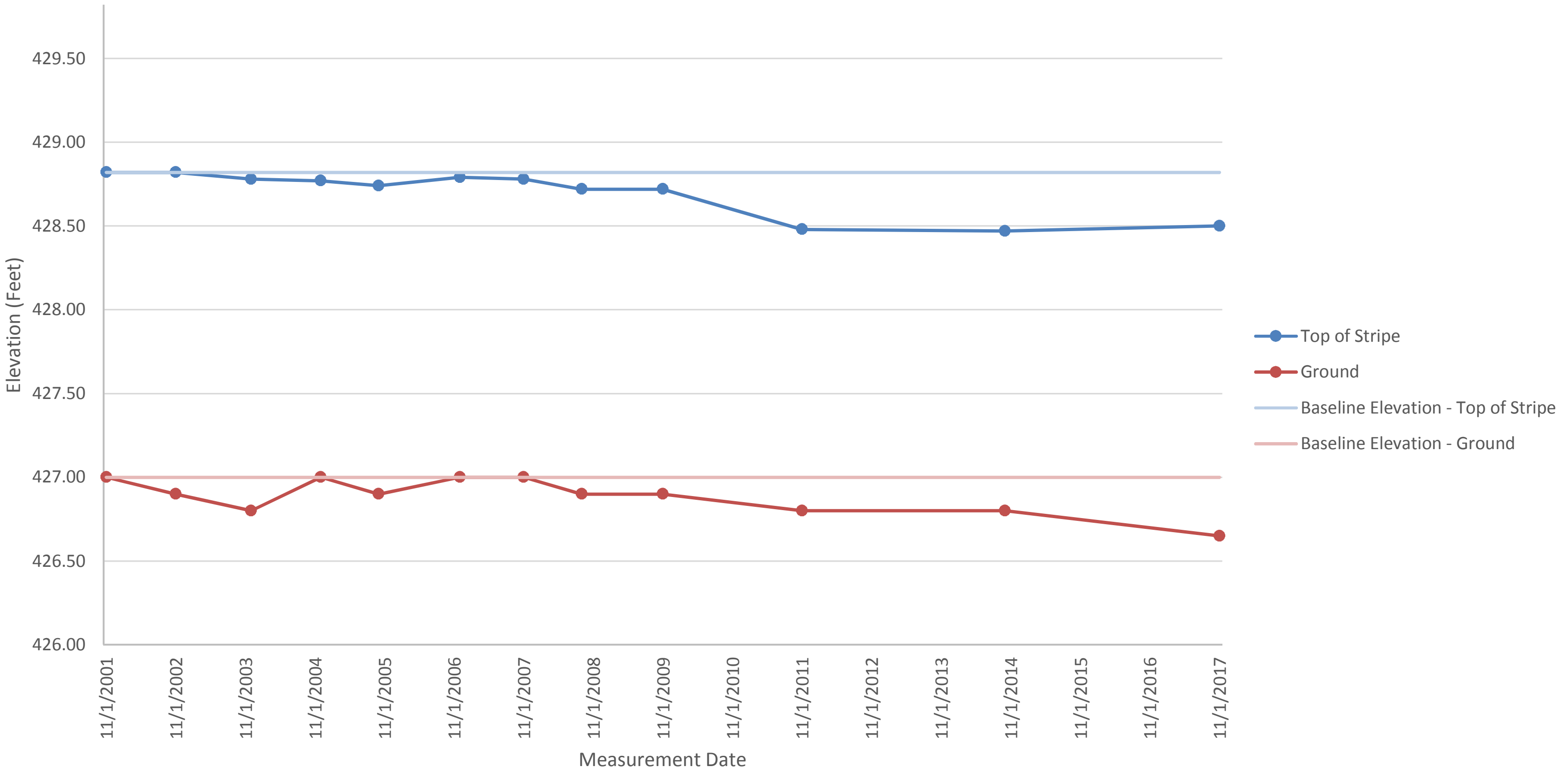
Baseline elevation is 2001 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event

