Groundwater Smmary Report

Revere Smelting & Refining Site, No. 3-36-053
Middletown, New York

Ecobat Resources New York, LLC

September 27, 2024

→ **The Power of Commitment**

Scope and Limitations

This report is subject to, and must be read in conjunction with, the limitations set out below and the assumptions and qualifications contained throughout the Report.

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Professional Engineer Certification

I, Christine Albertin, certify that I am currently a New York State-registered professional engineer and that this *Groundwater Summary 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), dated May 2010.

Christine Albertin 9/27/2024

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Date

PE SEAL

Acronyms

bgs	below ground surface
COCs	constituents of concern
CMS	Corrective Measures Study
EFA	eastern fill area
ENTACT	ENTACT, LLC
FS	feasibility study
GHD	GHD Consulting Services Inc.
GWMP	Groundwater Monitoring Program
GWI	Ground Water Investigations-Hydrogeology, P.C.
ICM	Interim Corrective Measure
I-84	Interstate Highway 84
µg/l	micrograms per liter
mg/l	milligrams per liter
NYCRR	New York Codes, Rules and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
OU	Operable Unit
RD/RA	remedial design/remedial action
RI	remedial investigation
ROD	Record of Decision
SCGs	Standards, Criteria and Guidelines
VOCs	volatile organic compounds
WESP	wet electrostatic precipitator

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1. Introduction

On behalf of Ecobat Resources New York, LLC (Ecobat)[1], GHD Consulting Services Inc. (GHD) has prepared this Groundwater Summary Report (Report) for the Revere Smelting & Refining Site (Site) located at 65 Ballard Road in Middletown, Orange County, New York (Figure 1). The Ecobat facility is a secondary lead smelter, and historical environmental investigations have identified impacts to environmental media resulting from operations at the Site. The Site is listed in the Registry of Inactive Hazardous Waste Disposal Sites in New York State as Site #3-36-053. Lead and arsenic are the primary constituents of concern (COCs). This Report was prepared in accordance with requirements outlined in the February 1, 2011, Order on Consent (Index #3-20100528-80; Site #3-36-053; [Order]) entered into by Ecobat, among other parties, and the New York State Department of Environmental Conservation (NYSDEC). The Order, as modified by the 2017 Statement of Basis for the Ecobat Site, defines Operable Units (OUs) 1 to 4 as follows:

– OU-1 – which is comprised of nine contiguous tax parcels (Tax Parcels 41-1-70.22, 41-1-70.232, 41-1-71.22, 41-1-73.1, 41-1-73.22, 41-1-74.82, and 41-1-76 owned by Eco-Bat New York, LLC[2], and two offsite parcels 60-1-120 and 41-1-72.2) totaling 167 acres, less the plant facility and groundwater[3];
– OU-2 – which represents the groundwater contamination outside the barrier wall surrounding the facility;
– OU-3 – which represents all offsite media, other than groundwater, impacted by site activities; and
– OU-4 – which represents the plant facility, including groundwater within the barrier wall surrounding the facility.

This Report was developed at the request of the NYSDEC in a letter dated July 11, 2024. In this letter, the NYSDEC proposed a modification to the definitions of the OUs as follows:

– OU-1 will consist of all environmental media *including groundwater* on the 60.6-acre Class 2 site, excluding the active facility (OU-4), as well as all environmental media *including groundwater* within six off-site properties (four of which are owned by Ecobat Resources New York, LLC) where impacts from the Site have been documented; and
– OU-2 no longer contains any environmental media and will therefore be removed from the Order on Consent conditioned on the approval of this report.

The definitions of OU-3 and OU-4 will remain unchanged.

The purpose of this Report is to summarize the historical groundwater monitoring record for OU-2 and OU-4 based on current Consent Order definitions. The remainder of this Report presents is organized into the following sections:

– Section 2 includes project background information;
– Section 3 describes the different phases of remediation projects Ecobat has completed that have improved groundwater quality at the Site;
– Section 4 is a discussion of the groundwater monitoring program activities;
– Section 5 describes the groundwater elevation data collected;
– Section 6 presents an evaluation of groundwater analytical data collected;
– Section 7 provides conclusions related to the groundwater data at the Site; and
– Section 8 includes a list of references cited in this Report.

[1] In 2021, Revere Smelting & Refining, LLC, changed their name to Ecobat Resources New York, LLC. However, the “Site” is registered as Revere Smelting & Refining (Site #3-36-053) on the Registry of Inactive Hazardous Waste Disposal Sites in New York State. Therefore, for administrative purposes the Site will continue to be referred to as Revere.
[2] See footnote 1 above; Eco-Bat New York, LLC is now Ecobat Resources New York, LLC.
[3] The draft 2017 Statement of Basis modified the boundaries of OU-4 to include areas where contaminated soil remains in the vicinity of the operating plant site that were not removed during the OU-1 RA. OU-4 was also expanded to include the main driveway entering the site from Ballard Road, to extend the boundary on the eastern and southern sides of the active facility to include those areas up to and including the barrier wall, and to add the wet electrostatic precipitator (WESP). In addition, groundwater within the barrier wall beneath the site is added to OU-4. Based on these changes, OU-1 and OU-2 are subsequently reduced by the area added to OU-4. OU-1 and OU-4 comprise approximately 167 acres, of which the modified OU-4 is approximately 14.8 acres.

2. Site Description

The following sections provide an overview of the Site conditions, including regional geology, surface water hydrology, and Site-wide groundwater flow direction.

2.1 Site Location

Ecobat operates a secondary lead smelter at 65 Ballard Road, approximately 7 miles east of Middletown, in the Town of Wallkill, Orange County, New York (Figure 1). The facility is located in a combined rural and industrial area of south-central New York, approximately 6,000 feet northwest of the Wallkill River. The Ecobat facility was constructed in 1970 and acquired by Ecobat in 1973. Ecobat manufactures lead and lead alloys. The major raw material is used lead acid batteries, such as the typical automotive battery. Other raw materials used in production include battery-manufacturing by-products, lead-bearing wastes from battery manufacturers, scrap metal from metal salvage yards, and virgin metal from metal brokers. In addition, Ecobat reclaims polypropylene from battery cases, and in the process, produces sodium sulfate.

The facility consists of several buildings, including the main smelter building, a crystallizer building, a containment building, a wastewater treatment building, six large storm water tanks, and employee and truck parking areas. In addition, a rail spur from the adjacent Norfolk and Southern Railroad right-of-way services the facility. The operational portion of the property (OU-4) encompasses approximately 14.8 acres. Ecobat owns the operational property and contiguous undeveloped property to the north and east of the facility and a parcel of undeveloped property south of the railroad right-of-way. The Ecobat properties consist of the tax parcels listed in the definition of OU-1, which together with OU-4 comprise approximately 167 acres.

The undeveloped areas of OU-1 are in varying degrees of past disturbance that range from second growth forest, reverted farmlands, maintained lawns, and wetlands. North of OU-4 are open, overgrown fields, wetlands, and mature woodlands. North of the woodlands is an Exxon service station. East of OU-4 is a combination of open, overgrown fields, wetlands, and mature woodlands. Old Dominion Freight Line, Inc., operates in a facility located approximately 0.25-mile southeast of OU-1. Interstate Highway 84 (I-84) is located approximately 0.6 mile south of the Ecobat property. A Ball Corporation aluminum can-manufacturing facility is located west across Ballard Road, and additional industrial development is located further west and south.

2.2 Geology

The Site lies within the Great Valley physiographic region of southeastern New York State. The Great Valley region is part of the Appalachian Valley and Ridge province, which lies northwest of the Hudson Highlands. The regional hydrogeologic system underlying the facility consists of Pleistocene-age glacial till deposits which overlie Ordovician-aged bedrock consisting primarily of shale, siltstone, and greywacke horizons. The glacial tills are generally poorly sorted and primarily consist of silt- or clay- sized particle matrix with minor sand and gravel horizons. The thickness of the till deposits in the Wallkill area may exceed 30 feet.

The glacial till overlies shale bedrock that has been folded and faulted during several tectonic episodes. The glacial till is generally poorly sorted with low porosity and permeability, whereas the anthropogenic and reworked materials are generally coarser in nature and are slightly more permeable and porous. Bedrock is encountered at a minimum of 4 to 5 feet below ground surface (bgs) in the northern areas of OU-1 and at depths greater than 20 to 25 feet bgs in the southern areas of OU-1. The sedimentary bedrock strikes northeast-southwest and dips moderately towards the northwest. The shale, while predominantly competent, is weathered in the upper few feet.

2.3 Surface Water Hydrology

Surface waters within OU-3 include several storm water retention basins, Phillipsburg Creek, and the Wallkill River (Lower Hudson River watershed). Three first-order active stream channels (western stream, pond stream, and eastern

stream) located on the Ecobat property combined flow into Phillipsburg Creek in OU-3. These streams best represent a rocky headwater stream cover type as defined in Edinger et al. (Edinger et al. 2014). The western stream flows along the western side of the facility from north to south and crosses underneath the railroad tracks approximately 225 feet east of Ballard Road (Figure 1). The western stream continues to flow along a generally southern heading through the Ecobat property south of the railroad tracks. Based upon visual observations of surface water flow, the western stream is assumed to be a net gaining stream. The stream is classified as a marsh headwater stream characterized by well-defined patterns of alternating pool, riffle, and run sections with moderate flow.

The railroad pond located southeast of the facility operations has a single discharge point (pond stream) which flows intermittently along a generally western heading from the pond for approximately 250 feet before changing to a more southern heading and crossing underneath the railroad tracks (approximately 700-feet east of Ballard Road). The pond stream intersects and supplements the flow from the western stream within OU-1 south of the railroad tracks.

The eastern stream is located approximately 500 feet east of the railroad pond, flows in a southerly direction, and crosses underneath the railroad tracks and onto the SP Realty Associates II LLC property (Tax Parcel 60-1-120.2) approximately 1,900-feet east of Ballard Road. The eastern stream joins the western and pond streams south of their confluence in OU-1 to form Phillipsburg Creek, a second-order stream.

Phillipsburg Creek continues on a generally southwestern heading into OU-3, receiving storm water runoff from manufacturing and truck parking areas on both the Matrix 260 Ballard LLC (Tax Parcel 60-1-120.1) and the ODFL (Tax Parcel 60-1-120.3) properties, and crosses underneath Ballard Road approximately 0.5 mile south of the entrance to the Ecobat facility. On the western side of Ballard Road, Phillipsburg Creek travels along a southwestern heading within property owned by Crystal Run Newco LLC (referred to as the Galleria at Crystal Run property; Tax Parcel 78-1-92), where it intersects with the discharge streams from three ponds located on the same property. Phillipsburg Creek passes underneath I-84 approximately 0.3 mile southwest of the Ballard Road/I-84 overpass and continues towards the Wallkill River located approximately one mile south of the Ecobat facility.

All reaches of the streams within the Ecobat property and Phillipsburg Creek are designated as Class C waters - C(T) Standard (6 New York Codes, Rules and Regulations [NYCRR] Parts 701 and 897). As defined by this classification, the best usage of Class C waters is fishing. Based on the classification, these waters shall be suitable for fish propagation and survival, and the water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes. The Symbol (T) appearing after any standard designation, as is the case for Phillipsburg Creek, means that the designated waters are trout waters.

2.4 Site-Wide Groundwater

Two water-bearing horizons underlie the Site, although only one results in any appreciable flow of groundwater. The uppermost, unconfined horizon is associated with the glacially deposited till and/or reworked till materials. This water-bearing zone extends to the top of the underlying bedrock surface. The glacial and reworked till deposits are hydraulically connected based on historical groundwater elevation data. The glacial till is generally poorly sorted with low porosity and permeability, whereas the anthropogenic and reworked materials are generally coarser in nature, and are assumed to be slightly more permeable and porous.

The bedrock also contains groundwater, although to a much smaller degree than the surficial unit. Fractures, jointing, and secondary openings are the primary source of groundwater from these sedimentary bedrock units. Based on observations of recharge rates following monitoring well purging, the degree of interconnectivity of these fractures is believed to be low. As a result, little flow is expected to occur through the bedrock water-bearing unit.

3. Remedial Activities Completed

The Site is in varying stages of the Remedial Investigation/Feasibility Study (RI/FS) and Remedial Design/Remedial Action (RD/RA) process for OU-1, OU-2, and OU-3 and the RCRA Facility Investigation/Corrective Measures Study

(RFI/CMS) process for OU-4. Because OU-3 represents all offsite media, other than groundwater, impacted by Site activities and the intent of this document is to summarize groundwater conditions, OU-3 is not discussed further in this report.

3.1 Operable Unit 4

A CMS for OU-4 was prepared by ENTACT LLC (ENTACT), on behalf of Revere, and submitted to the NYSDEC on February 7, 2014[4] (ENTACT 2014). The purpose of the CMS was to develop and evaluate corrective measures alternatives that address risks to human health and the environment from exposures to impacted soils and source materials within OU-4. Due to the current and expected future operations of the facility, Ecobat has determined that the implementation of final corrective measures is not practical or feasible and that a phased approach is warranted:

– Phase 1 – Interim Corrective Measures (ICMs) that will be implemented to address risks based on current land use and are consistent with the continued operations of the facility.
– Phase 2 – Final Corrective Measures that are implemented upon cessation of operations at the facility.

The final corrective measure alternatives are discussed in detail in the February 7, 2014, CMS. Each of the four alternatives involve the use of existing OU-4 surface cover (i.e. asphalt surface, concrete surface, building foundation, vegetated soil covers, gravel) and completion of the barrier wall system around the facility as the ICM to address risks based on current land use. On February 19, 2015, WSP submitted the Interim Corrective Measure Completion Report – Phase III Barrier Wall Installation and Phase I and II Barrier Wall Extensions - Operable Unit 4 (WSP 2015a), which presents the complete barrier wall system that encircles OU-4. Figure 2 shows the barrier wall system location and the location of groundwater extraction wells installed inside the barrier wall that provide hydraulic groundwater containment.

In September 2014, WSP submitted a Groundwater Extraction System Monitoring and Contingent Expansion Work Plan for Operable Unit 4 to the NYSDEC (Expansion Work Plan; WSP 2014). The Expansion Work Plan presented a hydraulic containment monitoring program and the contingent design of an expansion to the existing groundwater extraction system to provide additional capacity to contain groundwater within OU-4. The monitoring program included quarterly collection of water level data from monitoring wells and piezometers pairs located inside and outside of the hydraulic containment system and was approved with modifications by the NYSDEC in December 2014 (NYSDEC 2014). The expansion to the system would be installed if hydraulic containment monitoring revealed significant increases in groundwater elevation inside the completed barrier wall that would interfere with facility operations. The expansion would include two additional extraction wells to provide additional spatial coverage on the upgradient side of the Phase II barrier wall in the vicinity of the southern storm water tanks. This September 2014 Expansion Work Plan was revised in November 2016 to include additional detailed information presented in the Groundwater Extraction System Construction Completion Report regarding construction of the existing wells and revised as-built drawings to reflect the change in the nomenclature for groundwater extraction wells located at the Site (WSP 2016). The November 2016 Expansion Work Plan superseded previous versions. An Addendum to the Groundwater Extraction System Monitoring and Contingent Expansion Work Plan for Operable Unit 4 (Expansion Work Plan Addendum), which included additional piezometers along the Phase III barrier wall, was approved by the NYSDEC on September 9, 2017 (WSP 2017).

As a special condition in Schedule 1 of Module I (Facility-Specific Conditions) to Revere's Part 373 Permit Renewal (DEC Permit #3-3352-00145/00001) effective July 31, 2017, Revere was required by the NYSDEC to prepare the evaluation of the effectiveness of the hydraulic containment system as described in the Expansion Work Plan within 2.5 years of completion of the wet electrostatic precipitator (WESP) building. Additional piezometers pairs (PZ-19 through PZ-26[5]) were installed along the Phase III barrier wall in August 2018 following the completion of the fire access road to the WESP at the rear of the facility. At that time, piezometer PZ-14R was also installed to replace

[4] The February 7, 2014 CMS was Revision 2.0.
[5] After surveying the piezometers and inserting the new locations on the drawings, the final location of PZ-26 proved to be inadvertently on the interior side of the barrier wall. Existing monitoring well MW-23S-R, which is located nearby, serves as the corresponding piezometer for PZ-25 in the hydraulic containment monitoring program.

piezometer PZ-14, which had previously been abandoned in April 2014 as part of the Phase IIB RD/RA in OU-1 (WSP 2018a).

The Groundwater Extraction System Evaluation - Operable Unit 4 (Evaluation Report) that provided a summary of the groundwater elevation data collected from piezometer and monitoring well pairs located upgradient and downgradient of the completed barrier wall, a review of operational data collected from the groundwater extraction system, and an overview of analytical data trends in downgradient monitoring wells was submitted to the NYSDEC in February 2021 (WSP 2021). As described in the Groundwater Extraction System Monitoring and Contingent Expansion Work Plan for Operable Unit 4, six locations inside the barrier wall (piezometers PZ-9, PZ-11, and PZ-13, and monitoring wells MW-9, MW-19, and MW-20) were monitored on a quarterly basis as part of the routine groundwater monitoring program (GWMP; WSP 2018b), for the Site until completion of the Phase I and II barrier wall extensions in October 2014. Upon completion of the barrier wall extensions, the groundwater elevations in these six monitoring wells, and barrier wall piezometers were collected biweekly for a two-month period to identify significant changes to the water table elevation, if any, on the upgradient side of the barrier wall. After the first two months, WSP evaluated the data and reduced the frequency of data collection to the quarterly Site-wide groundwater monitoring program.

Based on the data evaluation, WSP concluded the existing groundwater extraction system is performing as designed, achieving the intended hydraulic control within the barrier wall, and expansion of the groundwater extraction system is unwarranted at that time. Groundwater elevation monitoring in the barrier wall piezometer pairs continues as described in the GWMP for the Site.

3.2 Operable Unit 1

OU-1 was recently remediated by Ecobat, and an onsite containment cell was constructed as part of the OU-1 Phase I RD/RA to dispose of lead and arsenic contaminated soils and sediments that had first been stabilized to meet the criteria of a non-hazardous waste. From 2014 through 2016, approximately 24 acres of wetlands and over 3,500 linear feet of streams in OU-1 were remediated and restored as part of the OU-1 Phase II-B RA (WSP 2023). The railroad pond was dewatered, impacted sediments were removed under dry conditions and replaced with clean material, and the pond was allowed to refill naturally. The western two-thirds of the containment cell were permanently capped, and a leachate collection system was installed during the Phase III RA. The remaining third of the containment cell was temporarily capped such that additional material from OU-3 could be placed in the cell at a future date. Following remediation, Ecobat completed construction of the WESP emissions control unit in OU-1 in the former Eastern Fill Area (EFA) east of the main plant as described above.

In September 2015, an OU-1 Phase III Containment Cell Groundwater Monitoring Work Plan (WSP 2015b) was prepared and submitted to the NYSDEC. This work plan included details regarding the installation of four proposed well pairs located around the containment cell to monitoring groundwater conditions upgradient and downgradient of the cell in accordance with 6 NYCRR Part 360-2.11. The NYSDEC approved the work plan with modifications, including an additional well pair, in a letter dated October 23, 2015 (NYSDEC 2015). Wells were installed at three of the proposed locations (MW-28, MW-29[6], and MW-30) in 2015, while the remaining well pairs (MW-31 and MW-32) were installed in September 2016. In addition, monitoring well pair MW-23S/D and well MW-26, which were abandoned during construction activities associated with the WESP, and an additional well (MW-33S) in the former EFA were installed in September 2016.

During the May 2016 quarterly groundwater sampling event, it was discovered that monitoring well MW-25S was damaged. In a letter dated September 8, 2017, the NYSDEC approved removal of this monitoring well from the GWMP.

Surface water samples collected at the Site in 1981 (O'Brien & Gere 2001) indicated that seepage to the drainage channel on the south side of the Site had low pH levels (pH = 3.2). Between 1994 and 2020, samples were collected quarterly from two locations (Figure 2): the confluence of the western and pond streams (SW-1), and at the discharge

[6] Monitoring well MW-29I (intermediate) was installed at the proposed location for monitoring well MW-29D; however, during construction this well could not be completed to the design depth and was installed to 12 feet bgs. Because this well is double-cased and screened within the weathered shale siltstone and not the overburden, this well is considered to be a bedrock monitoring well.

from the railroad pond (SW-5). Surface water quality samples collected from these two locations were analyzed for total lead, antimony, arsenic, cadmium, and chromium, sulfate, alkalinity, and pH.

As listed in the Record of Decision (ROD) for OU-1, surface water Standards, Criteria and Guidelines (SCGs) were calculated for antimony (3 micrograms per liter [µg/l]), arsenic (150 µg/l), cadmium (3.5 µg/l), and lead (7.8 µg/l) based on historical presence in surface water samples (NYSDEC 2011). Concentrations of antimony, arsenic, and cadmium have all been below applicable SCGs since the OU-1 RD/RA was completed (WSP 2022). Concentrations of lead only slightly exceeded surface water SCGs once at location SW-1 (9.6 µg/l in July 2017) and twice at location SW-5 (10.2 µg/l in February 2018 and 14.1 µg/l in March 2019). These slight exceedances were followed by at least four quarters of results below the SCGs; therefore, the Remedial Action Objectives (RAOs) for surface water listed in the ROD were met and surface water sampling was discontinued in 2020.

4. Groundwater Monitoring Program

Ecobat performs “property line compliance” monitoring with respect to the unconsolidated (overburden) and bedrock aquifer system. Property line compliance means that the unconsolidated and bedrock aquifer monitoring wells are or will be situated in the vicinity of the downgradient southern property boundary. Groundwater quality samples are collected quarterly by Ground Water Investigations-Hydrogeology, P.C.(GWI) from monitoring wells installed in the unconsolidated and bedrock aquifer system at the Site in accordance with the GWMP. With the additional wells installed in 2015 and 2016 and excluding monitoring well MW-25S, there are currently 34 active groundwater monitoring wells (21 overburden wells and 13 bedrock wells) located within the boundaries of OU-1 and OU-4 (Figure 2). In addition, one barrier wall piezometer (PZ-13) is included in the groundwater sampling program. Monitoring well and piezometer construction details for the wells installed at the Site are included in Table 1[7].

Based upon historical groundwater elevation data collected from existing monitoring wells, groundwater flow in the unconsolidated aquifer is to the south–southeast towards the Wallkill River (Figure 3). Groundwater flow in the bedrock aquifer also appears to flow south–southeast (Figure 4). Site-wide groundwater elevation data collected during the most recent (May 2024) monitoring event indicates that groundwater flow direction in the vicinity of the Site is similar to and consistent with conditions observed during historical sampling events (GWI 2024).

4.1 Overburden Aquifer

Ecobat collects groundwater quality samples from 21 monitoring wells and one piezometer installed in the unconsolidated material aquifer. The shallow (overburden) monitoring wells and piezometers that are currently part of the facility’s GWMP are listed on Table 1 and shown on Figure 2. The overburden aquifer monitoring wells are associated with the OUs as follows:

– Monitoring well MW-18S is located upgradient of the Ecobat facility and represents background groundwater quality;
– Monitoring wells MW-28S through MW-32S were installed to monitor the groundwater quality upgradient (MW--28S) and downgradient of the OU-1 containment cell;
– Monitoring wells MW-9S, MW-19S, MW-20S and piezometer PZ-13 are within the boundary of the existing barrier walls (OU-4);
– Monitoring well MW-7S is upgradient of the barrier walls but within the boundary of OU-4;
– Monitoring wells MW-23S/MW-23S-R and MW-26S/MW-26S-R were installed to monitor the groundwater quality downgradient of OU-4; and
– The remaining monitoring wells are within OU-1.

[7] Well names were revised in January 2016 with an S, I, or D to indicate overburden, intermediate, or bedrock wells.

4.2 Bedrock Aquifer

Currently, there are 13 bedrock monitoring wells onsite as listed on Table 1 and shown on Figure 2. The bedrock aquifer monitoring wells are associated with the OUs as follows:

– Bedrock monitoring well MW-18D was installed upgradient of the Ecobat facility to determine background water quality;
– Monitoring wells MW-28D through MW-32D were installed to monitor the groundwater quality upgradient (MW-28D) and downgradient of the OU-1 containment cell;
– Monitoring well MW-21D is within the boundary of the existing barrier walls (OU-4);
– Monitoring wells MW-23D/MW-23D-R were installed to monitor the groundwater quality downgradient of OU-4; and
– The remaining monitoring wells are within OU-1.

4.3 Barrier Wall Piezometers

As described in Section 3.1, Ecobat installed piezometer clusters (PZ-1 through PZ-25[8]) upgradient and downgradient of the barrier wall for measuring groundwater levels in the unconsolidated aquifer. The groundwater elevation data collected from the piezometers is used to evaluate the effectiveness of the barrier wall in retarding groundwater migration through the barrier structure.

PZ-14 was removed as part of on-going remediation efforts being completed at the facility; replacement piezometer PZ-14R was installed in September 2018 as shown on Figure 2. The piezometer clusters are positioned on an approximate 300-foot spacing along the barrier wall.

4.4 Quarterly Site-Wide Monitoring Program

Groundwater quality samples are collected from the monitoring wells listed in Table 2 and analyzed for total lead, antimony, arsenic, cadmium, and chromium, sulfate, alkalinity and pH to evaluate both Site-wide groundwater quality and specifically groundwater quality upgradient and downgradient of the containment cell. Total metals and inorganic groundwater quality samples are collected from the monitoring wells using new or dedicated tubing and a peristaltic pump, or a bailer, after the purging process. It should be noted that the elimination of dissolved lead from the groundwater monitoring program was approved by the NYSDEC in July 2003, and, as such, analysis for this parameter is no longer required.

Field blanks and/or trip blanks are collected and handled in as near to the same manner as groundwater samples. Duplicate samples are taken and handled the same as other groundwater samples.

4.5 Annual Containment Cell Monitoring Program

Groundwater quality samples are collected from the containment cell monitoring wells on a quarterly basis as described above. In addition, groundwater samples are collected on an annual basis from the containment cell wells (MW-28S/D, MW-29S/D, MW-30S/D, MW-31S/D, and MW-32S/D) for analysis of additional parameters, which are listed in 6 NYCRR Part 360-2.11 as “routine” and “baseline” parameters (WSP 2018b). The analysis of the annual program parameters is rotated quarterly, such that the annual program is conducted during a different quarter each calendar year.

[8] Piezometer PZ-26 was also installed in September 2018. As described in the October 30, 2018, Completion Report for the August 2017 Addendum to the Groundwater Extraction System Monitoring and Contingent Expansion Work Plan for Operable Unit 4 (WSP 2018a), piezometer PZ-26 will be abandoned at a future date and is therefore not included in the GWMP.

Groundwater quality samples collected from any monitoring well for volatile organic compound (VOC) analysis is collected using a new or dedicated Teflon or Polyethylene bailer before collection of any other samples. Vials are filled completely with no remaining headspace or bubbles.

Field blanks and/or trip blanks are collected and handled in as near to the same manner as groundwater samples. Duplicate samples are taken and handled the same as other groundwater samples. All containment cell groundwater samples are validated in accordance with the procedures outlined in 6 NYCRR Part 360-2.11(d).

4.6 Contingency Monitoring Program

4.6.1 Site-Wide Monitoring Wells

The quarterly reports include an evaluation of the data for all monitoring wells and recommend changes to the program as appropriate. For monitoring wells not associated with the containment cell, if a significant increase over historical water quality data is detected for one or more of the quarterly parameters, a contingent modification to the quarterly program will be developed and implemented in coordination with the NYSDEC.

4.6.2 Containment Cell Monitoring Wells

In accordance with 6 NYCRR Part 360-2.11(c), if a significant increase over existing water quality is detected for one or more of the parameters in the quarterly or annual program for the containment cell monitoring wells, the NYSDEC is notified within 14 days. A significant increase over the existing water quality is defined as an exceedance of the existing groundwater quality by three standard deviations, or an exceedance of water quality standards for that parameter as defined in 6 NYCRR Part 703 for a class GA groundwater (NYS Part 703 for a class GA groundwater). If the exceedance was detected during quarterly sampling, samples collected from the containment cell monitoring wells during the next quarterly sampling event will be analyzed for all of the annual parameters. If the exceedance was detected in an annual parameter, the data will be evaluated to determine an offsite source or explanation for the exceedance due to error in sampling, analysis, or natural variation, and a report will be submitted to the NYSDEC.

In accordance with 6 NYCRR Part 360-2.11(c), if a significant increase over existing water quality has been detected for one or more of the annual parameters listed above in the containment cell monitoring wells, and it cannot successfully be demonstrated to be due to an offsite source or an error in sampling, analysis, or natural variation in groundwater quality, a contingent groundwater monitoring program will be developed and implemented in coordination with the NYSDEC.

5. Groundwater Elevations and Flow Direction

During each quarterly groundwater sampling event, groundwater levels are collected Site-wide to evaluate potential changes in the groundwater table elevation and direction of groundwater flow (GWI 2024). As discussed in Sections 4.1 and 4.2, the overburden and bedrock aquifers contain 21 and 13 monitoring wells, respectively. Groundwater elevations from the most recent (May 2024) groundwater monitoring event were utilized to develop the overburden and bedrock monitoring well contour maps included as Figures 3 and 4. Historical groundwater elevation data from 2014 through May 2024 for both the overburden and bedrock monitoring wells are included on Tables 3 and 4 and presented on Figures 5 and 6.

5.1 Overburden Aquifer

Groundwater flow in the overburden aquifer is generally from the north to the south (Figure 3). The most upgradient well in the overburden aquifer is MW-18S, while the most downgradient overburden well is MW-14S. As shown on

Table 3, groundwater elevations generally vary by 60 feet between the most upgradient and downgradient monitoring wells.

As shown on Figure 5, the groundwater elevation fluctuates over time, with the generally lowest and highest elevations measured in Q3 and Q2, respectively. Over the past 10 years, the standard deviation in groundwater elevations has generally ranged within 2.5 feet of the average measurements.

5.2 Bedrock Aquifer

Groundwater flow in the bedrock aquifer is also generally from the north to the south (Figure 4). Prior to installation of the OU-1 containment cell monitoring wells, the most upgradient well in the bedrock aquifer was MW-18D, while the most downgradient bedrock well is MW-14D. However, monitoring well MW-28D, which is installed where bedrock is encountered at shallower depths adjacent to the OU-1 containment cell, is hydraulically upgradient to monitoring well MW-18D. Similar to overburden groundwater, bedrock groundwater elevations vary by approximately 60 feet between the most upgradient and downgradient monitoring wells.

As shown on Figure 6, the groundwater elevation fluctuates over time, with the generally lowest and highest elevations measured in Q3 and Q2, respectively. Over the past 10 years, the standard deviation in groundwater elevations has generally ranged within 2.6 feet of the average measurements.

6. Evaluation of Analytical Results - Groundwater

As described above, monitoring wells in both the overburden and bedrock aquifers are sampled quarterly for unfiltered metals (antimony, arsenic, cadmium, chromium, and lead) and miscellaneous organics (alkalinity, sulfate, and pH). Summary tables of field and laboratory analytical data reported by GWI since 2014 are included in Appendix A and graphs of concentrations over time in each well are included in Appendix B. Original laboratory analytical data were previously provided in reports prepared by GWI and are not included in this report.

While groundwater analytical data have been collected at the Site since 1992, only data collected since 2014 when the barrier walls were completed in OU-4 and implementation of OU-1 Phase II RD/RA began are evaluated in this summary report. The data are compared against the NYS Part 703 water quality standards for a Class GA groundwater as follows:

- Arsenic: 25 µg/l
- Antimony: 3 µg/l
- Cadmium: 5 µg/l
- Chromium: 50 µg/l
- Lead: 25 µg/l
- pH: Shall not be lower than 6.5 or the pH of the natural groundwater, whichever is lower, nor shall be greater than 8.5 or the pH of the natural groundwater, whichever is greater
- Sulfate: 250 milligrams per liter (mg/l)

Figures 7 through 14 depict the laboratory analytical results for these parameters since 2014. Figure 15 includes the minimum and maximum pH and maximum metals or sulfate concentrations over the past 10 years evaluated against the NYS Part 703 water quality standards for a class GA groundwater, as well as the current pH and parameter concentrations for comparison.

6.1 Metals

Exceedances of the NYS Part 703 water quality standards for metals for a Class GA groundwater in wells since 2014 are provided below in Exhibit 1.

Exhibit 1 Exceedances of NYS Part 703 Water Quality Standards for Metals for Class GA Groundwater Since 2014

Parameter	Number of Exceedances	Location
Wells Within OU-2		
Arsenic	None	N/A
Antimony	One (1)	MW-17S (07/17 [12.0 µg/l])
Cadmium	Multiple	MW-16S (08/16 [11.7 µg/l]; 11/16 [6.9 µg/l]; 08/19 [5.7 µg/l] and 08/23 [5.5 µg/l]) MW-23S-R (All events since 09/16; range from 8.5 to 36.6 µg/l) MW-24S (Most events since 03/14; range from ND to 13.3 µg/l; none since 05/23) MW-25S (11/15 [8.4 µg/l]) MW-26S-R (02/18 [5.2 µg/l]; 05/18 [9.3 µg/l]; 08/18 [9.3 µg/l]) MW-13D (5/14 [9.4 µg/l]) MW-23D-R (All events since 05/17; range from 45.4 to 72.4 µg/l)
Chromium	Three (3)	MW-29I (01/16 [55.0 µg/l]) MW-29D (01/16 [131.0 µg/l]) MW-30S (01/16 [333.0 µg/l])
Lead	Multiple	MW-7S (02/15 [30.9 µg/l]) MW-17S (11/15 [30.3 µg/l]; 08/16 [26.7 µg/l]) MW-18D (08/20 [46.3 µg/l]) MW-29I (01/16 [30.3 µg/l]) MW-29D (01/16 [45.1 µg/l]) MW-30S (01/16 [130.0 µg/l])
Wells Within OU-4		
Arsenic	Multiple	MW-9S (Most events since 05/14; range from ND to 191 µg/l) MW-21D (05/17 [26.0 µg/l]; 02/18 [36.0 µg/l]; 08/18 [29.0 µg/l]; 12/18 [28.0 µg/l])
Antimony	Multiple	MW-9S (Most events since 03/14; range from ND to 410 µg/l) MW-19S (Most events since 03/14; range from ND to 218.0 µg/l) MW-20S (02/18 [18.0 µg/l]; 05/19 [77.0 µg/l])
Cadmium	Multiple	MW-9S (02/18 [9.0 µg/l]) MW-19S (07/17 [165.0 µg/l]; 12/18 [5.8 µg/l]) MW-20S (17 events since 03/14; range from ND to 88.1 µg/l; none since 2022)
Chromium	None	N/A
Lead	Multiple	MW-9S (Most events since 03/14; range from ND to 17,500 µg/l) MW-19S (11/17 [34.5 µg/l]; 08/18 [44.7 µg/l]; 12/18 [39.4 µg/l]) MW-20S (02/18 [380.0 µg/l]; 08/18 [34.8 µg/l]; 02/21 [114.0 µg/l]; 03/22 [45.5 µg/l]; none since 03/22) MW-21D (8 Events since 03/14; range from ND to 56.3 µg/l; none since 02/21) PZ-13 (11/22 [40.8 µg/l])

Notes: N/A = Not applicable; ND = not detected above reporting limit

As shown in Exhibit 1, exceedances of the NYS Part 703 water quality standard for metals for a Class GA groundwater in wells since 2014 located within the area of OU-1 (monitoring OU-2 conditions) are limited to antimony,

cadmium, chromium, and lead. It should be noted that the lead and chromium exceedances in wells MW-29I, MW-29D, MW-30S in January 2016 are attributed to high turbidity in the wells after installation. Exceedances of applicable criterion have not been measured in these wells since the baseline sampling event in 2016.

The only OU-2 wells with consistent exceedances of cadmium since 2014 include MW-23S-R, MW-23D-R, and MW-24S. Aside from cadmium, there have been no exceedances of metals in (OU-2) groundwater since August 2020.

As shown in Exhibit 1, exceedances of the NYS Part 703 water quality standard for metals for a Class GA groundwater in wells since 2014 included in OU-4 are limited to antimony, arsenic, cadmium, and lead. Chromium has not been detected above the NYS Part 703 criterion for a Class GA groundwater in wells in OU-4 in the past 10 years. The wells within OU-4 with consistent exceedances of arsenic, antimony, cadmium and lead since 2014 include MW-9S, MW-19S, and MW-20S.

The concentrations in these wells are discussed in more detail below.

6.1.1 OU-2 Wells

As shown above, cadmium has been detected above NYS Part 703 water quality standards for Class GA groundwater in wells located to the southeast of the main plant north and south of the railroad tracks (Figure 2). Original wells MW-23S/D were installed in 2001 but were abandoned during the OU-1 Phase II RD/RA and replaced with wells MW--23S/D-R in 2016. As presented in previous reports, cadmium was not historically detected above the NYS Part 703 water quality standards for Class GA groundwater in the original wells.

However, in the replacement wells from 2016 through May 2024 cadmium was detected above the NYS Part 703 water quality standard for Class GA groundwater of 5 µg/l. Concentrations in the overburden well were generally within the same order of magnitude and ranged from 8.5 to 36.3 µg/l, while concentrations in the bedrock well ranged from 45.4 to 72.4 µg/l. Despite these detections, concentrations of cadmium in overburden wells decrease with distance downgradient from the Site, ranging from not detected above reporting limits to 13.3 µg/l at well MW-24S and not detected above reporting limits to 11.7 µg/l at well MW-16S. Cadmium has not been detected above reporting limits in either of these overburden downgradient monitoring wells since August 2023, and then only slightly above the NYS Part 703 water quality standards for Class GA groundwater (5.5 µg/l in well MW-16S). Concentrations of cadmium in bedrock wells also decrease with distance downgradient from the Site, with only one detection of cadmium above reporting limits in either wells MW-15D or MW-13D since 2014 (MW-13D at 9.4 µg/l in May 2014).

Therefore, the detections of cadmium in the wells over the past 10 years near the Site are within the same order of magnitude and concentrations of cadmium in downgradient groundwater quality are not detected indicating no impact to downgradient water quality. Downgradient monitoring wells will continue to be sampled for cadmium in accordance with the GWMP.

6.1.2 OU-4 Wells

While not specifically identified as a key metric to evaluate hydraulic performance of the groundwater extraction system, WSP also reviewed analytical data in 2021 for samples collected from downgradient monitoring wells and piezometer PZ-13 between 1999 (prior to the installation of the barrier walls) and 2020 (WSP 2021). The predominant metal compounds detected in groundwater in OU-4 wells at the Site above NYS Part 703 regulatory criteria for Class GA waters are arsenic, antimony, cadmium, and lead.

As can be seen on Exhibit 1 and described above, since the barrier walls were completed in 2014, lead has only been detected above the NYS Part 703 criterion for Class GA waters (25 µg/l) in wells located within the barrier walls (monitoring wells MW-9S, MW-19S, MW-20S, and MW-21D) on two occasions in monitoring well MW-17S outside the barrier wall, in the baseline samples from the OU-1 containment cell wells (which are attributed to turbidity), and in monitoring well MW-7S upgradient of the barrier wall on one occasion in 2015. Lead has not been detected above the NYS Part 703 criterion for Class GA waters in any downgradient monitoring wells outside the barrier wall since 2016. Arsenic has not been detected above the NYS Part 703 criterion for Class GA waters in any downgradient monitoring

wells outside the barrier wall since 2014, and antimony has only been detected once (MW-17S in 2017) above the applicable criterion.

Therefore, while antimony, arsenic, cadmium, and lead have been detected in samples collected from the wells within the barrier walls, the barrier walls are effectively retarding the migration of the compounds in groundwater outside the OU-4 boundary as intended. While cadmium has been detected in downgradient wells outside of OU-4, the concentrations are not impacting downgradient groundwater quality as discussed in Section 6.1.1. Downgradient monitoring wells will continue to be sampled in accordance with the GWMP.

6.2 Inorganic Parameters

As described above, monitoring wells in both the overburden and bedrock aquifers are also sampled quarterly for miscellaneous organics: alkalinity, sulfate, and pH. While there is no regulatory comparison criterion for alkalinity, this parameter is measured to evaluate the buffering capacity of the aquifer or the ability of the aquifer to neutralize acids and bases and therefore maintain a stable pH level.

6.2.1 Alkalinity

Alkalinity is measured in wells proposed for inclusion in OU-1 and wells in OU-4. Graphs of alkalinity over time in the overburden and bedrock aquifers are included on Figure 12. As can be seen on this figure and the trend plots included in Appendix B, the alkalinity in the overburden aquifer generally does not exhibit increasing or decreasing trends over time. This is supported by the general stable pH conditions observed in Site groundwater as described in Section 6.2.2.

6.2.2 pH

As shown on Table 5 and Figure 13, the pH of groundwater in the overburden at the Site tends to be more acidic than basic, while the pH of groundwater in the bedrock is more neutral. Overall, the pH in groundwater in the overburden at the Site is consistently between 4.5 and 7.9 while the groundwater in the bedrock is consistently between 5.5 and 8.6.

Since 2014, the pH of the groundwater in the upgradient overburden well MW-18S averaged 5.72, while the pH of the groundwater in the upgradient bedrock well MW-18D averaged 7.06. These values are considered to be representative of natural groundwater conditions and are included as the lower value of the acceptable range in accordance with NYS Part 703 criterion in Table 5.

Site-wide, the average pH ranged from 6.42 in well MW-08S-R to 6.62 in well MW-26S-R. Around the containment cell, the average pH in the overburden wells ranged from 6.32 in well MW-31S to 7.08 in well MW-30S, while the average pH in the bedrock wells ranged from 6.70 in well MW-30D to 7.64 in well MW-32D. These values are within the acceptable range listed in NYS Part 703 for a Class GA groundwater.

Within the barrier walls, the average pH in the overburden ranged from 6.28 in well MW-20S to 9.87 in well MW-9S. The pH in the bedrock well (MW-21D) averaged 6.95. Except for well MW-9S, the values were within the acceptable range listed in NYS Part 703 for a Class GA groundwater.

Finally, downgradient of the operating portion of the Site, the average pH in the overburden ranged from 6.06 in well MW-25S to 7.14 in well MW-14S. In the bedrock, the average pH ranged from 6.13 in well MW-23D-R to 6.83 in well MW-15D. Similar to the upgradient wells, these values are within the acceptable range listed in NYS Part 703 for a Class GA groundwater. Therefore, pH values in OU-2 were within the acceptable range listed in NYS Part 703 for a Class GA groundwater and there does not appear to be impacts to downgradient groundwater quality.

6.2.3 Sulfate

As described in the 2021 Evaluation Report (WSP 2021) and including new data collected since 2021, sulfate continues to be detected above the NYS Part 703 criterion of 250 mg/l in samples collected from wells located both within and outside the barrier wall. However, as shown on Figure 14 and the trend plots in Appendix B, the sulfate

concentrations in the overburden groundwater are exhibiting clear decreasing trends in most downgradient monitoring wells, with the only possible exception being monitoring well MW-25S. The sulfate concentrations in this well were showing a slight increase prior to damage to the well in November 2016; however, the sulfate concentrations in this well have not exceeded the NYS Part 703 criterion for Class GA waters since 2008. The November 2016 sample contained sulfate (90.2 mg/l) significantly below the NYS Part 703 criterion for Class GA waters (250 mg/l). Sulfate has not been detected above the NYS Part 703 criterion in wells MW-15S or MW-16S since November 2016 and November 2017, respectively.

In downgradient bedrock monitoring well MW-23D-R, sulfate continues to be detected above the NYS Part 703 criterion of 250 mg/l. As shown on Figure 14, the sulfate concentration in this well was stable or decreasing between September 2016 but has shown an increasing trend since November 2022. However, the sulfate concentrations in bedrock monitoring wells further downgradient (MW-13D and MW-15D) have shown decreasing trends. This well will continue to be monitored in accordance with the GWMP.

7. Evaluation of Analytical Results – Surface Water

As described above, surface water was also sampled quarterly for unfiltered metals (antimony, arsenic, cadmium, chromium, and lead) and miscellaneous organics (alkalinity, sulfate, and pH) until 2020 when it was demonstrated that RAOs for surface water in OU-1 were met (WSP 2022). Similar to groundwater summary tables of field and laboratory analytical data reported by GWI since 2014 are included in Appendix A and graphs of concentrations over time in each well are included in Appendix B. Original laboratory analytical data were previously provided in reports prepared by GWI and are not included in this report.

As described in Section 3.2, surface water data collected before and after the OU-1 RD/RA was implemented were evaluated against applicable SCGs listed in the ROD for OU-1 in the SMP (WSP 2022). The results of that evaluation indicated that the RAOs were met as acknowledged by the NYSDEC in their approval of the SMP (NYSDEC 2023). Since surface water has obtained its RAOs, it is unlikely that surface water is impacting groundwater at the site.

8. Conclusions

Groundwater and surface water data have been collected quarterly at the Site since the early 1990s, with the collection of surface water data ceasing in 2020 as RAOs in OU-1 were met (WSP 2022). An evaluation of the data provides the following conclusions:

– While concentrations of metals and sulfate exceed the NYS Part 703 criteria for a Class GA groundwater, impacts to downgradient groundwater quality or surface water that might affect offsite receptors are not observed.
– Except for well MW-9S which is within the OU-4 boundary, the pH of groundwater in the overburden and bedrock aquifers is within the acceptable range for a Class GA groundwater;
– The alkalinity and pH data indicate that the aquifer is capable of neutralizing acids and bases in groundwater to maintain a pH within an acceptable range meeting the NYS Part 703 criterion;
– The definition of OU-4 includes groundwater beneath the facility. Based on existing data, the barrier walls are effectively retarding the migration of metals in groundwater outside the OU-4 boundary. The OU-1 containment wells will continue to be monitored as part of the remedy for OU-1.

The analytical data supports natural attenuation and Ecobat believes this analysis supports the incorporation of OU-2 into OU-1. The OU-4 Interim Site Management Plan, which includes the GWMP as referenced in the OU-1 Site

Management Plan (WSP 2022), contains continued groundwater monitoring of both the overburden and bedrock aquifers. Post Interim Remedial Measure and OU-1 remedial measure groundwater conditions indicate a reduction in metal concentrations in OU-2 and downgradient monitoring well data that meet the NYS Part 703 criteria. The historical groundwater and surface water monitoring record for the Site summarized above provides sufficient data analysis to support a RCRA CA750 Environmental Indicator (Migration of Contaminated Groundwater Under Control) for OU-2. As previous groundwater within the barrier (slurry) wall has been incorporated into OU-4, Ecobat is requesting that OU-2 be incorporated into OU-1.