EnPro Holdings, Inc.
Former Crucible Specialty Metals Landfill
86-18809



Appendix G - Settlement Plate Plots

Plate No. 47

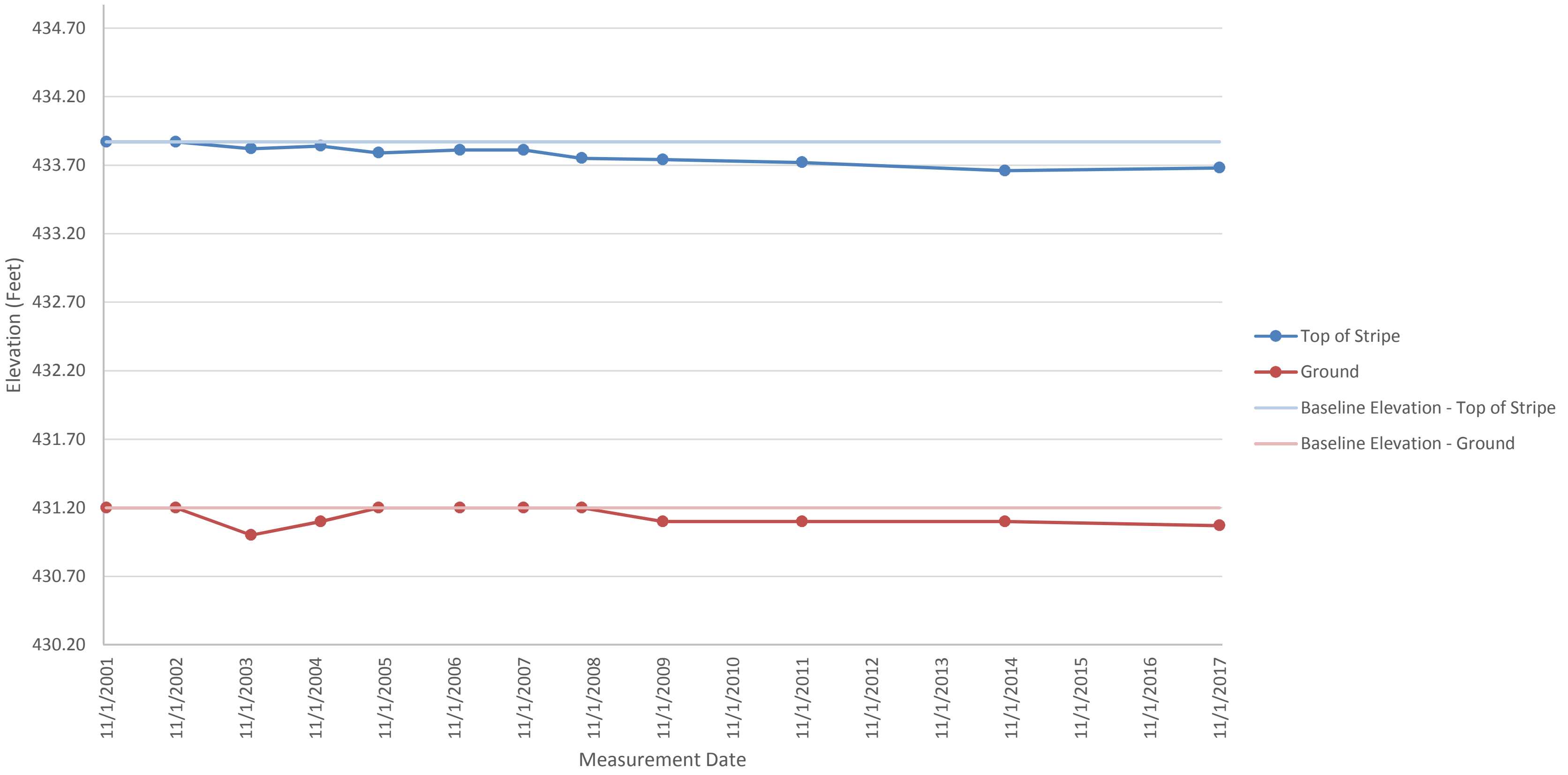
Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