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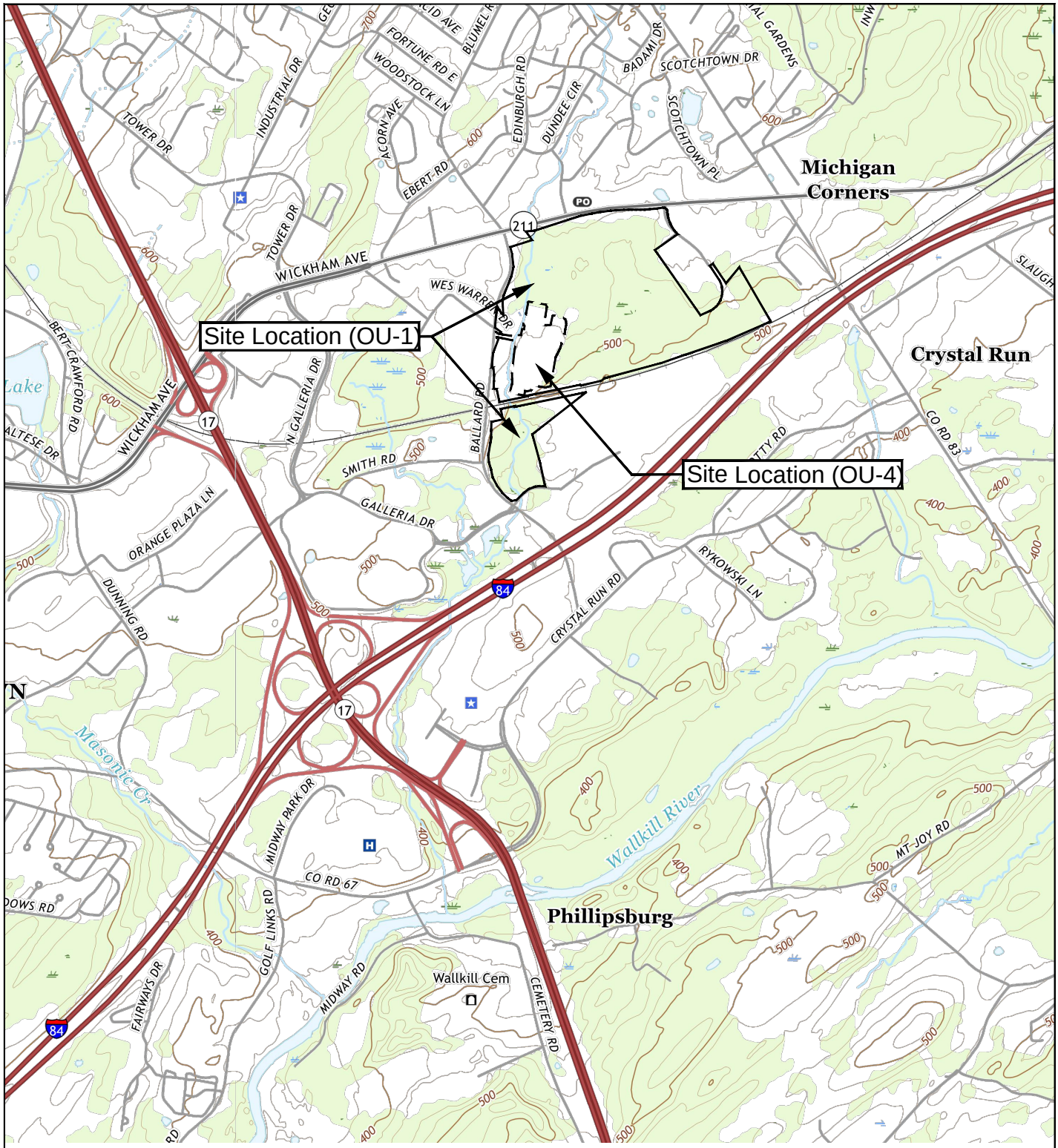
Figures



QUADRANGLE LOCATION

NOTES:
1. OU-2 REPRESENTS GROUNDWATER CONTAMINATION OUTSIDE THE BARRIER WALL SURROUNDING THE FACILITY AND IS NOT SHOWN.
2. OU-3 REPRESENTS ALL OFFSITE MEDIA, OTHER THAN GROUNDWATER, IMPACTED BY SITE ACTIVITIES AND IS NOT SHOWN.
3. CONTOUR INTERVAL: 20 FEET

0 1000 2000 ft

1" = 2000 ft

Coordinate System:
NAD 83 NEW YORK STATE PLANES EAST
US FOOT

N

GHD

ECOBAT RESOURCES NEW YORK, LLC
MIDDLETOWN, NEW YORK

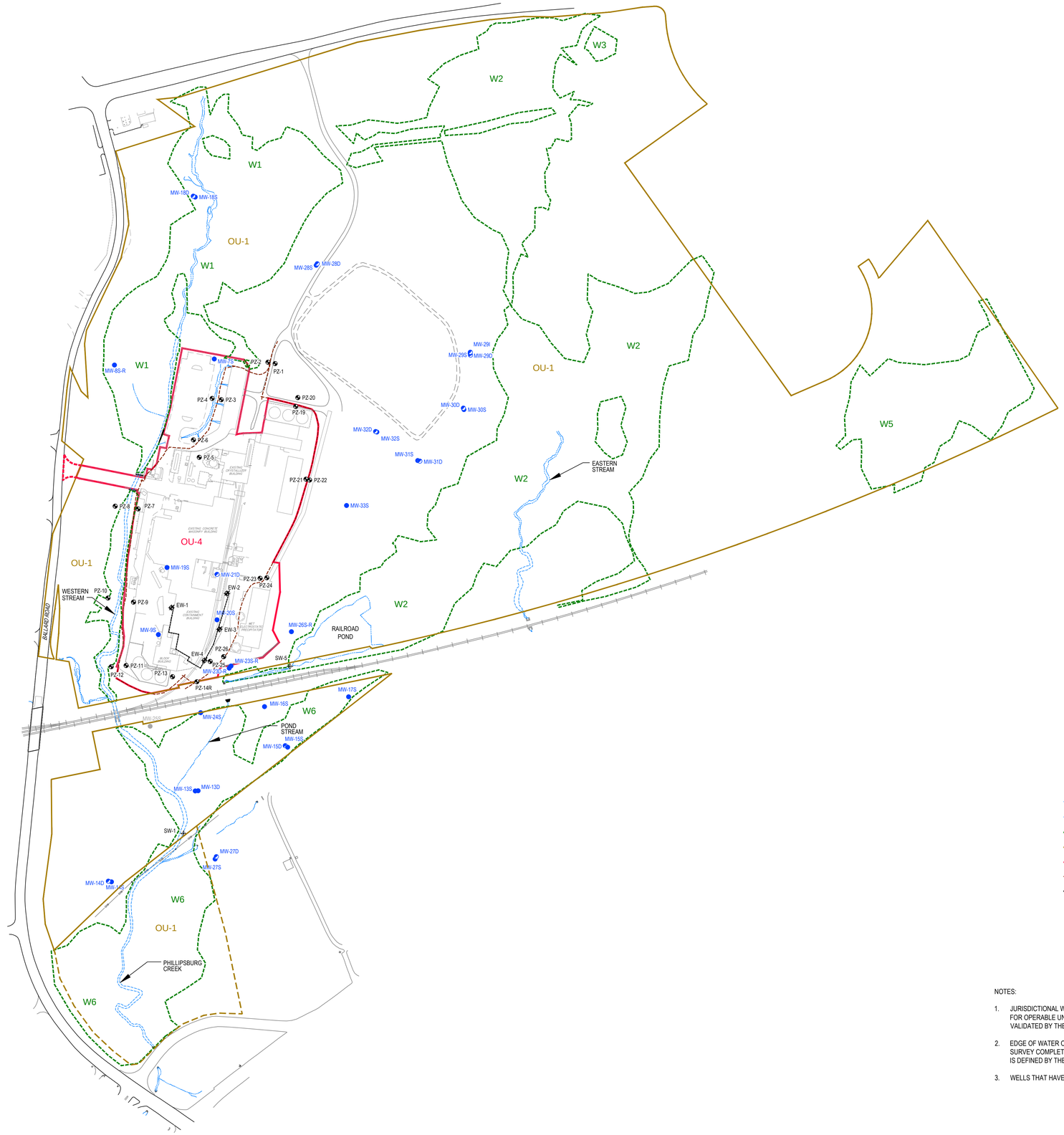
REVERE SMELTING & REFINING SITE
SITE LOCATION MAP

Project No. **12586936**
Date **September 2024**

FIGURE 1

Filename: \\ghdnet\ghd\US\Hyannis\Projects\564\12586936\Digital_Design\ACAD\Figures\GW Summary Report\12586936-GHD-00-00-RPT-EN-D101-WA-004.dwg
Plot Date: 03 September 2024 8:40 AM

Data Source: USGS QUADRANGLE MAP;
GOSHEN, NY, 2019 AND MIDDLETOWN, NY, 2019.



LEGEND

- EDGE OF WATER
- 2019 TOP OF BANK
- WETLAND
- OU-1 BOUNDARY LINE (DASHED WHERE NOT CONTROLLED BY ECOBAT)
- OU-4 BOUNDARY LINE NOT CONTROLLED BY ECOBAT)
- BARRIER WALL
- EXTRACTION SYSTEM PIPING
- OVERBURDEN MONITORING WELL
- OVERBURDEN MONITORING WELL (DAMAGED)
- BEDROCK MONITORING WELL
- PIEZOMETER
- EXTRACTION WELL
- SURFACE WATER SAMPLE

NOTES:

1. JURISDICTIONAL WETLAND LIMITS (W1, W2, AND W6) AS DELINEATED IN TETRA TECH'S MAY 2011 AQUATIC RESOURCES SURVEY REPORT FOR OPERABLE UNIT 1 AND APPROVED BY THE USACOE JURISDICTIONAL DETERMINATION DATED OCTOBER 25, 2011. WETLAND LIMITS VALIDATED BY THE NYSDEC AS NY STATE FRESHWATER WETLAND GO-47 IN SIGNED MAPS DATED JUNE 20, 2011.
2. EDGE OF WATER OUTSIDE RESTORED SECTIONS OF STREAM AND ON THE POND STREAM IS BASED ON THE JUNE 2011 TOPOGRAPHIC SURVEY COMPLETED BY J. PETER BORBAS. WITHIN THE RESTORED SECTIONS OF THE WESTERN AND EASTERN STREAMS, THE STREAM IS DEFINED BY THE TOP OF BANK AS SURVEYED BY WSP IN DECEMBER 2019.
3. WELLS THAT HAVE BEEN ABANDONED ARE NOT SHOWN ON THIS DRAWING.

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Hyannis MA 02601 USA
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0 1"

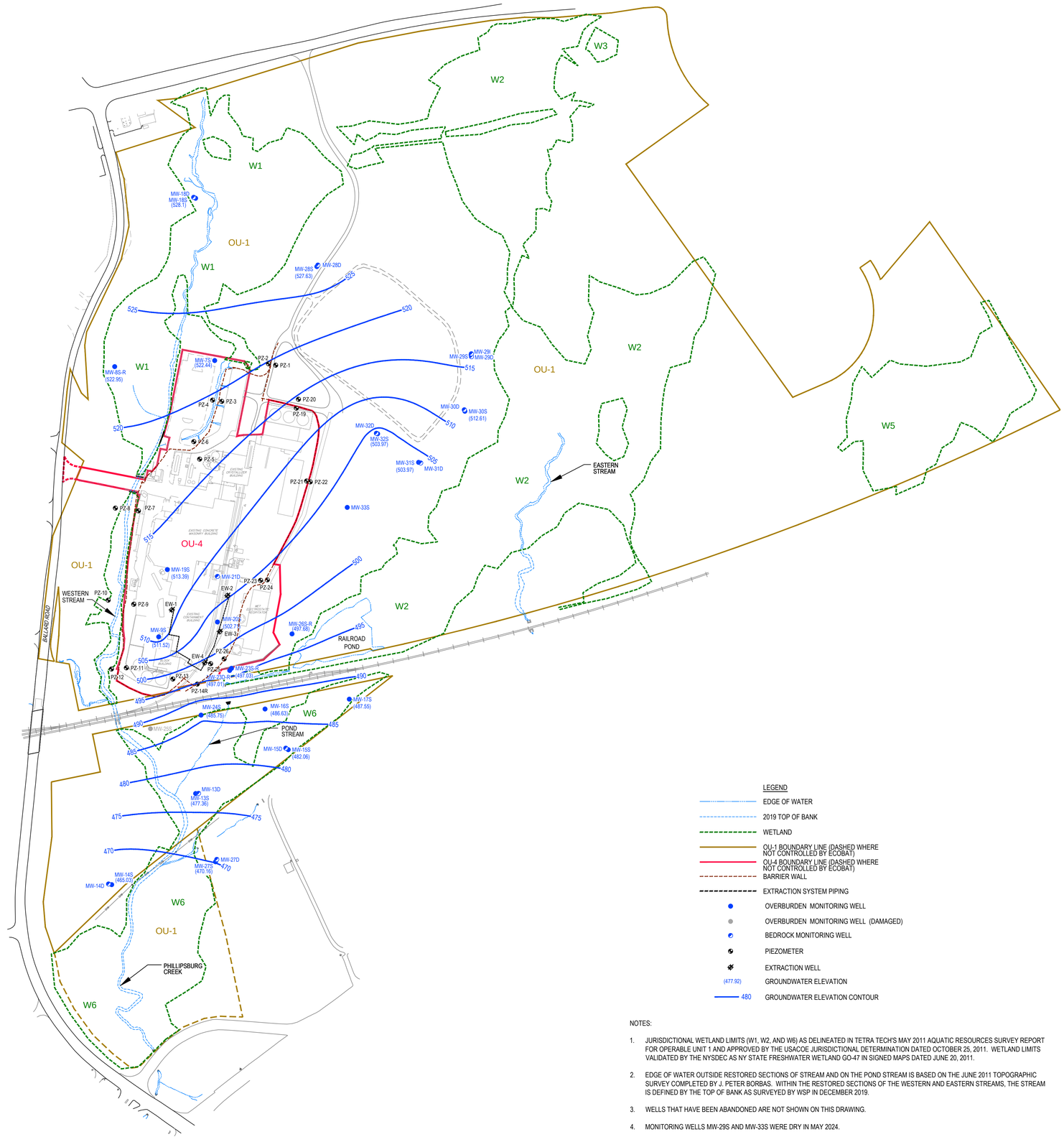
No.	Issue	Checked	Approved	Date

Author | Designer
Drafting Check | Design Check
Project Manager D.BASICH | Project Director C. ALBERTIN

Client
ECOBAT RESOURCES NEW YORK, LLC MIDDLETOWN, NEW YORK

Project
GROUNDWATER SUMMARY REPORT REVERE SMELTING & REFINING SITE MIDDLETOWN, NEW YORK

Date **SEPTEMBER 2024** | Scale 1" = 200'
Project No. **12586936**
Title SITE LAYOUT
Size **ARCH D**
Sheet No. FIGURE 2



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0 200' 400'

LEGEND

- EDGE OF WATER
- 2019 TOP OF BANK
- WETLAND
- OU-1 BOUNDARY LINE (DASHED WHERE NOT CONTROLLED BY ECOBAT)
- OU-4 BOUNDARY LINE (DASHED WHERE NOT CONTROLLED BY ECOBAT)
- BARRIER WALL
- EXTRACTION SYSTEM PIPING
- OVERBURDEN MONITORING WELL
- OVERBURDEN MONITORING WELL (DAMAGED)
- BEDROCK MONITORING WELL
- PIEZOMETER
- EXTRACTION WELL
- (477.92) GROUNDWATER ELEVATION
- 480 GROUNDWATER ELEVATION CONTOUR

NOTES:

1. JURISDICTIONAL WETLAND LIMITS (W1, W2, AND W6) AS DELINEATED IN TETRA TECH'S MAY 2011 AQUATIC RESOURCES SURVEY REPORT FOR OPERABLE UNIT 1 AND APPROVED BY THE USACOE JURISDICTIONAL DETERMINATION DATED OCTOBER 25, 2011. WETLAND LIMITS VALIDATED BY THE NYSDEC AS NY STATE FRESHWATER WETLAND GO-47 IN SIGNED MAPS DATED JUNE 20, 2011.
2. EDGE OF WATER OUTSIDE RESTORED SECTIONS OF STREAM AND ON THE POND STREAM IS BASED ON THE JUNE 2011 TOPOGRAPHIC SURVEY COMPLETED BY J. PETER BORBAS. WITHIN THE RESTORED SECTIONS OF THE WESTERN AND EASTERN STREAMS, THE STREAM IS DEFINED BY THE TOP OF BANK AS SURVEYED BY WSP IN DECEMBER 2019.
3. WELLS THAT HAVE BEEN ABANDONED ARE NOT SHOWN ON THIS DRAWING.
4. MONITORING WELLS MW-29S AND MW-33S WERE DRY IN MAY 2024.

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0 1"

No.	Issue	Checked	Approved	Date

Author | Designer
Drafting Check | Design Check
Project Manager **D.BASICH** | Project Director **C. ALBERTIN**

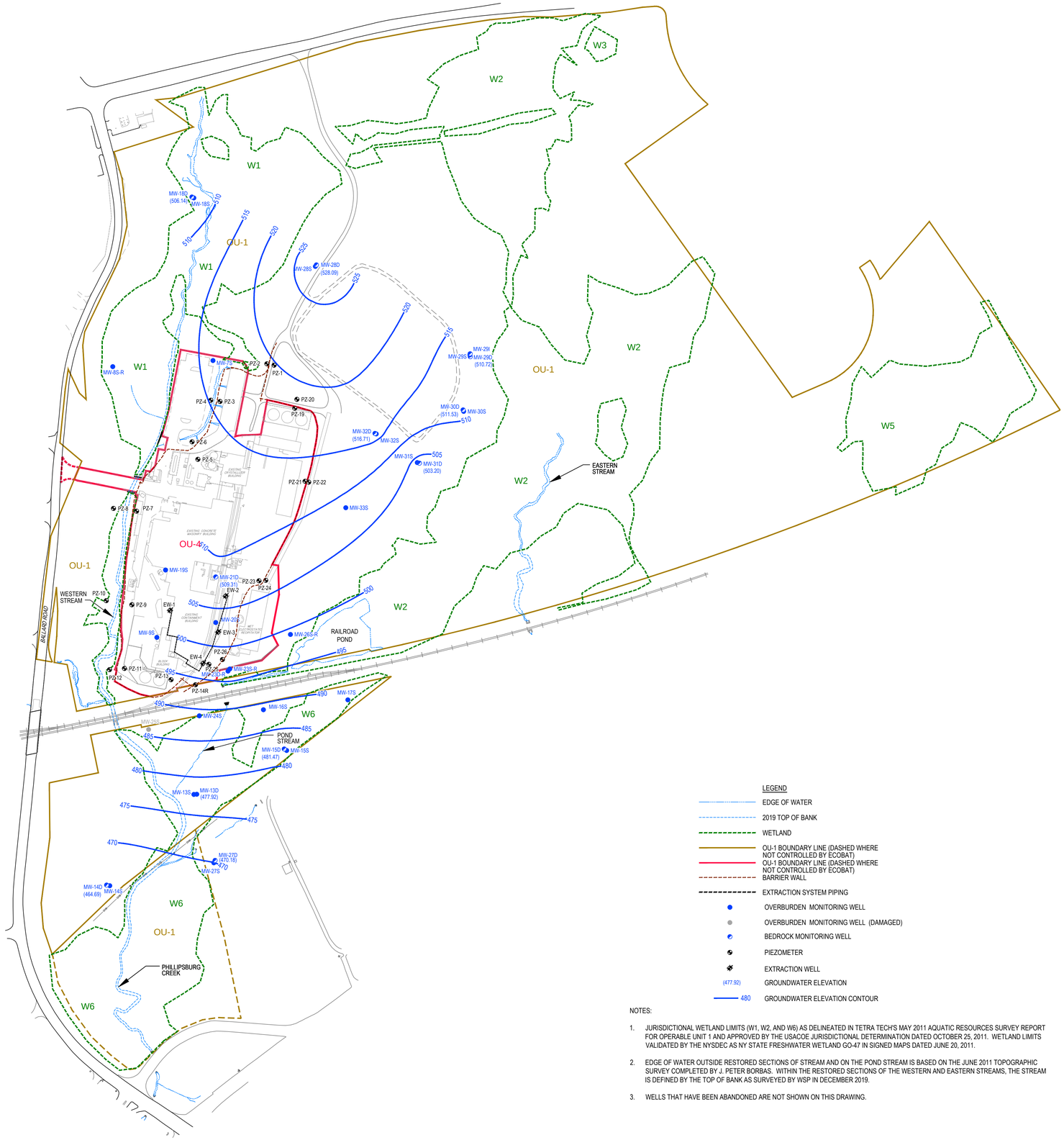
Client
ECOBAT RESOURCES NEW YORK, LLC
MIDDLETOWN, NEW YORK

Project
GROUNDWATER SUMMARY REPORT
REVERE SMELTING & REFINING SITE
MIDDLETOWN, NEW YORK

Date: **SEPTEMBER 2024** | Scale: 1" = 200'
Project No.: **12586936**
Size: **ARCH D**

Title
OVERBURDEN GROUNDWATER CONTOURS - MAY 2024

Sheet No.
FIGURE 3



NOTES:

1. JURISDICTIONAL WETLAND LIMITS (W1, W2, AND W6) AS DELINEATED IN TETRA TECH'S MAY 2011 AQUATIC RESOURCES SURVEY REPORT FOR OPERABLE UNIT 1 AND APPROVED BY THE USACOE JURISDICTIONAL DETERMINATION DATED OCTOBER 25, 2011. WETLAND LIMITS VALIDATED BY THE NYSDEC AS NY STATE FRESHWATER WETLAND GO-47 IN SIGNED MAPS DATED JUNE 20, 2011.
2. EDGE OF WATER OUTSIDE RESTORED SECTIONS OF STREAM AND ON THE POND STREAM IS BASED ON THE JUNE 2011 TOPOGRAPHIC SURVEY COMPLETED BY J. PETER BORBAS. WITHIN THE RESTORED SECTIONS OF THE WESTERN AND EASTERN STREAMS, THE STREAM IS DEFINED BY THE TOP OF BANK AS SURVEYED BY WSP IN DECEMBER 2019.
3. WELLS THAT HAVE BEEN ABANDONED ARE NOT SHOWN ON THIS DRAWING.

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Bar is one inch on original size sheet
0 1"

No.	Issue	Checked	Approved	Date

Author	Designer
Drafting Check	Design Check
Project Manager D.BASICH	Project Director C. ALBERTIN

Client
ECOBAT RESOURCES NEW YORK, LLC MIDDLETOWN, NEW YORK

Project
GROUNDWATER SUMMARY REPORT REVERE SMELTING & REFINING SITE MIDDLETOWN, NEW YORK

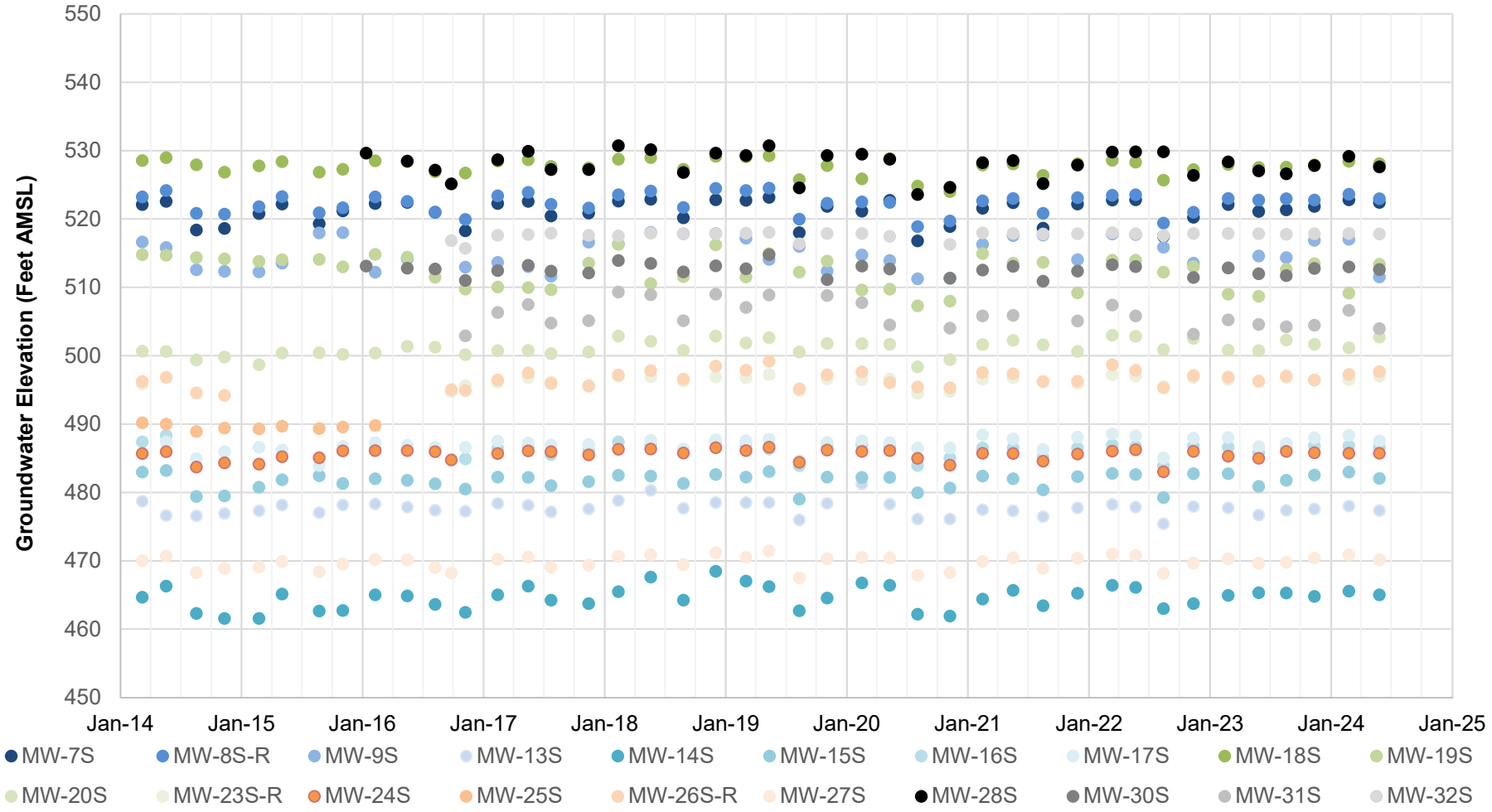
Date	Scale
SEPTEMBER 2024	1" = 200'

Project No.
12586936

Title
BEDROCK GROUNDWATER CONTOURS - MAY 2024

Size
ARCH D

Sheet No.
FIGURE 4



NOTES:

1. AMSL = above mean sea level
2. Data obtained from quarterly groundwater monitoring reports prepared by Ground Water Investigations-Hydrogeology, P.C. of Montgomery, New York.

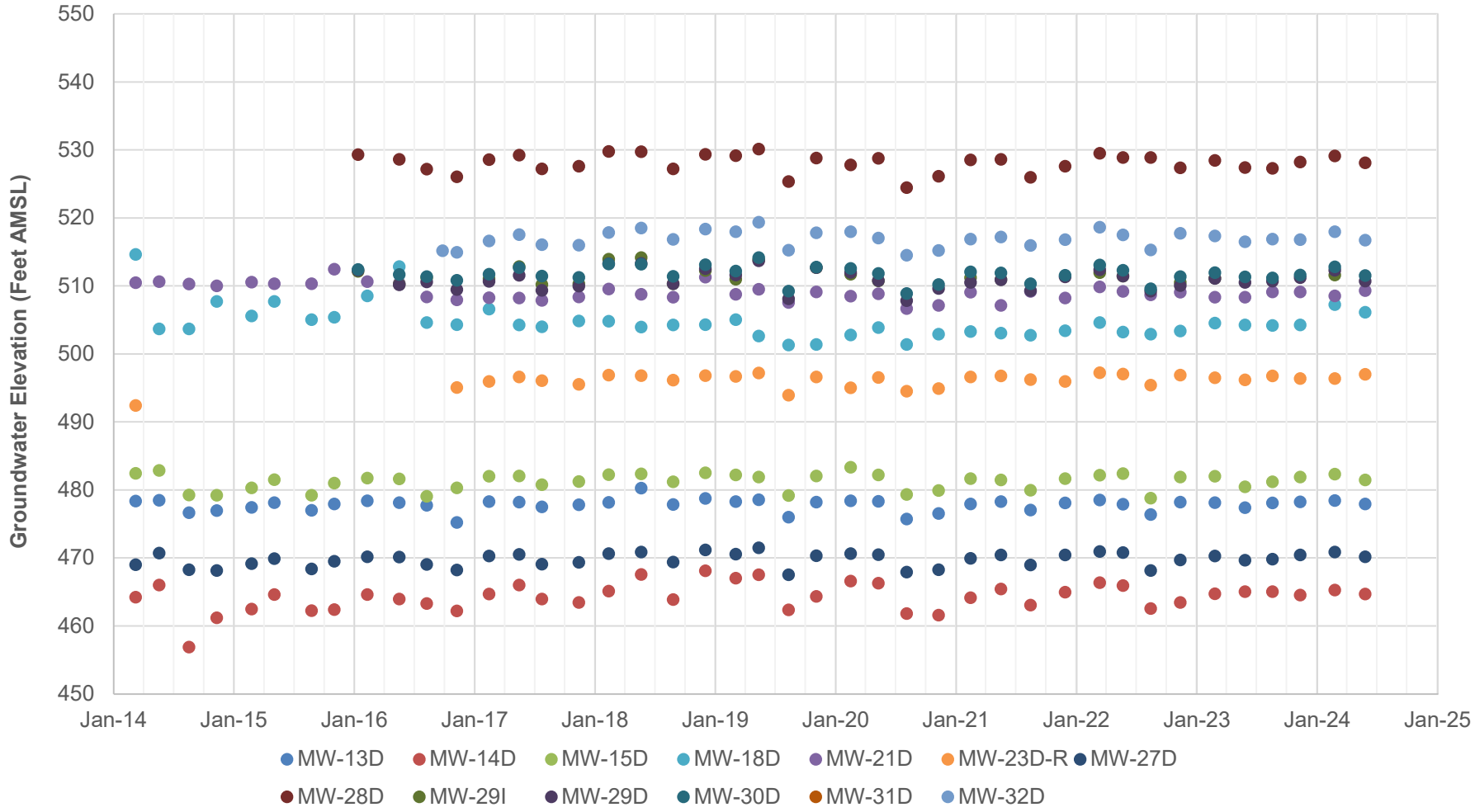
REVERE SMELTING & REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ELEVATION DATA - OVERBURDEN WELLS

Project No: 12586936
Date: 09/05/24

FIGURE 5

File Name: \\ghdnet\ghd\US\Hyannis\Projects\564\12586936\Tech\CA 750 Support\Report\Tables\12586936-RPT_Ecobat CA750 Tables.xlsx
Print Date: 9/5/2024



NOTES:

1. AMSL = above mean sea level
2. Data obtained from quarterly groundwater monitoring reports prepared by Ground Water Investigations-Hydrogeology, P.C. of Montgomery, New York.

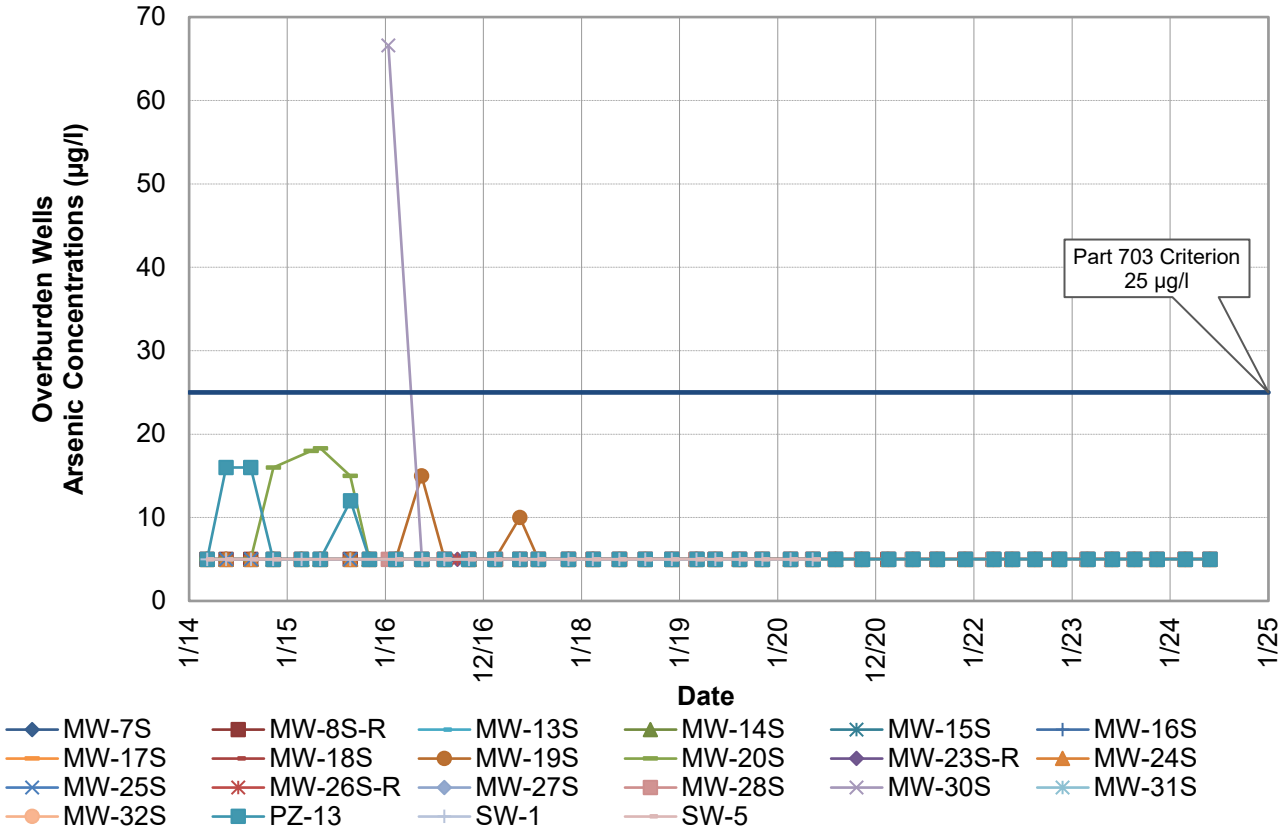
REVERE SMELTING & REFINING SITE
MIDDLETOWN, NEW YORK

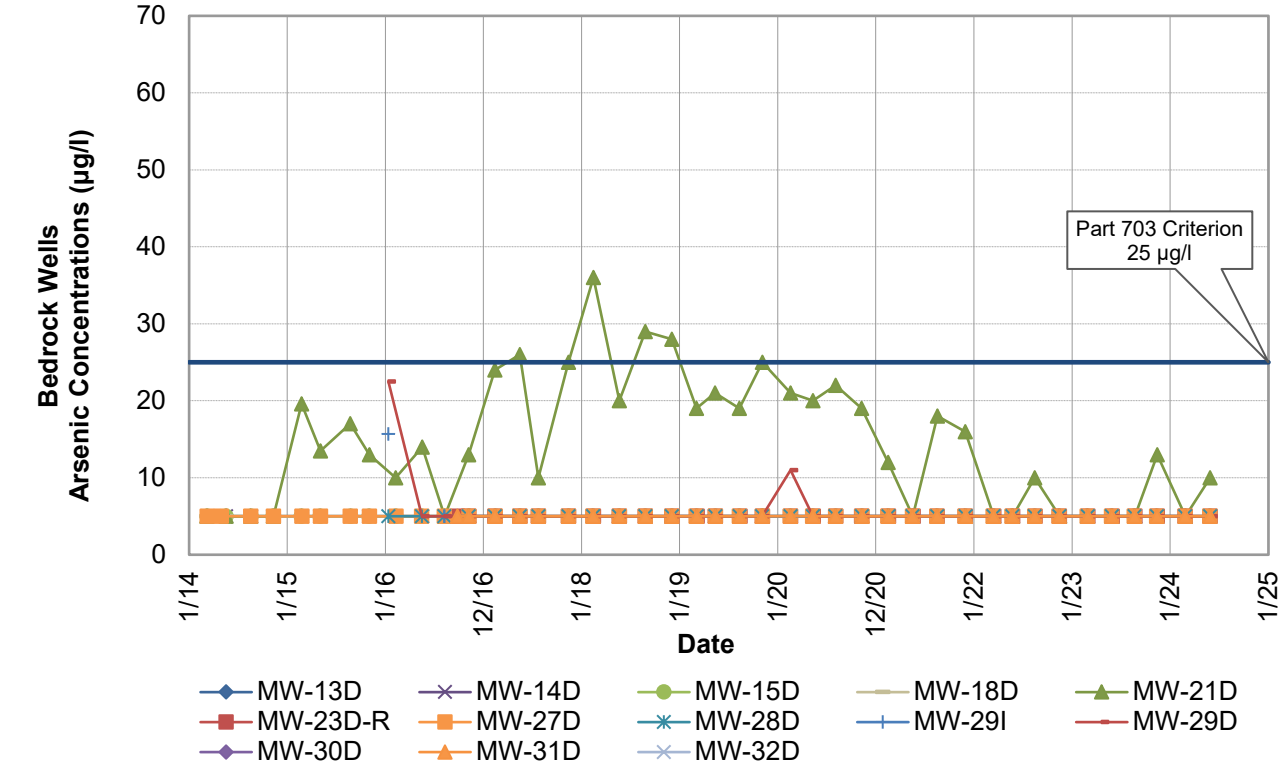
GROUNDWATER ELEVATION DATA - BEDROCK WELLS

Project No: 12586936
Date: 09/05/24

FIGURE 6

File Name: \\ghdnet\ghd\US\Hyannis\Projects\564\12586936\Tech\CA 750 Support\Report\Tables\12586936-RPT_Ecobat CA750 Tables.xlsx
Print Date: 9/5/2024





NOTES:

1. Only data from the past 10 years (2014-2024) are included on these graphs.
2. NYS Part 703 Class GA Limit for antimony is 3 ug/l, laboratory detection limits for antimony samples was 10 ug/l, aside from

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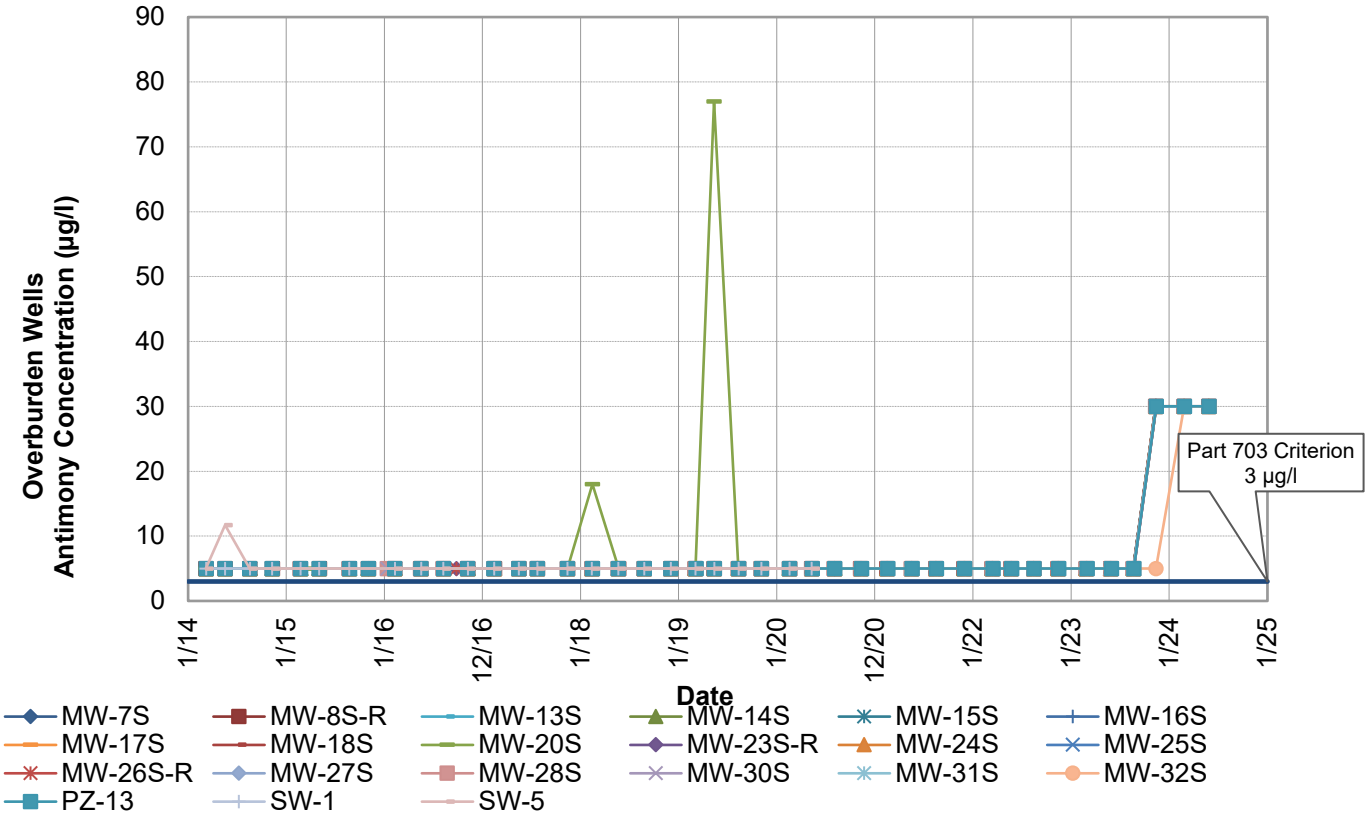
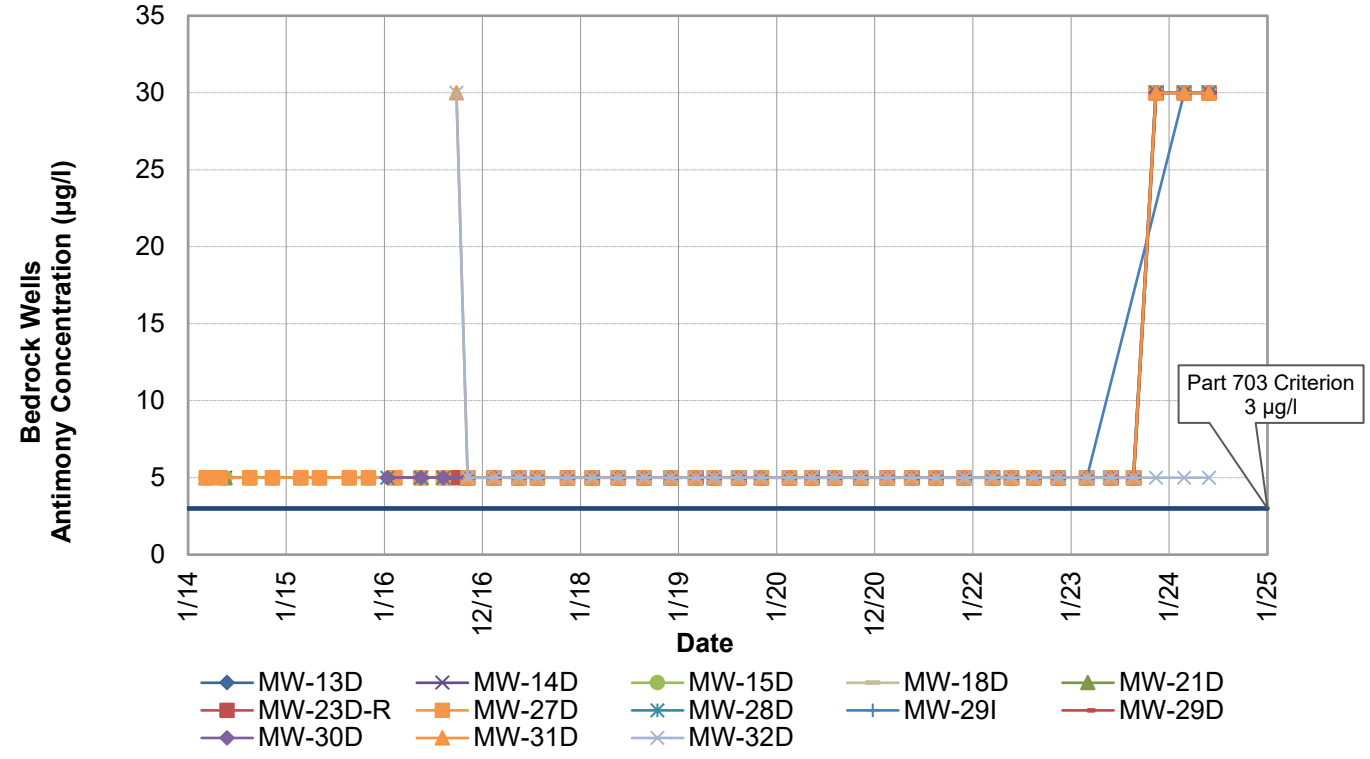
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

ARSENIC RESULTS

Project No: 12586936
Date: 09/26/24

FIGURE 7





NOTES:

1. Only data from the past 10 years (2014-2024) are included on these graphs.
2. NYS Part 703 Class GA Limit for antimony is 3 ug/l, laboratory detection limits for antimony samples was 10 ug/l. In Q4 2023, detection limits were raised to 60 ug/l.

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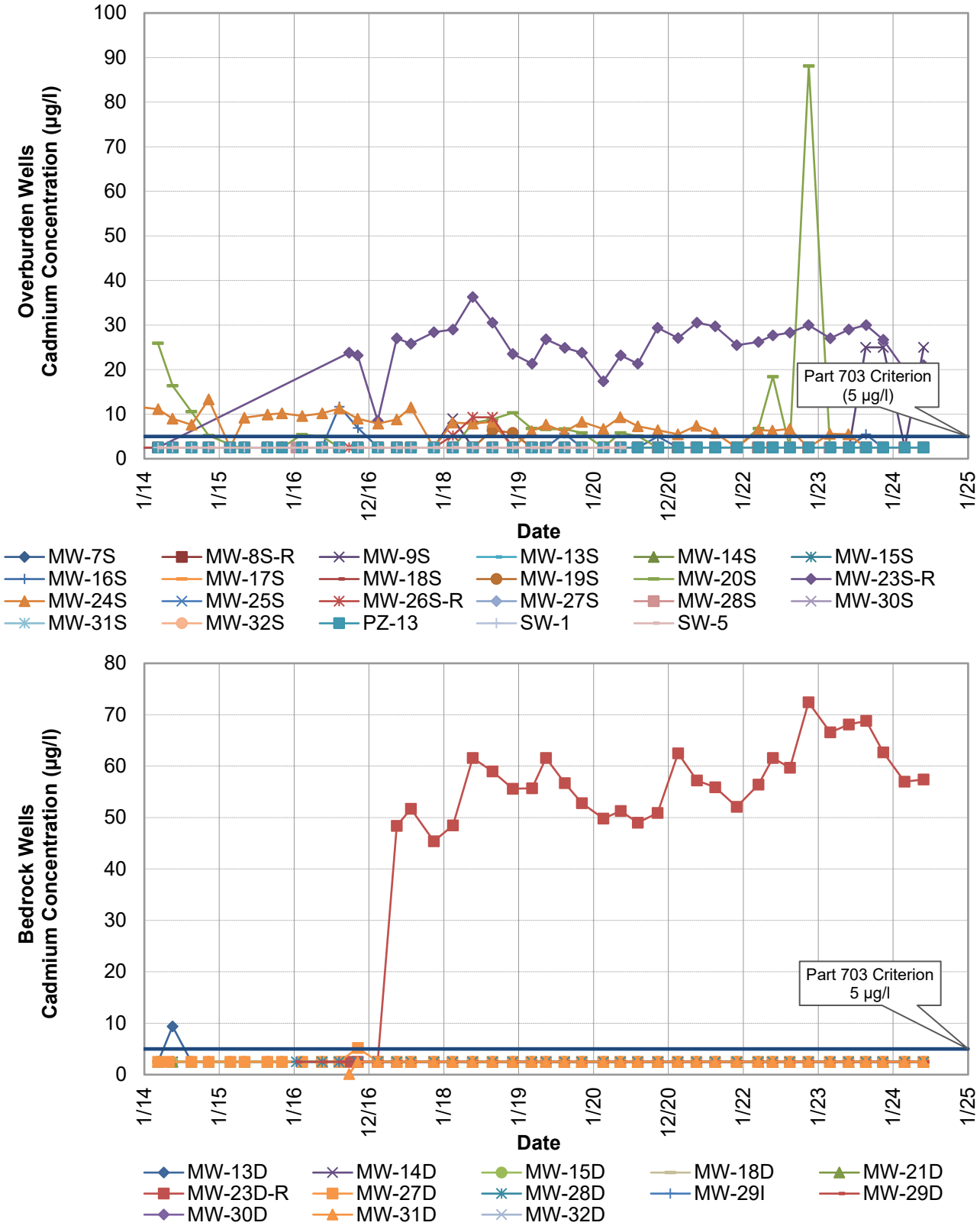
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

ANTIMONY RESULTS

Project No: 12586936
Date: 09/26/24

FIGURE 8



NOTES:

1. Only data from the past 10 years (2014-2024) are included on these graphs.
2. NYS Part 703 Class GA Limit for cadmium is 5 ug/l

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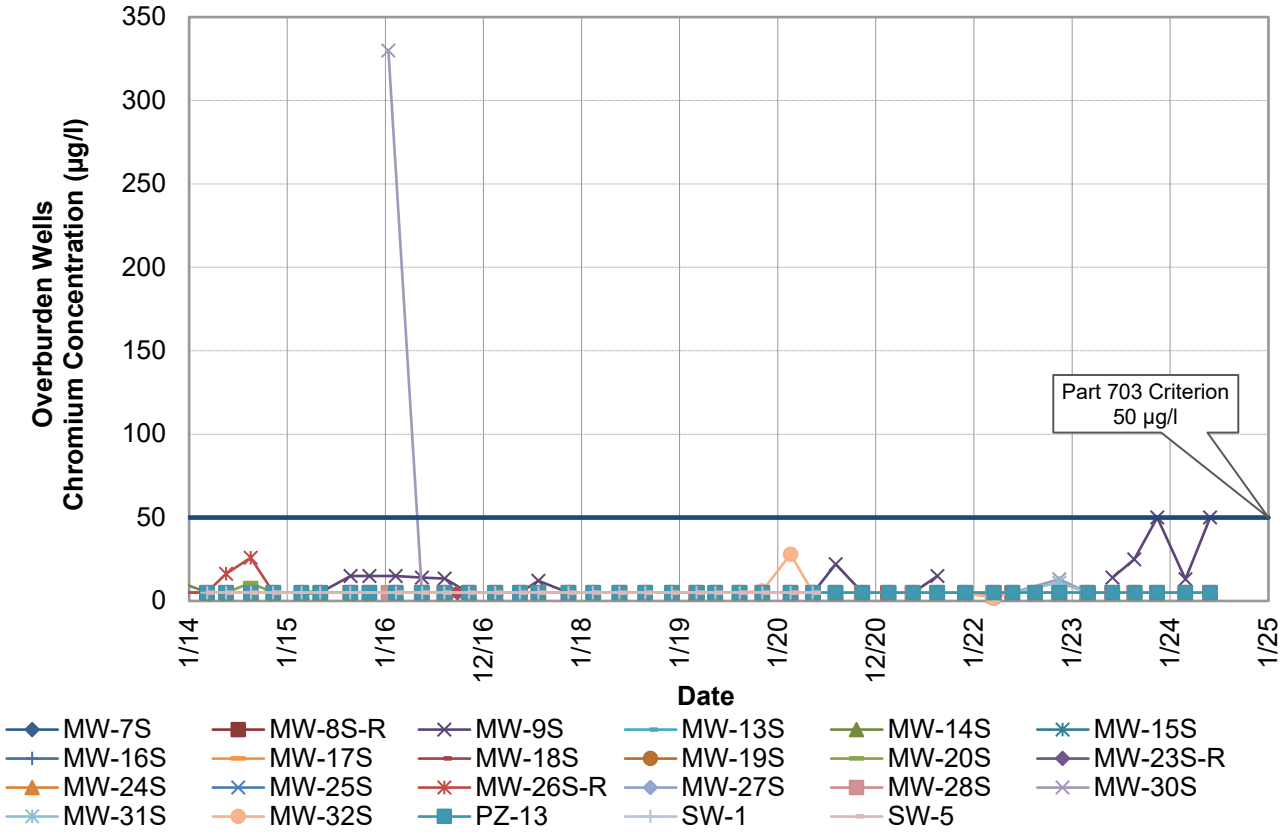
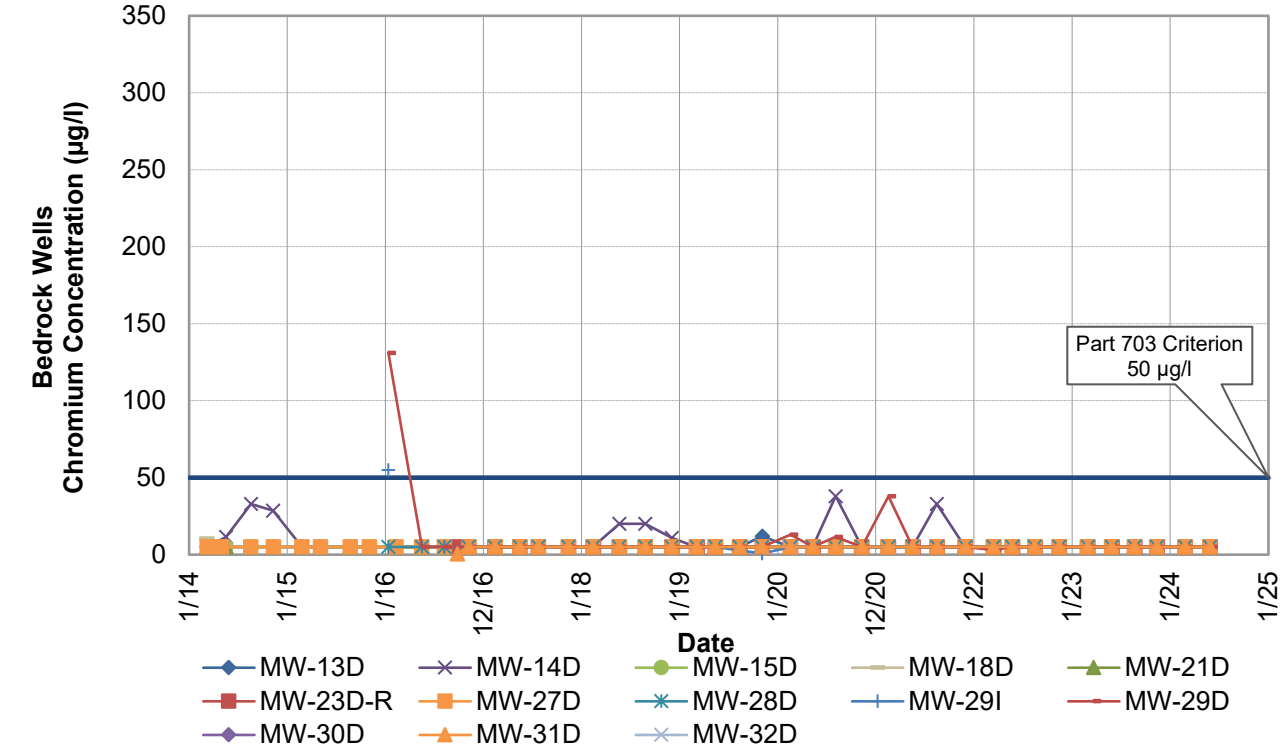
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

CADMIUM RESULTS

Project No: 12586936
Date: 09/26/24

FIGURE 9





NOTES:

1. Only data from the past 10 years (2014-2024) are included on these graphs.
2. NYS Part 703 Class GA Limit for chromium is 50 ug/l

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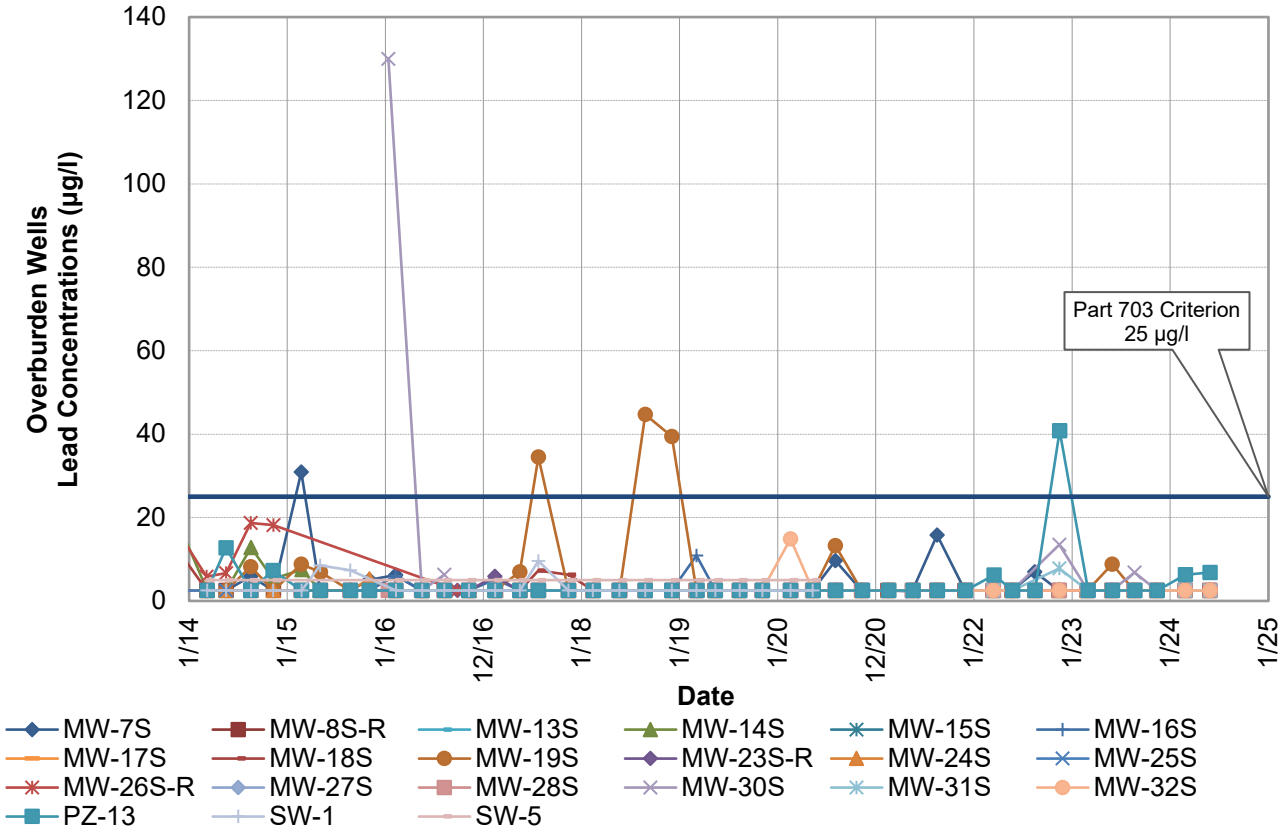
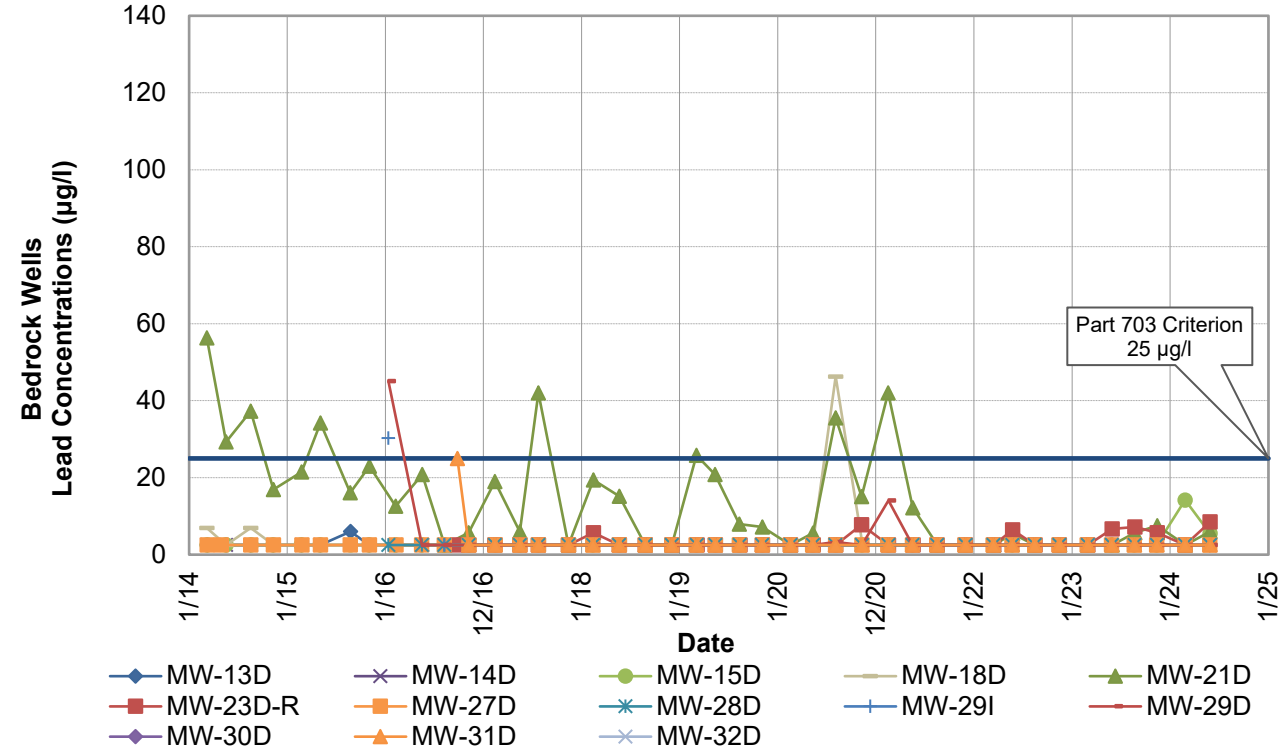
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

CHROMIUM RESULTS

Project No: 12586936
Date: 09/26/24

FIGURE 10





NOTES:

1. Only data from the past 10 years (2014-2024) are included on these graphs.
2. NYS Part 703 Class GA Limit for lead is 25 ug/l

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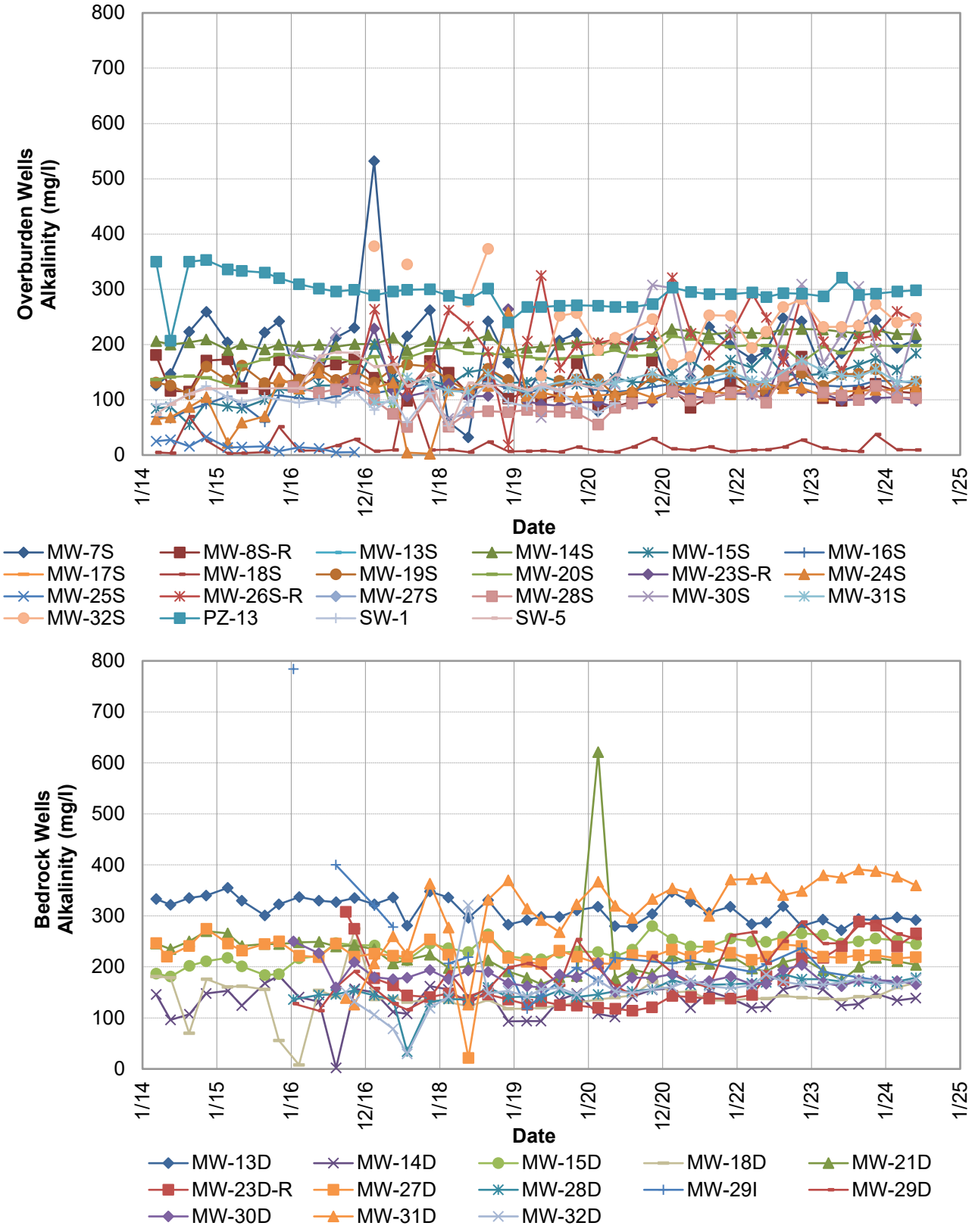
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

LEAD RESULTS

Project No: 12586936
Date: 09/26/24

FIGURE 11



NOTES:

1. Only data from the past 10 years (2014-2024) are included on these graphs.

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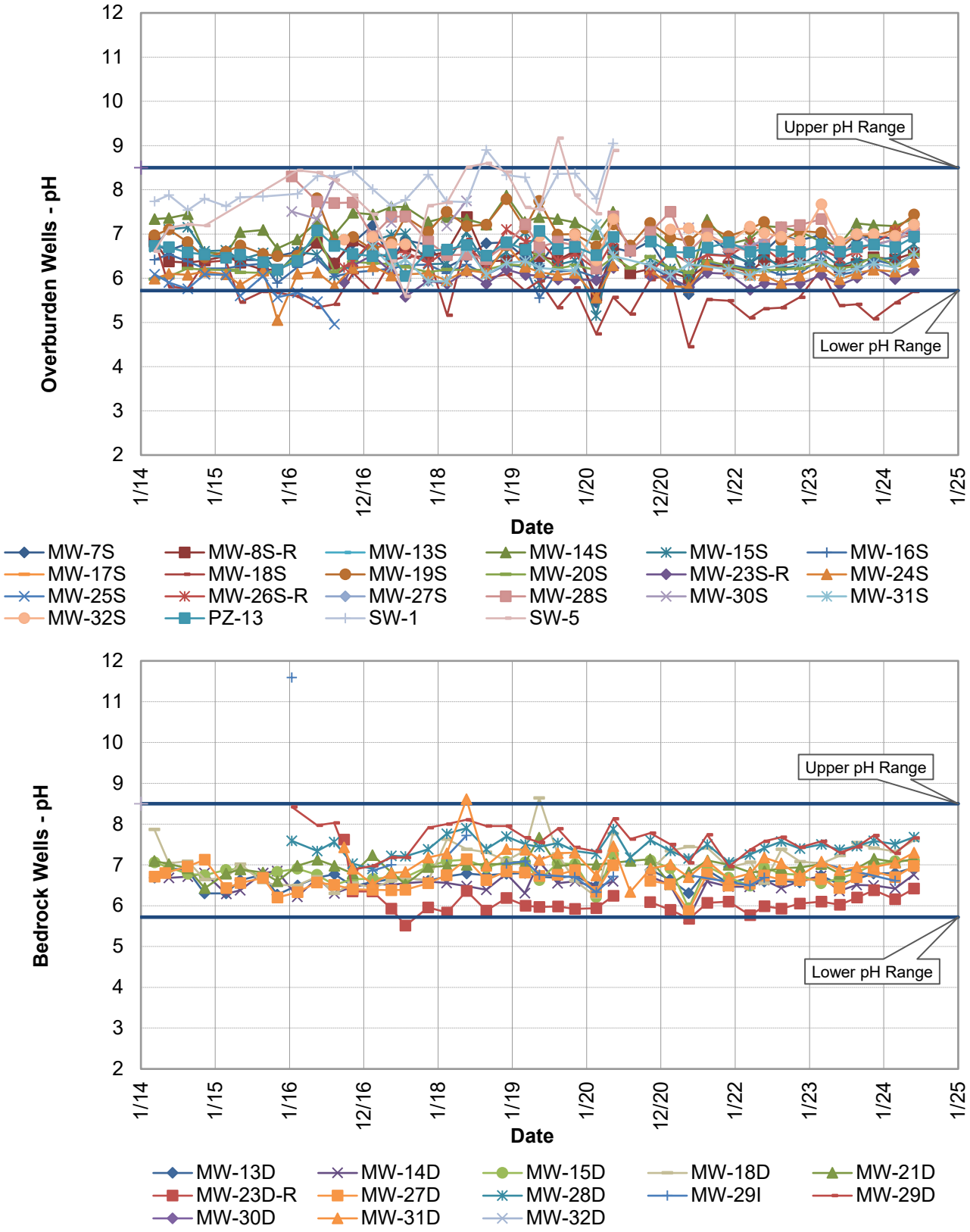
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

ALKALINITY RESULTS

Project No: 12586936
Date: 09/26/24

FIGURE 12



NOTES:

1. Only data from the past 10 years (2014-2024) are included on these graphs.
2. NYS Part 703 Class GA Limit for pH is a maximum of 8.5 and a minimum of 5.72 (average upgradient background)

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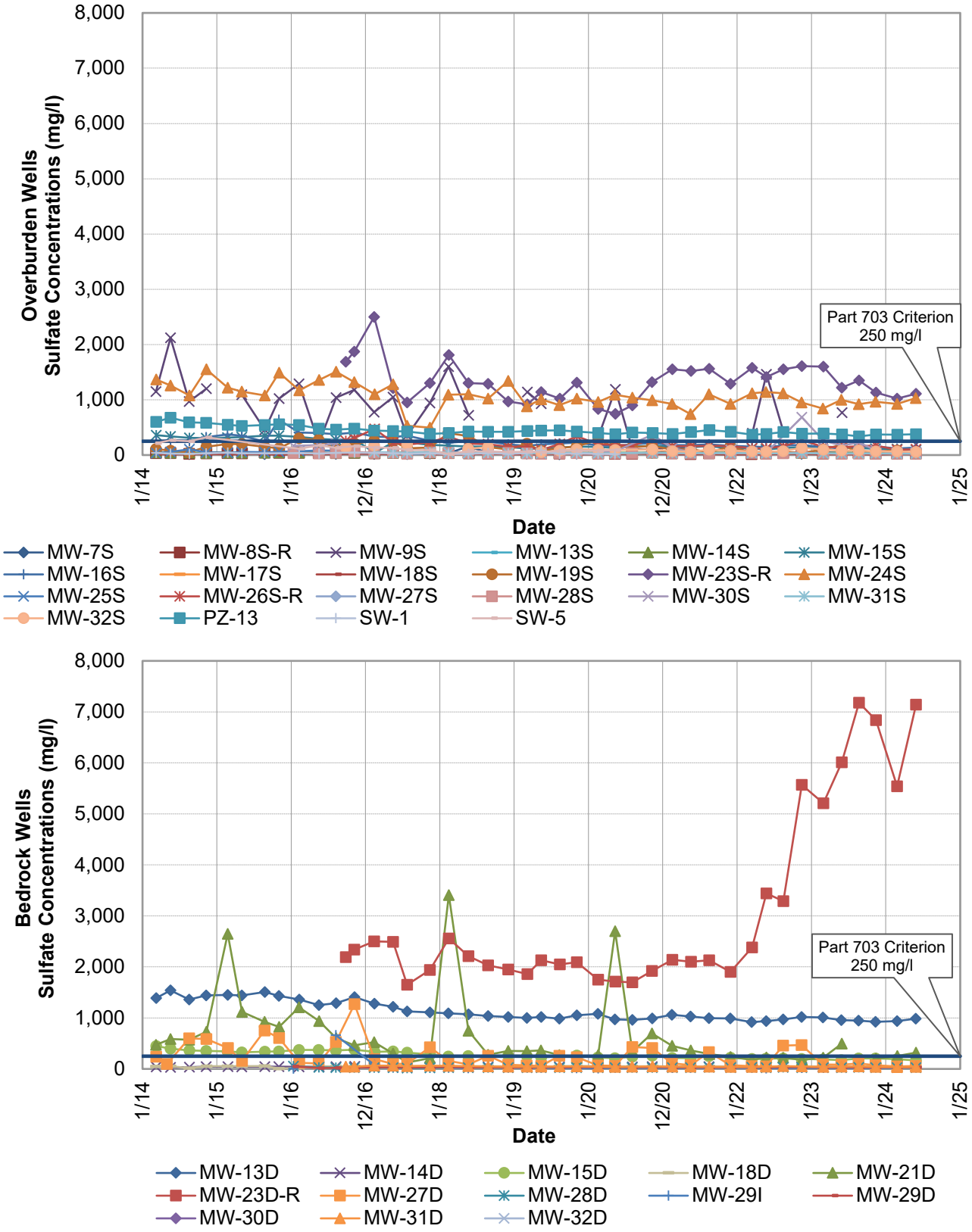
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

pH RESULTS

Project No: 12586936
Date: 09/26/24

FIGURE 13



NOTES:

1. Only data from the past 10 years (2014-2024) are included on these graphs.
2. NYS Part 703 Class GA Limit for sulfate is 250 mg/l

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REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

SULFATE RESULTS

Project No: 12586936
Date: 09/26/24

FIGURE 14

MW-18S/D	MW-18S			MW-18D		
	Date	Value	May 2024	Date	Value	May 2024
Antimony	DOM	ND	ND	DOM	ND	ND
Arsenic	DOM	ND	ND	DOM	ND	ND
Cadmium	DOM	ND	ND	DOM	ND	ND
Chromium	DOM	ND	ND	DOM	ND	ND
Lead	07/24/17	7.3	ND	08/04/20	46.3	ND
Sulfate	07/24/17	50.8	13.7	08/24/15	57.0	40.8
pH (Minimum)	05/18/21	4.45	5.70	02/17/20	6.22	7.61
pH (Maximum)	03/08/14	6.91		05/13/19	8.64	

MW-28S/D	MW-28S			MW-28D		
	Date	Value	May 2024	Date	Value	May 2024
Antimony	DOM	ND	ND	DOM	ND	ND
Arsenic	DOM	ND	ND	DOM	ND	ND
Cadmium	DOM	ND	ND	DOM	ND	ND
Chromium	DOM	ND	ND	DOM	ND	ND
Lead	DOM	ND	ND	DOM	ND	ND
Sulfate	11/07/16	59.4	24.7	01/13/16	52.7	28.0
pH (Minimum)	02/18/20	6.22	7.03	02/13/17	6.90	7.68
pH (Maximum)	01/13/16	8.30		05/21/18	7.90	

MW-32S/D	MW-32S			MW-32D		
	Date	Value	May 2024	Date	Value	May 2024
Antimony	DOM	ND	ND	DOM	ND	ND
Arsenic	DOM	ND	ND	DOM	ND	ND
Cadmium	DOM	ND	ND	DOM	ND	ND
Chromium	02/18/20	28.0	ND	09/26/16	0.3	ND
Lead	02/18/20	14.9	ND	DOM	ND	ND
Sulfate	07/24/17	192	58.7	02/18/20	392	184
pH (Minimum)	02/18/20	6.40	7.21	08/03/20	6.33	7.90
pH (Maximum)	03/01/23	7.67		11/13/17	8.31	

MW-29I/D	MW-29I			MW-29D		
	Date	Value	May 2024	Date	Value	May 2024
Antimony	DOM	ND	ND	DOM	ND	ND
Arsenic	01/13/16	15.7	ND	01/13/16	22.5	ND
Cadmium	DOM	ND	ND	DOM	ND	ND
Chromium	01/13/16	55.0	ND	01/13/16	131	ND
Lead	01/13/16	30.3	ND	01/13/16	45.1	ND
Sulfate	08/08/16	663	19.4	01/13/16	50.9	30.9
pH (Minimum)	02/18/20	6.33	6.61	11/07/16	6.88	7.66
pH (Maximum)	01/13/16	11.59		01/13/16	8.42	

MW-30S/D	MW-30S			MW-30D		
	Date	Value	May 2024	Date	Value	May 2024
Antimony	DOM	ND	ND	DOM	ND	ND
Arsenic	01/13/16	66.6	ND	DOM	ND	ND
Cadmium	DOM	ND	ND	DOM	ND	ND
Chromium	01/13/16	333	ND	01/13/16	10.6	ND
Lead	01/13/16	130	ND	01/13/16	5.3	ND
Sulfate	11/15/22	684	51.3	01/13/16	126	71.6
pH (Minimum)	05/15/19	6.53	7.17	05/17/21	6.01	7.02
pH (Maximum)	08/08/16	8.22		01/13/16	7.34	

MW-31S/D	MW-31S			MW-31D		
	Date	Value	May 2024	Date	Value	May 2024
Antimony	DOM	ND	ND	DOM	ND	ND
Arsenic	DOM	ND	ND	DOM	ND	ND
Cadmium	DOM	ND	ND	DOM	ND	ND
Chromium	11/15/22	11.0	ND	DOM	ND	ND
Lead	11/15/22	7.8	ND	DOM	ND	ND
Sulfate	02/13/17	56.6	26.9	02/13/17	65.8	41.5
pH (Minimum)	02/13/18	5.93	6.56	08/03/20	6.34	7.30
pH (Maximum)	02/18/20	7.22		05/21/18	8.61	

MW-7S	Date	Value	May 2024
Antimony	DOM	ND	ND
Arsenic	DOM	ND	ND
Cadmium	DOM	ND	ND
Chromium	DOM	ND	ND
Lead	02/23/15	30.9	ND
Sulfate	05/21/18	157	22.3
pH (Minimum)	02/17/20	5.45	7.00
pH (Maximum)	02/13/17	7.19	

MW-8S-R	Date	Value	May 2024
Antimony	DOM	ND	ND
Arsenic	DOM	ND	ND
Cadmium	DOM	ND	ND
Chromium	DOM	ND	ND
Lead	DOM	ND	ND
Sulfate	11/09/20	50.0	24.5
pH (Minimum)	02/19/20	5.60	6.57
pH (Maximum)	05/23/18	7.38	

MW-19S	Date	Value	May 2024
Antimony	08/27/18	218	72.0
Arsenic	05/16/16	15.0	ND
Cadmium	07/24/17	165	ND
Chromium	DOM	ND	ND
Lead	08/27/18	44.7	ND
Sulfate	02/12/18	397	31.7
pH (Minimum)	11/11/14	6.47	7.44
pH (Maximum)	05/16/16	7.81	

MW-9S	Date	Value	May 2024
Antimony	08/17/22	410	ND
Arsenic	08/25/15	253	ND
Cadmium	02/13/18	9.0	ND
Chromium	08/05/20	22.0	ND
Lead	08/17/22	17,500	2,290
Sulfate	05/19/14	2,120	191
pH (Minimum)	07/24/17	5.54	10.57
pH (Maximum)	03/01/23	11.38	

MW-25S	Date	Value	Nov 2016
Antimony	DOM	ND	ND
Arsenic	DOM	ND	ND
Cadmium	11/03/15	8.4	ND
Chromium	11/11/14	15.7	ND
Lead	DOM	ND	ND
Sulfate	08/19/14	105	90.2
pH (Minimum)	08/09/16	4.96	5.26 (Note 4)
pH (Maximum)	03/09/14	6.09	

MW-24S	Date	Value	May 2024
Antimony	DOM	ND	ND
Arsenic	DOM	ND	ND
Cadmium	11/11/14	13.3	ND
Chromium	DOM	ND	ND
Lead	11/03/15	5.3	ND
Sulfate	11/11/14	1,550	1,030
pH (Minimum)	11/03/15	5.05	6.37
pH (Maximum)	12/03/18	6.75	

MW-14S/D	MW-14S			MW-14D		
	Date	Value	May 2024	Date	Value	May 2024
Antimony	DOM	ND	ND	DOM	ND	ND
Arsenic	DOM	ND	ND	DOM	ND	ND
Cadmium	DOM	ND	ND	DOM	ND	ND
Chromium	DOM	ND	ND	08/05/20	38.0	ND
Lead	08/19/14	12.8	ND	DOM	ND	ND
Sulfate	08/17/18	47.1	40.0	11/09/16	47.3	36.2
pH (Minimum)	05/18/21	5.84	7.35	05/18/21	5.70	6.76
pH (Maximum)	12/03/18	7.87		05/13/19	7.08	

SW-1	Date	Value	May 2020
Antimony	DOM	ND	ND
Arsenic	DOM	ND	ND
Cadmium	DOM	ND	ND
Chromium	DOM	ND	ND
Lead	05/04/15	8.5	ND
Sulfate	05/14/19	83.8	19.3
pH (Minimum)	08/19/14	7.54	9.05
pH (Maximum)	05/11/20	9.05	

MW-27S/D	MW-27S			MW-27D		
	Date	Value	May 2024	Date	Value	May 2024
Antimony	DOM	ND	ND	DOM	ND	ND
Arsenic	DOM	ND	ND	DOM	ND	ND
Cadmium	DOM	ND	ND	11/08/16	5.2	ND
Chromium	DOM	ND	ND	DOM	ND	ND
Lead	02/25/15	22.2	ND	DOM	ND	ND
Sulfate	11/08/16	998	40.8	11/08/16	1,270	59.1
pH (Minimum)	05/18/21	5.90	6.93	05/18/21	5.87	6.97
pH (Maximum)	05/22/18	7.51		05/22/18	7.14	

MW-13S/D	MW-13S			MW-13D		
	Date	Value	May 2024	Date	Value	May 2024
Antimony	DOM	ND	ND	DOM	ND	ND
Arsenic	05/04/15	10.1	ND	DOM	ND	ND
Cadmium	DOM	ND	ND	05/19/14	9.4	ND
Chromium	08/18/14	28.8	ND	11/05/19	12.0	ND
Lead	08/25/15	5.3	ND	08/25/15	6.0	ND
Sulfate	11/02/15	2,230	1,640	05/19/14	1,540	985
pH (Minimum)	02/10/16	6.25	6.74	11/02/15	6.27	6.93
pH (Maximum)	05/28/24	6.74		05/11/20	7.01	

MW-23S/D-R	MW-23S-R			MW-23D-R		
	Date	Value	May 2024	Date	Value	May 2024
Antimony	DOM	ND	ND	DOM	ND	ND
Arsenic	DOM	ND	ND	DOM	ND	ND
Cadmium	05/22/18	36.3	21.0	11/15/22	72.4	57.4
Chromium	DOM	ND	ND	DOM	ND	ND
Lead	02/13/17	5.9	ND	05/30/24	8.5	8.5
Sulfate	02/13/17	2,500	1,110	08/23/23	7,180	7,140
pH (Minimum)	07/24/17	5.58	6.18	07/24/17	5.51	6.42
pH (Maximum)	02/13/17	6.52		09/26/16	7.62	

SW-5	Date	Value	May 2020
Antimony	05/19/14	11.7	ND
Arsenic	DOM	ND	ND
Cadmium	DOM	ND	ND
Chromium	DOM	ND	ND
Lead	05/19/14	26.7	ND
Sulfate	11/11/14	321	90.9
pH (Minimum)	07/24/17	5.59	8.89
pH (Maximum)	08/14/19	9.17	

MW-17S	Date	Value	May 2024
Antimony	07/24/17	12.0	ND
Arsenic	DOM	ND	ND
Cadmium	DOM	ND	ND
Chromium	DOM	ND	ND
Lead	11/02/15	30.3	ND
Sulfate	11/10/14	1,170	67.5
pH (Minimum)	11/02/15	6.11	7.00
pH (Maximum)	05/11/20	7.26	

MW-16S	Date	Value	May 2024
Antimony	DOM	ND	ND
Arsenic	DOM	ND	ND
Cadmium	08/09/19	11.7	ND
Chromium	DOM	ND	ND
Lead	02/09/16	6.1	ND
Sulfate	11/02/15	640	137
pH (Minimum)	05/14/19	5.55	6.54
pH (Maximum)	05/28/24	6.54	

MW-15S/D	MW-15S			MW-15D		
	Date	Value	May 2024	Date	Value	May 2024
Antimony	DOM	ND	ND	DOM	ND	ND
Arsenic	DOM	ND	ND	DOM	ND	ND
Cadmium	DOM	ND	ND	DOM	ND	ND
Chromium	DOM	ND	ND	DOM	ND	ND
Lead	DOM	ND	ND	02/26/24	14.2	5.5
Sulfate	03/09/14	360	93.4	03/09/14	451	166
pH (Minimum)	02/17/20	5.15	6.77	05/18/21	5.94	7.11
pH (Maximum)	08/19/14	7.15		05/11/20	7.26	

MW-21D	Date	Value	May 2024
Antimony	DOM	ND	ND
Arsenic	02/14/18	36.0	10
Cadmium	DOM	ND	ND
Chromium	DOM	ND	ND
Lead	03/08/14	56.3	6.0
Sulfate	02/14/18	3,410	320
pH (Minimum)	11/11/14	6.43	7.14
pH (Maximum)	05/13/19	7.67	

MW-20S	Date	Value	May 2024
Antimony	05/13/19	77.0	ND
Arsenic	05/05/15	18.3	ND
Cadmium	11/16/22	88.1	ND
Chromium	08/18/14	10.8	ND
Lead	02/14/18	380	ND
Sulfate	02/09/16	5,320	2,440
pH (Minimum)	03/08/14	5.98	6.53
pH (Maximum)	05/18/16	6.97	

MW-26S-R	Date	Value	May 2024
Antimony	DOM	ND	ND
Arsenic	DOM	ND	ND
Cadmium	DOM	ND	ND
Chromium	DOM	ND	ND
Lead	08/27/18	9.3	ND
Sulfate	02/15/17	475	107
pH (Minimum)	11/09/20	6.12	7.00
pH (Maximum)	12/03/18	7.1	

Parameter	NYS Part 703 Criteria for Class GA Groundwater	Surface Water Standards, Guidelines, and Criteria
Antimony	3 µg/l	3 µg/l
Arsenic	25 µg/l	150 µg/l
Cadmium	5 µg/l	3.5 µg/l
Chromium	50 µg/l	50 µg/l
Lead	3 µg/l	7.8 µg/l
Sulfate	250 mg/l	250 mg/l
Acceptable pH Range:	-	6.5-8.5
Overburden	5.69-8.5	-
Bedrock	6.5-8.5	-

NOTES:

1. JURISDICTIONAL WETLAND LIMITS (W1, W2, AND W6) AS DELINEATED IN TETRA TECH'S MAY 2011 AQUATIC RESOURCES SURVEY REPORT FOR OPERABLE UNIT 1 AND APPROVED BY THE USACOE JURISDICTIONAL DETERMINATION DATED OCTOBER 25, 2011. WETLAND LIMITS VALIDATED BY THE NYSDEC AS NY STATE FRESHWATER WETLAND GO-47 IN SIGNED MAPS DATED JUNE 20, 2011.
2. EDGE OF WATER OUTSIDE RESTORED SECTIONS OF STREAM AND ON THE POND STREAM IS BASED ON THE JUNE 2011 TOPOGRAPHIC SURVEY COMPLETED BY J. PETER BORBAS. WITHIN THE RESTORED SECTIONS OF THE WESTERN AND EASTERN STREAMS, THE STREAM IS DEFINED BY THE TOP OF BANK AS SURVEYED BY WSP IN DECEMBER 2019.
3. WELLS THAT HAVE BEEN ABANDONED ARE NOT SHOWN ON THIS DRAWING.
4. pH VALUES ARE FIELD DATA. pH DATA FOR MONITORING WELL MW-25S IN NOVEMBER 2016, THE LAST TIME THIS WELL COULD BE SAMPLED BEFORE IT WAS DAMAGED, WERE NOT COLLECTED IN THE FIELD; THEREFORE, LAB pH DATA, WHICH WERE QUALIFIED AS OUTSIDE OF THE HOLD TIME, ARE SHOWN FOR REFERENCE.
5. VALUES ARE MINIMUM OR MAXIMUM pH AND MAXIMUM SURFACE WATER OR GROUNDWATER CONCENTRATIONS OF METALS OR SULFATE SINCE 2014. SHADED RESULTS INDICATE AN EXCEEDANCE OF NYS PART 703 CRITERIA FOR CLASS GA WATERS OR STANDARDS, GUIDELINES AND CRITERIA FOR SURFACE WATER LISTED IN THE RECORD OF DECISION FOR OU-1.
6. ACCEPTABLE pH RANGE BASED ON GEOMETRIC MEAN OF DATA COLLECTED SINCE 2014 FROM UPGRADIENT OVERBURDEN AND BEDROCK MONITORING WELLS MW-18S AND MW-18D, RESPECTIVELY.
7. DURATION OF MONITORING FOR GROUNDWATER IS FROM MARCH 2014 THROUGH MAY 2024. DURATION OF MONITORING FOR SURFACE WATER IS MARCH 2014 THROUGH MAY 2020.

LEGEND

- EDGE OF WATER
- 2019 TOP OF BANK
- WETLAND
- OU-1 BOUNDARY LINE (DASHED WHERE NOT CONTROLLED BY ECOBAT)
- OU-4 BOUNDARY LINE (DASHED WHERE NOT CONTROLLED BY ECOBAT)
- BARRIER WALL
- EXTRACTION SYSTEM PIPING
- OVERBURDEN MONITORING WELL
- OVERBURDEN MONITORING WELL (DAMAGED)
- BEDROCK MONITORING WELL
- PIEZOMETER
- EXTRACTION WELL
- SURFACE WATER SAMPLE
- ND NOT DETECTED ABOVE LABORATORY REPORTING LIMIT
- DOM DURATION OF MONITORING
- µg/L MICROGRAMS PER LITER
- mg/L MILLIGRAMS PER LITER

N

0 200' 400'

Bar is one inch on original size sheet

0 1"

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No.	Issue	Checked	Approved	Date

Author | Designer
Drafting Check | Design Check
Project Manager D.BASICH | Project Director C. ALBERTIN

Client
ECOBAT RESOURCES NEW YORK, LLC MIDDLETOWN, NEW YORK

Project
GROUNDWATER SUMMARY REPORT REVERE SMELTING & REFINING SITE MIDDLETOWN, NEW YORK

Date **SEPTEMBER 2024** | Scale 1" = 200'

Project No. **12586936**

Title
SUMMARY OF ANALYTICAL RESULTS

Size **ARCH D**

Sheet No.
FIGURE 15

Tables

TABLE 1

Monitoring Well and Piezometer Construction Details
Revere Smelting & Refining Site
Middletown, New York

Well ID (b)	Former Well ID	Installation Date	Well Status	Ground Elevation (feet amsl)	Top of Casing Elevation (feet amsl)	Depth to Top of Screen (feet)	Depth to Bottom of Screen (feet)	Total Depth (feet)	Top of Screen Elevation (feet amsl)	Bottom of Screen Elevation (feet amsl)	Bottom Elevation (feet amsl)	Diameter (inches)	Slot Size (inches)
Overburden Wells													
RSR Well (GW-1)	RSR Well (GW-1)	08/10/82	Abandoned	516	519.65	5.1	15.1	17	510.9	500.9	499	4	NA
MW-1S	MW-1	07/29/91	Abandoned	518.9	520.24	8	13	13	510.9	505.9	NA	NA	NA
MW-1S-R	MW-1A	12/22/93	Abandoned	518.8	520.29	19	24	24	499.8	494.8	NA	2	0.01
MW-2S	MW-2	07/30/91	Abandoned	510.9	513.42	22	27	27	488.9	483.9	NA	2	0.01
MW-3S	MW-3	07/26/91	Abandoned	507.1	509.47	17.5	22.5	22.5	489.6	484.6	NA	2	0.01
MW-4S	MW-4	07/25/91	Abandoned	511.4	512.8	13.5	18.5	18.5	497.9	492.9	NA	2	0.01
MW-4S-R	MW-4A	12/21/93	Abandoned	511.7	513.02	23	33	33	488.7	478.7	NA	2	0.01
MW-5S	MW-5	07/22/91	Abandoned	513	514.72	15	20	20	498	493	NA	2	0.01
MW-6S	MW-6A	07/29/91	Abandoned	506.8	509.14	11	16	16	495.8	490.8	NA	2	0.01
MW-7S	MW-7	07/11/91	Active	524.8	526.63	5	15	15	519.8	509.8	NA	2	0.01
MW-8S	MW-8	07/29/91	Abandoned	523.8	525.49	3	8	8	520.8	515.8	NA	2	0.01
MW-8S-R	MW-8R	June 1999	Active	524.06	526.21	NA	NA	NA	NA	NA	NA	NA	NA
MW-9S	MW-9	12/13/93	Active	518.7	519.35	5	10	10	513.7	508.7	NA	2	0.01
MW-10S	MW-10	12/10/93	Abandoned	497.6	499.98	3	8	8	494.6	489.6	NA	2	0.01
MW-11S	MW-11	12/15/93	Abandoned	531.4	533.48	7.1	9.4	9.4	524.3	522	NA	2	0.01
MW-12S	MW-12	12/10/93	Abandoned	500.2	502.09	4	9	9	496.2	491.2	NA	2	0.01
MW-13S	MW-13(A)	07/28/94	Active	480.99	483.32	13	18	18	467.99	462.99	NA	2	0.01
MW-14S	MW-14	12/14/93	Active	481.2	483.38	22	27	27	459.2	454.2	NA	2	0.01
MW-15S	MW-15(A)	06/10/97	Active	484.17	486.47	6	11	11	478.17	473.17	NA	2	0.01
MW-16S (c)	MW-16	06/04/97	Active	492.53	494.62	5.41	15.41	16	487.12	477.12	NA	2	0.01
MW-17S	MW-17(A)	06/06/97	Active	488.87	491.46	3.5	13.5	13.5	485.37	475.37	NA	NA	NA
MW-18S	MW-18	06/13/97	Active	530.92	533.28	5	10	10	525.92	520.92	NA	2	0.01
MW-19S	MW-19	06/14/01	Active	521.99	523.96	5	15	15	516.99	506.99	NA	2	NA
MW-20S	MW-20	06/14/01	Active	512.32	511.94	19	29	29	493.32	483.32	NA	2	NA
MW-23S	MW-23S	11/07/01	Abandoned	496.68	498.5	2	12	12	494.68	484.68	NA	2	NA
MW-23S-R	NA	09/01/16	Active	497.76	500.23	6	16	16	491.76	481.76	481.76	2	0.01
MW-24S	MW-24	11/08/01	Active	485.86	488.09	2	12	12	483.86	473.86	NA	2	NA
MW-25S (d)	MW-25	11/08/01	Damaged	491.65	494.16	2	12	12	489.65	479.65	NA	2	NA
MW-26S	MW-26	11/08/01	Abandoned	501.74	503.99	7.6	14.6	14.6	494.14	487.14	NA	2	NA
MW-26S-R	NA	09/01/16	Active	502.62	505.46	5.5	15.5	15.5	497.12	487.12	487.12	2	0.01
MW-27S	MW-27A	04/09/09	Active	480.19	482.18	10	20	20	470.19	460.19	460.19	2	0.01
MW-28S	MW-28S	12/15/15	Active	532.84	535.50	2.5	12.5	12.5	530.34	520.34	520.34	2	0.01
MW-29S	MW-29S	12/17/15	Active	521.78	524.25	4.5	5.5	5.5	517.28	516.28	516.28	2	0.01
MW-30S	MW-30S	12/18/15	Active	523.32	525.02	4.5	12.5	12.5	518.82	510.82	510.82	2	0.01
MW-31S	MW-31S	09/06/16	Active	515.73	518.37	5	13	13	510.73	502.73	502.73	2	0.01
MW-32S	MW-32S	09/06/16	Active	530.07	532.73	4.5	14.5	14.5	525.57	515.57	515.57	2	0.01
MW-33S	NA	09/01/16	Active	514.80	517.57	4.5	7.5	7.5	510.30	507.30	507.30	2	0.01

TABLE 1

Monitoring Well and Piezometer Construction Details
Revere Smelting & Refining Site
Middletown, New York

Well ID (b)	Former Well ID	Installation Date	Well Status	Ground Elevation (feet amsl)	Top of Casing Elevation (feet amsl)	Depth to Top of Screen (feet)	Depth to Bottom of Screen (feet)	Total Depth (feet)	Top of Screen Elevation (feet amsl)	Bottom of Screen Elevation (feet amsl)	Bottom Elevation (feet amsl)	Diameter (inches)	Slot Size (inches)
Bedrock Wells													
MW-13D	MW-13B	06/12/97	Active	482.21	483.32	32.5	37.5	32.5	449.71	444.71	NA	2	0.01
MW-14D	MW-14B	July 1999	Active	482.8	484.92	NA	NA	NA	NA	NA	NA	NA	NA
MW-15D	MW-15B	July 1999	Active	484.01	486.32	NA	NA	NA	NA	NA	NA	NA	NA
MW-18D	MW-18B	July 1999	Active	531.42	533.39	NA	NA	NA	NA	NA	NA	NA	NA
MW-21D	MW-21B	06/15/01	Active	515.81	515.48	9	19	19	506.81	496.81	NA	2	NA
MW-23D	MW-23(D)	Nov 2001	Abandoned	496.72	498.06	22	26.8	26.8	474.72	469.9	NA	2	NA
MW-23D-R	NA	08/31/16	Active	497.02	499.72	30	35	35	467.02	462.02	462.02	2	0.01
MW-27D	MW-27B	04/09/09	Active	480.71	482.34	27	35	35	453.71	445.71	445.71	2	0.01
MW-28D	MW-28D	12/29/15	Active	532.63	534.40	18.5	23.5	23.5	514.13	509.13	509.13	2	0.01
MW-29I	MW-29I	12/17/15	Active	521.55	523.61	8.0	12.0	12.0	513.5	509.5	509.5	2	0.01
MW-29D	MW-29D	12/30/15	Active	521.68	522.61	18.5	23.5	23.5	503.18	498.18	498.18	2	0.01
MW-30D	MW-30D	12/29/15	Active	522.83	523.78	18.5	23.5	23.5	504.33	499.33	499.33	2	0.01
MW-31D	MW-31D	09/06/16	Active	514.82	517.77	19	24	24	495.82	490.82	490.82	2	0.01
MW-32D	MW-32D	09/01/16	Active	530.21	532.97	22	27	27	508.21	503.21	503.21	2	0.01
Piezometers													
PZ-1	PZ-1	08/23/99	Active	529	531.13	7.2	10.2	10.2	521.8	518.8	518.8	2	0.01
PZ-2	PZ-2	08/24/99	Active	527.69	529.75	7.2	14.2	14.2	520.49	513.49	513.49	2	0.01
PZ-3	PZ-3	08/24/99	Active	523.82	525.72	6	14	14	517.82	509.82	509.82	2	0.01
PZ-4	PZ-4	08/24/99	Active	522.92	524.74	6	14	14	516.92	508.92	508.92	2	0.01
PZ-5	PZ-5	08/30/99	Active	523.06	522.64	6	14	14	517.06	509.06	509.06	2	0.01
PZ-6	PZ-6	08/25/99	Active	522.74	524.39	6	15	15	516.74	507.74	507.74	2	0.01
PZ-7	PZ-7	08/25/99	Active	519.8	521.38	6	10	10	513.8	509.8	509.8	2	0.01
PZ-8	PZ-8	08/25/99	Active	528.86	527.62	7.4	13.4	13.4	521.46	515.46	515.46	2	0.01
PZ-9	PZ-9	08/31/99	Active	519.76	521.52	6.2	15.2	15.2	513.56	504.56	504.56	2	0.01
PZ-10	PZ-10	08/25/99	Active	517.68	519.54	6.1	13.1	13.1	511.58	504.58	504.58	2	0.01
PZ-11	PZ-11	08/31/99	Active	516.84	519.18	6	14	14	510.84	502.84	502.84	2	0.01
PZ-12	PZ-12	08/30/99	Active	512.72	514.80	6	14	14	506.72	498.72	498.72	2	0.01
PZ-13	PZ-13	09/01/99	Active	513.19	514.86	17	27	30	496.19	486.19	483.19	2	0.01
PZ-14	PZ-14	09/02/99	Abandoned	506.85	508.77	16	24	24	490.85	482.85	482.85	2	0.01
PZ-14R	NA	08/16/18	Active	505.79	509.14	14	24	26	491.79	481.7899	479.7899	2	0.01
PZ-15 (e)	PZ-15	09/19/11	Removed	534.3	536.307	3	8	10	531.30	526.3	524.3	2	0.01
PZ-16 (e)	PZ-16	09/19/11	Removed	531.62	533.62	8	13	13	523.62	518.62	518.62	2	0.01
PZ-17 (e)	PZ-17	09/19/11	Removed	531.74	534.245	8	13	13	523.74	518.74	518.74	2	0.01
PZ-18 (e)	PZ-18	09/19/11	Removed	526.48	528.479	8	13	13	518.48	513.48	513.48	2	0.01
PZ-19	NA	08/15/18	Active	529.55	532.19	5	10	11	524.55	519.55	518.55	2	0.01
PZ-20	NA	08/14/18	Active	530.09	533.06	5.5	10.5	11.5	524.59	519.59	518.59	2	0.01
PZ-21	NA	08/15/18	Active	518.73	518.39	3	6	6	515.73	512.73	512.73	2	0.01
PZ-22	NA	08/15/18	Active	517.63	517.09	3	6	6	514.63	511.63	511.63	2	0.01
PZ-23	NA	08/15/18	Active	512.38	511.96	10	20	21	502.38	492.38	491.38	2	0.01
PZ-24	NA	08/15/18	Active	511.49	511.20	14	24	28	497.49	487.49	483.49	2	0.01
PZ-25	NA	08/16/18	Active	508.85	508.47	14	24	24	494.85	484.85	484.85	2	0.01

TABLE 1

Monitoring Well and Piezometer Construction Details
Revere Smelting & Refining Site
Middletown, New York

Well ID (b)	Former Well ID	Installation Date	Well Status	Ground Elevation (feet amsl)	Top of Casing Elevation (feet amsl)	Depth to Top of Screen (feet)	Depth to Bottom of Screen (feet)	Total Depth (feet)	Top of Screen Elevation (feet amsl)	Bottom of Screen Elevation (feet amsl)	Bottom Elevation (feet amsl)	Diameter (inches)	Slot Size (inches)
Extraction Wells													
EW-1	EW-9	07/28/07	Active	518.63	517.71	10	20	20	508.63	498.63	498.63	4	0.04
EW-2	EW-10	07/30/07	Active	513.65	512.80	9	19	19	504.65	494.65	494.65	4	0.04
EW-3	EW-8	07/29/07	Active	511.12	510.27	8	23	23	503.12	488.12	488.12	4	0.04
EW-4	EW-1	07/27/07	Active	509.41	508.29	9.8	19.8	19.8	499.61	489.61	489.61	4	0.04

a) NA = Not available. Boring logs not provided or incomplete.
b) Well names were revised in January 2016 with an S, I, or D to indicate overburden, intermediate, or bedrock wells.
c) Well MW-16S was damaged during the Phase IIB RD/RA, and repaired and resurveyed in January 2016.
d) Monitoring well MW-25S was damaged and approved for removal from the GWMP by the NYSDEC in a letter dated September 8, 2017.
e) Piezometers PZ-15 though PZ-18 were installed to determine depth to water for the design of the containment cell. These piezometers have since been removed.