G:\86\18809\Groundwater Monitoring\2017 Annual\Appendices\Appendix G - Settlement Plate Plots with Ground

Appendix G

Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

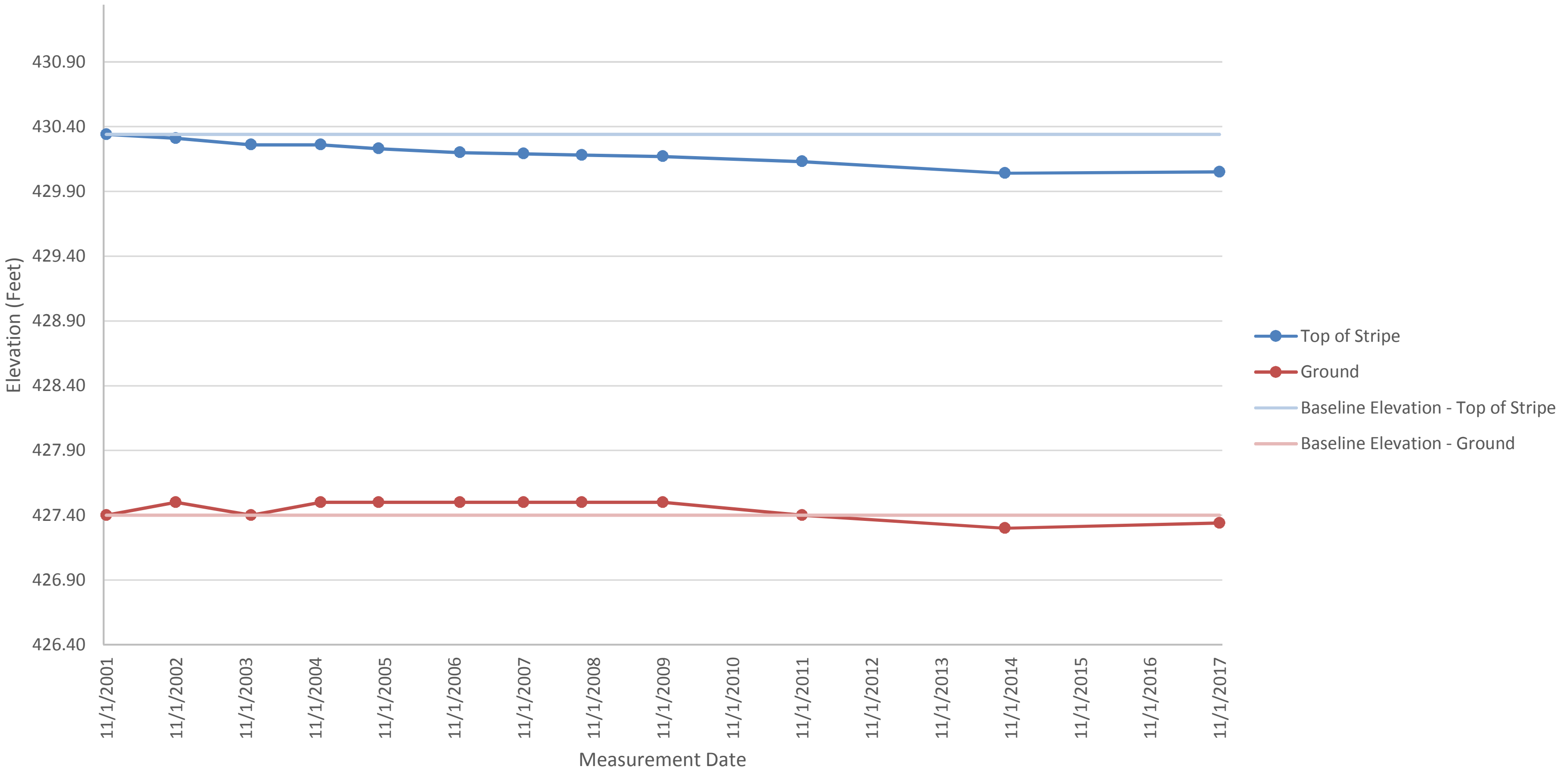
Plate No. 48

Baseline elevation is 2001 measurement

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

GHD

Appendix G
Settlement Plate Plots
October 2017 Monitoring Event



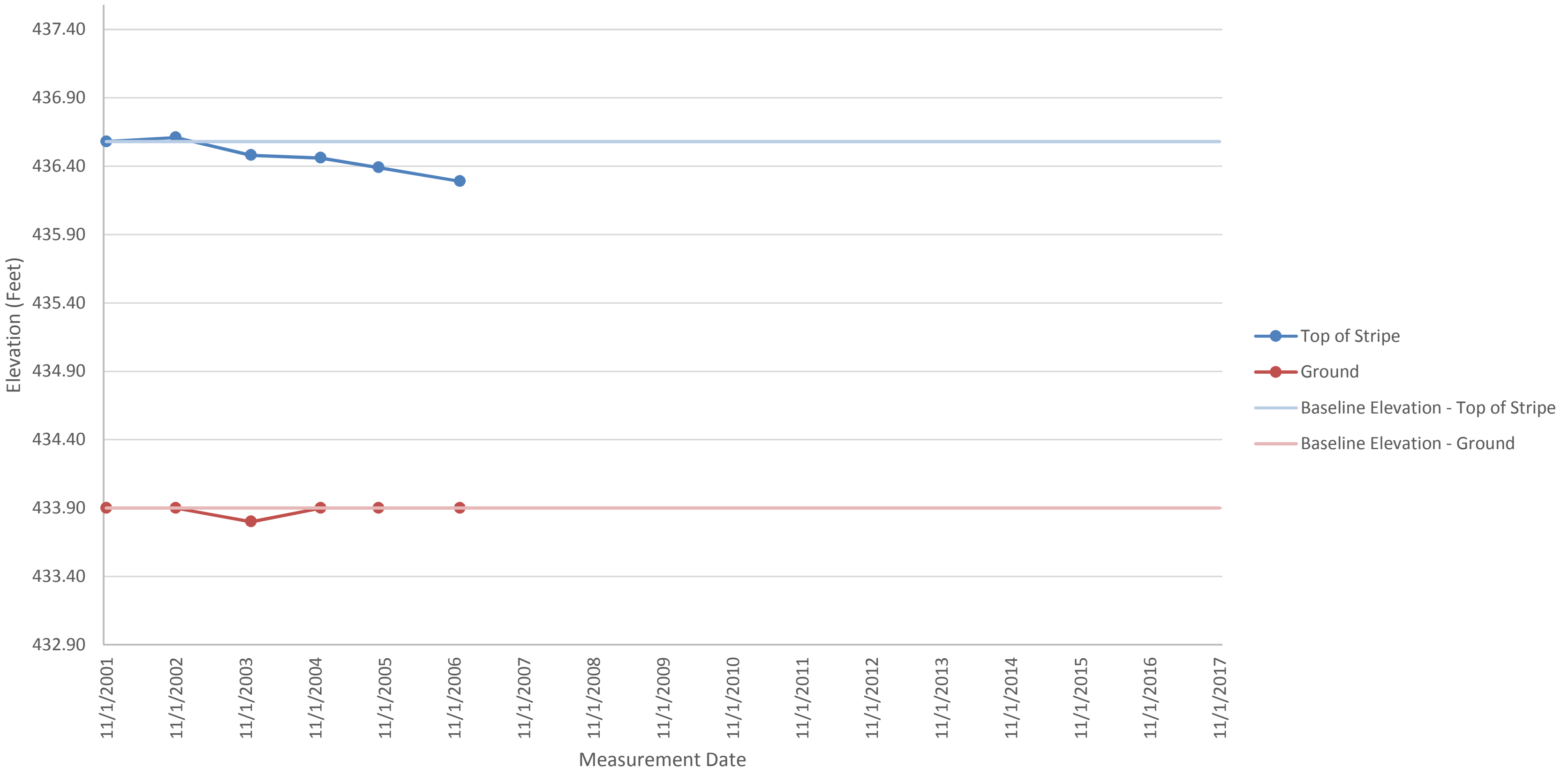
Appendix G - Settlement Plate Plots