TABLE 2

Quarterly Groundwater Monitoring Program
Revere Smelting & Refining Site
Middletown, New York

Parameters	Unfiltered Metals (in ug/l)					Miscellaneous Inorganics		
Well ID/Method	Total Antimony 6010C	Total Arsenic 6010C	Total Cadmium 6010C	Total Chromium 6010C	Total Lead 6010C	Alkalinity (mg/l) SM2320 B-1997	Sulfate (mg/l) 300	pH 9040B and 9045D
Unconsolidated Wells								
MW-7S	X	X	X	X	X	X	X	X
MW-8S-R	X	X	X	X	X	X	X	X
MW-9S	X	X	X	X	X	X	X	X
MW-13S	X	X	X	X	X	X	X	X
MW-14S	X	X	X	X	X	X	X	X
MW-15S	X	X	X	X	X	X	X	X
MW-16S	X	X	X	X	X	X	X	X
MW-17S	X	X	X	X	X	X	X	X
MW-18S	X	X	X	X	X	X	X	X
MW-19S	X	X	X	X	X	X	X	X
MW-20S	X	X	X	X	X	X	X	X
MW-23S-R	X	X	X	X	X	X	X	X
MW-24S	X	X	X	X	X	X	X	X
MW-26S-R	X	X	X	X	X	X	X	X
MW-27S	X	X	X	X	X	X	X	X
MW-28S	X	X	X	X	X	X	X	X
MW-29S	X	X	X	X	X	X	X	X
MW-30S	X	X	X	X	X	X	X	X
MW-31S	X	X	X	X	X	X	X	X
MW-32S	X	X	X	X	X	X	X	X
MW-33S	X	X	X	X	X	X	X	X
Bedrock Wells								
MW-13D	X	X	X	X	X	X	X	X
MW-14D	X	X	X	X	X	X	X	X
MW-15D	X	X	X	X	X	X	X	X
MW-18D	X	X	X	X	X	X	X	X
MW-21D	X	X	X	X	X	X	X	X
MW-23D-R	X	X	X	X	X	X	X	X
MW-27D	X	X	X	X	X	X	X	X
MW-28D	X	X	X	X	X	X	X	X
MW-29D	X	X	X	X	X	X	X	X
MW-30D	X	X	X	X	X	X	X	X
MW-31D	X	X	X	X	X	X	X	X
MW-32D	X	X	X	X	X	X	X	X
Barrier Wall Piezometers								
PZ-13	X	X	X	X	X	X	X	X

TABLE 3

Groundwater Elevation Data - Overburden Monitoring Wells
Revere Smelting & Refining Site
Middletown, New York

Date	MW-7S	MW-8S-R	MW-9S	MW-13S	MW-14S	MW-15S	MW-16S	MW-17S	MW-18S	MW-19S	MW-20S	MW-23S-R	MW-24S	MW-25S	MW-26S-R	MW-27S	MW-28S	MW-30S	MW-31S	MW-32S
March 2014	522.12	523.24	516.66	478.73	464.68	482.99	487.41		528.55	514.80	500.65	495.84	485.71	490.20	496.23	470.02				
May 2014	522.58	524.18	515.83	476.62	466.31	483.20	488.33	487.40	528.98	514.69	500.64		485.98	490.01	496.83	470.68				
August 2014	518.38	520.84	512.58	476.57	462.31	479.42		484.96	527.93	514.36	499.38		483.71	488.93	494.59	468.28				
November 2014	518.63	520.73	512.34	476.92	461.56	479.47		485.95	526.86	514.15	499.81		484.34	489.40	494.18	468.91				
February 2015	520.78	521.81	512.27	477.31	461.56	480.77		486.61	527.78	513.80	498.69		484.14	489.29		469.11				
May 2015	522.21	523.27	513.53	478.17	465.15	481.84		486.21	528.38	514.05	500.39		485.22	489.67		469.91				
August 2015	519.32	520.91	517.98	477.04	462.66	482.43		483.94	526.84	514.10	500.44		485.06	489.33		468.40				
November 2015	521.20	521.63	518.00	478.18	462.72	481.30		486.76	527.27	513.01	500.19		486.08	489.58		469.51				
January 2016																	529.65	513.12		
February 2016	522.28	523.24	512.23	478.32	465.01	482.02	486.38	487.30	528.50	514.81	500.39		486.13	489.81		470.18				
May 2016	522.42	522.59	514.15	477.86	464.88	481.77	486.47	486.91	528.39	514.42	501.37		486.13			470.13	528.49	512.82		
August 2016	520.98	521.00	512.63	477.39	463.63	481.26	486.54	486.58	526.93	511.50	501.24		485.98			469.03	527.16	512.67		
September 2016												494.75	484.77		495.04	468.24	525.15			516.83
November 2016	518.27	519.93	512.95	477.22	462.48	480.49	484.91	486.60	526.73	509.75	500.15	495.58			494.93			511.01	502.91	515.72
February 2017	522.27	523.39	513.65	478.40	465.01	482.24	486.42	487.51	528.47	510.07	500.74	496.18	485.68		496.44	470.23	528.65	512.46	506.33	517.62
May 2017	522.57	523.91	513.04	478.13	466.32	482.21	486.67	487.23	528.68	509.96	500.77	496.77	486.09		497.47	470.58	529.92	513.22	507.51	517.73
July 2017	520.46	522.14	511.66	477.15	464.26	480.99	485.52	486.92	527.68	509.67	500.32	496.15	485.98		495.95	469.07	527.23	512.37	504.77	517.92
November 2017	520.88	521.61	516.60	477.57	463.76	481.57	486.12	487.02	527.48	513.54	500.53	495.68	485.51		495.53	469.38	527.23	512.12	505.12	517.62
February 2018	522.63	523.54	516.33	478.82	465.47	482.50	487.42		528.73	516.30	502.89	497.03	486.32		497.16	470.66	530.73	513.92	509.31	517.52
May 2018	522.88	524.11	518.03	480.32	467.62	482.38	487.02	487.62	528.98	510.56	502.09	496.92	486.34		497.85	470.88	530.14	513.51	508.92	517.93
August 2018	520.16	521.68	517.85	477.66	464.23	481.32	486.08	486.34	527.28	511.58	500.78	496.30	485.77		496.58	469.43	526.80	512.28	505.12	517.83
December 2018	522.83	524.46	517.87	478.51	468.48	482.62	487.44	487.72	529.19	516.20	502.88	496.91	486.54		498.50	471.18	529.64	513.14	509.01	517.86
March 2019	522.72	524.16	517.18	478.53	467.04	482.26	486.65	487.56	529.10	511.52	501.85	496.77	486.14		497.88	470.53	529.30	512.72	507.07	517.91
May 2019	523.16	524.53	514.09	478.53	466.23	483.06	486.34	487.79	529.26	514.94	502.66	497.25	486.63		499.19	471.47	530.73	514.80	508.90	518.04
August 2019	518.02	519.98	515.98	476.01	462.68	479.03	483.91	484.63	525.77	512.24	500.54	494.93	484.40		495.17	467.52	524.56	-	-	516.39
November 2019	521.83	522.30	512.39	478.41	464.54	482.26	486.77	487.31	527.82	513.84	501.79	496.65	486.18		497.22	470.29	529.30	511.14	508.82	517.90
February 2020	521.15	522.51	514.74	481.24	466.75	482.21	486.93	487.55	525.88	509.64	501.76	496.52	486.02		497.65	470.51	529.48	513.11	507.76	517.89
May 2020	522.75	522.41	513.93	478.27	466.43	482.20	486.67	487.27	528.83	509.75	501.66	496.61	486.13		496.05	470.46	528.74	512.67	504.51	517.46
August 2020	516.80	518.89	511.25	476.13	462.19	479.94	483.95	486.46	524.84	507.29	498.36	494.51	484.99		495.44	467.90	523.57	-	-	-
November 2020	518.90	519.72	511.36	476.10	461.91	480.65	485.02	486.50	524.00	507.98	499.41	494.77	484.00		495.32	468.27	524.65	511.34	504.03	516.29
February 2021	521.57	522.64	516.30	477.47	464.42	482.41	486.52	488.39	527.90	514.93	501.63	496.60	485.72		497.55	469.92	528.24	512.54	505.83	517.98
May 2021	522.38	523.01	517.58	477.30	465.69	482.01	486.55	487.81	528.04	513.55	502.26	496.79	485.71		497.36	470.45	528.56	513.07	505.91	517.90
August 2021	518.66	520.85	517.65	476.46	463.43	480.40	485.16	486.26	526.37	513.65	501.61	496.26	484.57		496.22	468.91	525.16	510.92	-	517.82
November 2021	522.18	523.11	514.03	477.73	465.27	482.32	486.52	488.08	528.09	509.18	500.61	495.97	485.63		496.28	470.43	527.89	512.37	505.09	517.86
March 2022	522.76	523.48	517.81	478.23	466.42	482.80	486.94	488.55	528.60	513.98	503.01	497.22	486.03		498.70	470.99	529.80	513.31	507.40	518.02
May 2022	522.80	523.56	517.72	477.86	466.10	482.64	486.72	488.28	528.32	513.97	502.84	497.02	486.24		497.89	470.79	529.82	513.03	505.84	517.85
August 2022	517.45	519.39	515.86	475.41	463.01	479.27	483.87	485.03	525.70	512.21	500.91	495.45	483.00		495.30	468.16	529.82	-	-	517.58
November 2022	520.24	520.99	513.53	477.94	463.73	482.76	486.79	487.96	527.23	513.05	502.54	496.84	486.00		497.08	469.67	526.38	511.44	503.13	517.87
February 2023	522.12	523.00	512.83	477.75	464.96	482.75	486.64	488.01	527.98	509.00	500.81	496.54	485.30		496.85	470.28	528.37	512.85	505.23	517.87
May 2023	521.12	522.77	514.57	476.68	465.32	480.88	485.80	486.70	527.54	508.70	500.74	496.22	484.98		496.27	469.63	527.03	511.99	504.60	517.85
August 2023	521.33	522.96	514.36	477.40	465.28	481.76	486.51	487.15	527.57	512.64	502.28	496.78	486.01		497.03	469.78	526.62	511.73	504.22	517.78
November 2023	521.85	522.78	516.89	477.58	464.77	482.56	486.86	487.97	527.92	513.45	501.69	496.44	485.80		496.44	470.43	527.82	512.77	504.46	517.86
February 2024	522.83	523.62	517.05	478.03	465.58	482.99	486.82	488.38	528.45	509.14	501.17	496.48	485.73		497.26	470.87	529.17	512.99	506.64	517.89
May 2024	522.44	522.95	511.52	477.36	465.03	482.06	486.63	487.55	528.10	513.39	502.71	497.03	485.75		497.68	470.16	527.63	512.61	503.97	517.81
Minimum	**516.80**	**518.89**	**511.25**	**475.41**	**461.56**	**479.03**	**483.87**	**483.94**	**524.00**	**507.29**	**498.36**	**494.51**	**483.00**	**488.93**	**494.18**	**467.52**	**523.57**	**510.92**	**502.91**	**515.72**
Maximum	**523.16**	**524.53**	**518.03**	**481.24**	**468.48**	**483.20**	**488.33**	**488.55**	**529.26**	**516.30**	**503.01**	**497.25**	**486.63**	**490.20**	**499.19**	**471.47**	**530.73**	**514.80**	**509.31**	**518.04**
Standard Deviation	**1.74**	**1.46**	**2.26**	**1.07**	**1.68**	**1.12**	**0.99**	**1.05**	**1.18**	**2.37**	**1.14**	**0.74**	**0.82**	**0.39**	**1.19**	**0.98**	**1.87**	**0.85**	**1.90**	**0.55**

Notes:

a) Wells included on this table are those used to generate the groundwater contour maps. Monitoring wells MW-29S and MW-33S are typically dry; therefore, water level data are not included in this table; Blank cells = Not collected

b) Minimum and maximum are over the past 10 years (January 2014 through May 2024).

TABLE 4

Groundwater Elevation Data - Bedrock Monitoring Wells
Revere Smelting & Refining Site
Middletown, New York

Date	MW-13D	MW-14D	MW-15D	MW-18D	MW-21D	MW-23D-R	MW-27D	MW-28D	MW-29I	MW-29D	MW-30D	MW-31D	MW-32D
March 2014	478.37	464.22	482.43	514.64	510.47	492.41	469.00						
May 2014	478.46	466.02	482.88	503.69	510.63		470.70						
August 2014	476.66	456.87	479.26	503.69	510.27		468.26						
November 2014	476.95	461.21	479.20	507.73	510.02		468.13						
February 2015	477.41	462.48	480.30	505.56	510.53		469.14						
May 2015	478.12	464.62	481.51	507.72	510.33		469.88						
August 2015	477.00	462.25	479.20	505.04	510.32		468.39						
November 2015	477.92	462.38	481.01	505.38	512.45		469.50						
January 2016								529.29	512.14	512.30	512.42		
February 2016	478.39	464.62	481.73	508.52	510.61		470.16						
May 2016	478.14	463.94	481.61	512.83	510.41		470.14	528.59	510.25	510.15	511.68		
August 2016	477.72	463.29	479.07	504.59	508.36		469.04	527.18	511.22	510.57	511.37		
September 2016												501.29	515.18
November 2016	475.22	462.19	480.31	504.29	507.95	495.07	468.22	526.05		509.46	510.82	501.82	514.92
February 2017	478.27	464.67	482.01	506.57	508.27	495.95	470.27	528.57	511.06	510.66	511.72	504.43	516.62
May 2017	478.21	466.01	482.06	504.24	508.20	496.60	470.51	529.24	512.83	511.57	512.70	505.46	517.52
July 2017	477.52	463.97	480.77	503.99	507.88	496.05	469.09	527.19	510.20	509.36	511.46	503.18	516.07
November 2017	477.82	463.46	481.24	504.85	508.37	495.54	469.36	527.61	510.33	509.98	511.23	503.47	515.97
February 2018	478.17	465.11	482.25	504.82	509.54	496.89	470.64	529.75	513.91	513.27	513.23	506.77	517.86
May 2018	480.25	467.56	482.34	503.93	508.78	496.79	470.88	529.72	514.17	513.31	513.18	506.66	518.52
August 2018	477.86	463.87	481.21	504.24	508.32	496.13	469.38	527.20	510.30	510.33	511.41	503.52	516.84
December 2018	478.73	468.11	482.52	504.28	511.28	496.82	471.17	529.36	512.26	512.54	513.13	507.06	518.37
March 2019	478.28	467.03	482.19	505.04	508.77	496.68	470.54	529.13	510.96	511.58	512.19	505.30	517.95
May 2019	478.57	467.53	481.88	502.61	509.50	497.20	471.48	530.12	513.85	513.70	514.17	508.31	519.35
August 2019	475.97	462.35	479.17	501.30	507.57	493.91	467.53	525.33		508.12	509.23	501.04	515.25
November 2019	478.20	464.35	482.05	501.37	509.13	496.61	470.32	528.80	512.70	512.70	512.76	506.66	517.80
February 2020	478.38	466.60	483.33	502.77	508.49	495.00	470.63	527.77	511.71	511.99	512.55	505.81	517.96
May 2020	478.31	466.27	482.21	503.87	508.83	496.54	470.47	528.77	510.76	510.80	511.82	504.49	517.03
August 2020	475.71	461.82	479.33	501.38	506.66	494.53	467.91	524.46		507.84	508.87	500.09	514.49
November 2020	476.53	461.60	479.90	502.91	507.12	494.89	468.28	526.12		509.63	510.19	502.44	515.20
February 2021	477.94	464.13	481.66	503.27	509.08	496.61	469.94	528.54	511.20	510.51	512.08	503.67	516.86
May 2021	478.27	465.43	481.48	503.04	507.13	496.75	470.45	528.61	510.92	510.88	511.89	504.28	517.20
August 2021	477.02	463.04	479.94	502.73	509.18	496.23	468.95	525.98		509.30	510.30	501.43	515.94
November 2021	478.07	464.98	481.67	503.39	508.20	495.95	470.44	527.60		511.32	511.57	504.13	516.81
March 2022	478.51	466.37	482.15	504.61	509.85	497.24	470.93	529.48	511.93	512.38	513.09	506.06	518.62
May 2022	477.90	465.95	482.39	503.20	509.17	497.02	470.80	528.89	511.43	511.45	512.31	504.50	517.49
August 2022	476.36	462.56	478.80	502.89	508.67	495.40	468.15	528.89		509.23	509.58	504.50	515.28
November 2022	478.21	463.43	481.90	503.38	509.07	496.87	469.69	527.38	510.52	510.04	511.37	502.34	517.74
February 2023	478.14	464.74	482.02	504.53	508.34	496.51	470.29	528.46	511.15	511.08	511.93	503.77	517.34
May 2023	477.40	465.04	480.47	504.24	508.33	496.20	469.67	527.42		510.50	511.33	503.04	516.49
August 2023	478.10	465.02	481.19	504.17	509.13	496.77	469.80	527.29		510.72	511.18	503.28	516.89
November 2023	478.23	464.52	481.88	504.26	509.11	496.38	470.44	528.23		511.19	511.59	503.58	516.79
February 2024	478.43	465.29	482.32	507.23	508.53	496.39	470.88	529.12	511.58	512.28	512.80	505.43	517.97
May 2024	477.92	464.69	481.47	506.14	509.31	497.01	470.18	528.09		510.72	511.53	503.20	516.71
Minimum	**475.22**	**456.87**	**478.80**	**501.30**	**506.66**	**492.41**	**467.53**	**524.46**	**510.20**	**507.84**	**508.87**	**500.09**	**514.49**
Maximum	**480.25**	**468.11**	**483.33**	**514.64**	**512.45**	**497.24**	**471.48**	**530.12**	**514.17**	**513.70**	**514.17**	**508.31**	**519.35**
Standard Deviation	**0.90**	**2.04**	**1.19**	**2.58**	**1.17**	**1.04**	**1.00**	**1.32**	**1.17**	**1.39**	**1.15**	**1.90**	**1.18**

Notes:

a) Wells included on this table are those used to generate the groundwater contour maps; Blank cells = Not collected

b) Minimum and maximum are over the past 10 years (January 2014 through May 2024).

TABLE 5

Summary of pH in Groundwater
Revere Smelting & Refining Site
Middletown, New York

	Minimum	Maximum	Average	% Out of Range (a)
Upgradient Wells				
Overburden				
MW-18S	4.45	6.91	5.72	N/A
MW-28S	6.22	8.30	7.00	N/A
Bedrock				
MW-18D	6.22	8.64	7.06	N/A
MW-28D	6.90	7.90	7.43	N/A
Site Wide				
Overburden				
MW-7S	5.45	7.19	6.62	N/A
MW-08S-R	5.60	7.38	6.42	N/A
MW-26S-R	6.12	7.10	6.58	N/A
Containment Cell Wells				
Overburden				
MW-30S	6.53	8.22	7.08	N/A
MW-31S	5.93	7.22	6.32	N/A
MW-32S	6.40	7.67	6.98	N/A
Bedrock				
MW-29I	6.33	11.59	7.16	N/A
MW-29D	6.88	8.42	7.60	N/A
MW-30D	6.01	7.34	6.70	N/A
MW-31D	6.34	8.61	7.06	N/A
MW-32D	6.33	8.31	7.64	N/A
Wells/Piezometers Within Barrier Walls				
Overburden				
MW-9S	5.54	11.38	9.87	-16.1%
MW-19S	6.47	7.81	7.01	N/A
MW-20S	5.98	6.97	6.28	N/A
PZ-13	6.05	7.08	6.64	N/A
Bedrock				
MW-21D	6.43	7.67	6.95	N/A
Downgradient				
Overburden				
MW-13S	6.25	6.74	6.48	N/A
MW-14S	5.84	7.87	7.14	N/A
MW-15S	5.15	7.15	6.48	N/A
MW-16S	5.55	6.54	6.21	N/A
MW-17S	6.11	7.26	6.72	N/A
MW-23S-R	5.58	6.68	6.04	N/A
MW-24S	5.05	6.75	6.08	N/A
MW-25S	4.96	7.24	6.06	N/A
MW-27S	5.90	7.51	6.62	N/A
Bedrock				
MW-13D	6.27	7.01	6.67	N/A
MW-14D	5.70	7.08	6.54	N/A
MW-15D	5.94	7.26	6.83	N/A
MW-23D-R	5.51	7.62	6.13	N/A
MW-27D	5.87	7.14	6.63	N/A

a) Acceptable range listed in 6 NYCRR Part 703 for a Class GA groundwater is between pH of natural groundwater and 8.5. Monitoring wells MW-18S/D are upgradient and representative of natural groundwater conditions.
b) Monitoring wells MW-29S and MW-33S are typically dry and therefore not included on this table.

Appendices

Appendix A

Groundwater Field Parameters and Analytical Data

TABLE A1

Field Parameters and Analytical Data - Monitoring Well MW-7S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (µmhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l)				
									Lead	Antimony	Cadmium	Chromium	Arsenic
6 NYCRR Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/08/14	6.76	977	8.1	0.00	35.0		126	34.8	5.0 U	10 U	5.0 U	10 U	10 U
05/19/14	6.63	604	10.0	10.50	150-250		147	33.0	5.0 U	10 U	5.0 U	10 U	10 U
08/18/14	6.78	444	15.7	13.30	150-250		223	18.4	5.9	10 U	5.0 U	10 U	10 U
11/11/14	6.50	594	15.0	5.00	150-250		259	43.8	5.0 U	10 U	5.0 U	10 U	10 U
02/23/15	6.51	599	8.1	5.50	150-250		204	51.3	**30.9**	10 U	5.0 U	10 U	10 U
05/04/15	6.41	905	11.6	5.00	150-250		124	43.4	5.0 U	10 U	5.0 U	10 U	10 U
08/24/15	6.41	582	17.8	0.50	150-250		222	18.1	5.0 U	10 U	5.0 U	10 U	10 U
11/03/15	6.50	835	15.5	5.46	150-250		242	55.3	5.1	10 U	5.0 U	10 U	10 U
02/09/16	6.60	830	8.4	28.80	150-250		123	53.4	6.2	10 U	5.0 U	10 U	10 U
05/16/16	6.84	575	11.1	3.06	>250		144	43.0	5.0 U	10 U	5.0 U	10 U	10 U
08/08/16	6.34	753	17.7	10.40	>375		212	22.6	5.0 U	10 U	5.0 U	10 U	10 U
11/07/16	6.79	745	16.1	23.40	>175	12.8	230	53.1	5.0 U	10 U	5.0 U	10 U	10 U
02/13/17	7.19	1,193	6.9	12.00	>175	-8.7	532	20.8	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.43	641	11.6	13.10	>250	32.6	135	33.6	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.86	775	16.8	6.15	>375	2.0	215	19.6	5.0 U	10 U	5.0 U	10 U	10 U
11/14/17	6.75	891	15.7	5.03	>375	164.3	262	26.8	5.0 U	10 U	5.0 U	10 U	10 U
02/12/18	6.24	928	9.6	22.40	>375	191.0	60.0	28.6	5.0 U	10 U	5.0 U	10 U	10 U
05/21/18	6.47	576	13.0	13.40	>125	176.0	32.2	157	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	6.79	804	18.3	1.49	>375	158.1	242	44.8	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	6.81	440	10.5	11.30	>375	53.8	167	34.7	5.0 U	10 U	5.0 U	10 U	10 U
03/04/19	6.46	1,738	7.4	7.02	>375	18.4	111	24.2	5.0 U	10 U	5.0 U	10 U	10 U
05/13/19	6.28	911	10.0	8.46	>125	79.7	152	32.2	5.0 U	10 U	5.0 U	10 U	10 U
08/12/19	6.88	774	16.23	13.7	>250	-41.9	207	13.7	5.0 U	10 U	5.0 U	10 U	10 U
11/04/19	6.86	927	14.87	11.0	>250	-18.9	220	26.7	5.0 U	10 U	5.0 U	10 U	10 U
02/17/20	**5.45**	2,071	7.13	8.60	>125	152.2	78.8	24.8	5.0 U	10 U	5.0 U	10 U	10 U
05/11/20	6.69	501	10.20	16.5	>70	120.1	139	26.0	5.0 U	10 U	5.0 U	10 U	10 U
08/03/20	6.59	897	15.00	41.9	>250	526.0	210	34.6	9.7	10 U	5.0 U	10 U	10 U
11/09/20	6.84	1,037	15.23	4.60	>375	-3.0	210	38.9	5.0 U	10 U	5.0 U	10 U	10 U
02/15/21	6.10	1,655	8.02	3.60	>250	133.0	112	61.7	5.0 U	10 U	5.0 U	10 U	10 U
05/18/21	**5.64**	1,246	11.76	<5	>125	82.4	141	33.3	5.0 U	10 U	5.0 U	10 U	10 U
08/17/21	7.01	-	-	<5	>375		232	39.9	15.8	10 U	5.0 U	10 U	10 U
11/29/21	6.59	1,073	12.84	3.42	>125	-40.4	199	38.8	5.0 U	10 U	5.0 U	10 U	10 U
03/14/22	6.32	1,217	8.43	12.0	>250	0.4	174	39.8	5.0 U	10 U	5.0 U	10 U	10 U
05/23/22	6.59	1,090	11.39	12.1	>250	53.7	188	32.9	5.0 U	10 U	5.0 U	10 U	10 U
08/15/22	6.96	834	14.15	118.0	>375	-16.8	248	35.9	7.0	10 U	5.0 U	10 U	10 U
11/14/22	6.86	775	15.3	19.9	>250	-24.4	242	23.0	5.0 U	10 U	5.0 U	10 U	10 U
02/27/23	6.97	1,062	8.6	10.8	>250	88.0	149	53.7	5.0 U	10 U	5.0 U	10 U	10 U
05/30/23	6.47	863	13.1	10.6	>250	24.2	184	41.3	5.0 U	10 U	5.0 U	10 U	10 U
08/21/23	6.90	800	17.3	5.54	>375	5.7	235	33.8	5.0 U	10 U	5.0 U	10 U	10 U
11/14/23	6.95	830	15.0	5.27	>250	6.2	244	29.8	5.0 U	60 U	5.0 U	10 U	10 U
02/26/24	6.89	766	9.3	7.22	>250	9.3	194	31.5	5.0 U	60 U	5.0 U	10 U	10 U
05/28/24	7.00	779	13.2	5.22	>375	-41.8	209	22.3	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A2

Field Parameters and Analytical Data - Monitoring Well MW-8S-R
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
6 NYCRR Part 703 Class GA Limit:							**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/08/14	6.83	737	6.2	4.70		181	35.0	5.0 U	10 U	5.0 U	10 U	10 U
05/19/14	6.38	1,100	10.7	0.00		116	37.2	5.0 U	10 U	5.0 U	10 U	10 U
08/18/14	6.35	1,268	18.0	0.00		115	23.3	5.0 U	10 U	5.0 U	10 U	10 U
11/11/14	6.40	1,241	17.8	0.00		171	30.6	5.0 U	10 U	5.0 U	10 U	10 U
02/23/15	6.50	672	5.4	1.00		173	34.9	5.0 U	10 U	5.0 U	10 U	10 U
05/05/15	6.35	825	10.4	0.00		121	31.5	5.0 U	10 U	5.0 U	10 U	10 U
08/24/15	6.19	1,476	17.4	0.00		119	42.3	5.0 U	10 U	5.0 U	10 U	10 U
11/03/15	6.19	1,391	14.6	1.01		172	41.3	5.0 U	10 U	5.0 U	10 U	10 U
02/09/16	6.40	1,303	6.7	1.84		135	37.8	5.0 U	10 U	5.0 U	10 U	10 U
05/16/16	6.80	865	9.2	0.10		158	35.2	5.0 U	10 U	5.0 U	10 U	10 U
08/08/16	6.33	1,087	15.5	0.99		164	36.2	5.0 U	10 U	5.0 U	10 U	10 U
11/07/16	6.85	1,129	13.9	1.30	20.3	173	37.3	5.0 U	10 U	5.0 U	10 U	10 U
02/15/17	6.59	823	7.3	0.57	22.8	140	31.3	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.45	1,048	11.3	2.68	30.6	125	37.9	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.71	1,096	15.9	14.7	38.8	98	32.7	5.0 U	10 U	5.0 U	10 U	10 U
11/14/17	6.50	1,510	12.8	6.14	284.0	170	37.1	5.0 U	10 U	5.0 U	10 U	10 U
02/13/18	6.60	886	6.2	2.77	221.0	149	33.3	5.0 U	10 U	5.0 U	10 U	10 U
05/23/18	7.38	1,170	11.7	1.80	107.7	111	29.9	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	6.38	1,527	18.5	0.72	101.9	134	26.0	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	6.40	1,055	8.8	0.97	103.8	102	32.1	5.0 U	10 U	5.0 U	10 U	10 U
03/04/19	6.67	1,692	6.2	6.77	65.3	114	33.3	5.0 U	10 U	5.0 U	10 U	10 U
05/13/19	6.50	1,093	8.7	3.82	106.0	100	24.7	5.0 U	10 U	5.0 U	10 U	10 U
08/12/19	6.40	1,940	15.2	0.70	132.0	109	24.6	5.0 U	10 U	5.0 U	10 U	10 U
11/05/19	6.62	1,745	13.5	0.92	40.1	166	45.2	5.0 U	10 U	5.0 U	10 U	10 U
02/19/20	**5.60**	1,767	6.5	31.9	233.0	88.4	28.1	5.0 U	10 U	5.0 U	10 U	10 U
05/11/20	6.65	837	10.2	16.5	120.1	87.2	21.4	5.0 U	10 U	5.0 U	10 U	10 U
08/03/20	6.11	1,595	15.0	1.10	162.1	96.4	22.7	5.0 U	10 U	5.0 U	10 U	10 U
11/09/20	6.21	1,789	13.4	1.15	149.0	171	50.0	5.0 U	10 U	5.0 U	10 U	10 U
02/15/21	6.14	1,473	6.7	0.64	150.1	122	30.6	5.0 U	10 U	5.0 U	10 U	10 U
05/18/21	6.00	156	10.4	<5	92.8	85.7	19.3	5.0 U	10 U	5.0 U	10 U	10 U
08/16/21	6.30	2,031	16.1	<5	177.5	104	30.9	5.0 U	10 U	5.0 U	10 U	10 U
11/29/21	6.27	1,514	11.0	0.23	28.3	129	31.3	5.0 U	10 U	5.0 U	10 U	10 U
03/14/22	6.13	1,516	6.4	11.7	37.3	115	16.5	5.0 U	10 U	5.0 U	10 U	10 U
05/23/22	6.41	1,481	10.2	1.02	82.1	116	27.2	5.0 U	10 U	5.0 U	10 U	10 U
08/15/22	6.33	1,799	16.3	1.07	186.1	128	35.1	5.0 U	10 U	5.0 U	10 U	10 U
11/14/22	6.43	1,245	13.1	0.02	141.6	178	43.2	5.0 U	10 U	5.0 U	10 U	10 U
02/27/23	6.29	1,487	6.4	0.02	201.5	103	26.7	5.0 U	10 U	5.0 U	10 U	10 U
05/30/23	6.24	1,948	11.5	0.92	64.2	98.2	24.6	5.0 U	10 U	5.0 U	10 U	10 U
08/21/23	6.32	1,844	17.2	0.02	39.3	115	36.2	5.0 U	10 U	5.0 U	10 U	10 U
11/13/23	6.47	1,514	13.3	1.85	31.4	129	26.7	5.0 U	60 U	5.0 U	10 U	10 U
02/26/24	6.43	1,467	7.3	0.02	33.7	115	27.5	5.0 U	60 U	5.0 U	10 U	10 U
05/28/24	6.57	1,685	11.9	0.05	133.1	112	24.5	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A3

Field Parameters and Analytical Data - Monitoring Well MW-9S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
6 NYCRR Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/08/14	**10.36**	13.35 (ms/cm)	6.8	3.80	> 58		1090	**1,150**	**85.6**	**107**	5.0 U	10 U	23.8
05/19/14	7.14	8.61 (ms/cm)	13.8	1.37	> 250		540	**2,120**	**28**	**159**	5.0 U	10 U	**27.1**
08/18/14	**9.98**	5.11 (ms/cm)	17.6	31.00	> 250		366	**969**	**87.5**	**66.3**	5.0 U	10 U	**35.2**
11/11/14	**10.05**	2.6 (ms/cm)	16.5	38.00	> 250		261	**1,200**	**365**	**71.7**	5.0 U	10 U	**72.4**
02/24/15	**10.81**	2.4 (ms/cm)	16.5	38.00	> 250				**1020**	**37.6**	5.0 U	10 U	24.7
05/04/15	7.72	4,432.00	12.1	4.00	> 250		219	**1,090**	**74**	**58.3**	5.0 U	10 U	**29.3**
08/25/15	**8.60**	8.31 (ms/cm)	22.6	1000.00	> 250		10000	**458**	**172**	**277**	5.0 U	15	**253**
11/03/15	**8.52**	5.12 (ms/cm)	17.0	208.00	> 375		3380	**1,020**	**175**	**101**	5.0 U	15	**43**
02/09/16	**9.31**	4.71 (ms/cm)	14.1	6.30	> 375		241	**1,290**	**520**	**59**	5.0 U	15	**32**
05/17/16	**10.24**	8.69 (ms/cm)	14.7	15.20	> 375		5230	214	**110**	**95**	5.0 U	14	**60**
08/10/16	**10.62**	18.98 (ms/cm)	21.1	478.00	> 375		648	**1,040**	**488**	**336**	5.0 U	13.5	**191**
11/07/16	**8.97**	12.01 (ms/cm)	16.3	36.00	> 375	-111.3	304	**1,180**	5.0 U	**50**	5.0 U	10 U	**50**
02/13/17	8.27	5.47 (ms/cm)	6.8	3.88	> 375	-68.4	413	**777**	10.7	**54**	5.0 U	10 U	14
05/16/17	**10.23**	15.16 (ms/cm)	13.8	4.13	> 375	-184.5	1,650	**1,050**	14.7	**98**	5.0 U	10 U	24
07/24/17	**5.54**	6.81 (ms/cm)	20.1	241.00	> 375	67	3,780	**351**	**88.5**	**163**	5.0 U	12	**64**
11/13/17	**10.57**	9.69 (ms/cm)	15.8	-	> 375	138.2	311	**942**	10.1	**67**	5.0 U	10 U	**49**
02/13/18	7.77	6.49 (ms/cm)	3.8	10.50	> 375	171.8	518	**1,600**	6.5	**96**	**9.0**	10 U	**53**
05/23/18	**10.48**	8.83 (ms/cm)	16.7	43.10	> 375	247.7	3,930	**718**	**54.2**	**96**	5.0 U	10 U	**40**
08/27/18													
12/03/18	**11.00**	18.07 (ms/cm)	10.1	4.42	> 375	258.9							
03/07/19	**10.23**	10,045	6.4	33.60	> 375	53.8	445	**1,140**	11.1	**117**	5.0 U	10 U	13
05/15/19	7.86	5,124	12.8	54.69	> 375	116.5	308	**929**	10.10	**130**	5.0 U	10 U	10.0 U
08/12/19	**10.32**	10,399	21.1	43.30	< 55	64							
11/04/19	**10.44**	12	17.6	69.10	0	41.6							
02/17/20	**10.29**	8,345	10.0	44.30	0	85.2		**310**	**359**	**88**	5.0 U	16	**35**
05/13/20	**8.95**	4,539	12.3	40.40	> 375	160.2	501	**1,190**	6.60	**160**	5.0 U	10 U	**27**
08/05/20	**10.31**	16,384	21.4	50.10	0	36.8	10,700	110	**102**	**352**	5.0 U	22	**87**
11/12/20	**11.10**	30,035	17.14	30.00	> 0	17.2	18,600	95.6	**644**	**147**	5.0 U	10 U	**49**
02/18/21	**9.91**	15,740	8.3	19.90	0	3.2.5	3,380	155	**31**	**51**	5.0 U	10 U	11
05/20/21	**10.75**	24,249	13.6	12.90	< 50	109	19,000	128	**428**	**52**	5.0 U	10 U	22
08/18/21				<50	0				**933**	**257**	5.0 U	15	**75**
11/29/21	**9.71**	25,090	14.0	18.50	0	8.5							
03/17/22	**10.56**	21,320	6.41	9.04	0	2.3	6,090	**396**	**110**	**42**	5.0 U	10 U	13
05/25/22	**10.59**	18,660	16.2	15.90	> 375	111.8	1,090	**1,460**	5.0 U	**205**	5.0 U	10 U	**29**
08/17/22	**10.98**	20,352	22.6	19.80	0	-31.2	81,800	**425**	**17,500**	**410**	5.0 U	10 U	**140**
11/16/22	**11.24**	38,640	16.7	21.20	0	-113			**13,000**	**255**	5.0 U	10 U	**94**
03/01/23	**11.38**	51,676	11.4	10.80	0	67.4							
06/01/23	**10.56**	25,472	15.5	34.40	0	-58.4	20,000	**769**	**939**	**111**	5.0 U	14	23
08/21/23	**10.56**	67,005	21.4	8.31	0	-208.3			**11,700**	**220**	50.0 U	50 U	100 U
11/15/23	**11.23**	51,200	14.7	4.69	0	-226.6	45,300	76.2	**2,950**	600 U	50.0 U	100 U	100 U
02/28/24	**10.94**	44,075	9.8	9.84	0	-210.8			**1,960**	**98**	5.0 U	13	**41**
05/30/24	**10.57**	36,178	15.7	9.88	0	4.2	29,500	191	**2,290**	600 U	50.0 U	100 U	100 U
Notes:	5.54							**2,120**	**17500**	**600**	**50**	**100**	**253**

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A4

Field Parameters and Analytical Data - Monitoring Well MW-13S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/09/14	6.45	2,194	8.1	0.00	50		207	**1,680**	5.0 U	10 U	5.0 U	10 U	10 U
05/19/14	6.70	1,847	8.5	2.07	150-250		167	**1,520**	5.0 U	10 U	5.0 U	15.5	10 U
08/18/14	6.57	2,159	12.4	1.00	>250		295	**1,910**	5.0 U	10 U	5.0 U	28.8	10 U
11/10/14	6.31	1,950	12.9	0.73	>250		301	**2,190**	5.0 U	10 U	5.0 U	10 U	10 U
02/24/15	6.37	1,312	11.9	45.00	>250		109	**1,580**	5.0 U	10 U	5.0 U	10 U	10 U
05/04/15	6.43	1,745	8.7	22.00	>250		182	**1,750**	5.0 U	10 U	5.0 U	10 U	10.1
08/25/15	6.51	2,776	13.7	3.00	>250		295	**2,100**	5.3	10 U	5.0 U	10 U	10 U
11/02/15	6.29	2,435	13.6	15.70	>375		288	**2,230**	5.0 U	10 U	5.0 U	10 U	10 U
02/10/16	6.25	3,088	9.1	12.40	>375		284	**2,070**	5.0	10 U	5.0 U	10 U	10 U
05/17/16	6.48	2,246	10.3	2.25	>375		292	**2,110**	5.0 U	10 U	5.0 U	10 U	10 U
08/09/16	6.50	2,859	16.1	10.80	>375		76	**2,060**	5.0 U	10 U	5.0 U	10 U	10 U
11/08/16	6.42	2,668	14.5	10.80	>375	33	291	**2,140**	5.0 U	10 U	5.0 U	10 U	10 U
02/14/17	6.40	2,304	9.3	36.10	>375	33.9	275	**2,010**	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.46	2,465	11.5	16.40	>375	29.9	293	**1,050**	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.47	2,366	13.3	9.90	>375	30.9	242	**1,990**	5.0 U	10 U	5.0 U	10 U	10 U
11/14/17	6.45	3.58 (ms/cm)	13.0	4.98	>375	152.8	342	**1,980**	5.0 U	10 U	5.0 U	10 U	10 U
02/12/18	6.38	4,001	8.2	13.60	>375	170.1	270	**1,930**	5.0 U	10 U	5.0 U	10 U	10 U
05/23/18	6.38	3,703	11.8	13.90	>375	151.1	200	**1,860**	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	6.49	2,729	17.6	21.10	>375	201.1	351	**1,810**	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	6.68	2,382	9.0	22.00	>375	199.8	251	**1,860**	5.0 U	10 U	5.0 U	10 U	10 U
03/05/19	6.58	3,746	7.6	2.51	>375	43.1	244	**1,890**	5.0 U	10 U	5.0 U	10 U	10 U
05/14/19	6.56	2,659	9.1	2.39	>375	60.5	240	**1,790**	5.0 U	10 U	5.0 U	10 U	10 U
08/12/19	6.51	3,863	12.5	3.21	>375	54.4	272	**1,890**	5.0 U	10 U	5.0 U	10 U	10 U
11/05/19	6.53	3,785	13.1	2.28	>375	16.0	254	**1,960**	5.0 U	10 U	5.0 U	10 U	10 U
02/17/20	6.40	3,855	9.2	1.10	>375	88.8	252	**1,900**	5.0 U	10 U	5.0 U	10 U	10 U
05/11/20	6.71	2,597	9.3	1.93	>375	89.5	256	**1,820**	5.0 U	10 U	5.0 U	10 U	10 U
08/05/20							268	**1,890**	5.0 U	10 U	5.0 U	10 U	10 U
11/10/20	6.55	3,946	12.99	4.88	>375	41.7	266	**1,930**	5.0 U	10 U	5.0 U	10 U	10 U
02/15/21	6.45	3,802	8.9	6.16	>375	73.6	285	**1,820**	5.0 U	10 U	5.0 U	10 U	10 U
05/18/21	6.40	3,892	10.4	1.23	>375	103.1	307	**1,840**	5.0 U	10 U	5.0 U	10 U	10 U
08/16/21	6.59	3,784	12.9	<5	>375	59.8	298	**928**	5.0 U	10 U	5.0 U	10 U	10 U
11/29/21	6.39	3,925	11.0	11.90	>375	27.3	289	**1,760**	5.0 U	10 U	5.0 U	10 U	10 U
03/14/22	6.29	3,887	9.09	14.40	>375	29.6	259	**1,790**	5.0 U	10 U	5.0 U	10 U	10 U
05/24/22	6.47	3,083	9.37	29.30		121.6	272	**1,680**	6.1	10 U	5.0 U	10 U	10 U
08/16/22	6.49	3,733	12.71	13.00	>375	50.4	296	**1,690**	5.0 U	10 U	5.0 U	10 U	10 U
11/14/22	6.41	2,944	13.1	3.92	>375	46.5	271	**1,660**	5.0 U	10 U	5.0 U	10 U	10 U
02/27/23	6.68	3,657	9.6	14.00	>375	140.9	261	**1,610**	5.0 U	10 U	5.0 U	10 U	10 U
05/29/23	6.39	3,896	10.3	1.30	>375	10.9	301	**1,730**	5.0 U	10 U	5.0 U	10 U	10 U
08/21/23	6.42	3,891	14.2	4.53	>375	32.2	274	**1,600**	5.0 U	10 U	5.0 U	10 U	10 U
11/13/23	6.71	3,917	13.2	3.21	>375	19.0	276	**1,610**	5.0 U	60 U	5.0 U	10 U	10 U
02/26/24	6.37	3,623	9.6	3.48	>375	36.2	259	**1,570**	5.0 U	60 U	5.0 U	10 U	10 U
05/28/24	6.74	3,753	11.2	5.83	>375	47.3	283	**1,640**	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A5

Field Parameters and Analytical Data - Monitoring Well MW-13D
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/09/14	6.69	1,986	11.0	10.0	>58		333	**1,390**	5.0 U	10 U	5.0 U	10 U	10.0 U
05/19/14	6.92	1,970	10.4	18.2	150-250		322	**1,540**	5.0 U	10 U	**9.4**	10 U	10.0 U
08/18/14	6.87	1,592	10.9	6.80	>250		335	**1,360**	5.0 U	10 U	5.0 U	10 U	10.0 U
11/10/14	6.30	1,499	10.9	6.85	>250		340	**1,440**	5.0 U	10 U	5.0 U	10 U	10.0 U
02/24/15	6.30	1,612	10.9	7.50	>250		355	**1,450**	5.0 U	10 U	5.0 U	10 U	10.0 U
05/04/15	6.63	1,757	10.0	12.0	>250		330	**1,440**	5.0 U	10 U	5.0 U	10 U	10.0 U
08/25/15	6.76	2,261	17.2	0.50	>250		301	**1,510**	6.0	10 U	5.0 U	10 U	10.0 U
11/02/15	6.27	1,833	12.6	10.8	>375		323	**1,430**	5.0 U	10 U	5.0 U	10 U	10.0 U
02/10/16	6.50	2,312	9.8	35.8	>375		337	**1,360**	5.0 U	10 U	5.0 U	10 U	10.0 U
05/17/16	6.69	1,725	11.1	18.0	>375		330	**1,250**	5.0 U	10 U	5.0 U	10 U	10.0 U
08/09/16	6.77	1,910	12.3	8.90	>375		327	**1,290**	5.0 U	10 U	5.0 U	10 U	10.0 U
11/08/16	6.48	1,861	11.6	7.90	>375	6.48	335	**1,410**	5.0 U	10 U	5.0 U	10 U	10.0 U
02/14/17	6.58	1,774	10.2	18.4	>375	22.3	323	**1,280**	5.0 U	10 U	5.0 U	10 U	10.0 U
05/16/17	6.65	1,946	13.3	20.5	>375	19	336	**1,220**	5.0 U	10 U	5.0 U	10 U	10.0 U
07/24/17	6.69	1,721	14.2	19.3	>375	16.6	281	**1,130**	5.0 U	10 U	5.0 U	10 U	10.0 U
11/14/17	6.61	2.55 (ms/cm)	11.1	9.81	>375	222	348	**1,110**	5.0 U	10 U	5.0 U	10 U	10.0 U
02/12/18	6.72	2.1 (ms/cm)	4.6	35.3	>375	231	336	**1,090**	5.0 U	10 U	5.0 U	10 U	10.0 U
05/22/18	6.79	1.3 (ms/cm)	12.8	26.3	>375	158	296	**1,070**	5.0 U	10 U	5.0 U	10 U	10.0 U
08/27/18	6.75	1,924	14.6	9.24	>375	151.9	331	**1,040**	5.0 U	10 U	5.0 U	10 U	10.0 U
12/03/18	6.78	980	10.4	10.5	>375	151.1	283	**1,020**	5.0 U	10 U	5.0 U	10 U	10.0 U
03/05/19	6.80	2,578	10.5	21.9	>375	134.8	292	**1,000**	5.0 U	10 U	5.0 U	10 U	10.0 U
05/14/19	6.71	2,000	10.67	33.1	>375	93.6	298	**1,020**	5.0 U	10 U	5.0 U	10 U	10.0 U
08/12/19	6.68	2,757	11.50	4.30	>375	69.0	298	**987**	5.0 U	10 U	5.0 U	10 U	10.0 U
11/05/19	6.73	2,831	11.39	116.0	>375	10.7	311	**1,050**	5.0 U	10 U	5.0 U	12	10.0 U
02/17/20	6.48	2,819	11.53	75.0	>375	95.0	318	**1,080**	5.0 U	10 U	5.0 U	10 U	10.0 U
05/11/20	7.01	1,982	10.10	108.0	>375	426.0	280	**972**	5.0 U	10 U	5.0 U	10 U	10.0 U
08/05/20				50.9	>375		279	**960**	5.0 U	10 U	5.0 U	10 U	10.0 U
11/10/20	6.88	2,828	11.72	75.7	>375	87.8	304	**989**	5.0 U	10 U	5.0 U	10 U	10.0 U
02/15/21	6.64	2,811	10.69	42.6	>375	128.1	347	**1,060**	5.0 U	10 U	5.0 U	10 U	10.0 U
05/18/21	6.31	2,921	10.97	66.9	>375	155.9	328	**1,030**	5.0 U	10 U	5.0 U	10 U	10.0 U
08/16/21	6.88	2,724	10.92	>100	>375	178.6	306	**994**	5.0 U	10 U	5.0 U	10 U	10.0 U
11/29/21	6.55	2,889	9.68	20.0	>375	26.9	318	**991**	5.0 U	10 U	5.0 U	10 U	10.0 U
03/14/22	6.69	2,815	11.55	27.3	>375	43.6	284	**918**	5.0 U	10 U	5.0 U	10 U	10.0 U
05/24/22	6.59	2,249	10.7	16.10	>375	158.2	287	**940**	5.0 U	10 U	5.0 U	10 U	10.0 U
08/16/22	6.61	2,864	11.2	43.50	>375	35.3	319	**970**	5.0 U	10 U	5.0 U	10 U	10.0 U
11/14/22	6.57	2.48 (ms/cm)	11.1	16.00	>375	85.4	280	**1,020**	5.0 U	10 U	5.0 U	10 U	10.0 U
02/27/23	6.74	2,896	11.1	29.00	>375	122.8	293	**1,010**	5.0 U	10 U	5.0 U	10 U	10.0 U
05/29/23	6.52	2,887	11.3	19.80	>375		272	**958**	5.0 U	10 U	5.0 U	10 U	10.0 U
08/21/23	6.65	2,901	12.0	44.30	>375	18.8	294	**948**	5.0 U	10 U	5.0 U	10 U	10.0 U
11/13/23	6.79	2,939	11.3	33.40	>375	14.8	292	**922**	5.0 U	60 U	5.0 U	10 U	10.0 U
02/26/24	6.80	2,753	11.0	44.20	>375	13.4	297	**938**	5.0 U	60 U	5.0 U	10 U	10.0 U
05/28/24	6.93	2,938	12.5	50.20	>375	50.5	292	**985**	5.0 U	60 U	5.0 U	10 U	10.0 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A6

Field Parameters and Analytical Data - Monitoring Well MW-14S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/09/14	7.34	522	9.8	3.72	20		206	46.1	5.0 U	10 U	5.0 U	10 U	10 U
05/19/14	7.36	524	10.3	0.00	>250		200	45.7	5.0 U	10 U	5.0 U	10 U	10 U
08/19/14	7.45	580	16.5	5.50	>250		204	42.6	12.8	10 U	5.0 U	10 U	10 U
11/10/14	6.58	416	12.4	8.83	>250		209	40.6	5.3	10 U	5.0 U	10 U	10 U
02/25/15	6.55	521	10.2	4.70	>250		190	44.1	7.5	10 U	5.0 U	10 U	10 U
05/04/15	7.04	549	12.3	1.00	>250		201	42.6	5.0 U	10 U	5.0 U	10 U	10 U
08/25/15	7.09	622	13.9	1.10	>250		191	44.4	5.0 U	10 U	5.0 U	10 U	10 U
11/02/15	6.67	485	11.5	0.71	>375		200	46.1	5.0 U	10 U	5.0 U	10 U	10 U
02/09/16	6.88	790	10.1	1.71	>375		197	42.5	5.0 U	10 U	5.0 U	10 U	10 U
05/18/16	7.28	829	10.9	1.35	>375		200	43.6	5.0 U	10 U	5.0 U	10 U	10 U
08/09/16	6.98	674	12.3	4.90	>375		196	40.6	5.0 U	10 U	5.0 U	10 U	10 U
11/09/16	7.48	607	11.4	1.30	>375	-1.9	201	41.8	5.0 U	10 U	5.0 U	10 U	10 U
02/15/17	7.44	663	10.9	1.31	>375	-22.6	201	41.6	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	7.61	651	11.1	2.61	>375	-33.8	212	44.9	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	7.61	671	11.9	3.88	>375	63.8	190	44.1	5.0 U	10 U	5.0 U	10 U	10 U
11/14/17	7.27	973	10.8	7.92	>375	230	206	43.4	5.0 U	10 U	5.0 U	10 U	10 U
02/12/18	7.38	881	10.7	7.85	>375	229	202	41.9	5.0 U	10 U	5.0 U	10 U	10 U
05/22/18	7.33	980	11.8	13.9	>375	151.1	204	43.6	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	7.21	695	12.9	3.02	>375	143.7	217	47.1	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	7.87	583	10.8	16.6	>250	113.8	186	40.9	5.0 U	10 U	5.0 U	10 U	10 U
03/04/19	7.27	859	10.1	1.72	>375	107.0	194	43.9	5.0 U	10 U	5.0 U	10 U	10 U
05/13/19	7.38	629	9.98	2.00	>375	88.2	196	44.3	5.0 U	10 U	5.0 U	10 U	10 U
08/12/19	7.34	903	11.23	1.17	>375	95.3	200	43.4	5.0 U	10 U	5.0 U	10 U	10 U
11/05/19	7.26	954	11.13	0.59	>375	48.5	204	44.6	5.0 U	10 U	5.0 U	10 U	10 U
02/17/20	6.99	1,009	11.91	0.44	>375	136.8	203	42.7	5.0 U	10 U	5.0 U	10 U	10 U
05/11/20	7.50	677	10.20	0.88	>375	277.1	202	44.4	5.0 U	10 U	5.0 U	10 U	10 U
08/05/20				3.21	>375		200	42.5	5.0 U	10 U	5.0 U	10 U	10 U
11/10/20	7.11	1,057	11.54	1.07	>375	147.3	204	44.6	5.0 U	10 U	5.0 U	10 U	10 U
02/15/21	6.75	1,095	9.80	1.59	>375	112.7	228	42.0	5.0 U	10 U	5.0 U	10 U	10 U
05/18/21	5.84	1,092	10.37	1.03	>375	150.0	224	42.6	5.0 U	10 U	5.0 U	10 U	10 U
08/16/21	7.32	1,102	11.52	1.00	>375	159.2	218	43.9	5.0 U	10 U	5.0 U	10 U	10 U
11/29/21	6.77	1,062	10.15	0.52	>375	58.0	222	41.9	5.0 U	10 U	5.0 U	10 U	10 U
03/14/22	6.89	1,021	10.99	0.4	>375	16.9	221	43.0	5.0 U	10 U	5.0 U	10 U	10 U
05/23/22	7.18	811	10.88	1.40	>375	78.9	220	41.2	5.0 U	10 U	5.0 U	10 U	10 U
08/15/22	7.15	908	11.18	0.43	>375	123.8	227	44.9	5.0 U	10 U	5.0 U	10 U	10 U
11/14/22	7.06	750	11.4	0.02	>375	105.7	228	41.6	5.0 U	10 U	5.0 U	10 U	10 U
02/27/23	6.83	1,039	10.7	0.33	>375	183.3	227	41.2	5.0 U	10 U	5.0 U	10 U	10 U
05/29/23	6.75	977	11.2	0.96	>375	56.5	223	41.8	5.0 U	10 U	5.0 U	10 U	10 U
08/21/23	7.24	937	11.7	0.66	>375	-14.3	220	42.8	5.0 U	10 U	5.0 U	10 U	10 U
11/13/23	7.20	963	11.5	3.99	>375	-8.6	226	41.9	5.0 U	60 U	5.0 U	10 U	10 U
02/26/24	7.18	820	10.7	0.02	>375	-7.6	219	40.0	5.0 U	60 U	5.0 U	10 U	10 U
05/28/24	7.35	839	11.4	1.32	>375	110.8	219	40.0	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A7

Field Parameters and Analytical Data - Monitoring Well MW-14D
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/09/14	6.71	428	10.9	4.07	20		146	40.7	5.0 U	10 U	5.0 U	10 U	10 U
05/19/14	6.68	694	10.4	0.00	>250		96.0	31.9	5.0 U	10 U	5.0 U	11.5	10 U
08/19/14	6.71	712	16.3	2.50	<55		107	33.4	5.0 U	10 U	5.0 U	32.9	10 U
11/10/14	6.80	914	11.6	1.00	>250		148	44.3	5.0 U	10 U	5.0 U	28.6	10 U
02/25/15	6.29	1002	11.6	0.00	>250		153	47.2	5.0 U	10 U	5.0 U	10 U	10 U
05/04/15	6.38	837	12.4	4.80	>250		124	38.4	5.0 U	10 U	5.0 U	10 U	10 U
08/25/15	6.80	780	14.3	2.10	>250		168	44.1	5.0 U	10 U	5.0 U	10 U	10 U
11/02/15	6.85	821	12.7	2.90	>375		183	45.1	5.0 U	10 U	5.0 U	10 U	10 U
02/09/16	6.22	1178	9.2	1.99	>250		141	41.1	5.0 U	10 U	5.0 U	10 U	10 U
05/18/16	6.68	1180	10.7	0.74	150		132	42.6	5.0 U	10 U	5.0 U	10 U	10 U
08/09/16	6.30	1103	12.2	1.90	>375		2 U	44.0	5.0 U	10 U	5.0 U	10 U	10 U
11/09/16	6.47	1044	11.1	4.90	>375	29.6	157	47.3	5.0 U	10 U	5.0 U	10 U	10 U
02/15/17	6.54	942	9.2	1.56	>375	26	150	43.5	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.51	816	11.7	2.03	>375	27.3	112	36.9	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.55	901	12.1	12.1	>375	36.1	108	35.9	5.0 U	10 U	5.0 U	10 U	10 U
11/14/17	6.59	1447	10.3	4.31	>375	265	162	46.0	5.0 U	10 U	5.0 U	10 U	10 U
02/12/18	6.56	1206	12.2	3.46	>375	249	156	42.1	5.0 U	10 U	5.0 U	10 U	10 U
05/22/18	6.48	1400	11.5	13.8	>375	121	127	34.9	5.0 U	10 U	5.0 U	20.0	10 U
08/27/18	6.39	1,090	11.7	3.05	>250	110.8	154	42.4	5.0 U	10 U	5.0 U	20.0	10 U
12/03/18	6.78	754	10.2	3.92	>250	149.9	93.2	32.2	5.0 U	10 U	5.0 U	11.0	10 U
03/04/19	6.31	1,012	10.8	2.75	>250	130.1	93.6	34.7	5.0 U	10 U	5.0 U	10 U	10 U
05/13/19	7.08	805	10.36	1.93	>250	95.5	94.0	34.7	5.0 U	10 U	5.0 U	10 U	10 U
08/12/19	6.55	1,450	11.35	3.40	>375	110.3	135.0	41.8	5.0 U	10 U	5.0 U	10 U	10 U
11/05/19	6.60	1,577	10.70	0.83	>375	67.9	148	47.0	5.0 U	10 U	5.0 U	10 U	10 U
02/17/20	6.45	1,012	13.60	2.50	>375	144.4	108	36.2	5.0 U	10 U	5.0 U	10 U	10 U
05/11/20	6.60	809	10.20	2.87	>250	216.5	102	34.6	5.0 U	10 U	5.0 U	10 U	10 U
08/05/20				5.18	>375		142	42.2	5.0 U	10 U	5.0 U	38.0	10 U
11/10/20	6.72	1,611	10.84	1.65	>375	156.6	155	46.9	5.0 U	10 U	5.0 U	10 U	10 U
02/15/21	6.51	1,357	10.66	2.78	>375	121.7	158	42.6	5.0 U	10 U	5.0 U	10 U	10 U
05/18/21	5.70	1,160	10.61	2.97	>375	195.9	120	36.4	5.0 U	10 U	5.0 U	10 U	10 U
08/16/21	6.60	1,419	11.11	7.93	>375	167.3	152	42.9	5.0 U	10 U	5.0 U	33.0	10 U
11/29/21	6.47	1,279	9.78	4.60	>250	61.5	139	38.6	5.0 U	10 U	5.0 U	10 U	10 U
03/14/22	6.46	1,073	10.68	3.49	>375	28.6	120	35.7	5.0 U	10 U	5.0 U	10 U	10 U
05/23/22	6.63	1,017	10.99	1.67	>375	82.1	122	34.1	5.0 U	10 U	5.0 U	10 U	10 U
08/15/22	6.43	1,288	11.2	2.78	>375	122.1	156	41.4	5.0 U	10 U	5.0 U	10 U	10 U
11/14/22	6.60	996	10.9	0.39	>375	111.2	165	40.5	5.0 U	10 U	5.0 U	10 U	10 U
02/27/23	6.73	1,187	10.8	0.02	>375	184.2	156	38.4	5.0 U	10 U	5.0 U	10 U	10 U
05/29/23	6.36	1,096	11.3	3.26	>250	56.3	124	36.4	5.0 U	10 U	5.0 U	10 U	10 U
08/21/23	6.51	1,019	11.5	1.78	>250	27.2	127	39.1	5.0 U	10 U	5.0 U	10 U	10 U
11/13/23	6.50	1,169	10.7	2.22	>250	29.8	148	38.9	5.0 U	60 U	5.0 U	10 U	10 U
02/26/24	6.42	960	10.8	10.10	>250	34.0	134	36.2	5.0 U	60 U	5.0 U	10 U	10 U
05/28/24	6.76	1,016	11.4	2.11	>250	101.1	139	36.2	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A8

Field Parameters and Analytical Data - Monitoring Well MW-15S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/09/14	6.70	675	5.2	0.00	15		84.0	**360**	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
05/19/14	7.10	808	10.7	0.00	150-250		87.2	**339**	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
08/19/14	7.15	880	17.6	3.30	150-250		54.8	**311**	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
11/10/14	6.61	759	15.0	0.00	45		95.2	**307**	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
02/23/15	6.63	841	5.2	3.80	50		88.0	**315**	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
05/04/15	6.42	648	9.3	0.00	150-250		84.8	**324**	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
08/25/15	6.57	1,061	16.7	1.00	>250		100	**352**	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
11/02/15	6.11	1,196	14.2	2.67	>375		120	**350**	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
02/09/16	6.59	1,147	6.6	0.95	>125		113	**327**	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
05/16/16	6.53	800	10.7	0.64	>125		126	**294**	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
08/08/16	6.06	1,039	18.5	2.26	>375		126	**277**	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
11/08/16	6.32	952	15.2	2.11	>375	38.6	117	**282**	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
02/15/17	6.84	709	6.9	1.31	>375	-22.6	201	41.6	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
05/16/17	6.98	763	11.7	5.94	>375	5.9	136	229	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
07/24/17	7.01	808	12.3	9.90	>375	12.1	130	226	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
11/15/17	6.32	1,030	11.9	1.05	>375	271	135	186	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
02/12/18	6.33	1,145	5.8	1.59	>375	95.5	126	169	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
05/21/18	7.04	671	11.8	7.72	>250	101.1	150	153	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
08/27/18	6.27	1,019	18.9	29.6	>375	143.7	156	155	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
12/03/18	6.59	762	10.0	4.09	>375	111.3	130	143	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
03/05/19	7.04	991	5.2	2.71	>125	56.6	132	120	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
05/14/19	5.85	765	9.5	2.91	>250	48.3	144	113	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
08/12/19	6.30	1,288	15.12	3.23		74.5	132	138	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
11/06/19	6.40	1,404	13.19	0.82	>250	39.0	128	152	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
02/17/20	**5.15**	1,435	6.52	2.41	>375	146.6	127	148	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
05/11/20	6.66	890	8.70	1.47	>375	176.1	140	129	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
08/05/20				4.22	>375		132	154	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
11/10/20	6.41	1,798	13.49	3.51	>375	107.0	132	167	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
02/16/21	6.21	1,619	6.29	1.59	>375	63.4	147	156	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
05/18/21	6.09	1,411	9.87	<5	>375	133.0	172	140	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
08/16/21	6.55	1,550	14.84	<5	>375	41.2	146	161	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
11/30/21	6.51	1,445	9.40	1.81	>250	14.5	172	119	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
03/15/22	6.36	1,399	5.39	0.70	>375	-34.7	158	123	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
05/23/22	6.52	1,053	10.73	1.52	>375	90.2	183	99.3	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
08/15/22	6.22	1,560	15.48	0.96	>375	120.1	147	129	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
11/14/22	6.28	1,372	12.8	0.62	>375	84.1	144	143	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
02/27/23	6.58	1,743	6.5	0.35	>375	144.0	147	148	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
05/29/23	6.27	1,726	11.2	0.21	>375	71.1	152	144	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
08/21/23	6.40	1,702	15.5	2.35	>375	34.4	163	128	5.0 U	10.0 U	5.0 U	10.0 U	10.0 U
11/13/23	6.41	1,663	12.3	0.18	>375	35.5	175	115	5.0 U	60.0 U	5.0 U	10.0 U	10.0 U
02/26/24	6.47	1,515	7.0	0.02	>375	30.9	154	111	5.0 U	60.0 U	5.0 U	10.0 U	10.0 U
05/29/24	6.77	1,312	11.6	1.47	>375	119.1	184	93.4	5.0 U	60.0 U	5.0 U	10.0 U	10.0 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A9

Field Parameters and Analytical Data - Monitoring Well MW-15D
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/09/14	7.06	958	11.1	10.0	>58		187	**451**	5.0 U	10 U	5.0 U	10 U	10 U
05/19/14	6.94	941	11.6	4.00	>175		181	**397**	5.0 U	10 U	5.0 U	10 U	10 U
08/19/14	6.78	998	13.5	6.80	<55		202	**361**	5.0 U	10 U	5.0 U	10 U	10 U
11/10/14	6.75	794	11.6	6.85	>250		211	**356**	5.0 U	10 U	5.0 U	10 U	10 U
02/23/15	6.88	917	11.9	4.30	>250		218	**343**	5.0 U	10 U	5.0 U	10 U	10 U
05/04/15	6.91	823	12.6	8.30	>250		201	**325**	5.0 U	10 U	5.0 U	10 U	10 U
08/25/15	6.72	902	14.9	5.00	>250		184	**341**	5.0 U	10 U	5.0 U	10 U	10 U
11/02/15	6.83	1,043	15.0	4.98	>375		186	**342**	5.0 U	10 U	5.0 U	10 U	10 U
02/09/16	6.91	1,398	9.6	15.1	>375		217	**375**	5.0 U	10 U	5.0 U	10 U	10 U
05/16/16	6.76	951	11.4	9.13	>375		221	**375**	5.0 U	10 U	5.0 U	10 U	10 U
08/08/16	6.51	668	13.6	4.27	>375		247	**365**	5.0 U	10 U	5.0 U	10 U	10 U
11/08/16	6.65	1,097	13.1	12.8	>375	19.7	243	**377**	5.0 U	10 U	5.0 U	10 U	10 U
02/15/17	6.66	1,059	11.0	6.44	>375	19.4	242	**336**	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.70	1,079	12.6	21.5	>375	17.5	221	**346**	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.70	1,103	13.9	22.8	>375	21.8	213	**318**	5.0 U	10 U	5.0 U	10 U	10 U
11/15/17	6.96	1,428	11.1	5.75	>375	102.8	246	**284**	5.0 U	10 U	5.0 U	10 U	10 U
02/12/18	7.10	1,410	8.1	40.6	>375	110.0	237	245	5.0 U	10 U	5.0 U	10 U	10 U
05/21/18	7.13	900	11.8	10.8	>250	121.0	229	**255**	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	6.94	1,069	13.3	8.72	>375	211.3	264	**254**	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	7.08	1,083	12.8	42.7	>250	132.9	221	**263**	5.0 U	10 U	5.0 U	10 U	10 U
03/05/19	7.06	1,477	11.1	13.3	>375	41.2	216	**252**	5.0 U	10 U	5.0 U	10 U	10 U
05/14/19	6.63	1,082	10.79	10.9	>375	28.1	215	227	5.0 U	10 U	5.0 U	10 U	10 U
08/12/19	7.04	1,556	11.76	11.2	>375	22.5	228	249	5.0 U	10 U	5.0 U	10 U	10 U
11/06/19	7.02	1,616	11.61	20.6		21.0	230	**262**	5.0 U	10 U	5.0 U	10 U	10 U
02/17/20	6.21	1,679	10.72	48.4	>375	126.9	229	223	5.0 U	10 U	5.0 U	10 U	10 U
05/11/20	7.26	1,175	10.20	110	>375	118.0	220	212	5.0 U	10 U	5.0 U	10 U	10 U
08/05/20				41.9	>375		234	238	5.0 U	10 U	5.0 U	10 U	10 U
11/10/20	7.11	2,006	12.00	50.1	>375	-1.4	280	**257**	5.0 U	10 U	5.0 U	10 U	10 U
02/16/21	6.92	1,852	11.33	14.3	>375	3.1	254	216	5.0 U	10 U	5.0 U	10 U	10 U
05/18/21	5.94	1,838	11.07	<50	>375	130.2	240	213	5.0 U	10 U	5.0 U	10 U	10 U
08/16/21	6.97	1,849	11.59	<50	>375	14.2	239	**251**	5.0 U	10 U	5.0 U	10 U	10 U
11/30/21	6.69	1,904	9.90	10.1	>375	-4.9	256	219	5.0 U	10 U	5.0 U	10 U	10 U
03/15/22	6.49	1,830	9.61	4.89	>375	-43.6	250	196	5.0 U	10 U	5.0 U	10 U	10 U
05/23/22	6.94	1,509	10.95	3.89	>375	83.2	249	201	5.0 U	10 U	5.0 U	10 U	10 U
08/15/22	6.78	1,798	11.92	3.57	>375	58.5	259	206	5.0 U	10 U	5.0 U	10 U	10 U
11/14/22	6.76	1,446	11.4	5.43	0	38.9	266	199	5.0 U	10 U	5.0 U	10 U	10 U
02/27/23	6.55	1,832	10.4	6.88	>375	134.3	263	188	5.0 U	10 U	5.0 U	10 U	10 U
05/29/23	6.67	1,858	10.9	8.18	>375	59.7	246	175	5.0 U	10 U	5.0 U	10 U	10 U
08/21/23	6.81	2,044	12.3	10.90	>375	9.2	250	204	5.0 U	10 U	5.0 U	10 U	10 U
11/13/23	7.00	2,016	11.5	11.70	>375	2.7	256	206	5.0 U	60 U	5.0 U	10 U	10 U
02/26/24	7.09	1,860	11.4	27.20	>375	-2.2	252	192	14.2	60 U	5.0 U	10 U	10 U
05/29/24	7.11	1,814	11.1	9.26	>375	107.2	245	166	5.5	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A10

Field Parameters and Analytical Data - Monitoring Well MW-16S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/09/14	6.42	425	9.6	0.00	5		69.3	247	5.0 U	10 U	5.0 U	10 U	10 U
05/19/14	6.54	656	8.4	0.00	150-250		66.3	**266**	5.0 U	10 U	5.0 U	10 U	10 U
08/19/14	6.38	660	13.9	5.00	>250		82.0	**254**	5.0 U	10 U	5.0 U	10 U	10 U
11/10/14	6.22	878	13.7	1.03	>250		92.0	**324**	5.0 U	10 U	5.0 U	10 U	10 U
02/23/15	6.22	928	10.6	0.00	>250		106	**372**	5.0 U	10 U	5.0 U	10 U	10 U
05/04/15	6.28	899	11.7	32.0	>250		91.8	**352**	5.0 U	10 U	5.0 U	10 U	10 U
08/25/15	6.33	908	15.9	12.0	>250		59.8	240	5.0 U	10 U	5.0 U	10 U	10 U
11/02/15	5.89	1,578	14.7	47.1	>375		108	**640**	5.0 U	10 U	5.0 U	10 U	10 U
02/09/16	6.25	1,329	8.5	34.5	>125		103	**409**	6.1	10 U	5.0 U	10 U	10 U
05/16/16	6.44	969	10.7	4.62	>250		100	**400**	5.0 U	10 U	5.0 U	10 U	10 U
08/09/16	6.04	1,277	15.8	1.30	>375		106	**378**	5.0 U	10 U	**11.7**	10 U	10 U
11/08/16	6.13	1,323	15.6	8.10	>375	53.6	121	**408**	5.0 U	10 U	**6.9**	10 U	10 U
02/15/17	6.17	945	7.9	32.4	>375	46.1	112	**335**	5.2	10 U	5.0 U	10 U	10 U
05/16/17	6.22	997	11.8	45.5	>375	43.8	118	**325**	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.29	1,003	14.3	17.0	>375	26.7	121	**351**	5.0 U	10 U	5.0 U	10 U	10 U
11/14/17	6.31	1,001	13.8	14.4	>375	129.7	130	**258**	5.0 U	10 U	5.0 U	10 U	10 U
02/12/18	6.11	870	7.0	79.2	>375	103.2	120	222	5.0 U	10 U	5.0 U	10 U	10 U
05/21/18	6.31	1,087	11.7	23.1	>375	131.1	114	249	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	6.08	1,450	15.9	7.27	>375	183.9	133	246	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	6.31	1,115	11.5	46.8	>375	131.9	120	192	5.0 U	10 U	5.0 U	10 U	10 U
03/05/19	6.25	1,506	7.1	228	>375	112.2	113	166	10.9	10 U	5.0 U	10 U	10 U
05/14/19	**5.55**	1,175	9.84	46.3	>375	93	119	191	5.0 U	10 U	5.0 U	10 U	10 U
08/12/19	6.15	1,891	14.56	11.6	>375	108.4	128	212	5.0 U	10 U	**5.7**	10 U	10 U
11/06/19	6.18	2,213	13.56	1.50	>375	57.7	129	223	5.0 U	10 U	5.0 U	10 U	10 U
02/17/20	6.02	1,872	8.71	5.34	>375	146.4	118	176	5.0 U	10 U	5.0 U	10 U	10 U
05/11/20	6.46	1,206	10.10	4.83	>375	236.7	114	165	5.0 U	10 U	5.0 U	10 U	10 U
08/05/20				15.2	>375		117	193	5.0 U	10 U	5.0 U	10 U	10 U
11/10/20	6.27	2,357	14.35	20.8	>375	172.4	123	220	5.0 U	10 U	5.0	10 U	10 U
02/16/21	6.00	1,862	8.71	8.96	>375	116.9	129	180	5.0 U	10 U	5.0 U	10 U	10 U
05/18/21	**5.67**	1,756	11.28	<50	>375	2.7	128	179	5.0 U	10 U	5.0 U	10 U	10 U
08/16/21	6.34	1,986	15.39	<50	>375	104.7	131	193	5.0 U	10 U	5.0 U	10 U	10 U
11/30/21	6.30	1,890	11.42	9.10	>375	23.4	141	168	5.0 U	10 U	5.0 U	10 U	10 U
03/16/22	6.22	1,723	8.39	7.31	>375	-10.7	134	153	5.0 U	10 U	5.0 U	10 U	10 U
05/23/22	6.20	1,509	11.52	14.40	>375	6.2	129	144	5.0 U	10 U	5.0 U	10 U	10 U
08/15/22	6.08	2,299	14.62	12.80	>375	184.5	121	169	5.0 U	10 U	5.0 U	10 U	10 U
11/14/22	6.11	1,951	13.4	2.80	>375	42.7	131	184	5.0 U	10 U	5.0 U	10 U	10 U
02/27/23	6.45	1,941	9.4	4.21	>375	99.9	126	146	5.0 U	10 U	5.0 U	10 U	10 U
05/29/23	6.08	1,835	12.2	4.16	>375	-9.3	124	119	5.0 U	10 U	5.0 U	10 U	10 U
08/22/23	6.15	2,288	15.0	21.40	>375	47.5	126	159	5.0 U	10 U	**5.5**	10 U	10 U
11/13/23	6.42	2,371	13.2	0.71	>375	34.7	134	159	5.0 U	60 U	5.0 U	10 U	10 U
02/26/24	6.30	1,647	9.4	9.79	>375	41	134	118	5.0 U	60 U	5.0 U	10 U	10 U
05/28/24	6.54	1,794	12.1	6.60	>375	101.9	130	137	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A11

Field Parameters and Analytical Data - Monitoring Well MW-17S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/09/14													
05/19/14	6.96	687	11.3	0.00	150-250		180	245	5.0 U	10 U	5.0 U	10 U	10 U
08/19/14	6.71	1,607	15.3	2.50	>250		272	**1,010**	5.0 U	10 U	5.0 U	10 U	10 U
11/10/14	6.67	1,494	13.2	8.47	>250		123	**1,170**	5.0 U	10 U	5.0 U	10 U	10 U
02/23/15	6.77	1,377	5.1	0.00	>250		159	**774**	6.4	10 U	5.0 U	10 U	10 U
05/04/15	6.65	658	10.9	30.0	>250		160	**417**	6.8	10 U	5.0 U	10 U	10 U
08/25/15	6.65	732	14.8	27.0	>250		57.5	229	5.0 U	10 U	5.0 U	10 U	10 U
11/02/15	6.11	1,401	13.6	23.8	>375		630	87.1	**30.3**	10 U	5.0 U	10 U	10 U
02/09/16	6.70	1,082	4.4	8.49	>250		462	40.7	5.9	10 U	5.0 U	10 U	10 U
05/16/16	6.65	1,106	12.1	2.69	>375		656	67.2	15.7	10 U	5.0 U	10 U	10 U
08/09/16	6.39	1,591	21.5	15.0	>375		618	89.0	**26.7**	10 U	5.0 U	10 U	10 U
11/08/16	6.50	1,452	13.7	7.80	>375	28.2	436	**287**	5.0 U	10 U	5.0 U	10 U	10 U
02/15/17	6.59	580	3.9	7.91	>375	22.3	384	56.7	6.4	10 U	5.0 U	10 U	10 U
05/16/17	6.65	720	13.3	7.73	>375	19.8	486	12.1	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.67	738	14.8	17.0	>375	26.7	454	37.5	5.0 U	**12**	5.0 U	10 U	10 U
11/15/17	6.69	1,183	10.5	4.90	>375	29.8	496	126	5.6	10 U	5.0 U	10 U	10 U
02/12/18													
05/21/18	6.91	664	12.8	9.03	>375	131.9	457	12.4	15.1	10 U	5.0 U	10 U	10 U
08/27/18	6.61	1,136	18.9	1.71	>375	158.1	694	54.2	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	7.08	594	10.3	12.7	>375	99.7	438	19.4	7.1	10 U	5.0 U	10 U	10 U
03/05/19	6.98	690	3.7	3.56	>125	5.2	321	31.3	5.0 U	10 U	5.0 U	10 U	10 U
05/14/19	6.30	726	10.48	5.31	>375	-77.2	367	100	5.0 U	10 U	5.0 U	10 U	10 U
08/12/19	6.71	1,248	16.94	2.26	>375	-94.3	340	**282**	5.0 U	10 U	5.0 U	10 U	10 U
11/06/19	6.88	1,058	12.24	5.41	>375	-36.4	355	176	9.8	10 U	5.0 U	10 U	10 U
02/17/20	6.31	696	4.81	3.18	>250	73.6	288	29.8	5.0 U	10 U	5.0 U	10 U	10 U
05/11/20	7.26	542	9.10	1.92	>250	-45.0	371	17.6	5.0 U	10 U	5.0 U	10 U	10 U
08/05/20				10.6	>375		208	**269**	5.0 U	10 U	5.0 U	10 U	10 U
11/10/20	6.82	1,158	12.30	3.30	>375	-36.5	281	214	5.0 U	10 U	5.0 U	10 U	10 U
02/16/21	6.51	771	4.04	1.78	>250	-1.8	279	59.5	5.0 U	10 U	5.0 U	10 U	10 U
05/18/21	6.22	828	11.12	<5	>375	69.8	396	18.4	5.0 U	10 U	5.0 U	10 U	10 U
08/16/21	6.90	1,761	14.69	<5	>375	-80.1	350	**448**	5.0 U	10 U	5.0 U	10 U	10 U
11/30/21	6.61	840	7.41	2.30	>375	-37.7	353	30.5	5.0 U	10 U	5.0 U	10 U	10 U
03/16/22	6.84	643	4.39	2.26	>275	-47.0	272	26.2	5.0 U	10 U	5.0 U	10 U	10 U
05/23/22	6.81	634	12.60	1.27	>375	75.0	362	13.2	5.0 U	10 U	5.0 U	10 U	10 U
08/15/22	6.91	2,135	15.42	1.01	>375	-74.4	335	**518**	5.0 U	10 U	5.0 U	10 U	10 U
11/14/22	6.72	837	12.3	0.02	>375	4.9	260	249	5.0 U	10 U	5.0 U	10 U	10 U
02/27/23	6.97	672	4.9	1.15	>250	88.8	205	65.4	5.0 U	10 U	5.0 U	10 U	10 U
05/29/23	6.75	1,525	11.7	1.82	>375	-97.6	308	**289**	5.0 U	10 U	5.0 U	10 U	10 U
08/22/23	6.65	927	16.8	1.09	>375	19.1	336	103	5.0 U	10 U	5.0 U	10 U	10 U
11/13/23	6.94	789	11.1	0.93	>375	6.7	326	33.5	5.0 U	60 U	5.0 U	10 U	10 U
02/26/24	6.97	518	5.3	0.40	>375	4.5	222	25.1	5.0 U	60 U	5.0 U	10 U	10 U
05/29/24	7.00	840	13.4	0.96	>375	-41.5	354	67.5	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A12

Field Parameters and Analytical Data - Monitoring Well MW-18S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l)				
									Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/08/14	6.91	122	5.0	3.60	5		4.8	22.0	5.0 U	10 U	5.0 U	10 U	10 U
05/19/14	5.81	101.1	9.3	1.00	25		3.6	14.8	5.0 U	10 U	5.0 U	10 U	10 U
08/18/14	5.77	117	18.2	0.81	<55		69.7	12.8	5.0 U	10 U	5.0 U	10 U	10 U
11/12/14	6.36	292	13.5	0.00	<150		26	19.6	5.0 U	10 U	5.0 U	10 U	10 U
02/23/15	6.40	300	4.3	0.93	<150		3.2	15.3	5.0 U	10 U	5.0 U	10 U	10 U
05/05/15	**5.46**	84.3	9.6	2.10	<150		3.3	19.7	5.0 U	10 U	5.0 U	10 U	10 U
08/24/15	5.70	233	15.6	0.00	>70		5.2	20.9	5.0 U	10 U	5.0 U	10 U	10 U
11/02/15	**5.68**	201	14.1	0.00	>375		51.2	5.5	5.0 U	10 U	5.0 U	10 U	10 U
02/09/16	**5.59**	151	5.9	0.63	<55		8	21.5	5.0 U	10 U	5.0 U	10 U	10 U
05/16/16	**5.34**	109	10.4	0.15	15		8.4	14.7	5.0 U	10 U	5.0 U	10 U	10 U
08/10/16	**5.41**	295	16.4	1.00	>125		17.2	17.2	5.0 U	10 U	5.0 U	10 U	10 U
11/09/16	6.12	349	13.7	1.00	>125	50	28.4	27.6	5.0 U	10 U	5.0 U	10 U	10 U
02/15/17	**5.67**	129	4.7	3.77	>125	74.7	6.8	23.4	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.41	123	11.3	2.63	>275	30.6	9.2	13.3	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.48	144	15.3	3.30	>275	31.1	132	50.8	7.3	10 U	5.0 U	10 U	10 U
11/14/17	6.50	151	12.4	2.71	275	103.1	9.2	12.7	6.3	10 U	5.0 U	10 U	10 U
02/14/18	**5.16**	138	4.8	8.61	>375	101.8	9.6	14.7	5.0 U	10 U	5.0 U	10 U	10 U
05/23/18	6.88	101	12.3	2.49	>55	99.8	5.2	13.8	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	5.99	326	19.6	4.22	>70	84.8	23.6	26.1	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	6.09	358	10.8	4.91	>250	114.9	6.4	12.8	5.0 U	10 U	5.0 U	10 U	10 U
03/04/19	5.72	170	4.5	0.85	<55	131.5	6.8	13.1	5.0 U	10 U	5.0 U	10 U	10 U
05/13/19	5.94	101	9.67	2.64	>125	139.8	8.0	13.7	5.0 U	10 U	5.0 U	10 U	10 U
08/12/19	**5.33**	329	15.36	1.52	>70	241.3	5.6	15.9	5.0 U	10 U	5.0 U	10 U	10 U
11/05/19	5.78	320	13.04	0.33	>70	93.0	14.4	14.7	5.0 U	10 U	5.0 U	10 U	10 U
02/17/20	**4.74**	162	5.68	6.53	0	223.1	6.8	13.7	5.0 U	10 U	5.0 U	10 U	10 U
05/11/20	**5.57**	81.2	8.70	0.78	0	305.5	5.2	14.8	5.0 U	10 U	5.0 U	10 U	10 U
08/03/20	**5.19**	280	14.55	2.20	>125	257.9	14.4	25.2	5.0 U	10 U	5.0 U	10 U	10 U
11/09/20	5.97	411	13.17	1.94	>125	180.6	30.0	20.0	5.0 U	10 U	5.0 U	10 U	10 U
02/15/21	6.09	177	5.95	0.93	>70	261.2	11.3	13.8	5.0 U	10 U	5.0 U	10 U	10 U
05/18/21	**4.45**	17	9.93	0.68	>70	207.2	9.2	14.1	5.0 U	10 U	5.0 U	10 U	10 U
08/16/21	**5.52**	320	15.12	0.67	>125	207.3	15.1	19.4	5.0 U	10 U	5.0 U	10 U	10 U
11/29/21	**5.49**	283	9.66	0.37	0	98.0	6.4	9.5	5.0 U	10 U	5.0 U	10 U	10 U
03/14/22	**5.10**	241	5.20	1.03	>125	43.7	9.0	12.8	5.0 U	10 U	5.0 U	10 U	10 U
05/23/22	**5.31**	165	10.83	0.56	0	91.3	9.5	13.6	5.0 U	10 U	5.0 U	10 U	10 U
08/15/22	**5.33**	307	15.7	0.98	>125	199.6	14.3	22.3	5.0 U	10 U	5.0 U	10 U	10 U
11/14/22	**5.57**	380	13.0	0.02	>125	197.9	27.4	17.2	5.0 U	10 U	5.0 U	10 U	10 U
02/27/23	6.19	2,612	6.3	0.02	0	159.1	12.5	14.7	5.0 U	10 U	5.0 U	10 U	10 U
05/30/23	**5.38**	202	10.6	0.70	0	101.1	8.2	14.0	5.0 U	10 U	5.0 U	10 U	10 U
08/21/23	**5.41**	218	16.1	0.02	>70	89.9	6.5	11.3	5.0 U	10 U	5.0 U	10 U	10 U
11/13/23	**5.08**	398	12.2	1.73	>70	106.1	37.4	7.8	5.0 U	60 U	5.0 U	10 U	10 U
02/26/24	**5.44**	155	5.8	0.52	0	86.2	9.8	15.5	5.0 U	60 U	5.0 U	10 U	10 U
05/28/24	5.70	130	12.8	1.29	0	131.4	9.3	13.7	5.0 U	60 U	5.0 U	10 U	10 U
Notes:	5.69												

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A13

Field Parameters and Analytical Data - Monitoring Well MW-18D
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/08/14	7.87	995	10.9	10.5	25		181	50.6	6.9	10 U	5.0 U	10.4	10 U
05/19/14	7.04	956	9.9	8.0	>250		179	54.6	5.0 U	10 U	5.0 U	10 U	10 U
08/18/14	7.09	998	18.8	11.8	>250		70.0	14.6	6.9	10 U	5.0 U	10 U	10 U
11/12/14	6.64	826	11.2	14.7	>250		176	54.0	5.0 U	10 U	5.0 U	10 U	10 U
02/23/15	6.68	900	15.7	10.0	>250		161	52.5	5.0 U	10 U	5.0 U	10 U	10 U
05/05/15	7.02	876	12.3	2.1	>250		162	52.5	5.0 U	10 U	5.0 U	10 U	10 U
08/24/15	6.57	878	11.3	6.57	>250		156	57.0	5.0 U	10 U	5.0 U	10 U	10 U
11/02/15	6.51	902	12.9	3.03	>250		56	8.8	5.0 U	10 U	5.0 U	10 U	10 U
02/09/16	6.50	938	9.2	4.70	>250		8.0	21.6	5.0 U	10 U	5.0 U	10 U	10 U
05/16/16	6.71	880	11.2	14.7	>375		154	52.7	5.0 U	10 U	5.0 U	10 U	10 U
08/10/16	6.30	897	12.5	4.30	>375		142	51.1	5.0 U	10 U	5.0 U	10 U	10 U
11/09/16	6.56	853	11.5	8.60	>375	24.5	275	51.6	5.0 U	10 U	5.0 U	10 U	10 U
02/15/17	6.44	853	9.7	14.7	>375	31.4	136	52.0	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.61	932	12.4	12.8	>375	23.4	140	51.6	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.68	1,003	15.0	14.3	>375	41.4	131	50.8	5.0 U	10 U	5.0 U	10 U	10 U
11/14/17	6.61	998	13.3	20.3	>375	102.8	136	53.2	5.0 U	10 U	5.0 U	10 U	10 U
02/14/18	7.63	774	8.9	37.7	>375	105.9	131	53.8	5.0 U	10 U	5.0 U	10 U	10 U
05/23/18	7.38	937	13.6	12.8	>375	19.9	123	51.5	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	7.31	961	13.6	19.0	>250	93.8	135	53.8	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	7.11	1,013	12.9	31.8	>250	99.1	118	50.4	5.0 U	10 U	5.0 U	10 U	10 U
03/04/19	7.35	1,401	9.6	67.6	>375	72.5	118	51.1	5.0 U	10 U	5.0 U	10 U	10 U
05/13/19	**8.64**	1,060	10.04	17.8	>375	119.0	120	41.7	5.0 U	10 U	5.0 U	10 U	10 U
08/12/19	7.27	1,489	11.01	41.8	>375	201.7	124	55.7	5.0 U	10 U	5.0 U	10 U	10 U
11/05/19	6.61	1,459	11.03	2.80	>375	82.5	130	56.9	5.0 U	10 U	5.0 U	10 U	10 U
02/17/20	6.22	1,479	10.18	26.9	>375	202.6	136	55.8	5.0 U	10 U	5.0 U	10 U	10 U
05/11/20	7.76	1,060	10.20	12.7	>375	278.8	140	53.2	5.0 U	10 U	5.0 U	10 U	10 U
08/04/20				31.6	>375		144	48.5	**46.3**	10 U	5.0 U	10 U	10 U
11/12/20	6.88	1,155	10.83	85.6	>375	77.5	171	52.3	5.0 U	10 U	5.0 U	10 U	10 U
02/17/21	7.35	1,486	10.55	2.78	>375	99.2	150	49.0	5.0 U	10 U	5.0 U	10 U	10 U
05/20/21	7.45			4.70	>375		152	48.6	5.0 U	10 U	5.0 U	10 U	10 U
08/18/21	7.41	1,486	11.28	36.3	>375	<10	134	50.8	5.0 U	10 U	5.0 U	10 U	10 U
12/01/21	6.94	1,586	9.66	4.59	>375	41.0	134	48.7	5.0 U	10 U	5.0 U	10 U	10 U
03/17/22	7.07	1,630	10.81	2.56	>375	22.1	138	45.5	5.0 U	10 U	5.0 U	10 U	10 U
05/24/22	6.55	1,385	10.86	6.06	>375	102.4	138	45.0	5.0 U	10 U	5.0 U	10 U	10 U
08/17/22	7.38	1,618	11.24	6.30	>375	24.1	143	47.5	5.0 U	10 U	5.0 U	10 U	10 U
11/16/22	7.08	1,195	10.8	1.89	>375	169.5	140	42.7	5.0 U	10 U	5.0 U	10 U	10 U
03/02/23	7.04	1,546	10.2	0.39	>375	108.7	138	42.6	5.0 U	10 U	5.0 U	10 U	10 U
06/01/23	7.23	1,750	10.5	4.29	>375	67.8	136	42.2	5.0 U	10 U	5.0 U	10 U	10 U
08/23/23	7.55	1,812	11.3	8.20	>375	-31.3	142	43.5	5.0 U	10 U	5.0 U	10 U	10 U
11/15/23	7.41	1,801	10.4	8.36	>375	-18.9	142	40.5	5.0 U	60 U	5.0 U	10 U	10 U
02/28/24	7.33	1,253	10.8	0.67	>375	-15.2	160	40.0	5.0 U	60 U	5.0 U	10 U	10 U
05/30/24	7.61	1,834	11.3	14.60	>375	34.0	169	40.8	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A14

Field Parameters and Analytical Data - Monitoring Well MW-19S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l)				
									Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/08/14	6.97	487	13.8	0.00	20		131	108	5.0 U	**69.6**	5.0 U	10 U	10 U
05/19/14	7.10	407	14.7	1.00	150-250		126	79.5	5.0 U	**64.1**	5.0 U	10 U	10 U
08/18/14	6.82	280	18.4	2.00	150-250		110	48.8	8.2	**64.5**	5.0 U	10 U	10 U
11/11/14	6.47	495	18.3	5.00	150-250		160	149	5.0 U	**36.2**	5.0 U	10 U	10 U
02/23/15	6.60	574	13.2	1.30	150-250		135	200	8.8	**38.9**	5.0 U	10 U	10 U
05/05/15	6.74	909	15.7	4.70	>250		162	197	6.9	**29.6**	5.0 U	10 U	10 U
08/24/15	6.55	611	20.0	3.70	>250		130	150	5.0 U	**58**	5.0 U	10 U	10 U
11/03/15	6.50	617	18.2	3.44	>375		130	124	5.0 U	**59**	5.0 U	10 U	10 U
02/09/16	6.51	1,013	15.3	1.07	>375		137	**301**	5.0 U	10 U	5.0 U	10 U	10 U
05/16/16	7.81	462	15.2	0.65	>125		156	**273**	5.0 U	**54**	5.0 U	10 U	15
08/09/16	6.78	426	20.7	6.30	>375		136	110	5.0 U	**51**	5.0 U	10 U	10 U
11/09/16	6.93	742	18.5	6.10	>375	2.3	153	205	5.0 U	**58**	5.0 U	10 U	10 U
02/13/17	6.65	1,788	14.5	2.52	>375	16.9	131	**260**	5.0 U	**54**	5.0 U	10 U	10 U
05/16/17	6.82	1,471	18.2	3.46	>375	10.2	157	250	7.0	**66**	5.0 U	10 U	10
07/24/17	7.39	684	19.8	18.0	>375	6.8	164	121	**34.5**	**165**	5.0 U	10 U	10 U
11/13/17	7.05	974	20.3	1.00	>375	219.0	160	136	5.0 U	**66**	5.0 U	10 U	10 U
02/12/18	7.50	758	13.7	5.00	>375	103.8	136	**397**	5.0 U	**113**	5.0 U	10 U	10 U
05/23/18	7.18	977	17.5	3.46	>125	79.9	115	**343**	5.0 U	**115**	5.0 U	10 U	10 U
08/27/18	7.21	592	21.1	38.9	>375	171.8	156	143	**44.7**	**218**	**6.4**	10 U	10 U
12/03/18	7.79	387	15.3	24.2	>375	199.8	136	102	**39.4**	**183**	**5.8**	10 U	10 U
03/05/19	7.13	1,233	14.3	0.84	>375	74.0	97.6	206	5.0 U	**53**	5.0 U	10 U	10 U
05/13/19	7.75	600	16.67	4.38	>125	89.5	110	77	5.0 U	**77**	5.0 U	10 U	10 U
08/12/19	6.99	821	20.76	4.80	>125	152.9	134	124	5.0 U	**53**	5.0 U	10 U	10 U
11/05/19	7.00	1,019	20.75	7.21	>375	32.3	137	163	5.0 U	**57**	5.0 U	10 U	10 U
02/19/20	6.72	1,508	16.52	1.54	>250	217.1	137	**269**	5.0 U	**32**	5.0 U	10 U	10 U
05/12/20	7.22	927	16.40	2.16	>250	220.4	107	147	5.0 U	**55**	5.0 U	10 U	10 U
08/03/20	6.74	693	20.64	19.2	>275	175.3	113	140	13.3	**75**	5.0 U	10 U	10 U
11/09/20	7.25	1,391	20.73	5.30	>375	142.7	141	165	5.0 U	**55**	5.0 U	10 U	10 U
02/16/21	6.92	693	16.77	0.99	>250	89.9	128	102	5.0 U	**46**	5.0 U	10 U	10 U
05/19/21	6.84	630	17.47	0.88	>125	68.1	116	109	5.0 U	**51**	5.0 U	10 U	10 U
08/16/21	7.18			<5	>250		153	46.1	5.0 U	**77**	5.0 U	10 U	10 U
11/29/21	6.95	1,011	18.45	4.94	>250	45.2	151	153	5.0 U	**50**	5.0 U	10 U	10 U
03/14/22	7.11	536	16.35	1.19	>125	39.8	116	42.6	5.0 U	**69**	5.0 U	10 U	10 U
05/23/22	7.27	284	17.53	2.62	>125	81.4	115	29.4	5.0 U	**87**	5.0 U	10 U	10 U
08/15/22	6.85	564	20.98	1.12	>250	73.3	126	57.4	5.0 U	**56**	5.0 U	10 U	10 U
11/15/22	7.07	429	20.4	1.29	>125	149.6	148	37.6	5.0 U	**48**	5.0 U	10 U	10 U
02/28/23	7.03	1,343	17.6	2.56	>250	137.8	125	102	5.0 U	**30**	5.0 U	10 U	10 U
05/31/23	6.68	1,180	19.2	3.12	>250	34.2	146	190	8.8	**55**	5.0 U	10 U	10 U
08/21/23	6.99	598	21.9	0.20	>250	-0.1	147	48.0	5.0 U	**72**	5.0 U	10 U	10 U
11/13/23	6.95	933	20.7	1.65	>250	5.8	155	69.7	5.0 U	60 U	5.0 U	10 U	10 U
02/27/24	7.09	452	17.7	1.70	>125	-1.6	115	83.7	5.0 U	60 U	5.0 U	10 U	10 U
05/29/24	7.44	346	18.7	2.75	>125	95.6	133	31.7	5.0 U	**72**	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A15

Field Parameters and Analytical Data - Monitoring Well MW-20S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/08/14	5.98	5.82 (ms/cm)	15.7	0.00	>58		137	**4,110**	5.0 U	10 U	**25.9**	10 U	10 U
05/19/14	6.04	5.26 (ms/cm)	15.7	2.91	>250		141	**4,010**	6.3	10 U	**16.4**	10 U	10 U
08/18/14	6.22	4,263	16.3	13.10	>250		143	**3,660**	17.8	10 U	**10.6**	10.8	10 U
11/11/14	6.19	4.91 (ms/cm)	15.7	6.61	>250		140	**3,990**	23.0	10 U	**5.2**	10 U	16.0
03/31/15	6.18	4,400.00	8.5	2.60	>250		124	**2,870**	5.0 U	10 U	5.0 U	10 U	18.0
05/05/15	6.13	6.36 (ms/cm)	17.1	3.10	>250		162	**4,540**	5.0 U	10 U	5.0 U	10 U	18.3
08/24/15	6.12	6.70 (ms/cm)	18.6	4.90	>250		173	**4,970**	11.1	10 U	5.0 U	10 U	15.0
11/03/15	6.15	7.84 (ms/cm)	15.8	3.48	>375		182	**5,110**	6.7	10 U	5.0 U	10 U	10 U
02/09/16	6.50	7.53 (ms/cm)	11.7	13.30	>375		179	**5,320**	6.6	10 U	**5.4**	10 U	10 U
05/18/16	6.97	8.43 (ms/cm)	14.8	5.56	>375		172	**4,920**	5.0 U	10 U	5.0	10 U	10 U
08/09/16	6.15	6.50 (ms/cm)	17.0	3.43	>375		176	**4,790**	5.0 U	10 U	5.0 U	10 U	10 U
11/08/16	6.37	5.67 (ms/cm)	14.9	9.00	>375	35.8	168	**4,330**	5.0 U	10 U	5.0 U	10 U	10 U
02/13/17	6.34	5.74 (ms/cm)	13.5	1.54	>375	32.6	178	**3,890**	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.32	5.51 (ms/cm)	15.2	5.19	>375	39.2	78.0	**3,640**	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.26	5.98 (ms/cm)	16.2	23.00	>375	39.2	176	**2,222**	8.7	10 U	5.0 U	10 U	10 U
11/13/17	6.14	7.11 (ms/cm)	15.1	0.19	>375	195.3	190	**3,420**	5.0 U	10 U	5.0 U	10 U	10 U
02/14/18	6.20	5.15 (ms/cm)	11.3	46.30	>375	81.1	195	**3,700**	**380**	**18**	5.0 U	10 U	10 U
05/23/18	6.18	5.34 (ms/cm)	15.7	12.90	>375	203.0	184	**3,350**	8.9	10 U	**8.0**	10 U	10 U
08/27/18	6.19	4,496	17.2	23.50	>375	201	183	**3,150**	**34.8**	10 U	**8.9**	10 U	10 U
12/03/18	6.31	5.11(ms/cm)	15.0	10.90	>375	178.3	182	**3,150**	22.9	10 U	**10.3**	10 U	10 U
03/05/19	6.29	6833	12.9	4.55	>375	43.8	178	**3,130**	6.8	10 U	**6.8**	10 U	10 U
05/13/19	6.56	5727	14.55	4.67	>375	87.2	174	**2,820**	5.0 U	**77**	**6.6**	10 U	10 U
08/12/19	6.22	6,950	17.27	1.35	>375	97	174	**3,050**	5.0 U	10 U	**6.7**	10 U	10 U
11/06/19	6.29	6,620	16.08	2.71	>375	22.2	178	**3,060**	5.0 U	10 U	**5.8**	10 U	10 U
02/18/20	6.18	6,884	14.60	1.71	>375	136.3	183	**3,070**	5.0 U	10 U	5 U	10 U	10 U
05/12/20	6.48	5,495	15.20	1.70	>375	120.4	190	**3,130**	5.0 U	10 U	**5.8**	10 U	10 U
08/04/20	6.23	6,537	17.06	5.28	>375	90.7	179	**2,980**	5.0 U	10 U	**5.1**	10 U	10 U
11/09/20	6.49	6,596	17.58	3.38	>375	68.3	181	**2,900**	5.0 U	10 U	5.0 U	10 U	10 U
02/16/21	6.23	6,823	14.67	15.10	>375	81.5	215	**3,090**	**114**	10 U	5.0 U	10 U	10 U
05/19/21	6.13	6,630	16.38	1.30	>375	63	210	**2,990**	5.0 U	10 U	5.0 U	10 U	10 U
08/18/21	6.39			<5	>375		204	**2,960**	5.0 U	10 U	5.0 U	10 U	10 U
11/30/21	6.28	6,330	15.29	4.29	>375	9.9	196	**2,740**	5.0 U	10 U	5.0 U	10 U	10 U
03/16/22	6.17	6,442	14.10	1.52	>375	37.4	199	**2,720**	**45.5**	10 U	**6.8**	10 U	10 U
05/25/22	6.17	5,349	15.96	3.11	>375	123.1	198	**2,620**	16.2	10 U	**18.4**	10 U	10 U
08/16/22	6.20	5,574	18.33	3.58	>375	71.6	196	**2,620**	5.0 U	10 U	5.0 U	10 U	10 U
11/16/22	6.22	4,359	17.4	5.35	>375	102.4	168	**2,070**	14.5	10 U	**88.1**	10 U	10 U
02/28/23	6.35	4,654	15.5	0.88	>375	111.2	196	**2,590**	5.0 U	10 U	5.0 U	10 U	10 U
05/31/23	6.22	5,974	16.6	0.02	>375	50.4	185	**2,470**	5.0 U	10 U	5.0 U	10 U	10 U
08/22/23	6.28	6,185	18.2	0.02	>375	43.0	191	**2,290**	5.0 U	10 U	5.0 U	10 U	10 U
11/15/23	6.51	6,260	17.6	2.92	>375	29.0	198	**2,380**	5.0 U	60 U	5.0 U	10 U	10 U
02/28/24	6.29	5,724	16.8	0.53	>375	42.6	197	**2,300**	5.0 U	60 U	5.0 U	10 U	10 U
05/30/24	6.53	5,586	16.9	0.09	>375	78.3	198	**2,440**	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A16