Plate No. 49

Date: Nov 17	**Drawn:** mlw
Scale: nts	**Chk'd:**
Original:	**Rev:**
File Reference:	

Baseline elevation is 2001 measurement

Appendix G
Settlement Plate Plots
October 2017 Monitoring Event



Appendix G - Settlement Plate Plots

Plate No. 50

Baseline elevation is 2001 measurement

Date: Nov 17
Drawn: mlw
Scale: nts
Chk'd:
Original:
Rev:
File Reference:

Appendix H

Monitoring Well Decommissioning Logs

LOG OF BORING MS-106.5

(Page 1 of 1)

EnPro Holdings, Inc.
Former Crucible Specialty Metals Landfill
Geddes, New York

Project No. 86-18809

Depth of Boring : 39.81-feet bgs
Drilling Contractor : Parratt-Wolff
Drillers Name : Ian G.
Drilling Method : N/A
Sample Equipment : N/A
Field Geologist : IEM
Initial Depth to GW : Dry
Stable Depth to GW : Dry
Surveyed By : N/A

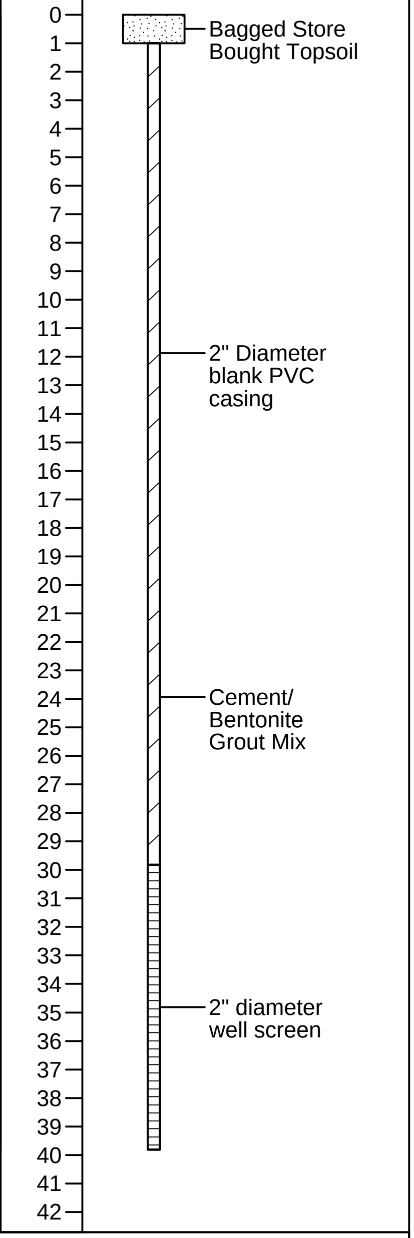
Date/Time Started : 10-26-2017
Date/Time Completed : 10-26-2017