Field Parameters and Analytical Data - Monitoring Well MW-21D
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/08/14	7.10	2,178	12.0	0.00	30		246	**472**	**56.3**	10 U	5.0 U	10 U	10 U
05/19/14	7.02	2,807	14.3	0.00	>250		235	**588**	**29.3**	10 U	5.0 U	10 U	10 U
08/18/14	6.92	2,523	19.8	0.00	>250		250	**571**	**37.3**	10 U	5.0 U	10 U	10 U
11/11/14	6.43	2,323	13.4	0.00	>250		270	**729**	16.9	10 U	5.0 U	10 U	10 U
02/24/15	6.79	3,713	9.8	0.00	>250		266	**2,650**	21.5	10 U	5.0 U	10 U	19.6
05/05/15	6.89	3,182	13.8	1.00	>250		241	**1,120**	**34.2**	10 U	5.0 U	10 U	13.5
08/24/15	6.81	3,261	20.5	0.00	>250		245	**925**	16.1	10 U	5.0 U	10 U	17
11/03/15	6.60	3,321	18.4	1.85	>375		245	**823**	23.0	10 U	5.0 U	10 U	13
02/09/16	6.98	3,306	11.9	1.14	>375		248	**1,210**	12.6	10 U	5.0 U	10 U	10
05/18/16	7.13	3,585	14.6	1.53	>375		249	**936**	20.8	10 U	5.0 U	10 U	14
08/09/16	6.98	2,781	21.7	2.10	>375		240	**604**	5 U	10 U	5.0 U	10 U	10 U
11/07/16	6.79	2,308	19.6	5.96	>375	11.8	242	**462**	5.7	10 U	5.0 U	10 U	13
02/13/17	7.24	2,321	15.8	1.57	>375	15.8	235	**525**	19	10 U	5.0 U	10 U	24
05/16/17	6.82	2,636	20.0	1.68	>375	10.2	207	**300**	5.9	10 U	5.0 U	10 U	**26**
07/24/17	6.52	2,561	20.4	4.73	>375	12	214	126	**42**	10 U	5.0 U	10 U	10
11/13/17	6.95	2.11 (ms/cm)	21.7	2.95	>375	145.9	224	210	5 U	10 U	5.0 U	10 U	25
02/14/18	6.97	7.87 (ms/cm)	16.2	7.86	>375	146.9	198	**3,410**	19.4	10 U	5.0 U	10 U	**36**
05/22/18	7.00	3,852	21.0	2.62	>375	154.9	201	**750**	15.2	10 U	5.0 U	10 U	20
08/27/18	7.02	2,793	26.6	0.83	>375	183.6	213.0	**279**	5.0 U	10 U	5.0 U	10 U	**29**
12/03/18	7.02	2,452	22.6	0.83	>250	158.7	191	**352**	5.0 U	10 U	5.0 U	10 U	**28**
03/05/19	7.05	2,839	20.2	1.59	>375	35.6	179	**347**	**25.8**	10 U	5.0 U	10 U	19
05/13/19	7.67	3,807	22.92	2.28	>375	186.6	166	**361**	20.8	10 U	5.0 U	10 U	21
08/12/19	6.97	3,072	27.43	1.84	>375	30.6	180	**274**	7.9	10 U	5.0 U	10 U	19
11/05/19	7.01	2,495	26.48	0.96	>375	23.7	182	214	7.2	10 U	5.0 U	10 U	25
02/18/20	7.01	2,683	22.90	1.05	>375	131.8	621	**271**	5.0 U	10 U	5.0 U	10 U	21
05/12/20	7.05	8,925	25.30	1.75	>375	69.4	177	**2,700**	5.6	10 U	5.0 U	10 U	20
08/04/20	7.10	2,865	26.66	2.93	>375	58.7	195	**338**	**35.5**	10 U	5.0 U	10 U	22
11/09/20	7.14	3,300	27.99	1.54	>375	37.7	186	**696**	15.1	10 U	5.0 U	10 U	19
02/16/21	6.53	965	10.60	5.39	>375	111.3	222	**455**	**42**	10 U	5.0 U	10 U	12
05/19/21	6.82	3,227	24.59	0.87	>375	62.7	205	**365**	12.2	10 U	5.0 U	10 U	10 U
08/18/21	7.11	-	-	<5	>375		206	**292**	5.0 U	10 U	5.0 U	10 U	18
11/30/21	7.00	2,452	24.58	1.42	>375	-14.4	222	234	5.0 U	10 U	5.0 U	10 U	16
03/16/22	6.82	2,798	23.25	1.05	>375	19.9	197	177	5.0 U	10 U	5.0 U	10 U	10 U
05/25/22	6.84	3,018	24.60	7.39	>375	81.8	191	224	5.4	10 U	5.0 U	10 U	10 U
08/16/22	6.92	2,822	28.15	1.66	>375	25.9	209	221	5.0 U	10 U	5.0 U	10 U	10
11/16/22	6.94	2,519	27.3	0.85	>375	54.8	218	180	5.0 U	10 U	5.0 U	10 U	10 U
02/28/23	7.02	2,630	23.0	1.51	>375	81.9	193	220	5.0 U	10 U	5.0 U	10 U	10 U
05/31/23	6.78	4,550	24.7	0.07	>375	23.8	174	**495**	5.0 U	10 U	5.0 U	10 U	10 U
08/23/23	6.92	3,357	27.3	4.37	>375	3.9	200		5.7	10 U	5.0 U	10 U	10 U
11/15/23	7.15	2,533	26.3	1.94	>375	-5.4	218	201	7.5	60 U	5.0 U	10 U	13
02/28/24	7.07	2,451	23.1	0.72	>375	-0.7	211	**253**	5.0 U	60 U	5.0 U	10 U	10 U
05/30/24	7.14	2,886	24.4	3.52	>375	44.4	204	**320**	6.0	60 U	5.0 U	10 U	10

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A17

Field Parameters and Analytical Data - Monitoring Well MW-23S-R
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l)				
								Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:							**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
09/26/16	5.91	3,306	17.4	7.33	> 375	132	**1,690**	5 U	10 U	**23.8**	10 U	10.0 U
11/07/16	6.28	2,697	15.7	2.27	> 375	138	**1,870**	5 U	10 U	**23.2**	10 U	10 U
02/13/17	6.52	2,971	10.3	18.8	> 375	229	**2,500**	5.9	10 U	**8.5**	10 U	10 U
05/16/17	6.14	3,236	14.6	3.02	> 375	116	**1,210**	5.0 U	10 U	**27.0**	10 U	10 U
07/24/17	**5.58**	4.03 (ms/cm)	15.3	25.7	> 375	106	**952**	5.0 U	10 U	**25.8**	10 U	10 U
11/13/17	5.94	3,122	14.9	17.1	>375	115	**1,300**	5.0 U	10 U	**28.4**	10 U	10 U
02/14/18	5.87	3,713	12.3	31.1	>375	129	**1,810**	5.0 U	10 U	**29.0**	10 U	10 U
05/22/18	6.15	3,736	15.8	4.95	>375	106	**1,300**	5.0 U	10 U	**36.3**	10 U	10 U
08/27/18	5.87	2,879	18.3	10.01	>375	107	**1,290**	5.0 U	10 U	**30.5**	10 U	10 U
12/03/18	6.20	3,674	12.5	4.43	>375	264	**970**	5.0 U	10 U	**23.5**	10 U	10 U
03/07/19	6.07	3,369	11.8	9.14	>375	96.8	**916**	5.0 U	10 U	**21.3**	10 U	10 U
05/15/19	6.06	4,381	13.40	11.25	>375	92.0	**1,140**	5.0 U	10 U	**26.8**	10 U	10 U
08/14/19	5.97	4,555	16.01	3.21	>375	89.2	**1,020**	5.0 U	10 U	**24.9**	10 U	10 U
11/06/19	5.98	3,756	15.15	0.45	>375	96.0	**1,310**	5.0 U	10 U	**23.8**	10 U	10 U
02/19/20	5.95	2,742	12.04	4.70	>375	95.6	**831**	5.0 U	10 U	**17.4**	10 U	10 U
05/13/20	6.23		13.10	28.9	>375	86.4	**746**	5.0 U	10 U	**23.2**	10 U	10 U
08/05/20		4,575		4.21	>375	92.0	**897**	5.0 U	10 U	**21.3**	10 U	10 U
11/09/20	6.05	4,510	15.38	8.91	>375	96.4	**1,320**	5.0 U	10 U	**29.4**	10 U	10 U
02/17/21	6.00	4,520	12.10	4.30	>375	119	**1,550**	5.0 U	10 U	**27.1**	10 U	10 U
05/20/21	5.80		13.37	1.82	>375	106	**1,520**	5.0 U	10 U	**30.5**	10 U	10 U
08/17/21	6.12	4,280		<5	>375	103	**1,560**	5.0 U	10 U	**29.7**	10 U	10 U
11/30/21	6.10	4,623	12.8	3.90	>375	112	**1,290**	5.0 U	10 U	**25.5**	10 U	10 U
03/16/22	5.74	4,062	13.10	1.74	>375	110	**1,580**	5.0 U	10 U	**26.2**	10 U	10 U
05/25/22	5.88	4,410	14.26	3.88	>375	101	**1,410**	5.0 U	10 U	**27.7**	10 U	10 U
08/17/22	5.86	3,879	16.34	3.92	>375	182	**1,550**	5.0 U	10 U	**28.3**	10 U	10 U
11/15/22	5.87	4,371	14.9	0.86	>375	116	**1,610**	5.0 U	10 U	**30.0**	10 U	10 U
03/01/23	6.07	4,358	12.3	0.63	>375	111	**1,600**	5.0 U	10 U	**27.0**	10 U	10 U
05/31/23	5.85	4,671	14.9	1.64	>375	99.0	**1,220**	5.0 U	10 U	**29.0**	10 U	10 U
08/23/23	6.01	4,346	16.3	0.84	>375	101	**1,350**	5.0 U	10 U	**30.0**	10 U	10 U
11/15/23	6.25	3,597	14.9	5.00	>375	103	**1,130**	5.0 U	60 U	**26.7**	10 U	10 U
02/27/24	5.98	3,954	13.5	0.02	>375	105	**1,020**	5.0 U	60 U	**20.0**	10 U	10 U
05/30/24	6.18		15.3	1.72	>375	98.1	**1,110**	5.0 U	60 U	**21.0**	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A18

Field Parameters and Analytical Data - Monitoring Well MW-23D-R
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:							**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
09/26/16	7.62	4,912	14.8	5.75	>375	308	**2,190**	5.0 U	10 U	5.0 U	10 U	10 U
11/07/16	6.35	3,455	14.7	6.80	>375	275	**2,340**	5.0 U	10 U	5.0 U	10 U	10 U
02/13/17	6.35	3,433	11.2	14.0	>375	178	**2,500**	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	5.93	3,790	14.5	7.57	>375	164	**2,490**	5.0 U	10 U	**48.4**	10 U	10 U
07/24/17	**5.51**	3,904	14.0	17.5	>375	144	**1,650**	5.0 U	10 U	**51.7**	10 U	10 U
11/13/17	5.96	4,790	13.8	9.9	>375	141	**1,940**	5.0 U	10 U	**45.4**	10 U	10 U
02/14/18	5.83	3,717	11.9	9.95	>375	148	**2,560**	5.7	10 U	**48.5**	10 U	10 U
05/22/18	6.36	4,016	15.2	3.6	>375	135	**2,210**	5.0 U	10 U	**61.6**	10 U	10 U
08/27/18	5.88	3,836	16.9	1.17	>375	146	**2,030**	5.0 U	10 U	**59.0**	10 U	10 U
12/03/18	6.19	3,786	12.9	8.12	>375	136	**1,950**	5.0 U	10 U	**55.6**	10 U	10 U
03/07/19	6.00	4,993	12.7	23.1	>375	126	**1,860**	5.0 U	10 U	**55.7**	10 U	10 U
05/15/19	5.97	4,270	13.24	15.2	>375	133	**2,130**	5.0 U	10 U	**61.6**	10 U	10 U
08/14/19	5.98	5,226	14.67	7.67	>375	125	**2,050**	5.0 U	10 U	**56.7**	10 U	10 U
11/06/19	5.92	5,175	14.18	5.51	>375	124	**2,090**	5.0 U	10 U	**52.8**	10 U	10 U
02/19/20	5.94	4,863	13.21	2.99	>375	120	**1,750**	5.0 U	10 U	**49.8**	10 U	10 U
05/13/20	6.24	3,649	13.10	29.0	>375	118	**1,710**	5.0 U	10 U	**51.3**	10 U	10 U
08/05/20				41.9	>375	114	**1,700**	5.0 U	10 U	**49.0**	10 U	10 U
11/09/20	6.09	5,235	14.65	44.2	>375	121	**1,920**	7.8	10 U	**50.9**	10 U	10 U
02/17/21	5.90	5,280	13.22	22.0	>375	143	**2,140**	5.0 U	10 U	**62.5**	10 U	10 U
05/20/21	**5.68**	5,229	13.34	24.6	>375	141	**2,100**	5.0 U	10 U	**57.2**	10 U	10 U
08/17/21	6.07			<5	>375	138	**2,130**	5.0 U	10 U	**55.9**	10 U	10 U
11/30/21	6.10	5,055	12.68	24.5	>375	138	**1,900**	5.0 U	10 U	**52.1**	10 U	10 U
03/16/22	5.77	5,840	13.94	10.0	>375	145	**2,380**	5.0 U	10 U	**56.4**	10 U	10 U
05/25/22	5.99	6,449	13.78	11.7	>375	182	**3,440**	6.4	10 U	**61.6**	10 U	10 U
08/17/22	5.93	6,388	14.36	11.6	>375	174	**3,290**	5.0 U	10 U	**59.7**	10 U	10 U
11/15/22	6.05	8,284	14.3	9.50	>375	218	**5,570**	5.0 U	10 U	**72.4**	10 U	10 U
03/01/23	6.10	10,069	13.4	22.6	>375	218	**5,210**	5.0 U	10 U	**66.5**	10 U	10 U
05/31/23	6.02	17,675	14.2	6.40	>375	240	**6,010**	6.7	10 U	**68.1**	10 U	10 U
08/23/23	6.20	14,195	15.2	9.07	>375	289	**7,180**	7.2	10 U	**68.8**	10 U	10 U
11/15/23	6.38	14,163	13.9	11.6	>375	281	**6,840**	5.7	60 U	**62.7**	10 U	10 U
02/27/24	6.16	10,885	12.9	3.92	>375	240	**5,540**	5.0 U	60 U	**57.0**	10 U	10 U
05/30/24	6.42	13,268	14.5	25.00	>375	266	**7,140**	8.5	60 U	**57.4**	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A19

Field Parameters and Analytical Data - Monitoring Well MW-24S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:							**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/09/14	5.99	2,170	0.00	50		65.1	**1,370**	5.0 U	10 U	**11.1**	10 U	10 U
05/19/14	6.10	2,203	0.00	125-250		68.6	**1,260**	5.0 U	10 U	**9**	10 U	10 U
08/19/14	6.08	1,858	0.00	>250		86.8	**1,080**	5.0 U	10 U	**7.6**	10 U	10 U
11/11/14	6.15	2,163	0.33	>250		105	**1,550**	5.0 U	10 U	**13.3**	10 U	10 U
02/24/15	6.09	2,227	0.93	>250		21.9	**1,220**	5.0 U	10 U	5.0 U	10 U	10 U
05/04/15	5.85	1,745	3.70	>250		58.8	**1,150**	5.0 U	10 U	**9.2**	10 U	10 U
08/25/15	6.17	1,980	0.00	>250		70.0	**1,080**	5.0 U	10 U	**9.9**	10 U	10 U
11/03/15	**5.05**	2,948	2.10	>375		140	**1,490**	5.3	10 U	**10.2**	10 U	10 U
02/10/16	6.10	2,489	12.80	>375		120	**1,170**	5.0 U	10 U	**9.6**	10 U	10 U
05/18/16	6.13	3,069	4.13	>375		149	**1,360**	5.0 U	10 U	**10.2**	10 U	10 U
08/09/16	5.82	2,995	1.00	>375		123	**1,510**	5.0 U	10 U	**11.3**	10 U	10 U
11/07/16	6.23	2,469	2.70	>375	44.7	136	**1,320**	5.0 U	10 U	**9**	10 U	10 U
02/15/17	6.27	1,824	2.65	>375	41	122	**1,100**	5.0 U	10 U	**7.9**	10 U	10 U
05/16/17	6.06	2,268	7.78	>375	53.8	131	**1,280**	5.0 U	10 U	**8.8**	10 U	10 U
07/24/17	6.09	2,215	20.10	>375	56.6	4.4	**532**	5.0 U	10 U	**11.5**	10 U	10 U
11/14/17	6.11	2,339	21.10	>375	123.3	2.4	**496**	5.0 U	10 U	5.0 U	10 U	10 U
02/12/18	5.95	2,269	4.20	>375	118.8	117	**1,090**	5.0 U	10 U	**8.1**	10 U	10 U
05/22/18	6.18	2,099	1.36	>375	121.0	121	**1,100**	5.0 U	10 U	**7.9**	10 U	10 U
08/27/18	6.12	2,430	4.91	>375	181.0	125	**1,020**	5.0 U	10 U	**8.3**	10 U	10 U
12/03/18	6.75	3,540	17.40	>375	143.3	258	**1,340**	5.0 U	10 U	5.0 U	10 U	10 U
03/05/19	6.26	2,780	6.10	>375	86.8	107	**881**	5.0 U	10 U	**6.2**	10 U	10 U
05/14/19	6.14	2,383	5.65	>375	90.7	113	**1,010**	5.0 U	10 U	**7.7**	10 U	10 U
08/12/19	6.07	2,819	2.53	>375	149.6	106	**902**	5.0 U	10 U	**6**	10 U	10 U
11/06/19	6.12	3,045	1.43	>375	75.7	105	**1,020**	5.0 U	10 U	**8.3**	10 U	10 U
02/18/20	**5.56**	3,115	0.95	0	232.5	108	**961**	5.0 U	10 U	**6.7**	10 U	10 U
05/11/20	6.29	2,490	1.09	>375	218.4	110	**1,090**	5.0 U	10 U	**9.3**	10 U	10 U
08/04/20			0.25	>375		116	**1,040**	5.0 U	10 U	**7.3**	10 U	10 U
11/10/20	6.20	2,891	2.58	>375	145.3	104	**992**	5.0 U	10 U	**6.4**	10 U	10 U
02/16/21	5.82	2,772	1.45	>375	119.0	115	**927**	5.0 U	10 U	**5.5**	10 U	10 U
05/18/21	5.80	3,615	<5	>375	139.7	123	**741**	5.0 U	10 U	**7.4**	10 U	10 U
08/16/21	6.30	3,040	<5	>375	98.9	116	**1,100**	5.0 U	10 U	**5.8**	10 U	10 U
11/30/21	6.18	2,767	2.57	>375	37.1	110	**924**	5.0 U	10 U	5.0 U	10 U	10 U
03/16/22	6.08	3,317	1.09	>375	20.0	127	**1,120**	5.0 U	10 U	**6.4**	10 U	10 U
05/23/22	6.06	2,827	1.15	>375	93.0	129	**1,140**	5.0 U	10 U	**6.3**	10 U	10 U
08/15/22	5.88	3,119	0.99	>375	166.3	121	**1,120**	5.0 U	10 U	**6.7**	10 U	10 U
11/14/22	6.06	2,228	1.08	>375	179.5	122	**953**	5.0 U	10 U	5.0 U	10 U	10 U
02/27/23	6.27	2,755	0.36	>375	131.9	107	**844**	5.0 U	10 U	**5.6**	10 U	10 U
05/29/23	5.98	3,163	0.02	>375	38.5	115	**999**	5.0 U	10 U	**5.5**	10 U	10 U
08/22/23	6.11	2,983	1.41	>375	49.9	116	**919**	5.0 U	10 U	5.0 U	10 U	10 U
11/13/23	6.19	3,102	0.67	>375	47.4	118	**966**	5.0 U	60 U	5.0 U	10 U	10 U
02/26/24	6.15	2,690	0.02	>375	48.9	118	**925**	5.0 U	60 U	5.0 U	10 U	10 U
05/28/24	6.37	3,029	0.03	>375	139.9	123	**1,030**	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded valUes indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A20

Field Parameters and Analytical Data - Monitoring Well MW-25S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l)				
									Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/09/14	6.09	412	4.5	0.00	5		24.8	33.9	5.0 U	10 U	5.0 U	10 U	10 U
05/19/14	5.90	391	11.2	0.00	150-250		27.7	56.5	5.0 U	10 U	5.0 U	10 U	10 U
08/19/14	5.76	424	16.1	1.50	150-250		15.8	105	5.0 U	10 U	5.0 U	10 U	10 U
11/11/14	6.09	353	14.4	1.44	150-250		32.9	48.4	5.0 U	10 U	5.0 U	15.7	10 U
02/24/15	6.07	371	7.1	0.00	>250		13.5	40.9	5.0 U	10 U	5.0 U	10 U	10 U
05/04/15	**5.60**	374	10.1	2.00	>250		14.5	56.6	5.0 U	10 U	5.0 U	10 U	10 U
08/24/15	6.05	545	18.2	0.50	>125		15.9	54.4	5.0 U	10 U	5.0 U	10 U	10 U
11/03/15	**5.57**	474	14.9	2.46	>125		7.0	55.5	5.0 U	10 U	**8.4**	10 U	10 U
02/10/16	**5.67**	531	5.5	8.60	>70		14.0	69.5	5.0 U	10 U	5.0 U	10 U	10 U
05/18/16	**5.47**	525	11.1	2.59	>375		12.0	84.5	5.0 U	10 U	5.0 U	10 U	10 U
08/09/16	**4.96**	508	20.5	3.90	>375		4.8	78.0	5.0 U	10 U	5.0 U	10 U	10 U
11/08/16							5.2	90.2	5.0 U	10 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded valUes indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A21

Field Parameters and Analytical Data - Monitoring Well MW-26S-R
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:							**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
09/26/16	6.24	1,676	17.7	2.74	>375	133	**259**	5.0 U	10 U	5.0 U	10 U	10 U
11/07/16	6.37	1,463	16.2	6.53	>375	122	**308**	5.0 U	10 U	5.0 U	10 U	10 U
02/15/17	6.87	863	5.2	5.69	>375	264	**475**	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.58	1,681	11.7	3.02	>375	170	222	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.59	2,403	15.7	5.71	>375	118	190	5.0 U	10 U	5.0 U	10 U	10 U
11/13/17	6.34	791	13.9	7.11	>375	164	232	5.0 U	10 U	5.0 U	10 U	10 U
02/14/18	6.62	981	7.8	10.6	>375	262	**333**	5.0 U	10 U	**5.2**	10 U	10 U
05/22/18	6.75	1,671	12.1	3.01	>375	233	208	5.0 U	10 U	**9.3**	10 U	10 U
08/27/18	6.31	2,328	18.3	1.58	>375	187	196	5.0 U	10 U	**9.3**	10 U	10 U
12/03/18	7.10	992	11.3	7.11	>375	18.4	150	5.0 U	10 U	5.0 U	10 U	10 U
03/07/19	6.83	1,314	7.95	4.15	>375	206	154	5.0 U	10 U	5.0 U	10 U	10 U
05/15/19	6.86	791	11.97	9.87	>375	325	92.3	5.0 U	10 U	5.0 U	10 U	10 U
08/14/19	6.39	3,295	15.71	5.98	>375	158	203	5.0 U	10 U	5.0 U	10 U	10 U
11/06/19	6.55	2,445	15.04	4.31	>375	198	**341**	5.0 U	10 U	5.0 U	10 U	10 U
02/19/20	6.20	1,957	9.10	1.37	>375	203	195	5.0 U	10 U	5.0 U	10 U	10 U
05/13/20	6.86	1,673	10.50	2.41	>375	209	190	5.0 U	10 U	5.0 U	10 U	10 U
08/05/20				3.47	>375	197	167	5.0 U	10 U	5.0 U	10 U	10 U
11/09/20	6.12	2,277	15.49	2.54	>375	215	**293**	5.0 U	10 U	5.0 U	10 U	10 U
02/17/21	6.60	835	4.50	2.20	>375	321	156	5.0 U	10 U	5.0 U	10 U	10 U
05/20/21	6.34	2,205	11.05	2.24	>375	220	164	5.0 U	10 U	5.0 U	10 U	10 U
08/17/21	6.53			<5	>375	180	165	5.0 U	10 U	5.0 U	10 U	10 U
11/30/21	6.50	1,833	12.43	2.82	>375	217	164	5.0 U	10 U	5.0 U	10 U	10 U
03/16/22	6.81	805	6.66	2.88	>375	292	123	5.0 U	10 U	5.0 U	10 U	10 U
05/25/22	6.68	1,502	11.99	4.66	>375	249	121	5.0 U	10 U	5.0 U	10 U	10 U
08/17/22	6.39	3,174	16.75	4.75	>375	169	160	5.0 U	10 U	5.0 U	10 U	10 U
11/15/22	6.66	1,315	14.3	8.79	>375	293	**266**	5.0 U	10 U	5.0 U	10 U	10 U
03/01/23	6.66	1,866	9.0	1.52	>375	205	149	5.0 U	10 U	5.0 U	10 U	10 U
05/31/23	6.45	25	12.2	1.13	>375	152	141	5.0 U	10 U	5.0 U	10 U	10 U
08/23/23	6.59	2,273	16.4	1.65	>375	211	161	5.0 U	10 U	5.0 U	10 U	10 U
11/15/23	6.80	2,008	14.5	3.57	>375	216	172	5.0 U	60 U	5.0 U	10 U	10 U
02/27/24	7.06	688	8.4	8.04	>375	260	98.5	5.0 U	60 U	5.0 U	10 U	10 U
05/30/24	7.00	1,581	12.6	5.57	>375	242	107	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded valUes indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A22

Field Parameters and Analytical Data - Monitoring Well MW-27S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/09/14	6.72	967	9.4	3.22	15		228	168	5.0 U	10 U	5.0 U	10 U	10 U
05/19/14	6.83	708	10.0	0.00	>250		210	81.6	5.0 U	10 U	5.0 U	10 U	10 U
08/18/14	6.62	972	14.2	0.00	>250		244	**290**	5.0 U	10 U	5.0 U	10 U	10 U
11/11/14	6.70	1,019	13.8	0.81	>250		260	**405**	13.8	10 U	5.0 U	10 U	10 U
02/25/15	6.32	892	7.9	0.90	>250		238	**272**	22.2	10 U	5.0 U	10 U	10 U
05/05/15	6.54	714	11.1	7.10	>250		219	116	5.0 U	10 U	5.0 U	10 U	10 U
08/24/15	6.77	1,178	11.9	0.30	>250		249	**536**	5.0 U	10 U	5.0 U	10 U	10 U
11/03/15	6.32	1,976	12.5	3.95	>250		245	**512**	5.0 U	10 U	5.0 U	10 U	10 U
02/10/16	6.41	911	10.0	2.68	>250		214	124	5.0 U	10 U	5.0 U	10 U	10 U
05/16/16	6.80	608	10.8	0.71	>125		204	76.9	5.0 U	10 U	5.0 U	10 U	10 U
08/08/16	6.56	1,219	12.8	0.66	>375		241	**429**	5.0 U	10 U	5.0 U	10 U	10 U
11/08/16	6.53	1,898	12.5	0.80	>375	27.0	242	**998**	5.0 U	10 U	5.0 U	10 U	10 U
02/14/17	6.54	2,031	8.1	0.98	>375	44.8	212	120	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.34	610	11.2	7.28	>375	37.4	201	73.1	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.55	1,703	12.9	26.8	>375	39.9	224	88.5	5.0 U	10 U	5.0 U	10 U	10 U
11/14/17	6.56	1,460	9.0	0.00	>375	272.0	236	**306**	5.0 U	10 U	5.0 U	10 U	10 U
02/12/18	6.75	1,376	9.0	1.28	>375	271.0	205	84.6	5.0 U	10 U	5.0 U	10 U	10 U
05/22/18	7.51	553	11.7	11.2	>250	131.1	197	57.1	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	6.59	842	14.3	1.85	>250	112.9	236	168	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	6.79	571	11.3	4.80	>375	104.7	202	62.8	5.0 U	10 U	5.0 U	10 U	10 U
03/04/19	6.76	725	8.7	2.75	>125	111.0	194	44.7	5.0 U	10 U	5.0 U	10 U	10 U
05/14/19	6.49	506	8.57	3.54	>250	103.8	187	40.6	5.0 U	10 U	5.0 U	10 U	10 U
08/12/19	6.74	1,329	10.89	3.97	>375	150.1	224	242	5.0 U	10 U	5.0 U	10 U	10 U
11/05/19	6.70	1,203	11.84	1.90	>375	45.9	215	194	5.0 U	10 U	5.0 U	10 U	10 U
02/17/20	6.35	754	9.99	0.96	>250	153.6	183	49.3	5.0 U	10 U	5.0 U	10 U	10 U
05/11/20	6.94	487	8.90	1.65	>250	192.4	194	46.0	5.0 U	10 U	5.0 U	10 U	10 U
08/05/20				2.09	>375		220	**317**	5.0 U	10 U	5.0 U	10 U	10 U
11/10/20	6.60	1,748	11.60	0.87	>375	147.0	217	**392**	5.0 U	10 U	5.0 U	10 U	10 U
02/15/21	6.49	843	9.72	1.20	>375	114.1	219	71.3	5.0 U	10 U	5.0 U	10 U	10 U
05/18/21	5.90	774	9.30	0.97	>250	145.2	208	52.0	5.0 U	10 U	5.0 U	10 U	10 U
08/16/21	6.77	1,364	10.99	<5	>375	171.4	231	**261**	5.0 U	10 U	5.0 U	10 U	10 U
11/29/21	6.46	794	10.86	0.65	>375	63.0	217	47.5	5.0 U	10 U	5.0 U	10 U	10 U
03/14/22	6.55	752	9.74	0.56	>375	27.3	202	39.2	5.0 U	10 U	5.0 U	10 U	10 U
05/23/22	6.65	626	9.72	0.56	>375	88.3	208	34.6	5.0 U	10 U	5.0 U	10 U	10 U
08/15/22	6.57	1,814	11.33	0.52	>375	156.7	241	**416**	5.0 U	10 U	5.0 U	10 U	10 U
11/14/22	6.56	1,558	11.8	0.02	>375	135.4	241	**505**	5.0 U	10 U	5.0 U	10 U	10 U
02/27/23	6.69	861	9.8	0.25	>375	187.4	210	59.5	5.0 U	10 U	5.0 U	10 U	10 U
05/29/23	6.47	889	10.1	0.02	>375	51.6	210	71.9	5.0 U	10 U	5.0 U	10 U	10 U
08/21/23	6.69	952	11.8	1.58	>250	16.6	217	95.5	5.0 U	10 U	5.0 U	10 U	10 U
11/13/23	6.71	809	12.2	2.41	>250	18.8	215	47.2	5.0 U	60 U	5.0 U	10 U	10 U
02/26/24	6.63	706	10.2	2.26	>375	23.2	207	33.9	5.0 U	60 U	5.0 U	10 U	10 U
05/30/24	6.93	7	10.3	0.02	>375	113.9	208	40.8	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded valUes indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A23

Field Parameters and Analytical Data - Monitoring Well MW-27D
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/09/14	6.71	1,081	9.8	0.00	25		247	241	5.0 U	10 U	5.0 U	10 U	10 U
05/01/14	6.80	842	9.7	0.00	>250		220	94.8	5.0 U	10 U	5.0 U	10 U	10 U
08/18/14	6.96	1,192	12.3	0.00	>250		241	**600**	5.0 U	10 U	5.0 U	10 U	10 U
11/11/14	7.13	1,231	13.4	0.00	>250		275	**586**	5.0 U	10 U	5.0 U	10 U	10 U
02/25/15	6.43	1,060	11.5	1.10	>250		246	**409**	5.0 U	10 U	5.0 U	10 U	10 U
05/05/15	6.56	784	10.7	5.00	>250		232	157	5.0 U	10 U	5.0 U	10 U	10 U
08/24/15	6.68	1,372	11.9	1.80	>250		245	**754**	5.0 U	10 U	5.0 U	10 U	10 U
11/03/15	6.20	1,812	11.9	3.39	>375		250	**607**	5.0 U	10 U	5.0 U	10 U	10 U
02/10/16	6.33	1,000	9.8	0.98	>250		222	122	5.0 U	10 U	5.0 U	10 U	10 U
05/16/16	6.57	686	10.3	1.63	>250		219	107	5.0 U	10 U	5.0 U	10 U	10 U
08/08/16	6.51	1,318	11.7	3.98	>375		246	**528**	5.0 U	10 U	5.0 U	10 U	10 U
11/08/16	6.40	2,017	11.3	3.70	>375	39.3	220	**1,270**	5.0 U	10 U	**5.2**	10 U	10 U
02/14/17	6.39	2,108	8.1	7.13	>375	44.8	226	190	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.38	703	12.6	8.02	>375	34.9	222	96	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.39	693	12.5	6.95	>375	32.8	220	99.6	5.0 U	10 U	5.0 U	10 U	10 U
11/14/17	6.55	1,394	10.0	1.00	>375	257	254	**426**	5.0 U	10 U	5.0 U	10 U	10 U
02/12/18	6.75	1,351	9.3	6.62	>375	251	224	161	5.0 U	10 U	5.0 U	10 U	10 U
05/22/18	7.14	653	12.8	26.3	>375	158	21.8	87.7	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	6.63	1,027	13.7	4.28	>375	121.9	258	259	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	6.84	632	11.3	1.48	>375	103.8	218	80.6	5.0 U	10 U	5.0 U	10 U	10 U
03/04/19	6.81	832	10.2	4.37	>375	103.3	210	69.6	5.0 U	10 U	5.0 U	10 U	10 U
05/14/19	6.73	580	8.95	0.75	>250	126.9	206	58.0	5.0 U	10 U	5.0 U	10 U	10 U
08/12/19	6.76	1,424	10.86	8.89	>375	145.9	232	**260**	5.0 U	10 U	5.0 U	10 U	10 U
11/05/19	6.87	1,302	11.62	4.08	>375	52.9	220	228	5.0 U	10 U	5.0 U	10 U	10 U
02/17/20	6.34	828	10.33	4.41	>375	152.6	207	67	5.0 U	10 U	5.0 U	10 U	10 U
05/11/20	6.99	534	9.30	2.49	>250	188.9	206	60.4	5.0 U	10 U	5.0 U	10 U	10 U
08/05/20				10.9	>375		223	**431**	5.0 U	10 U	5.0 U	10 U	10 U
11/10/20	6.61	1,816	11.54	9.60	>375	133.9	220	**411**	5.0 U	10 U	5.0 U	10 U	10 U
02/15/21	6.53	965	10.60	5.39	>375	111.3	234	109	5.0 U	10 U	5.0 U	10 U	10 U
05/18/21	5.87	843	9.40	3.71	>250	145.7	220	71.6	5.0 U	10 U	5.0 U	10 U	10 U
08/16/21	6.77	1,522	10.71	<5	>375	170.8	240	**328**	5.0 U	10 U	5.0 U	10 U	10 U
11/29/21	6.49	902	10.63	1.40	>250	62.4	228	73.2	5.0 U	10 U	5.0 U	10 U	10 U
03/14/22	6.54	836	10.40	0.84	>375	30.6	214	55.7	5.0 U	10 U	5.0 U	10 U	10 U
05/23/22	6.74	676	10.14	3.36	>375	85.9	220	49.3	5.0 U	10 U	5.0 U	10 U	10 U
08/15/22	6.64	1,935	11.33	3.25	>375	154.1	244	**460**	5.0 U	10 U	5.0 U	10 U	10 U
11/14/22	6.63	1,511	11.7	3.51	>375	129.6	241	**470.0**	5.0 U	10 U	5.0 U	10 U	10 U
02/27/23	6.65	953	10.6	0.02	>375	186.0	220	88.1	5.0 U	10 U	5.0 U	10 U	10 U
05/29/23	6.43	942	10.2	0.37	>375	582.9	218	83.7	5.0 U	10 U	5.0 U	10 U	10 U
08/21/23	6.70	1,012	11.3	1.78	>250	15.4	223	105.0	5.0 U	10 U	5.0 U	10 U	10 U
11/13/23	6.84	912	11.8	3.74	>250	12.6	223	71.3	5.0 U	60 U	5.0 U	10 U	10 U
02/26/24	6.70	765	10.6	0.10	>375	19.2	217	47.4	5.0 U	60 U	5.0 U	10 U	10 U
05/28/24	6.97	796	10.3	3.63	>375	112.7	219	59.1	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) CaCO3.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded valUes indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A24

Field Parameters and Analytical Data - Monitoring Well MW-28S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l)				
									Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
01/13/16	8.30	318	6.9	5.32	> 125		123	35.4	5.0 U	10 U	5.0 U	10 U	10 U
05/17/16	7.73	258	9.6	3.44	> 125		113	29.6	5.0 U	10 U	5.0 U	10 U	10 U
08/08/16	7.70	306	14.5	7.00	> 125		119	39.0	5.0 U	10 U	5.0 U	10 U	10 U
11/07/16	7.71	344	13.1	6.99	> 375	-40.4	135	59.4	5.0 U	10 U	5.0 U	10 U	10 U
02/13/17	6.95	235	7.6	2.24	> 375	1.5	100	39.6	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	7.39	196	9.5	2.27	> 375	-21.3	74.4	45.7	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	7.40	263	15.3	7.27	> 375	-26.6	50.8	26.5	5.0 U	10 U	5.0 U	10 U	10 U
11/13/17	6.83	366	13.5	6.17	> 375	295	106	47.5	5.0 U	10 U	5.0 U	10 U	10 U
02/13/18	6.52	219	3.7	4.39	> 375	288	51.2	40.1	5.0 U	10 U	5.0 U	10 U	10 U
05/21/18	6.53	231	12.3	0.93	> 125	218	77.2	38.2	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	6.43	288	17.7	8.40	> 125	203.9	79.2	26.9	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	6.77	199	10.6	6.45	> 70	119.9	77.6	38.4	5.0 U	10 U	5.0 U	10 U	10 U
03/06/19	7.22	383	6.28	3.15	> 125	86.4	81.6	28.7	5.0 U	10 U	5.0 U	10 U	10 U
05/15/19	6.70	106	10.33	5.65	> 125	129.5	78.8	21.8	5.0 U	10 U	5.0 U	10 U	10 U
08/13/19	6.83	337	14.74	25.1	> 125	198.7	78.4	30.0	5.0 U	10 U	5.0 U	10 U	10 U
11/04/19	6.74	274	13.82	2.80	> 150	72.0	76.4	35.7	5.0 U	10 U	5.0 U	10 U	10 U
02/18/20	6.22	233	7.29	5.09	> 70	204.1	55.2	26.3	5.0 U	10 U	5.0 U	10 U	10 U
05/12/20	7.40	214.4	9.00	3.93	> 175	205.5	85.6	30.4	5.0 U	10 U	5.0 U	10 U	10 U
08/03/20	6.62	368	13.97	6.76	> 125	176.2	93.2	32.7	5.0 U	10 U	5.0 U	10 U	10 U
11/10/20	7.05	335	13.93	1.93	> 250	115.6		45.1	5.0 U	10 U	5.0 U	10 U	10 U
02/17/21	7.50	450	9.75	2.79	> 250	85.2	115	34.1	5.0 U	10 U	5.0 U	10 U	10 U
05/17/21	6.59	423	10.69	1.46	> 375	53.3	98.5	30.1	5.0 U	10 U	5.0 U	10 U	10 U
08/17/21	7.01	-	-	<5	> 250	-	103	34.0	5.0 U	10 U	5.0 U	10 U	10 U
12/01/21	6.71	415	11.67	2.88	> 375	23.3	113	30.8	5.0 U	10 U	5.0 U	10 U	10 U
03/15/22	6.62	375	7.91	2.02	> 375	32.2	114	33.8	5.0 U	10 U	5.0 U	10 U	10 U
05/24/22	6.76	306	10.43	4.72	> 250	110.2	94.5	24.4	5.0 U	10 U	5.0 U	10 U	10 U
08/16/22	7.15	532	13.93	11.20	> 250	79.0	144	33.3	5.0 U	10 U	5.0 U	10 U	10 U
11/15/22	7.20	604	13.4	2.19	> 375	97.7	163	42.9	5.0 U	10 U	5.0 U	10 U	10 U
03/01/23	7.34	445.5	8.3	0.84	> 250	95.7	113	30.4	5.0 U	10 U	5.0 U	10 U	10 U
05/30/23	6.66	291.6	10.9	1.77	> 125	54.4	108	23.9	5.0 U	10 U	5.0 U	10 U	10 U
08/22/23	6.69	312	15.2	2.64	> 125	15.9	99.5	25.0	5.0 U	10 U	5.0 U	10 U	10 U
11/14/23	6.77	335	13.5	1.88	> 250	15.3	125	26.8	5.0 U	60 U	5.0 U	10 U	10 U
02/27/24	6.87	326	8.6	0.02	> 125	9.9	104	24.5	5.0 U	60 U	5.0 U	10 U	10 U
05/29/24	7.03	260	11.1	2.85	> 125	70.7	103	24.7	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A25

Field Parameters and Analytical Data - Monitoring Well MW-28D
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l)				
									Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
01/13/16	7.59	647	9.0	3.32	> 375		136	52.7	5.0 U	10 U	5.0 U	10 U	10 U
05/17/16	7.34	574	10.3	4.04	> 125		145	31.7	5.0 U	10 U	5.0 U	10 U	10 U
08/08/16	7.56	565	12.1	4.50	> 125		146	28.1	5.0 U	10 U	5.0 U	10 U	10 U
11/07/16	7.03	459	11.2	3.70	> 375	-0.1	154	25.9	5.0 U	10 U	5.0 U	10 U	10 U
02/13/17	6.90	561	9.8	2.04	> 375	5.8	144	25.5	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	7.22	473	10.3	2.27	> 375	-12.2	136	26.1	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	7.21	554	14.1	11.70	> 375	-14.4	34	14.1	5.0 U	10 U	5.0 U	10 U	10 U
11/13/17	7.38	738	11.9	0.02	> 375	88.2	131	19.6	5.0 U	10 U	5.0 U	10 U	10 U
02/13/18	7.76	432	8.9	2.96	> 375	-18.9	137	25.9	5.0 U	10 U	5.0 U	10 U	10 U
05/21/18	7.90	619	13.1	28.40	> 375	99.1	136	24.9	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	7.39	747	14.0	1.39	> 375	89.9	160	24.3	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	7.70	626	11.9	2.00	> 250	147.1	141	23.5	5.0 U	10 U	5.0 U	10 U	10 U
03/06/19	7.50	913	9.6	1.01	> 375	48.6	142	24.7	5.0 U	10 U	5.0 U	10 U	10 U
05/15/19	7.44	667	11.07	4.36	> 375	64.9	140	25.5	5.0 U	10 U	5.0 U	10 U	10 U
08/13/19	7.54	1,103	12.46	1.21		8.5	154	27.0	5.0 U	10 U	5.0 U	10 U	10 U
11/04/19	7.34	888	11.85	0.88	> 375	-24.6	141	25.5	5.0 U	10 U	5.0 U	10 U	10 U
02/18/20	7.27	1,021	10.54	0.92		116.2	146	26.0	5.0 U	10 U	5.0 U	10 U	10 U
05/12/20	7.88	749	10.30	1.60	> 375	61.3	152	25.5	5.0 U	10 U	5.0 U	10 U	10 U
08/03/20	7.18	1,070	11.20	0.78	> 375	58.9	152	26.4	5.0 U	10 U	5.0 U	10 U	10 U
11/10/20	7.61	1,090	12.22	0.76	> 375	-12.3	156	27.8	5.0 U	10 U	5.0 U	10 U	10 U
02/17/21	7.34	1,109	11.01	1.25	> 375	61.5	174	27.6	5.0 U	10 U	5.0 U	10 U	10 U
05/17/21	7.16	1,066	11.24	0.70	> 375	163.9	165	27.4	5.0 U	10 U	5.0 U	10 U	10 U
08/17/21	7.50			<5	> 375	-	165	28.7	5.0 U	10 U	5.0 U	10 U	10 U
12/01/21	7.06	1,094	11.15	1.17	> 375	-46.1	166	26.5	5.0 U	10 U	5.0 U	10 U	10 U
03/15/22	7.25	1,037	11.49	1.45	> 375	23.7	168	28.9	5.0 U	10 U	5.0 U	10 U	10 U
05/24/22	7.41	87	11.07	1.00	> 375	110.6	170	27.5	5.0 U	10 U	5.0 U	10 U	10 U
08/16/22	7.57	944	12.1	3.06	> 375	12.3	186	30.4	5.0 U	10 U	5.0 U	10 U	10 U
11/15/22	7.40	771	11.9	0.62	> 375	45.8	176	25.4	5.0 U	10 U	5.0 U	10 U	10 U
03/01/23	7.50	1,036	10.8	0.02	> 375	49.2	176	26.9	5.0 U	10 U	5.0 U	10 U	10 U
05/30/23	7.37	1,047	11.1	1.14	> 375	-5	171	27.3	5.0 U	10 U	5.0 U	10 U	10 U
08/22/23	7.46	1,060	12.7	0.66	> 375	-26.6	171	28.6	5.0 U	10 U	5.0 U	10 U	10 U
11/14/23	7.59	1,085	12.2	0.02	> 375	-28.4	168	25.9	5.0 U	60 U	5.0 U	10 U	10 U
02/27/24	7.51	980	11.8	0.02	> 375	-25.2	171	27.9	5.0 U	60 U	5.0 U	10 U	10 U
05/29/24	7.68	1,042	11.5	0.02	> 375	-17.7	179	28.0	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) CaCO3.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A26

Field Parameters and Analytical Data - Monitoring Well MW-29I
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
01/13/16	**11.59**	5.05 ms/cm	8.2	60.9	> 375		784	8.2	**30.3**	10 U	5.0 U	**55**	15.7
05/17/16													
08/08/16							400	**663**	5.0 U	10 U	5.0 U	10 U	10 U
02/14/17	6.86	530.0	6.0	16.1	> 375		320	79.8	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	7.00	388.0	9.1	40.3	> 375	-0.6	278	39.6	5.0 U	10 U	5.0 U	10 U	10 U
07/25/17													
11/13/17													
02/13/18	7.21	239.0	6.2	48.3	> 375	96.3	207	30.2	5.0 U	10 U	5.0 U	10 U	10 U
05/21/18	7.72	298.0	10.4	14.4	> 125	103.0	219	18.6	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18													
12/03/18	7.03	337	11.8	62.2	> 250	105.9	196	31.1	5.0 U	10 U	5.0 U	10 U	10 U
03/06/19	7.09	302	6.36	39.0	> 250	122.0	118	30.0	5.0 U	10 U	5.0 U	10 U	10 U
05/15/19	6.76	268	8.85	45.9	> 125	73.2	144	24.0	5.0 U	10 U	5.0 U	10 U	10 U
11/04/19	6.70	4.59	13.15	26.6	> 375	65.3	199	18.3	5.0 U	10 U	5.0 U	0.7 J	10 U
02/18/20	6.33	362	6.38	44.1	> 250	213.4	172	10.2	5.0 U	10 U	5.0 U	10 U	10 U
05/12/20	6.72				> 250		218	25.0	5.0 U	10 U	5.0 U	10 U	10 U
02/17/21				34.8	> 250		207	22.3	5.0 U	10 U	5.0 U	10 U	10 U
05/17/21	6.75			<25	> 250		213	24.0	5.0 U	10 U	5.0 U	10 U	10 U
03/15/22	6.50	408	8.02	8.86	> 125	19.4	190	20.1	5.0 U	10 U	5.0 U	10 U	10 U
05/24/22	6.69	361	9.86	8.52	> 250	105.9	206	13.8	5.0 U	10 U	5.0 U	10 U	10 U
11/15/22							237	20.9	5.0 U	10 U	5.0 U	10 U	10 U
03/01/23	7.04	423.7	7.0	4.83	> 125	92.6	190	22.8	5.0 U	10 U	5.0 U	10 U	10 U
02/27/24	6.61	342	8.4	6.45	> 250	24.0	168	19.4	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) CaCO3.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A27