Northing/Latitude : N/A
Easting/Longitude : N/A
Surface Elevation : N/A

Water Level
▼ After Completion
▽ During Drilling

DEPTH (FEET BGS)	Blow Count Graph 10 50	SOIL DESCRIPTION	BLOW COUNT	RECOVERY (INCHES)	PID READING (PPM)
0		Groundwater monitoring well was decommissioned on October 26, 2017 by grouting in place with a cement/bentonite grout and removing the steel sickup protective casing, concrete surface seal, and PVC riser to approximately 1-foot below ground surface. The surface void was backfilled with store bought bagged topsoil.			
39		Bottom of Well - 39.81' Below Ground Surface			

Monitoring Well: MS-106.5



NOTES:
BGS - Below Ground Surface

LOG OF BORING MS-106.5

(Page 1 of 1)

01-26-2018 G:\86\18809\Groundwater Monitoring\2017 Annual\Appendices\Appendix H - Decommissioning Logs\MS-106.5.bor

EnPro Holdings, Inc.
Former Crucible Specialty Metals Landfill
Geddes, New York

Project No. 86-18809

Depth of Boring	: 20.96-feet bgs
Drilling Contractor	: Parratt-Wolff
Drillers Name	: Ian G.
Drilling Method	: N/A
Sample Equipment	: N/A
Field Geologist	: IEM
Initial Depth to GW	: Dry
Stable Depth to GW	: Dry
Surveyed By	: N/A

LOG OF BORING W-5.5

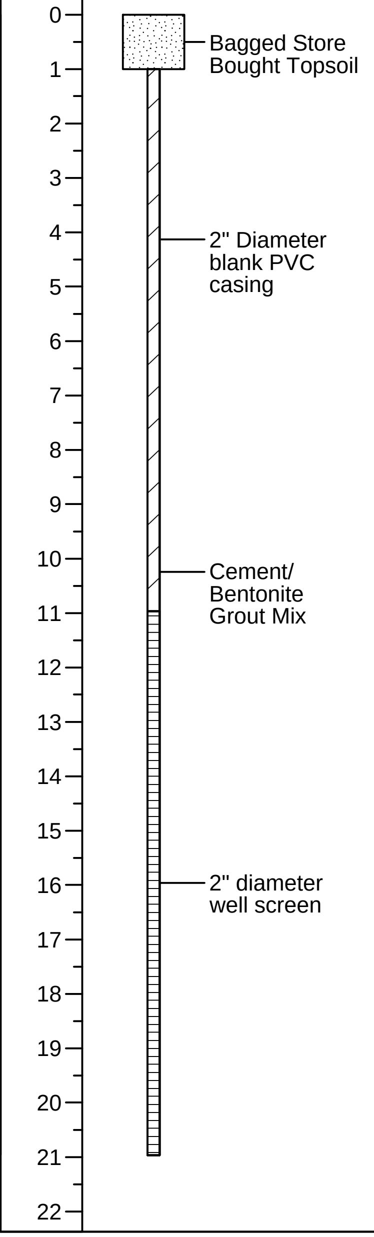
(Page 1 of 1)

Date/Time Started	: 10-26-2017
Date/Time Completed	: 10-26-2017
Northing/Latitude	: N/A
Easting/Longitude	: N/A
Surface Elevation	: N/A

Water Level
▼ After Completion
▽ During Drilling

DEPTH (FEET BGS)	Blow Count Graph 10 50	SOIL DESCRIPTION	BLOW COUNT	RECOVERY (INCHES)	PID READING (PPM)	DEPTH (FEET BGS)
0		Groundwater monitoring well was decommissioned on October 26, 2017 by grouting in place with a cement/bentonite grout and removing the steel sickup protective casing, concrete surface seal, and PVC riser to approximately 1-foot below ground surface. The surface void was backfilled with store bought bagged topsoil.				0
21		Bottom of Well - 20.96' Below Ground Surface				21

Monitoring Well: W-5.5



NOTES:
BGS - Below Ground Surface

LOG OF BORING W-5.5

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