Field Parameters and Analytical Data - Monitoring Well MW-29D
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l)				
									Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
01/13/16	8.42	362	8.8	119	> 375		128	50.9	**45.1**	10 U	5.0 U	**131**	22.5
05/17/16	7.97	193	10.4	2.84	> 125		114	17.2	5.0 U	10 U	5.0 U	10 U	10 U
08/08/16	8.03	348	12.4	5.04	> 125		160	20.7	5.0 U	10 U	5.0 U	10 U	10 U
11/07/16	6.88	252	11.7	18.3	> 375	12.1	191	25.8	5.0 U	10 U	5.0 U	10 U	10 U
02/14/17	6.98	251	10.3	5.95	> 375	1.1	158	28.3	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	7.18	209	10.1	42.7	> 375	-10.7	128	28.5	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	7.18	312	13.8	33.9	> 375	-18.1	116	30.0	5.0 U	10 U	5.0 U	10 U	10 U
11/13/17	7.91	323	10.6	5.15	> 375	32.3	139	30.5	5.0 U	10 U	5.0 U	10 U	10 U
02/13/18	8.00	262	9.2	12.4	> 375	111	190	37.9	5.0 U	10 U	5.0 U	10 U	10 U
05/21/18	8.11	238	11.9	3.31	> 125	117	142	30.0	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	7.95	276	14.3	8.74	> 125	107.1	156	29.3	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	7.95	303	11.5	9.05	> 250	81.1	199	31.0	5.0 U	10 U	5.0 U	10 U	10 U
03/06/19	7.67	467	8.4	4.38	> 250	52.6	207	32.9	5.0 U	10 U	5.0 U	10 U	10 U
05/15/19	7.55	341	9.96	11.2	> 375	136.1	198	35.0	5.0 U	10 U	5.0 U	10 U	10 U
08/13/19	7.89	397	13.34	5.86	> 125	-2.8	164	32.8	5.0 U	10 U	5.0 U	10 U	10 U
11/04/19	7.43	587	12.12	6.20	> 250	7.6	254	37.4	5.0 U	10 U	5.0 U	10 U	10 U
02/18/20	7.33	454	9.67	287	> 250	129.5	198	34.6	5.0 U	10 U	5.0 U	13	11
05/12/20	8.13	270	9.20	2.27	> 250	70.4	163	33.2	5.0 U	10 U	5.0 U	10 U	10 U
08/03/20	7.63	353	11.76	204	> 125	85.4	145	28.8	3.3 J	10 U	5.0 U	11.6	10 U
11/10/20	7.78	513	13.16	7.00	> 375	22.3	221	33.6	5.0 U	10 U	5.0 U	10 U	10 U
02/17/21	7.50	450	9.75	354	> 250	85.2	189	30.2	14.1	10 U	5.0 U	38	10 U
05/17/21	7.05	389	9.85	<5	> 250	0.5	170	29.8	5.0 U	10 U	5.0 U	10 U	10 U
08/17/21	7.74			<100	> 250		160	29.1	5.0 U	10 U	5.0 U	10 U	10 U
12/01/21	6.96	549	16.91	48.9	> 250	-9.9	262	30.0	5.0 U	10 U	5.0 U	10 U	10 U
03/15/22	7.37	573	10.42	45.6	> 375	20.4	268	33.5	5.0 U	10 U	5.0 U	2.9 J	10 U
05/24/22	7.58	385	10.37	79.1	> 375	97.9	207	29.1	5.0 U	10 U	5.0 U	10 U	10 U
08/16/22	7.68	473	11.89	69.3	> 250	58.5	250	33.5	5.0 U	10 U	5.0 U	10 U	10 U
11/15/22	7.43	436	11.3	35.5	0	168.3	288	35.3	5.0 U	10 U	5.0 U	10 U	10 U
03/01/23	7.58	525	9.5	13.6	> 250	132.3	246	30.7	5.0 U	10 U	5.0 U	10 U	10 U
05/30/23	7.30	508	10.7	16.3	> 250	31.5	247	29.3	5.0 U	10 U	5.0 U	10 U	10 U
08/22/23	7.44	557	12.4	10.5	> 375	-25.8	281	30.5	5.0 U	10 U	5.0 U	10 U	10 U
11/14/23	7.72	583	12.4	15.9	> 250	-35.7	289	29.7	5.0 U	60 U	5.0 U	10 U	10 U
02/27/24	7.28	512	10.1	10.8	> 250	-15.5	265	31.8	5.0 U	60 U	5.0 U	10 U	10 U
05/29/24	7.66	525	10.7	9.61	> 250	65.9	256	30.9	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) CaCO3.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A28

Field Parameters and Analytical Data - Monitoring Well MW-30S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l)				
									Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
01/13/16	7.51	517	8.3	> 1000	> 375		184	165	**130.0**	10 U	5.0 U	**333**	**66.6**
05/17/16	7.34	410	10.2	23.4	> 375		172	181	5.0 U	10 U	5.0 U	10 U	10 U
08/08/16	8.22	333	19.9	180	> 375		222	210	6.3	10 U	5.0 U	10 U	10 U
11/07/16													
02/14/17													
05/16/17	7.26	337	9.6	> 1000	> 375	-14.7							
07/24/17													
11/13/17													
02/13/18	7.18	187	6.3	46.8	> 375	138	66.4	48.9	5.0 U	10 U	5.0 U	10 U	10 U
05/21/18	7.75	190	11.5	13.9	> 250	143	74.8	44.9	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18													
12/03/18													
03/06/19													
05/15/19	6.53	221	8.65	9.21	> 70	130.1	68	26.2	5.0 U	10 U	5.0 U	10 U	10 U
11/06/19													
02/18/20							129	68.9	5.0 U	10 U	5.0 U	10 U	10 U
05/12/20	6.93				> 175		127	64.0	5.0 U	10 U	5.0 U	10 U	10 U
11/11/20				32.6			308	367	5.0 U	10 U	5.0 U	10 U	10 U
02/17/21				24.8	> 375		302	124	5.0 U	10 U	5.0 U	10 U	10 U
05/17/21	7.14				> 125		147	58.8	2.2 J	10 U	5.0 U	10 U	10 U
08/17/21													
12/01/21	6.74			306			227	92.5	5.0 U	10 U	5.0 U	10 U	10 U
03/15/22	6.70	491	7.86	55.1	> 125	19.4	108	49.3	5.0 U	10 U	5.0 U	2.4 J	10 U
05/24/22	6.89	372	9.44	145	> 125	97.2	142	41.5	5.0 U	10 U	5.0 U	10 U	10 U
11/15/22							309	**684**	13.5	10 U	5.0 U	13	10 U
03/01/23	6.63	1020	7.9	29.3	> 250	182.1	167	264	5.0 U	10 U	5.0 U	10 U	10 U
05/30/23	6.77	908	10.8	46	> 375	-77.1	217	169	5.0 U	10 U	5.0 U	10 U	10 U
08/22/23	7.02	1045	14.5	1.94	> 375	-3.6	305	227	6.8	10 U	5.0 U	10 U	10 U
11/14/23	6.74	795	12.6	3.76	> 250	16.6	194	89.2	5.0 U	60 U	5.0 U	10 U	10 U
02/27/24	6.88	326	8.0	42.6	> 125	9	117	42.6	5.0 U	60 U	5.0 U	10 U	10 U
05/29/24	7.17	417	10.0	15.1	125	128.6	245	51.3	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) CaCO3.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A29

Field Parameters and Analytical Data - Monitoring Well MW-30D
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l)				
									Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
01/13/16	7.34	730	8.4	132	> 375		250	126	5.3	10 U	5.0 U	10.6	10 U
05/17/16	6.47	403	11.7	16	> 375		227	97.2	5.0 U	10 U	5.0 U	10 U	10 U
08/08/16	6.60	538	15.8	9	> 375		160	20.7	5.0 U	10 U	5.0 U	10 U	10 U
11/07/16	7.10	325	12.3	9.19	> 375	12.1	209	104	5.0 U	10 U	5.0 U	10 U	10 U
02/14/17	6.68	398	7.6	2.15	> 375	17.2	180	95.8	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.98	364	10.8	18	> 375	8	176	99.1	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.75	371	14.3	43.6	> 375	-1	179	72.0	5.0 U	10 U	5.0 U	10 U	10 U
11/13/17	6.69	572	10.5	13	> 375	210	194	103	5.0 U	10 U	5.0 U	10 U	10 U
02/13/18	6.82	332	8.2	20.3	> 375	103	176	99.3	5.0 U	10 U	5.0 U	10 U	10 U
05/21/18	6.96	354	11.7	48.3	> 250	110	193	103	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	6.56	443	16.6	3.73	> 250	99.1	190	102	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	6.97	349	10.8	3.35	> 250	120.1	168	80.7	5.0 U	10 U	5.0 U	10 U	10 U
03/06/19	7.29	504	8.1	202	> 250	119.3	162	83.3	5.0 U	10 U	5.0 U	10 U	10 U
05/15/19	6.55	348	8.92	73.5	> 125	103.1	160	82.3	5.0 U	10 U	5.0 U	10 U	10 U
08/13/19	6.54	578	13.41	7.65	> 250	176.0	185	96.2	5.0 U	10 U	5.0 U	10 U	10 U
11/04/19	6.81	587	11.91	7.79	> 375	74.7	180	101	5.0 U	10 U	5.0 U	10 U	10 U
02/18/20	6.26	514	8.79	22.2	> 250	201.4	208	96.7	5.0 U	10 U	5.0 U	10 U	10 U
05/12/20	6.89	331	9.70	3.86	> 250	214.7	151	84.6	5.0 U	10 U	5.0 U	10 U	10 U
08/03/20	6.29	612	11.04	3.60	> 375	180.5	179	105	5.0 U	10 U	5.0 U	10 U	10 U
11/11/20	6.82	675	12.11	82.4	> 375	169.0	179	108	5.0 U	10 U	5.0 U	10 U	10 U
02/17/21	6.77	540	9.38	4.35	> 250	119.0	186	96.8	5.0 U	10 U	5.0 U	10 U	10 U
05/17/21	6.01	491	9.97	3.39	> 375	136.2	167	88.4	5.0 U	10 U	5.0 U	10 U	10 U
08/17/21	6.55			<50	> 250		172	103	5.0 U	10 U	5.0 U	10 U	10 U
12/01/21	6.42	629	10.38	2.55	> 250	32.3	181	91.1	5.0 U	10 U	5.0 U	10 U	10 U
03/15/22	6.66	503	9.62	2.68	> 250	36.9	166	74.9	5.0 U	10 U	5.0 U	10 U	10 U
05/24/22	6.70	420	9.82	5.52	> 250	94.8	167	78.5	5.0 U	10 U	5.0 U	10 U	10 U
08/16/22	6.50	566	12.18	4.34	> 250	73.9	194	97.0	5.0 U	10 U	5.0 U	10 U	10 U
11/15/22	6.52	446	11.5	5.84	> 250	231.0	204	98.0	5.0 U	10 U	5.0 U	10 U	10 U
03/01/23	6.57	529	9.8	1.74	> 250	199.2	169	81.2	5.0 U	10 U	5.0 U	10 U	10 U
05/30/23	6.50	492	10.0	1.43	> 375	45.7	162	81.1	5.0 U	10 U	5.0 U	10 U	10 U
08/22/23	6.59	534	12.7	2.17	> 250	22.7	174	93.3	5.0 U	10 U	5.0 U	10 U	10 U
11/14/23	6.71	515	11.8	4.33	> 250	19.1	174	76.3	5.0 U	60 U	5.0 U	10 U	10 U
02/27/24	6.81	443	9.8	3.00	> 250	13.4	172	68.1	5.0 U	60 U	5.0 U	10 U	10 U
05/29/24	7.02	490	9.9	2.19	> 250	137.4	166	71.6	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) CaCO3.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A30

Field Parameters and Analytical Data - Monitoring Well MW-31S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
09/26/16													
11/07/16													
02/13/17	6.72	279	5.8	43	> 375	37.6	95.2	56.6	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.26	236	11.9	36.9	> 375	45	96.0	42.7	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.43	248	12.3	30	> 375	-23.8	140	43.8	5.0 U	10 U	5.0 U	10 U	10 U
11/13/17	5.93	379	11.7	9.56	> 375	236	126	52.1	5.0 U	10 U	5.0 U	10 U	10 U
02/13/18	5.93	231	9.1	4.91	> 375	286	116	45.5	5.0 U	10 U	5.0 U	10 U	10 U
05/21/18	6.70	268	12.9	2.19	> 125	266	114	36.4	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	6.08	334	16.6	4.91	> 250	131.9	147	41.1	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	6.34	268	9.0	1.81	> 70	89.7	122	37.1	5.0 U	10 U	5.0 U	10 U	10 U
03/06/19	6.39	368	9.1	1.32	> 375	104.1	114	32.0	5.0 U	10 U	5.0 U	10 U	10 U
05/15/19	6.23	261	10.63	1.52	> 250	87.3	124	34.0	5.0 U	10 U	5.0 U	10 U	10 U
11/04/19	6.17	408	13.57	1.09	> 125	67	138	38.4	5.0 U	10 U	5.0 U	10 U	10 U
02/18/20	7.22	948	11.51	13.8	> 375	146.3	129	32.9	5.0 U	10 U	5.0 U	10 U	10 U
05/12/20	6.50	258	10.10	0.98	> 125	260.1	130	34.3	5.0 U	10 U	5.0 U	10 U	10 U
11/11/20	6.29	395	13.98	0.70	> 125	180.2	148	38.6	5.0 U	10 U	5.0 U	10 U	10 U
02/17/21	6.07	354	8.68	2.55	> 125	142.1	135	33.4	5.0 U	10 U	5.0 U	10 U	10 U
05/17/21	6.32	371	11.26	1.35	> 125	150.5	133	34.9	5.0 U	10 U	5.0 U	10 U	10 U
12/01/21	6.20	417	11.25	6.31	> 125	44.3	151	34.7	5.0 U	10 U	5.0 U	10 U	10 U
03/15/22	6.05	373	9.21	0.68	> 125	32.61	134	34.1	5.0 U	10 U	5.0 U	10 U	10 U
05/24/22	6.23	314	10.59	1.07	> 125	94.1	131	30.9	5.0 U	10 U	5.0 U	10 U	10 U
11/15/22	6.36	344	12.0	28.00	> 375	267.4	172	34.0	7.8	10 U	5.0 U	11	10 U
03/01/23	6.36	407	8.6	0.25	> 250	196.3	152	32.6	5.0 U	10 U	5.0 U	10 U	10 U
05/30/23	6.13	399	11.5	7.40	> 125	64.7	144	32.4	5.0 U	10 U	5.0 U	10 U	10 U
08/22/23	6.23	385	15.4	3.37	> 250	41.3	142	31.4	5.0 U	10 U	5.0 U	10 U	10 U
11/14/23	6.33	387	12.0	7.21	> 125	39.3	155	30.8	5.0 U	60 U	5.0 U	10 U	10 U
02/27/24	6.24	324	9.6	0.02	> 250	43.9	132	27.8	5.0 U	60 U	5.0 U	10 U	10 U
05/29/24	6.56	350	11.5	4.68	> 125	107.2	134	26.9	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) CaCO3.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A31

Field Parameters and Analytical Data - Monitoring Well MW-31D
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l)				
									Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
09/26/16	7.43	488	11.6	5.65	> 375	-	139	46.3	50 U	60 U	0.2 BJ	1 BJ	10 U
11/07/16	6.91	332	12.5	6.80	> 375	5.2	126	46.0	5.0 U	10 U	5.0 U	10 U	10 U
02/13/17	6.53	503	8.1	4.39	> 375	27.2	207	65.8	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.80	582	12.1	6.41	> 375	10.9	260	62.4	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.83	599	14.2	6.01	> 375	14.8	225	56.2	5.0 U	10 U	5.0 U	10 U	10 U
11/13/17	7.18	763	11.1	7.30	>375	140.1	363	63.7	5.0 U	10 U	5.0 U	10 U	10 U
02/13/18	7.28	477	10.9	32.7	>375	146.8	277	57.7	5.0 U	10 U	5.0 U	10 U	10 U
05/21/18	**8.61**	210	13.8	14.7	>175	210.0	126	54.5	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	6.98	569	17.7	12.8	>250	148.8	332	49.7	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	7.39	558	8.3	9.10	>250	44.8	370	46.6	5.0 U	10 U	5.0 U	10 U	10 U
03/06/19	7.37	797	9.4	35.5	>375	89.3	314	43.5	5.0 U	10 U	5.0 U	10 U	10 U
05/15/19	7.12	594	11.19	30.9	>375	88.8	292	47.1	5.0 U	10 U	5.0 U	10 U	10 U
08/13/19	7.29	639	13.68	12.2		143.2	268	47.8	5.0 U	10 U	5.0 U	10 U	10 U
11/04/19	7.30	734	12.75	6.50	>250	69.4	323	48.4	5.0 U	10 U	5.0 U	10 U	10 U
02/18/20	6.74	734	10.98	26.4	>375	175.9	367	44.6	5.0 U	10 U	5.0 U	10 U	10 U
05/12/20	7.46	508	11.00	6.89	>375	191.5	320	41.8	5.0 U	10 U	5.0 U	10 U	10 U
08/03/20	6.34	741	12.52	4.72	>375	181.2	296	46.7	5.0 U	10 U	5.0 U	10 U	10 U
11/11/20	6.91	783	12.61	18.7	>375	101.3	333	47.6	5.0 U	10 U	5.0 U	10 U	10 U
02/17/21	7.01	716	10.63	4.08	>375	93.2	354	43.4	5.0 U	10 U	5.0 U	10 U	10 U
05/17/21	6.70	727	11.89	2.86	>375	74.3	344	43.9	5.0 U	10 U	5.0 U	10 U	10 U
08/17/21	7.09			<50	>375		300	45.1	5.0 U	10 U	5.0 U	10 U	10 U
12/01/21	6.65	779	10.57	4.10	>375	4	371	39.2	5.0 U	10 U	5.0 U	10 U	10 U
03/15/22	6.79	776	10.68	7.54	>375	28.5	372	41.6	5.0 U	10 U	5.0 U	10 U	10 U
05/24/22	7.18	668	11.30	6.50	>375	92.1	375	43.0	5.0 U	10 U	5.0 U	10 U	10 U
08/16/22	7.04	800	12.35	8.08	>375	41.2	341	53.4	5.0 U	10 U	5.0 U	10 U	10 U
11/15/22	6.73	765	12.0	1.75	>250	258.7	349	48.3	5.0 U	10 U	5.0 U	10 U	10 U
03/01/23	7.08	761	10.9	4.92	>375	180.6	380	41.7	5.0 U	10 U	5.0 U	10 U	10 U
05/30/23	6.87	806	11.1	15.30	>375	48.2	375	42.7	5.0 U	10 U	5.0 U	10 U	10 U
08/22/23	6.95	791	11.6	8.12	>375	1.8	391	49.3	5.0 U	10 U	5.0 U	10 U	10 U
11/14/23	6.95	811	12.0	4.70	>375	5.7	388	40.1	5.0 U	60 U	5.0 U	10 U	10 U
02/27/24	7.05	718	11.2	5.30	>375	0.5	377	37.1	5.0 U	60 U	5.0 U	10 U	10 U
05/29/24	7.30	753	11.3	4.50	>375	105	360	41.5	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) CaCO3.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A32

Field Parameters and Analytical Data - Monitoring Well MW-32S
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l)				
									Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
09/26/16	6.87	1021	14.9	30	> 125	95.2		135					
11/07/16													
02/13/17	6.93	1132	8.8	> 1,000	>375	88.3	378	172					
05/16/17	6.76	668	15.2	>1,000	>375	13.5							
07/24/17	6.77	1047	14.0	18.0	>375	21.8	345	192	5.0 U	10 U	5.0 U	10 U	10 U
11/13/17													
02/13/18													
05/21/18							278	116	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18							373	143	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18													
03/06/19													
05/15/19	6.95	315	9.77	30.0	>250	50.3	144	51.3	5.0 U	10 U	5.0 U	10 U	10 U
08/13/19				<50	>375		252	79.8	5.0 U	10 U	5.0 U	10 U	10 U
11/04/19	6.98	720	14.25	862	>200	-10.3	257	104	5.0 U	10 U	5.0 U	6 J	10 U
02/18/20	6.40	646	8.50	57.0	>250	204.2	190	94.3	14.9	10 U	5.0 U	28	10 U
05/12/20	7.34	395	9.80	>1,000	>375	146	212	92.6	5.0 U	10 U	5.0 U	10 U	10 U
11/11/20							246	103	5.0 U	10 U	5.0 U	10 U	10 U
02/17/21	7.10	470	8.75	76.5	>250	162.9	164	71.4	5.0 U	10 U	5.0 U	10 U	10 U
05/17/21	7.13				>250		178	60.9	5.0 U	10 U	5.0 U	10 U	10 U
08/17/21	6.92			<50	>250		253	97.5	5.0 U	10 U	5.0 U	10 U	10 U
12/01/21	6.80	680	12.30	14.8	>250	-57.1	252	77.8	5.0 U	10 U	5.0 U	10 U	10 U
03/15/22	7.17	570	8.97	30.5	>275	20.5	194	65.1	5.0 U	10 U	5.0 U	1.6 J	10 U
05/24/22	7.02	447	9.86	95.40	>250	67.7	223	60.2	5.0 U	10 U	5.0 U	10 U	10 U
08/16/22	6.94	639	14.12	58.30	>250	40.7	268	71.3	5.0 U	10 U	5.0 U	10 U	10 U
11/15/22	6.84	605	13.8	24.00	>250	291.8	282	132	5.0 U	10 U	5.0 U	10 U	10 U
03/01/23	7.67	610	9.0	27.50	>250	235.2	232	95.7	5.0 U	10 U	5.0 U	10 U	10 U
05/30/23	6.83	704	11.4	9.90	>275	-33.0	232	82.2	5.0 U	10 U	5.0 U	10 U	10 U
08/22/23	7.00	621	14.8	6.66	>250	-0.5	234	85.3	5.0 U	10 U	5.0 U	10 U	10 U
11/14/23	7.00	646	14.4	15.50	>250	4.5	273	67.3	5.0 U	60 U	5.0 U	10 U	10 U
02/27/24	6.96	647	10.5	39.50	>250	5.3	240	66.1	5.0 U	60 U	5.0 U	10 U	10 U
05/29/24	7.21	614	11.2	20.10	>250	-36.6	248	58.7	5.0 U	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) CaCO3.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A33

Field Parameters and Analytical Data - Monitoring Well MW-32D
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
09/26/16	7.77	874	12.6	4.02	> 125		151	**358**	50 U	60 U	5.0 U	0.3 BJ	10 U
11/07/16	6.96	685	13.2	10.3	> 375	2.9	132	223	5.0 U	10 U	5.0 U	10 U	10 U
02/13/17	7.61	591	9.4	1.95	> 375	7.95	106	215	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	8.22	468	12.8	23.9	> 375	-116.5	78.8	**255**	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	7.93	863	14.0	12.8	> 375	-101.8	29.6	209	5.0 U	10 U	5.0 U	10 U	10 U
11/13/17	8.31	791	11.1	7.18	>375	88	119	247	5.0 U	10 U	5.0 U	10 U	10 U
02/13/18	8.21	620	11.0	17.7	>375	100.8	142	**318**	5.0 U	10 U	5.0 U	10 U	10 U
05/21/18	7.44	716	15.2	15.8	>375	111.3	321	**344**	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	7.81	719	18.2	12.6	>250	103.8	148	**291**	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	7.90	634	10.3	8.73	>375	91.1	153	**316**	5.0 U	10 U	5.0 U	10 U	10 U
03/06/19	7.94	1,056	9.3	52.0	>375	97.8	142	**316**	5.0 U	10 U	5.0 U	10 U	10 U
05/15/19	7.55	676	10.46	31.7	>375	26.2	156	234	5.0 U	10 U	5.0 U	10 U	10 U
08/13/19	7.69	943	13.34	19.1	>375	112.6	159	**320**	5.0 U	10 U	5.0 U	10 U	10 U
11/04/19	7.73	959	12.44	7.09	>375	43.5	146	**373**	5.0 U	10 U	5.0 U	10 U	10 U
02/18/20	7.22	948	11.51	13.80	>375	146.3	174	**392**	5.0 U	10 U	5.0 U	10 U	10 U
05/12/20	8.02	587	10.40	1.44	>375	103.9	152	**262**	5.0 U	10 U	5.0 U	10 U	10 U
08/03/20	6.33	894	13.53	1.75	>375	152.2	149	**312**	5.0 U	10 U	5.0 U	10 U	10 U
11/11/20	7.42	1,019	13.20	10.7	>375	50.6	156	**353**	5.0 U	10 U	5.0 U	10 U	10 U
02/17/21	7.21	933	11.28	3.36	>375	84.8	161	**295**	5.0 U	10 U	5.0 U	10 U	10 U
05/17/21	7.49	853	11.95	17.6	>375	56.2	174	188	5.0 U	10 U	5.0 U	10 U	10 U
08/17/21	7.64			<50	>375		162	**291**	5.0 U	10 U	5.0 U	10 U	10 U
12/01/21	7.12	946	11.28	1.83	>375	-23.2	158	**265**	5.0 U	10 U	5.0 U	10 U	10 U
03/15/22	7.61	910	10.90	1.38	>375	11.1	164	**259**	5.0 U	10 U	5.0 U	10 U	10 U
05/24/22	7.50	657	12.07	1.87	>375	100.3	185	163	5.0 U	10 U	5.0 U	10 U	10 U
08/16/22	7.73	855	11.98	4.37	>375	13.2	171	**264**	5.0 U	10 U	5.0 U	10 U	10 U
11/15/22	7.61	666	12.7	2.83	>375	337.3	165	237	5.0 U	10 U	5.0 U	10 U	10 U
03/01/23	7.85	817	9.9	0.09	>375	241.7	165	232	5.0 U	10 U	5.0 U	10 U	10 U
05/30/23	7.56	808	10.9	5.50	>375	6	170	195	5.0 U	10 U	5.0 U	10 U	10 U
08/22/23	7.79	743	13.8	2.22	>375	-44.7	176	195	5.0 U	10 U	5.0 U	10 U	10 U
11/14/23	7.73	853	13.0	10.5	>375	-35.6	172	229	5.0 U	10 U	5.0 U	10 U	10 U
02/27/24	7.80	776	11.8	0.62	>375	-40.6	165	220	5.0 U	10 U	5.0 U	10 U	10 U
05/29/24	7.90	784	11.4	0.02	>375	-15.4	176	184	5.0 U	10 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) CaCO3.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A34

Field Parameters and Analytical Data - Monitoring Piezometer PZ-13
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Specific Conductivity (umhos)	Temperature (°C)	Turbidity (NTU)	Hardness (Gr/Gal)	ORP/Eh	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
NYS Part 703 Class GA Limit:								**250 mg/l**	**25 µg/l**	**3 µg/l**	**5 µg/l**	**50 µg/l**	**25 µg/l**
03/09/14	6.73	1,666	12.7	0.00	15		350	**602**	5.0 U	10 U	5.0 U	10 U	10 U
05/19/14	6.70	456	11.7	0.00	> 25		207	**677**	12.7	10 U	5.0 U	10 U	16
08/18/14	6.58	1,865	17.4	3.00	< 55		350	**593**	5.0 U	10 U	5.0 U	10 U	16
11/10/14	6.54	1,606	16.1	0.86	> 250		353	**582**	7.3 U	10 U	5.0 U	10 U	10 U
02/24/15	6.46	1,704	15.7	8.00	> 250		336	**550**	5.0 U	10 U	5.0 U	10 U	10 U
05/04/15	6.53	1,811	16.5	2.00	> 250		333	**528**	5.0 U	10 U	5.0 U	10 U	10 U
08/25/15	6.36	1,999	16.8	0.00	> 250		330	**543**	5.0 U	10 U	5.0 U	10 U	12
11/03/15	6.19	2,519	16.2	661.0	> 375		320	**556**	5.0 U	10 U	5.0 U	10 U	10 U
02/09/16	6.39	2,443	15.5	1.57	> 375		309	**544**	5.0 U	10 U	5.0 U	10 U	10 U
05/17/16	7.08	2,546	16.0	4.47	> 375		301	**478**	5.0 U	10 U	5.0 U	10 U	10 U
08/10/16	6.73	2,910	16.3	2.80	> 375		296	**462**	5.0 U	10 U	5.0 U	10 U	10 U
11/07/16	6.55	2,201	16.0	8.30	> 375	25.1	299	**480**	5.0 U	10 U	5.0 U	10 U	10 U
02/13/17	6.50	2,167	14.7	0.80	> 375	28.4	289	**445**	5.0 U	10 U	5.0 U	10 U	10 U
05/16/17	6.54	2,277	15.7	1.23	> 375	26	296	**435**	5.0 U	10 U	5.0 U	10 U	10 U
07/24/17	6.05	2,382	15.4	8.03	> 375	26	299	**425**	5.0 U	10 U	5.0 U	10 U	10 U
11/14/17	6.62	2,770	12.9	17.0	> 375	181.1	300	**383**	5.0 U	10 U	5.0 U	10 U	10 U
02/14/18	6.65	2,281	12.8	23.3	> 375	295	288	**397**	5.0 U	10 U	5.0 U	10 U	10 U
05/22/18	6.75	2,702	16.6	1.95	> 375	199	281	**424**	5.0 U	10 U	5.0 U	10 U	10 U
08/27/18	6.51	2,879	17.6	4.81 *	> 375	287.9	301	**422**	5.0 U	10 U	5.0 U	10 U	10 U
12/03/18	6.81	3,132	14.5	2.71 *	> 375	103.7	240	**423**	5.0 U	10 U	5.0 U	10 U	10 U
03/07/19	6.64	4,225	13.5	157	> 375	66.2	268	**433**	5.0 U	10 U	5.0 U	10 U	10 U
05/15/19	7.07	3,453	14.53	50.6	> 375	54.6	268	**443**	5.0 U	10 U	5.0 U	10 U	10 U
08/13/19	6.66	4,278	15.81	506.0	-	48.5	270	**449**	5.0 U	10 U	5.0 U	10 U	10 U
11/05/19	6.71	3,863	18.10	6.06	> 375	26.3	271	**426**	5.0 U	10 U	5.0 U	10 U	10 U
02/19/20	6.52	3,923	14.91	9.89	> 375	129.8	270	**401**	5.0 U	10 U	5.0 U	10 U	10 U
05/13/20	6.93	3,007	14.60	329.0	> 375	101.1	268	**376**	5.0 U	10 U	5.0 U	10 U	10 U
08/04/20				38.40	> 375		268	**406**	5.0 U	10 U	5.0 U	10 U	10 U
11/12/20	6.83	3,820	15.92	154.0	> 375	53.4	273	**400**	5.0 U	10 U	5.0 U	10 U	10 U
02/18/21	6.59	3,803	14.90	>1,000	> 375	69.0	303	**383**	5.0 U	10 U	5.0 U	10 U	10 U
05/20/21	6.58	3,908	14.62	4.87	> 375	50.7	295	**415**	5.0 U	10 U	5.0 U	10 U	10 U
08/18/21	6.69			<50	> 375		291	**451**	5.0 U	10 U	5.0 U	10 U	10 U
12/01/21	6.81	4,218	14.07	2.06	> 375	11.0	291	**421**	5.0 U	10 U	5.0 U	10 U	10 U
03/17/22	6.59	3,985	15.33	9.10	> 375	21.2	294	**368**	6.2	10 U	5.0 U	10 U	10 U
05/25/22	6.67	3,528	15.24	9.53	> 375	124.2	286	**383**	5.0 U	10 U	5.0 U	10 U	10 U
08/17/22	6.61	4,084	15.56	9.78		37.8	293	**416**	5.0 U	10 U	5.0 U	10 U	10 U
11/16/22	6.59	3,499	15.4	11.50	> 375	77.1	292	**388**	**40.8**	10 U	5.0 U	10 U	10 U
03/02/23	6.76	4,096	14.9	10.60	> 375	120.1	287	**390**	5.0 U	10 U	5.0 U	10 U	10 U
06/01/23	6.60	4,117	15.2	331.00	> 375	18.4	321	**373**	5.0 U	10 U	5.0 U	10 U	10 U
08/23/23	6.71	4,258	15.3	125.00	> 375	16.1	290	**338**	5.0 U	10 U	5.0 U	10 U	10 U
11/15/23	6.76	4,269	15.8	11.70	> 375	16.5	292	**371**	5.0 U	60 U	5.0 U	10 U	10 U
02/28/24	6.70	3,894	15.3	3.90	> 375	19.7	296	**370**	6.3	60 U	5.0 U	10 U	10 U
05/30/24	6.94	3,968	15.4	2.93	> 375	47.5	298	**379**	6.8	60 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) CaCO3.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the New York State (NYS) Part 703 Class GA water quality standard. Blank cells indicate data not available.

TABLE A35

Field Parameters and Analytical Data - Surface Water Sampling Location SW-1
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l) Lead	Antimony	Cadmium	Chromium	Arsenic
Surface Water SCGs (b)			**250 mg/l**	**7.8 µg/l**	**3 µg/l**	**3.5 µg/l**	**50 µg/l**	**150 µg/l**
3/9/2014	7.74	91.4	38.9	5.0 U	10 U	5.0 U	10 U	10 U
5/19/2014	7.88	94.00	25.7	5.0 U	10 U	5.0 U	10 U	10 U
8/19/2014	7.54	110	21.5	5.0 U	10 U	5.0 U	10 U	10 U
11/10/2014	7.80	125	30.6	5.0 U	10 U	5.0 U	10 U	10 U
2/24/2015	7.63	105	45.5	5.0 U	10 U	5.0 U	10 U	10 U
5/4/2015	7.83	95.5	28.9	**8.5**	10 U	5.0 U	10 U	10 U
8/24/2015	7.85	105	30.6	7.4	10 U	5.0 U	10 U	10 U
2/10/2016	7.91	94.4	35.4	5.0 U	10 U	5.0 U	10 U	10 U
5/18/2016	8.31	100	27.9	5.0 U	10 U	5.0 U	10 U	10 U
8/8/2016	8.31	94.8	40.7	5.0 U	10 U	5.0 U	10 U	10 U
11/8/2016	8.43	115	45.2	5.0 U	10 U	5.0 U	10 U	10 U
2/14/2017	8.01	81.6	39.2	5.0 U	10 U	5.0 U	10 U	10 U
5/16/2017	7.64	105	28.6	5.0 U	10 U	5.0 U	10 U	10 U
7/24/2017	7.77	59.6	21.0	**9.6**	10 U	5.0 U	10 U	10 U
11/13/2017	8.34	112	31.3	5.0 U	10 U	5.0 U	10 U	10 U
2/12/2018	7.74	53.0	18.0	5.0 U	10 U	5.0 U	10 U	10 U
5/22/2018	7.72	96.0	23.8	5.0 U	10 U	5.0 U	10 U	10 U
8/27/2018	**8.90**	130.0	34.9	5.0 U	10 U	5.0 U	10 U	10 U
12/3/2018	8.33	94.8	23.9	5.0 U	10 U	5.0 U	10 U	10 U
3/5/2019	8.28	88.4	36.4	5.0 U	10 U	5.0 U	10 U	10 U
5/14/2019	7.58	124.0	83.8	5.0 U	10 U	5.0 U	10 U	10 U
8/13/2019	8.36	115.0	24.0	5.0 U	10 U	5.0 U	10 U	10 U
11/5/2019	8.37	90.8	27.5	5.0 U	10 U	5.0 U	10 U	10 U
2/18/2020	7.80	76.8	20.1	5.0 U	10 U	5.0 U	10 U	10 U
5/11/2020	**9.05**	94.0	19.3	5.0 U	10 U	5.0 U	10 U	10 U

Notes:

a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the surface water Standards, Criteria, and Guidelines as included in the Record of Decision for OU-1. Blank cells indicate data not available.

TABLE A36

Field Parameters and Analytical Data - Surface Water Sampling Location SW-5
Revere Smelting & Refining Site
Middletown, New York

Date	pH	Alkalinity (mg/l)	Sulfate (mg/l)	Total Metals (µg/l)				
				Lead	Antimony	Cadmium	Chromium	Arsenic
Surface Water SCGs (b)			**250 mg/l**	**7.8 µg/l**	**3 µg/l**	**3.5 µg/l**	**50 µg/l**	**150 µg/l**
3/8/2014	6.61	73.3	216	**26.7**	10 U	5.0 U	10 U	10 U
5/19/2014	7.14	92	**269**	7.9	**11.7**	5.0 U	10 U	10 U
8/18/2014	7.22	111	**252**	5.0 U	10 U	5.0 U	10 U	10 U
11/11/2014	7.19	120	**321**	5.0 U	10 U	5.0 U	10 U	10 U
2/10/2016	8.44	121	115	**5.6**	10 U	5.0 U	10 U	10 U
5/18/2016	8.39	179	174	5.0 U	10 U	5.0 U	10 U	10 U
8/8/2016	8.22	186	132	5.0 U	10 U	5.0 U	10 U	10 U
11/7/2016	7.88	185	164	5.0 U	10 U	5.0 U	10 U	10 U
2/13/2017	7.45	160	135	5.0 U	10 U	5.0 U	10 U	10 U
5/16/2017	6.39	164	132	5.0 U	10 U	5.0 U	10 U	10 U
7/24/2017	**5.59**	125	93.1	5.0 U	10 U	5.0 U	10 U	10 U
11/13/2017	7.64	145	86.8	5.0 U	10 U	5.0 U	10 U	10 U
2/14/2018	7.71	46	19.5	**10.2**	10 U	5.0 U	10 U	10 U
5/22/2018	**8.51**	130	71.4	5.0 U	10 U	5.0 U	10 U	10 U
8/27/2018	**8.6**	125.0	65.9	5.0 U	10 U	5.0 U	10 U	10 U
12/3/2018	8.4	127.0	56.1	**14.1**	10 U	5.0 U	10 U	10 U
3/7/2019	7.60	118.0	59.4	5.0 U	10 U	5.0 U	10 U	10 U
5/15/2019	7.55	128.0	53.6	5.0 U	10 U	5.0 U	10 U	10 U
8/14/2019	**9.17**	118.0	80.8	5.0 U	10 U	5.0 U	10 U	10 U
11/6/2019	7.88	128.0	79.0	5.0 U	10 U	5.0 U	10 U	10 U
2/19/2020	7.46	120.0	79.4	5.0 U	10 U	5.0 U	10 U	10 U
5/13/2020	**8.89**	145.0	90.9	5.0 U	10 U	5.0 U	10 U	10 U

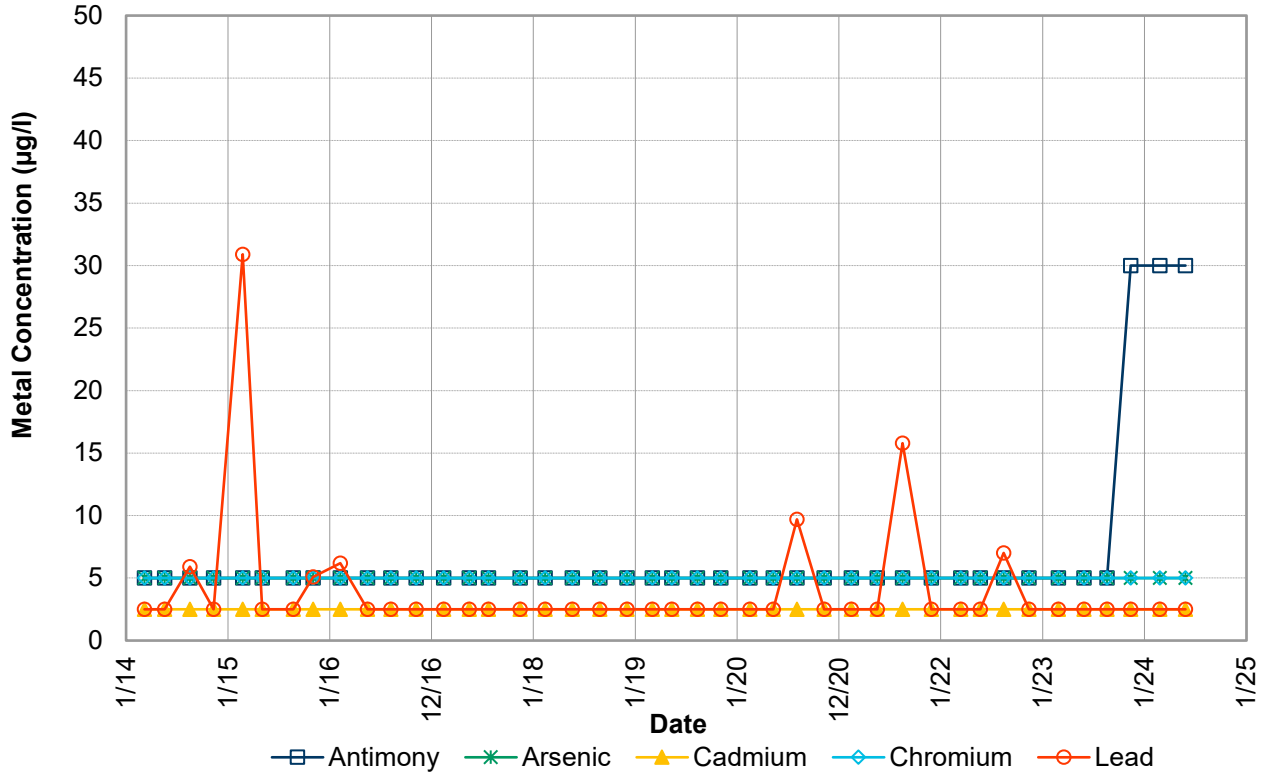
Notes:

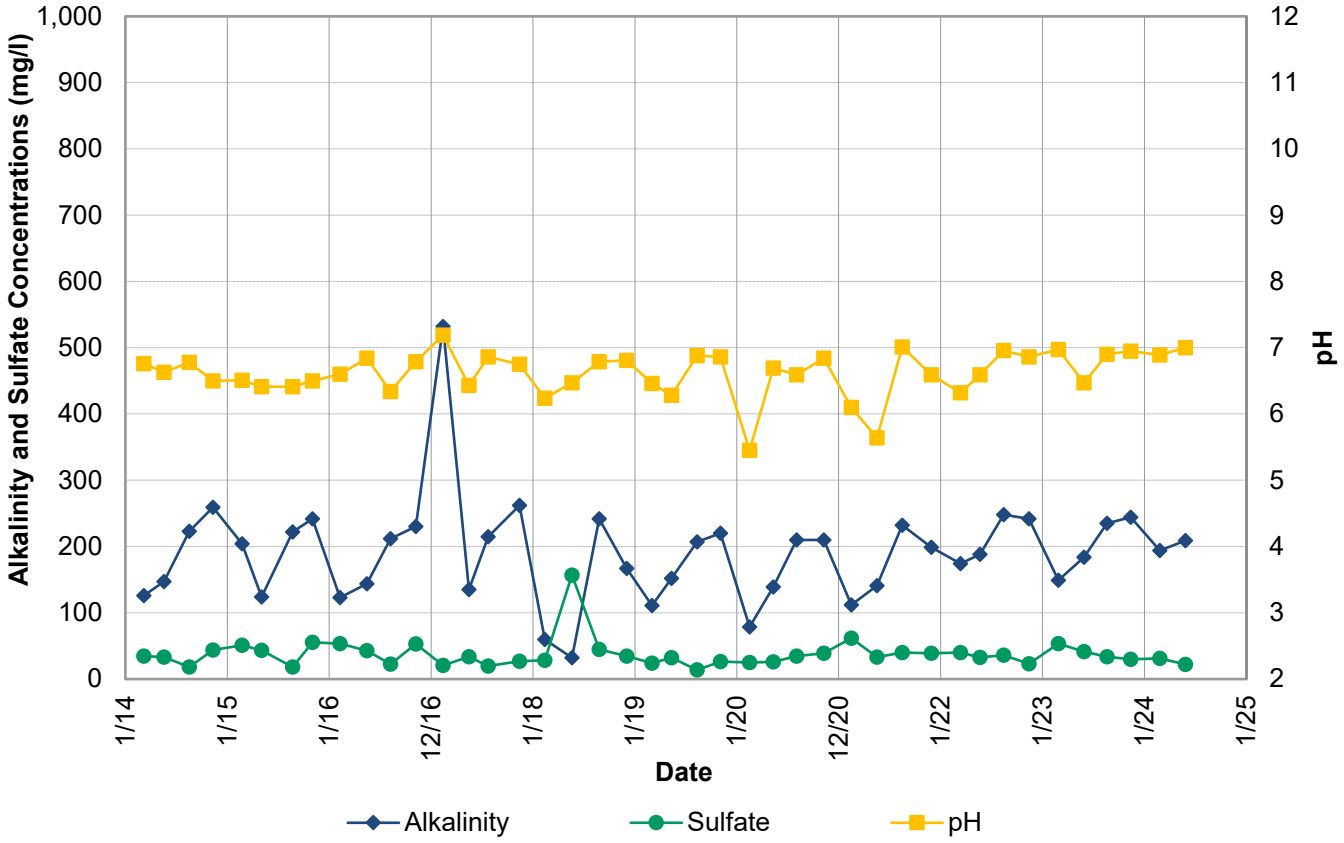
a) °C = degrees Celsius; Gr/Gal = grains per gallon; mg/l = milligrams per liter; µg/l = micrograms per liter; NTU = nephelometric turbidity unit; U = Not detected above the laboratory reporting limit; Beginning in May 2014, hardness is reported as milligrams per liter (mg/l) $CaCO_3$.

b) Only the last 10 years of data are shown on this table. Refer to reports prepared by GWI for historical data. Shaded values indicate the reported concentration is greater than the surface water Standards, Criteria, and Guidelines as included in the Record of Decision for OU-1. Blank cells indicate data not available.

Appendix B

Groundwater Trend Graphs





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

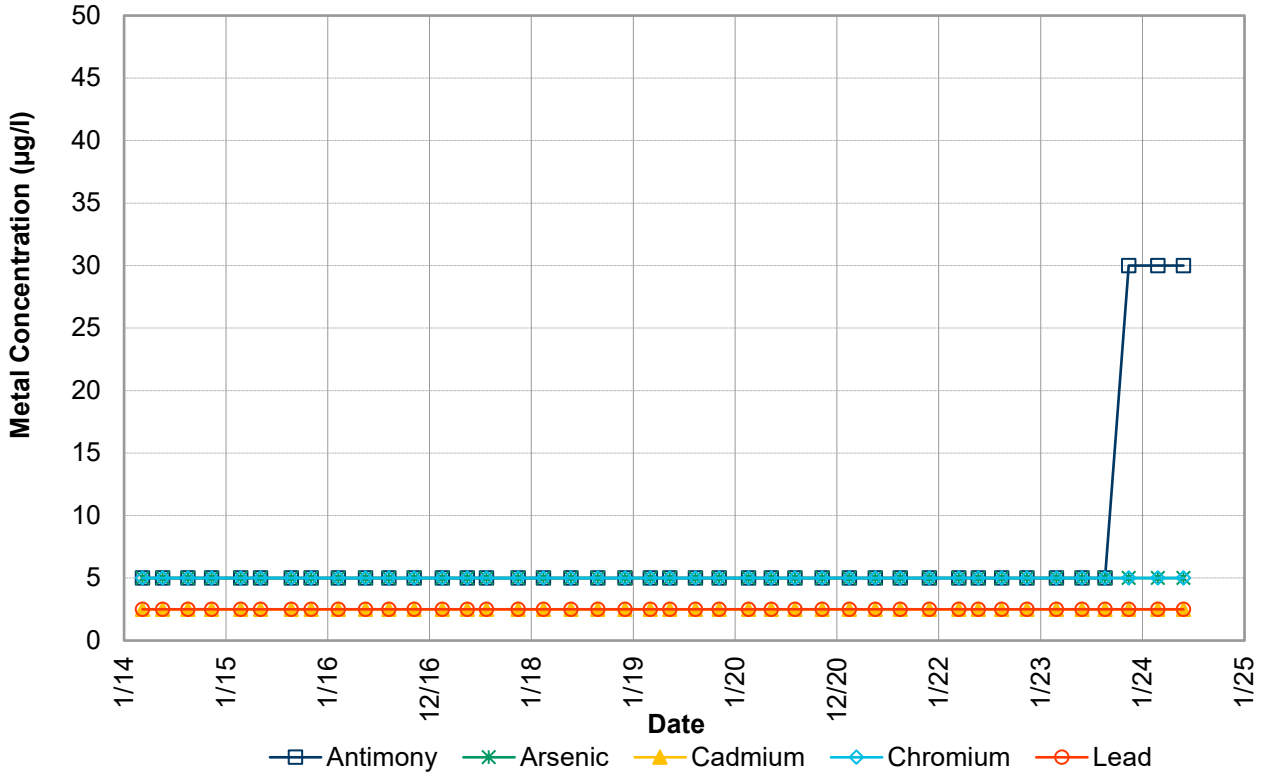
GHD

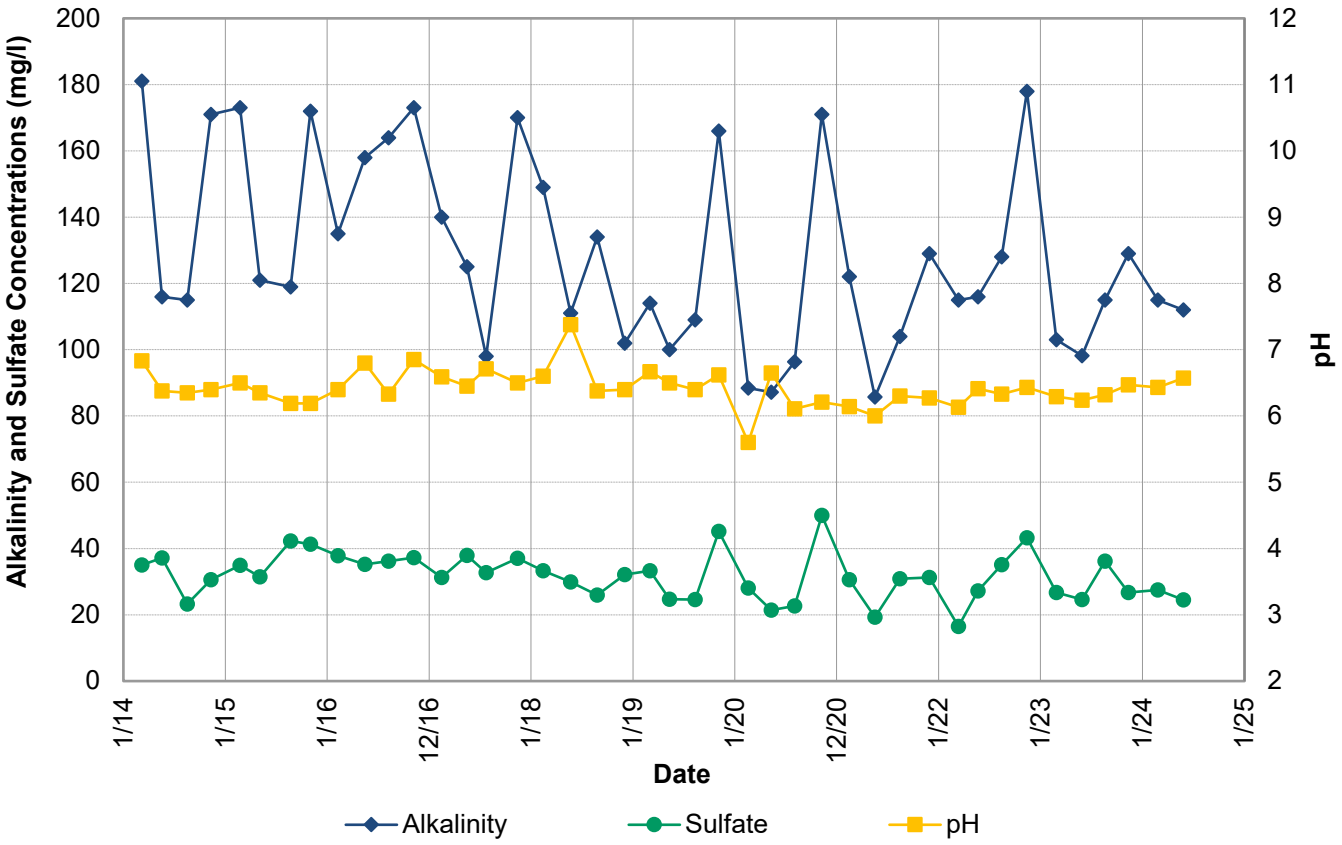
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-7S

Project No: 12586936
Date: 09/25/24

FIGURE B1





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

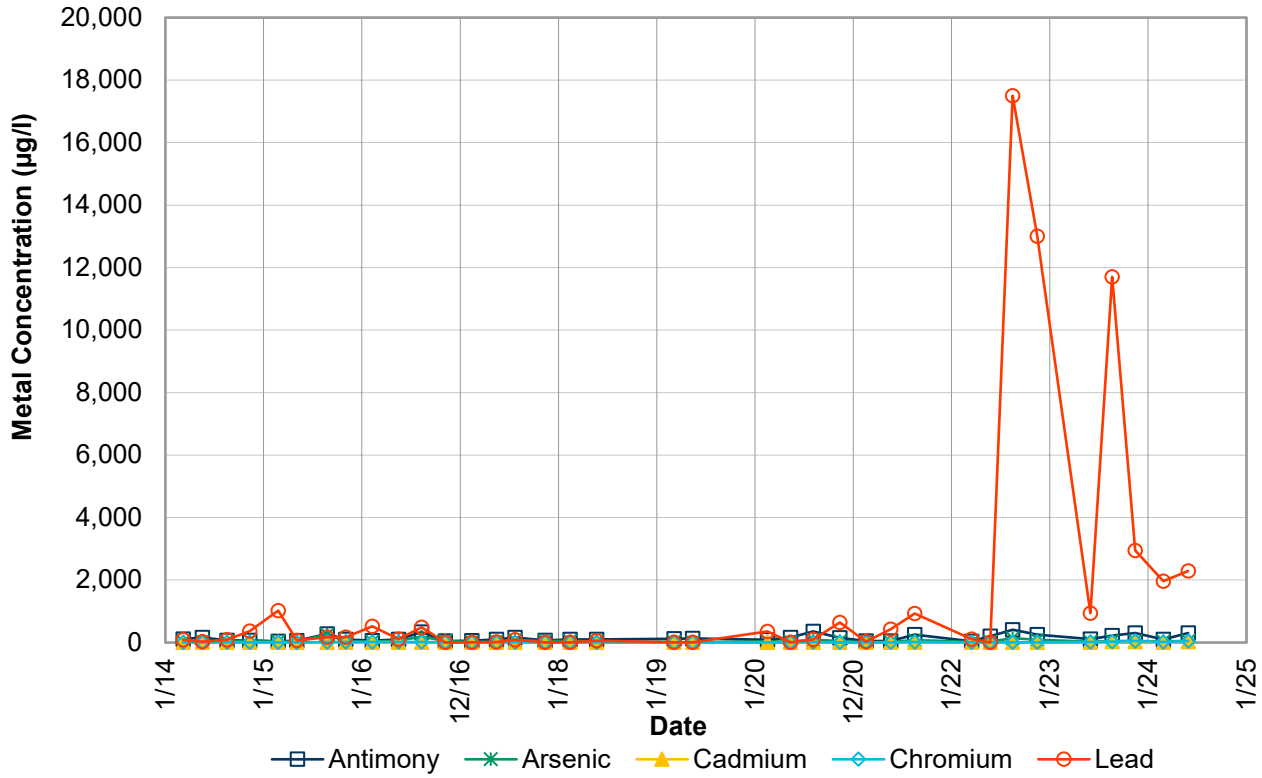
GHD

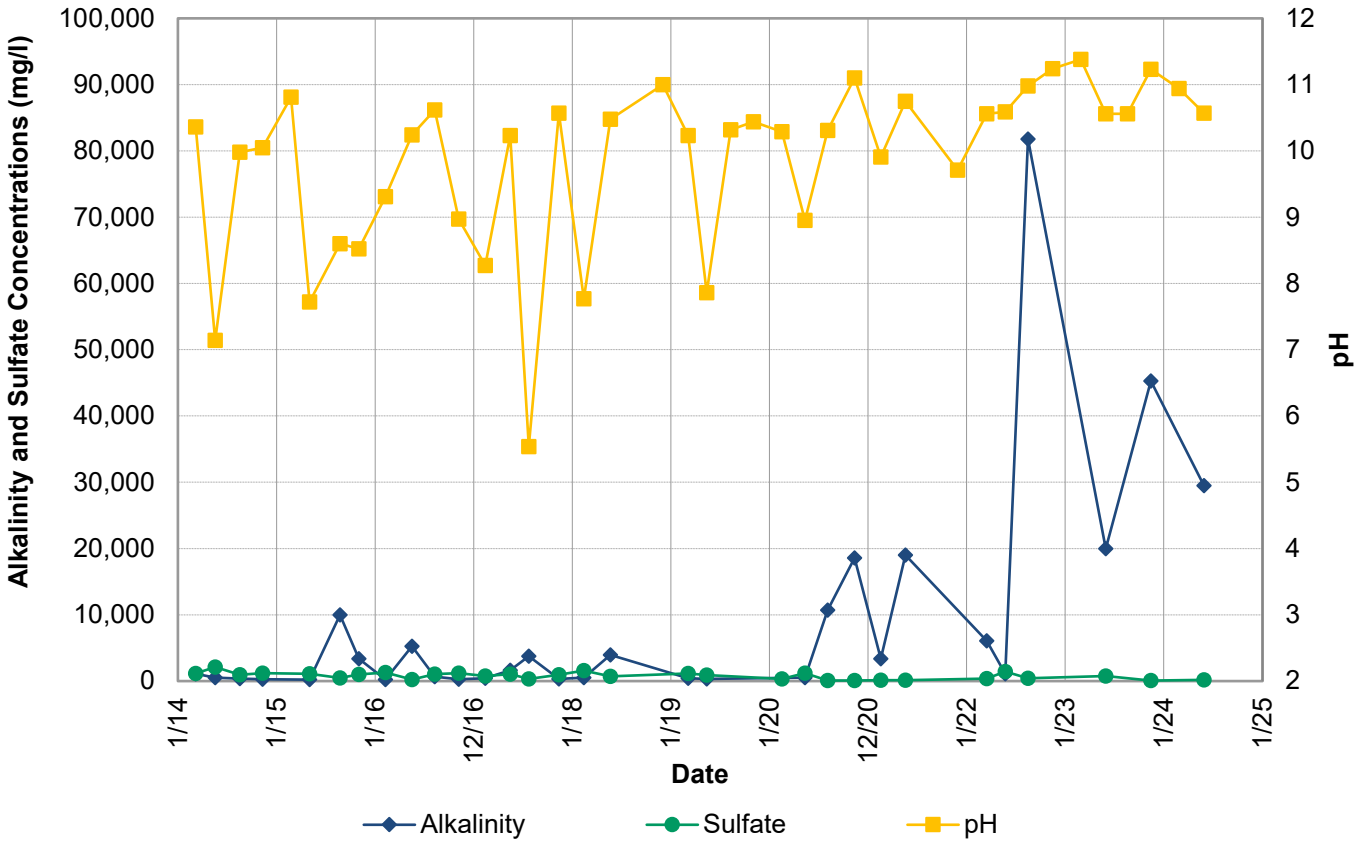
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-8S-R

Project No: 12586936
Date: 09/25/24

FIGURE B2





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

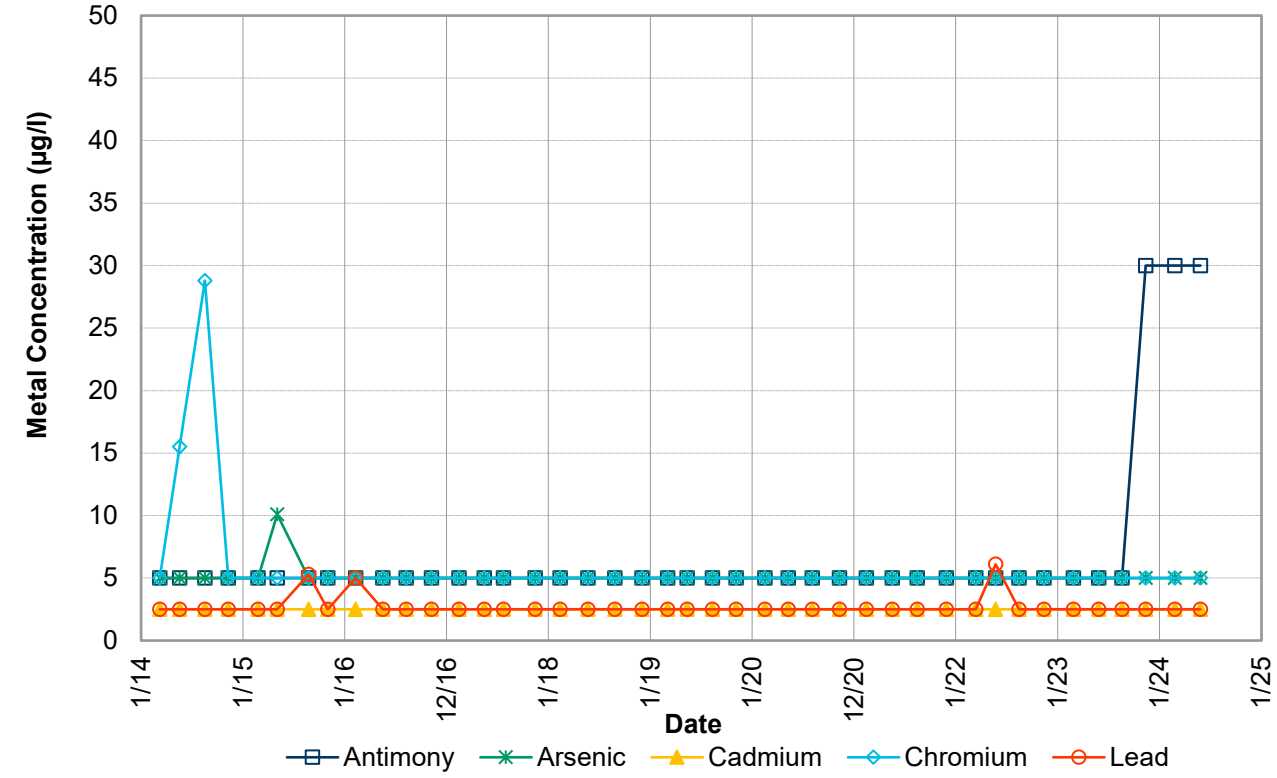
GHD

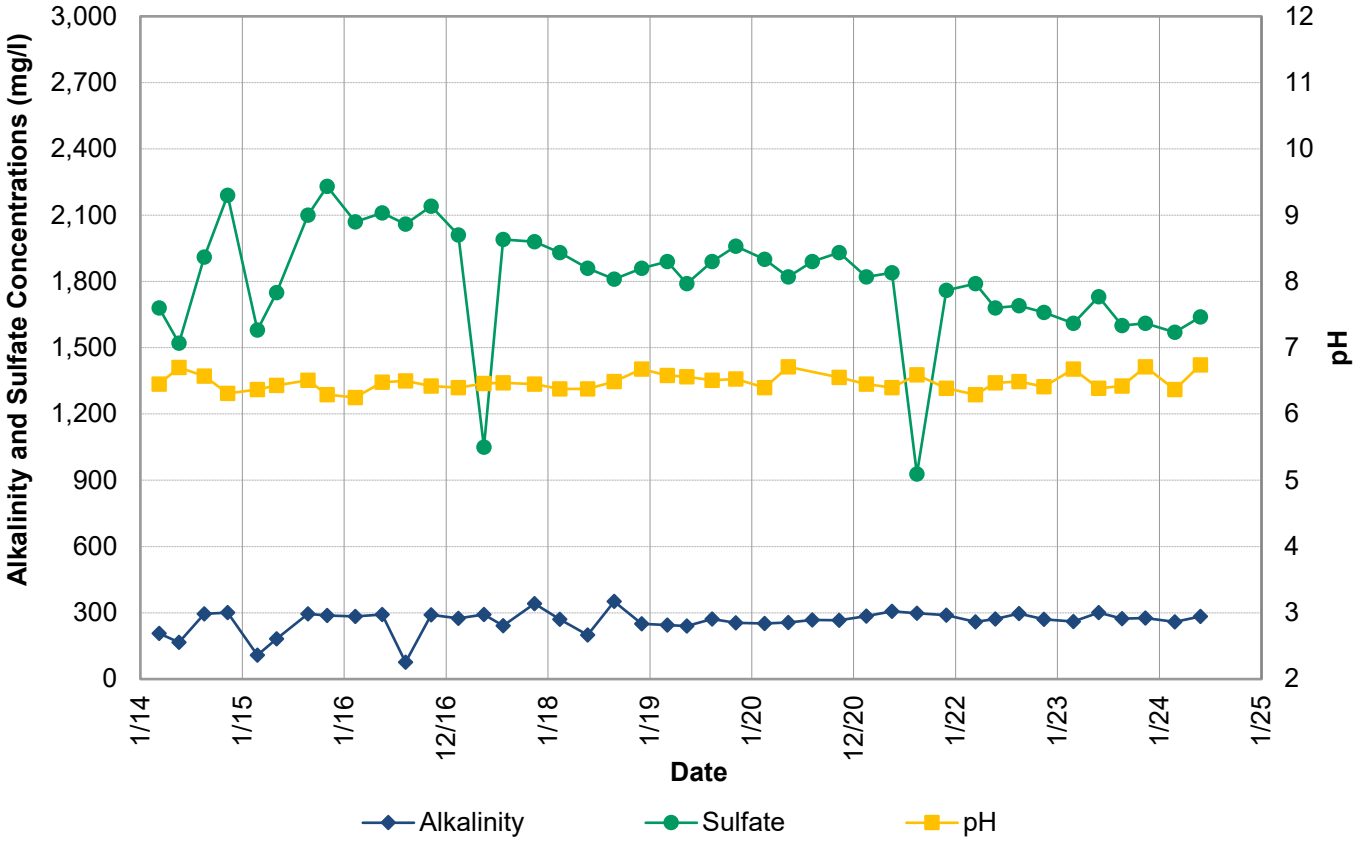
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-9S

Project No: 12586936
Date: 09/26/24

FIGURE B3





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

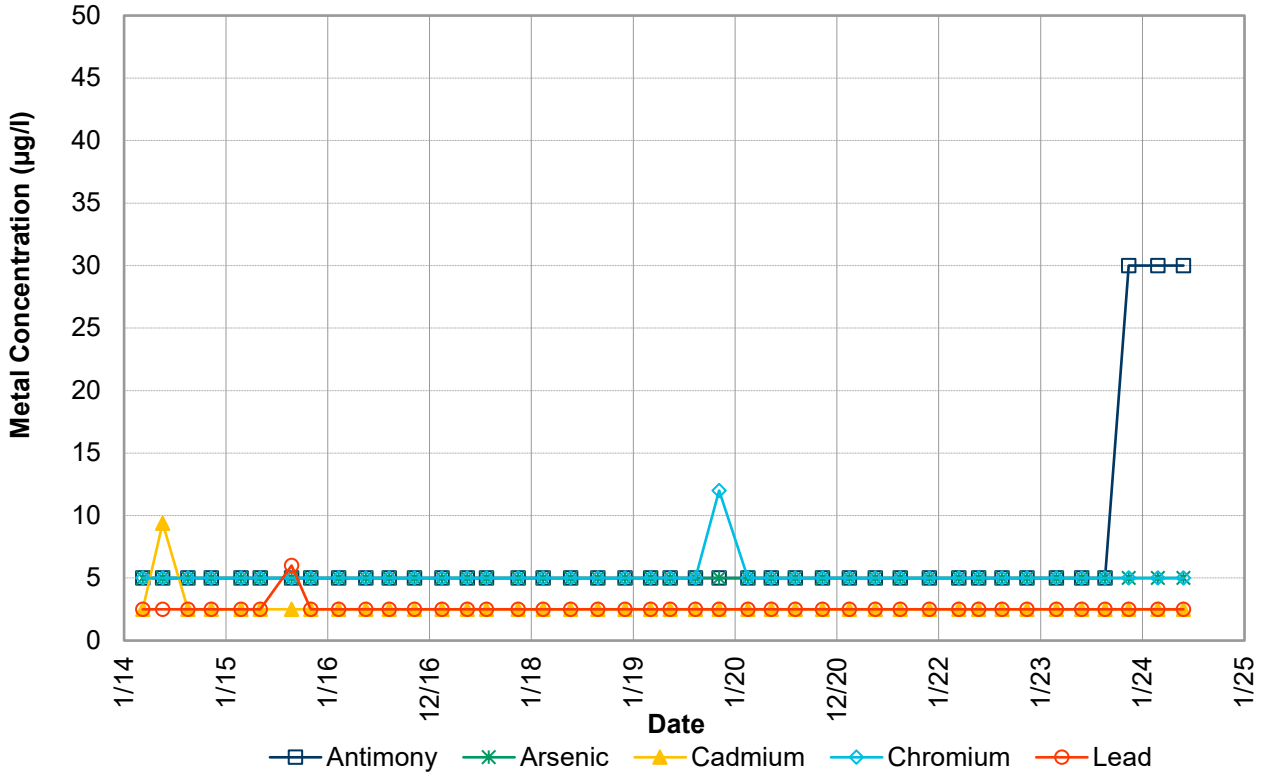
GHD

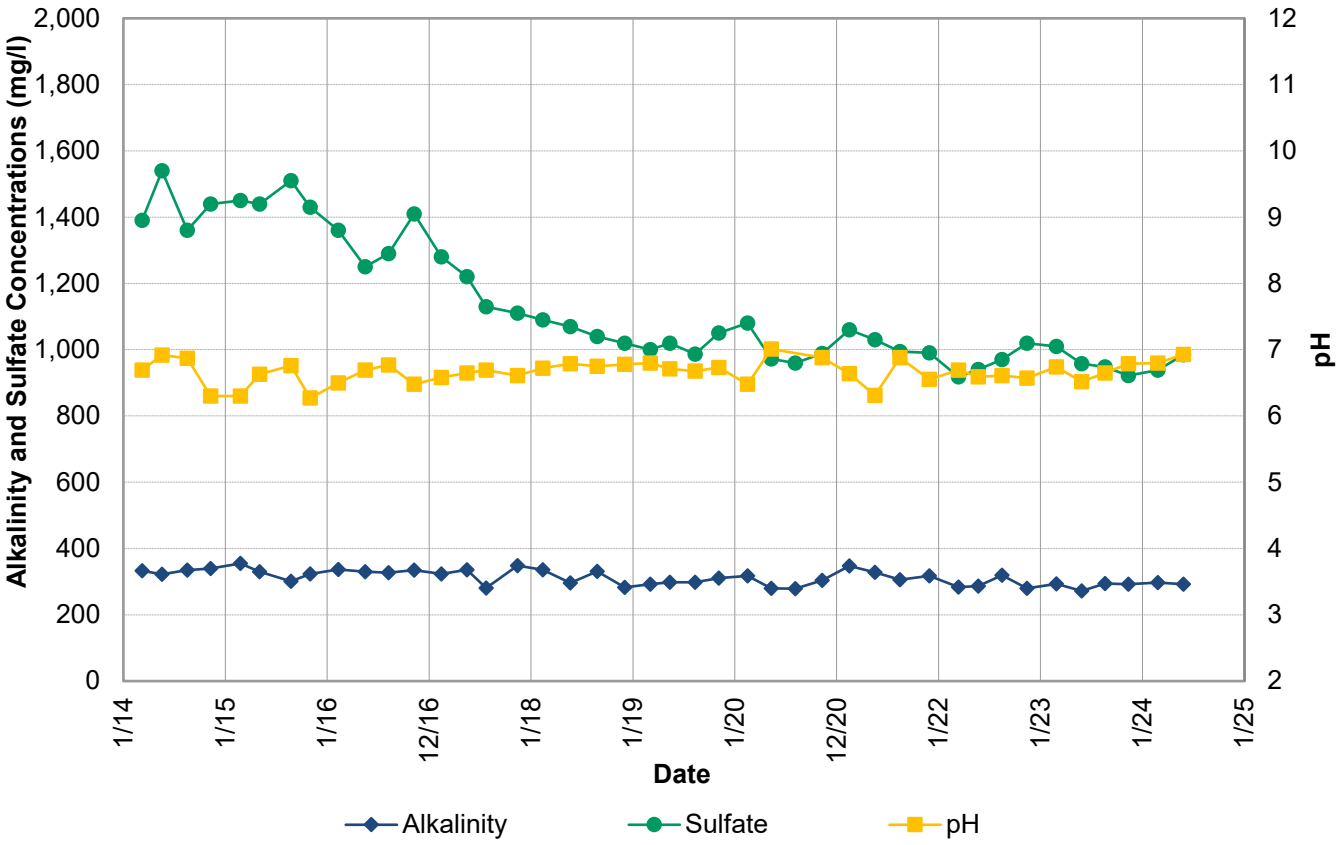
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-13S

Project No: 12586936
Date: 09/26/24

FIGURE B4





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

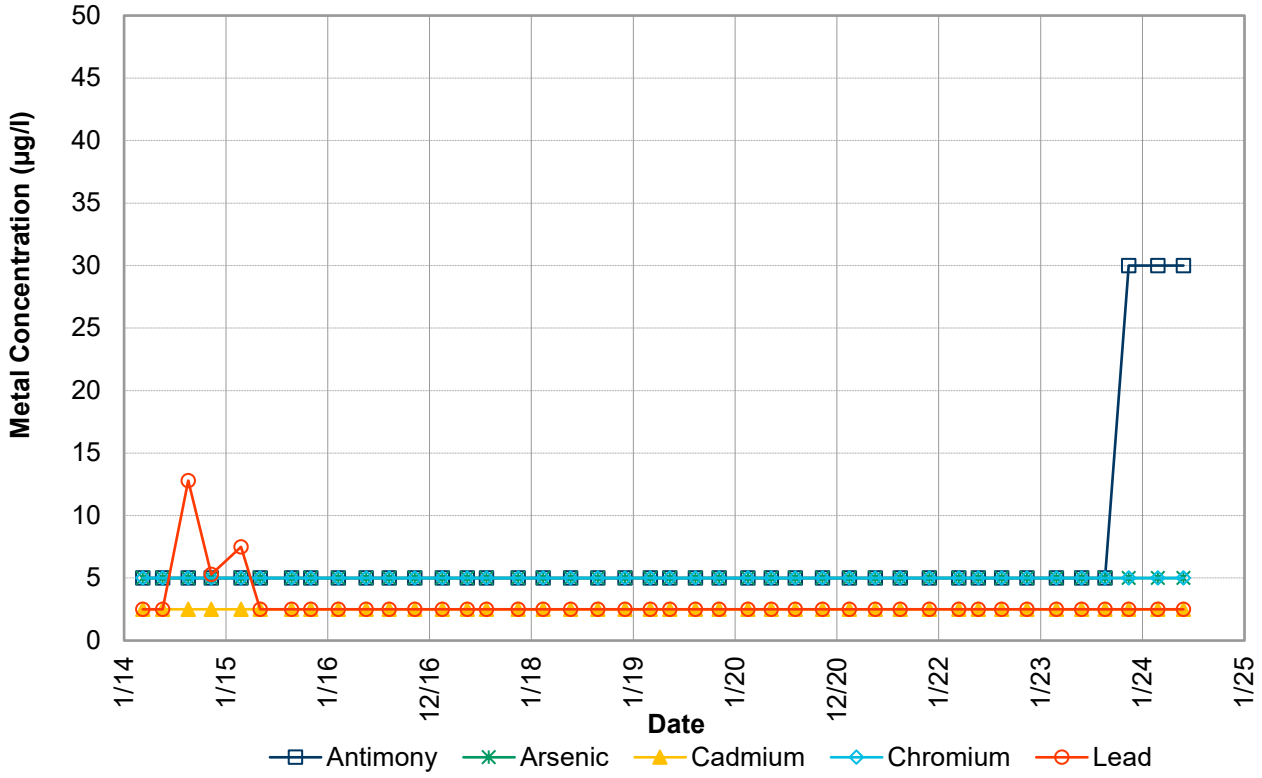
GHD

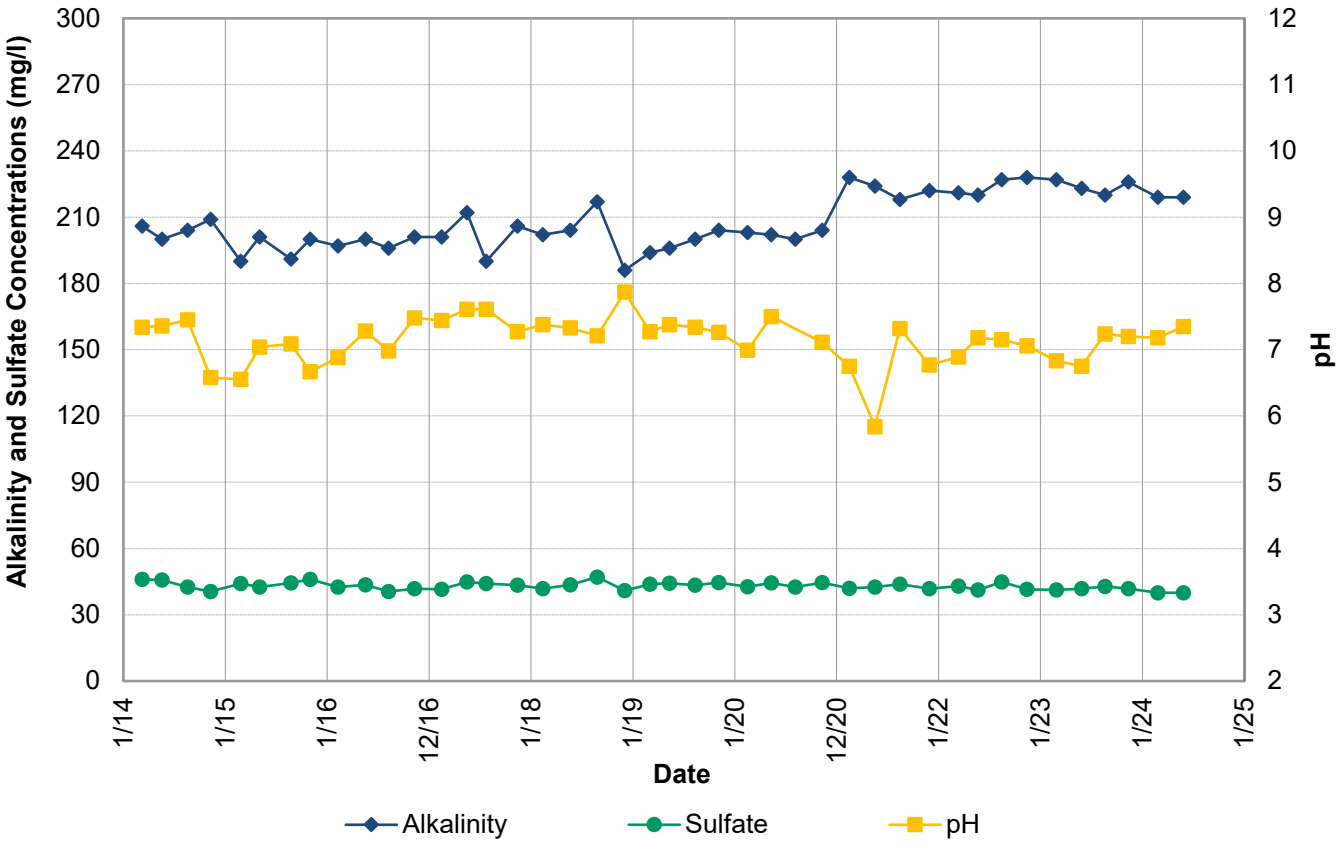
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-13D

Project No: 12586936
Date: 09/25/24

FIGURE B5





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

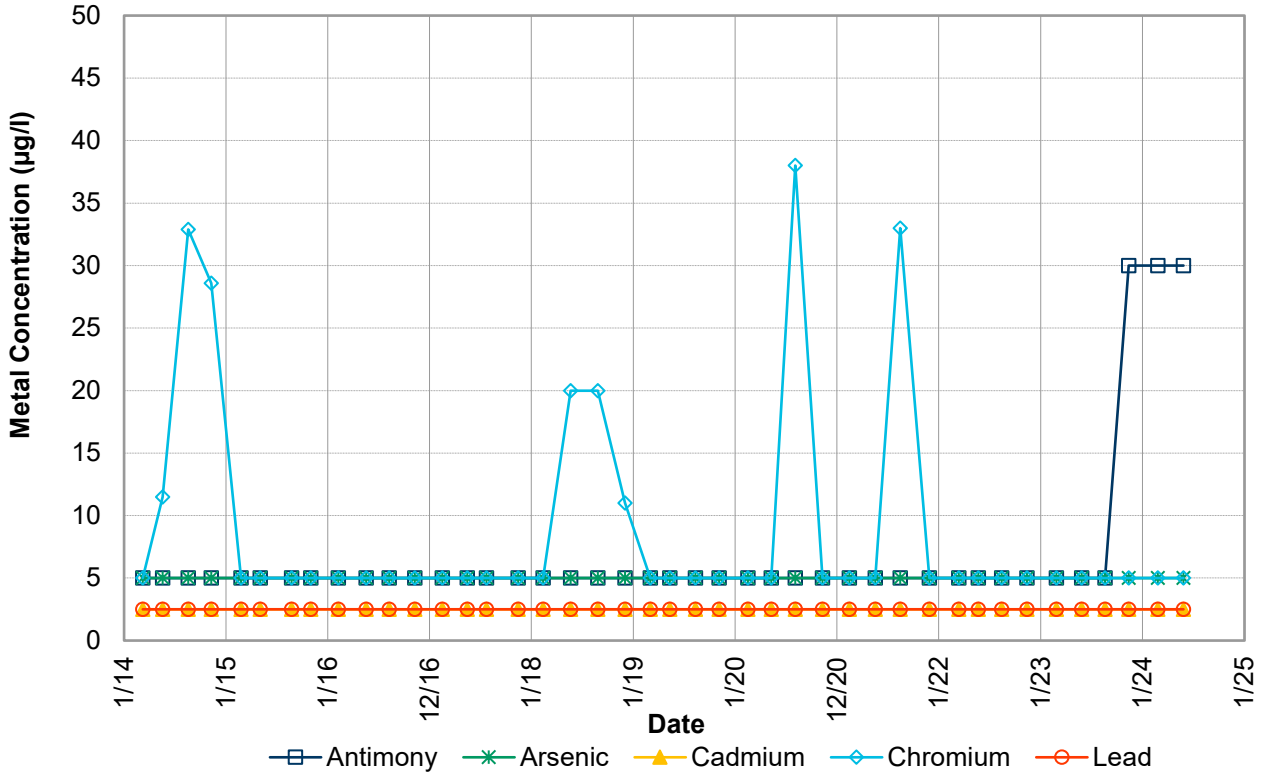
GHD

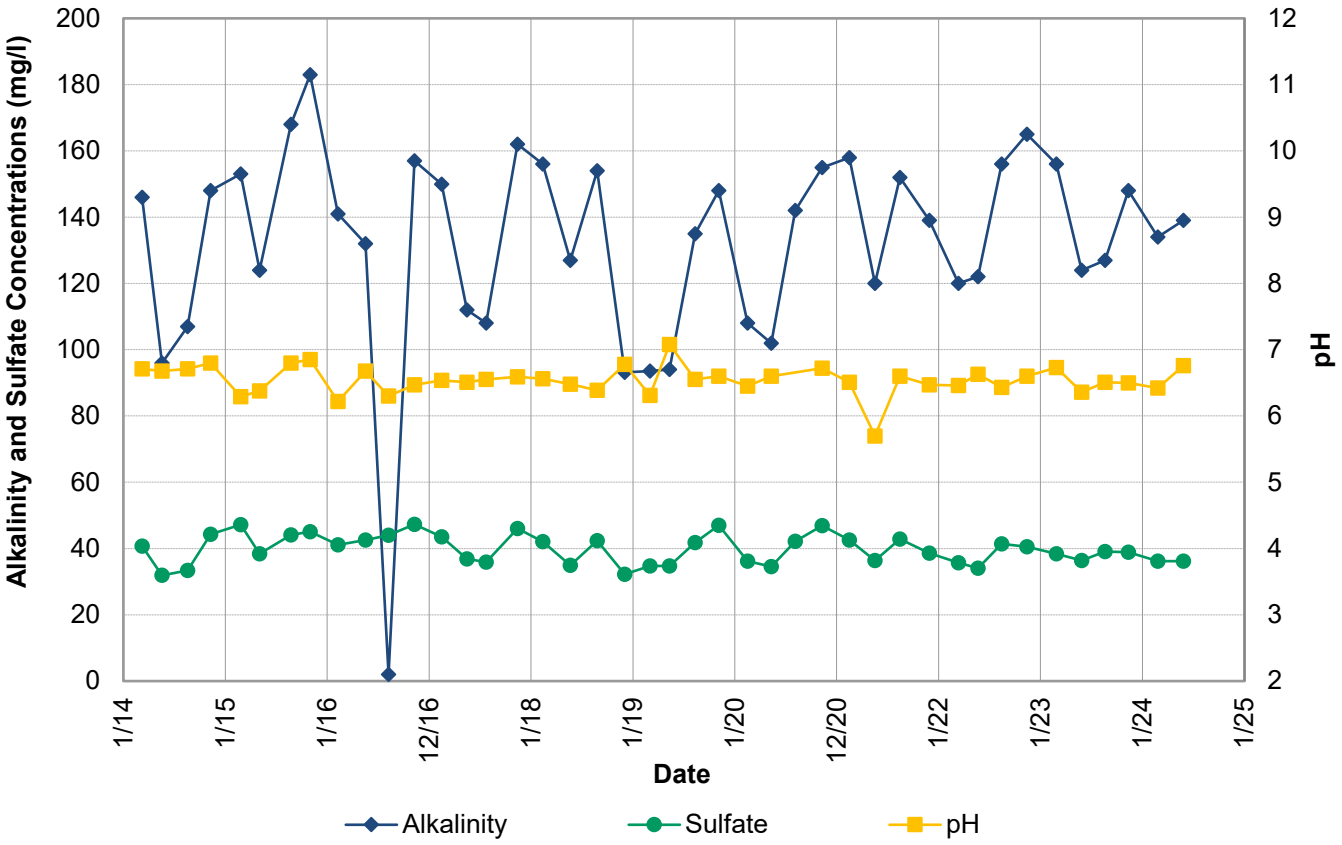
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-14S

Project No: 12586936
Date: 09/26/24

FIGURE B6





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

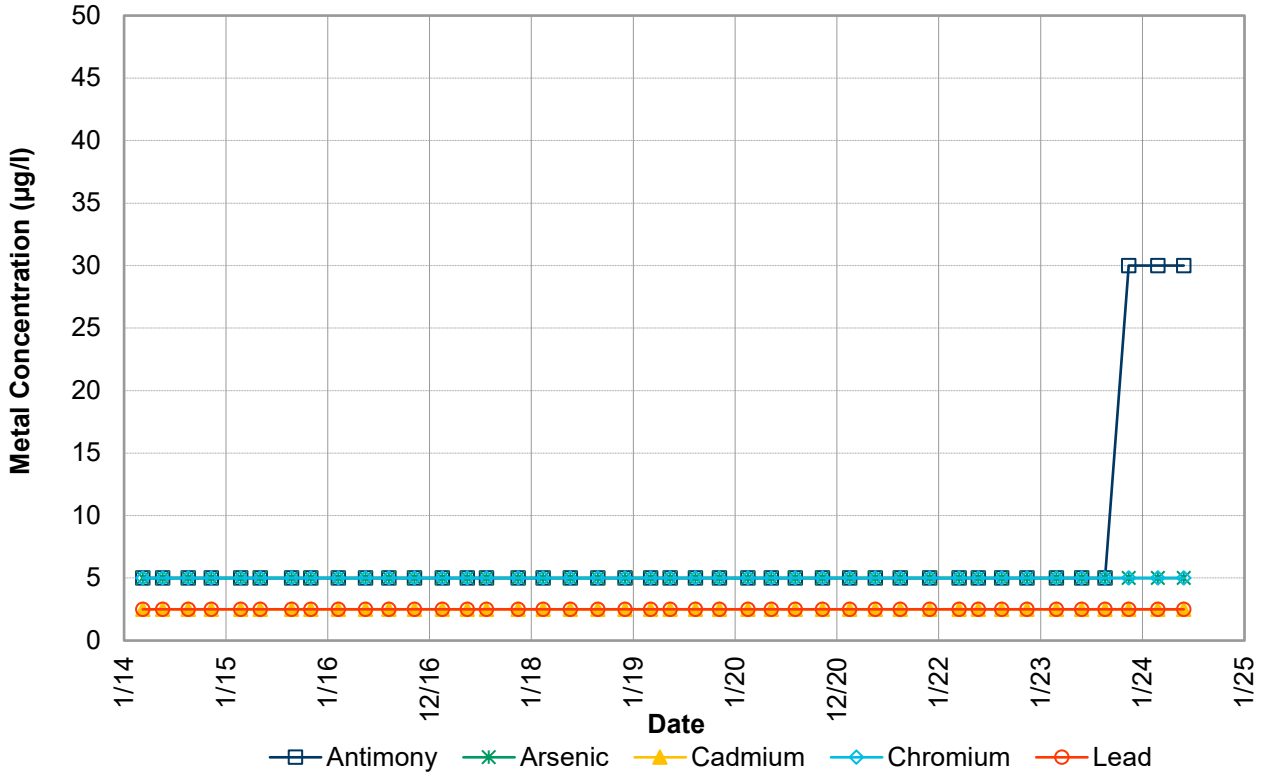
GHD

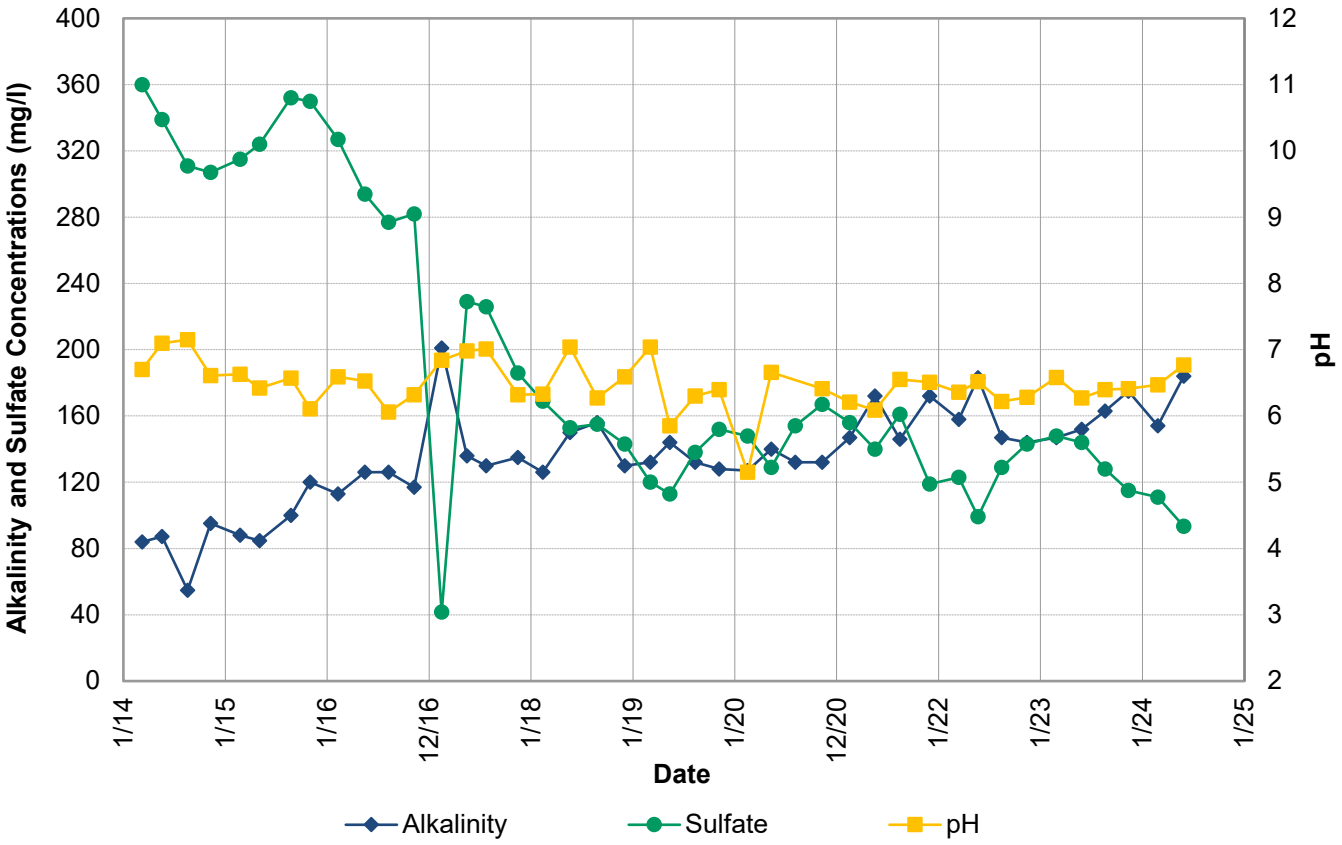
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-14D

Project No: 12586936
Date: 09/25/24

FIGURE B7





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

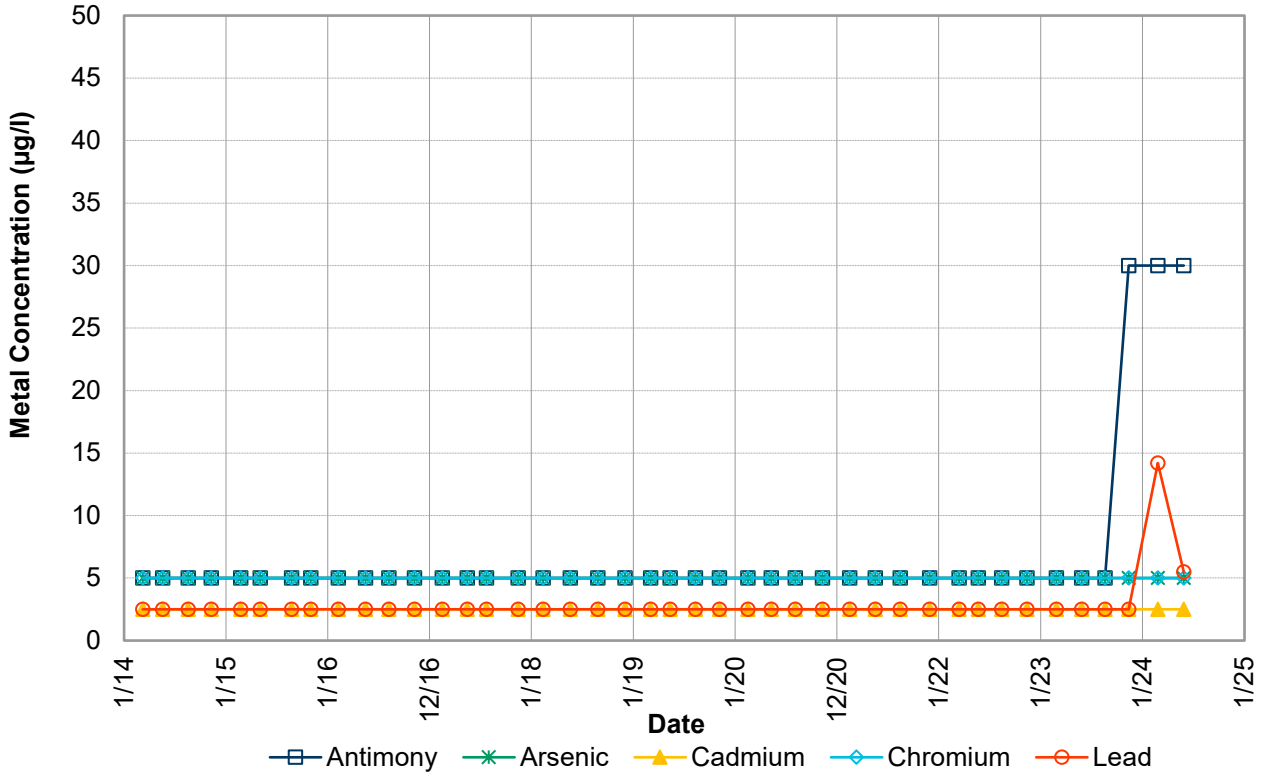
GHD

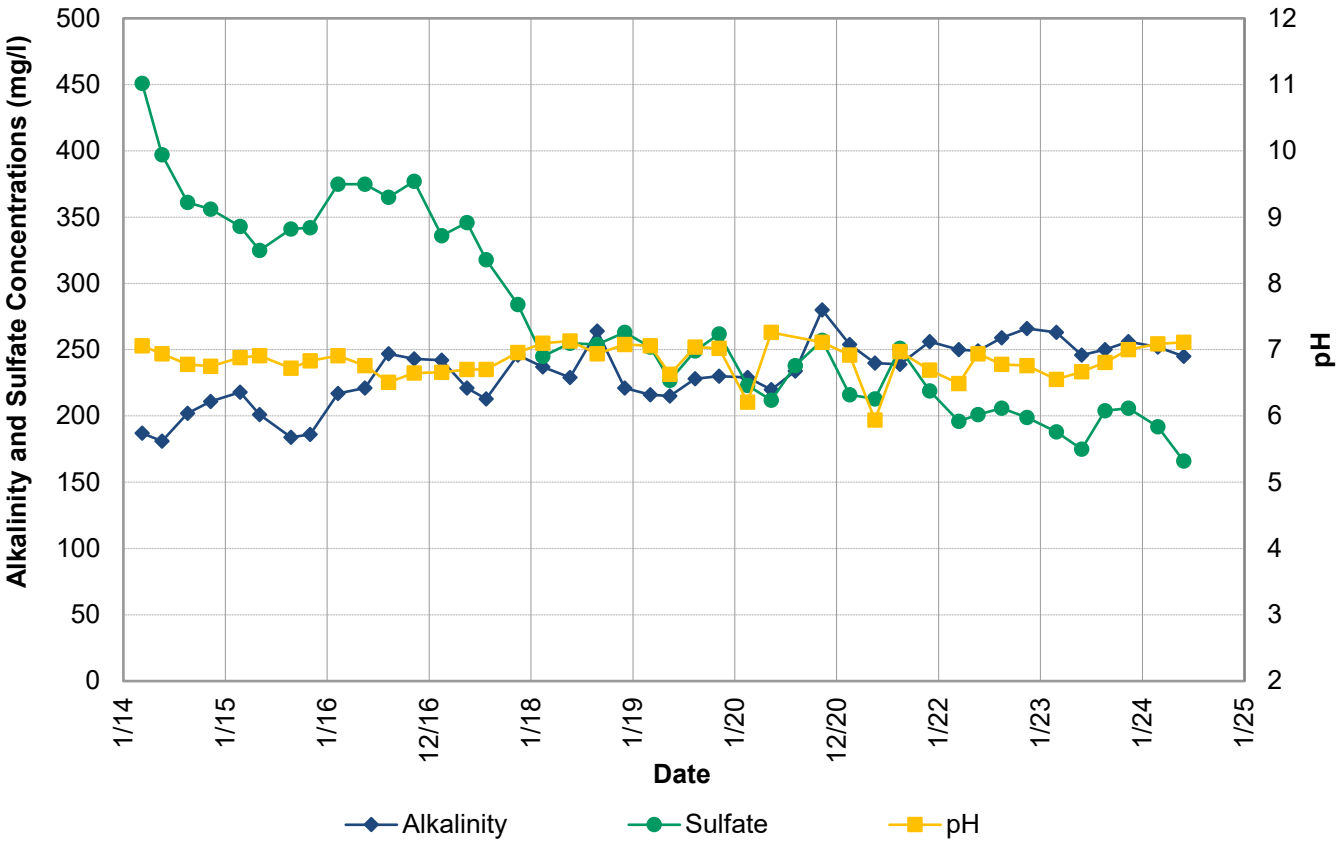
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-15S

Project No: 12586936
Date: 09/25/24

FIGURE B8





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-15D

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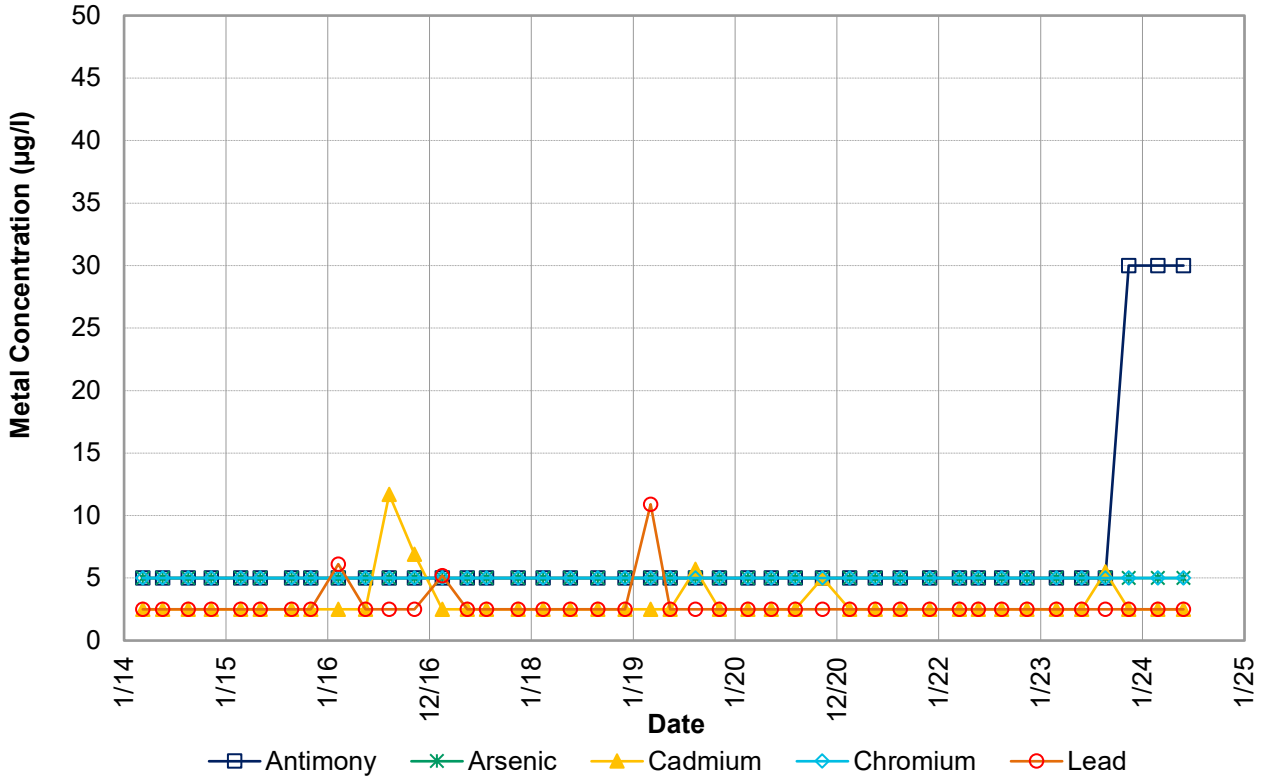
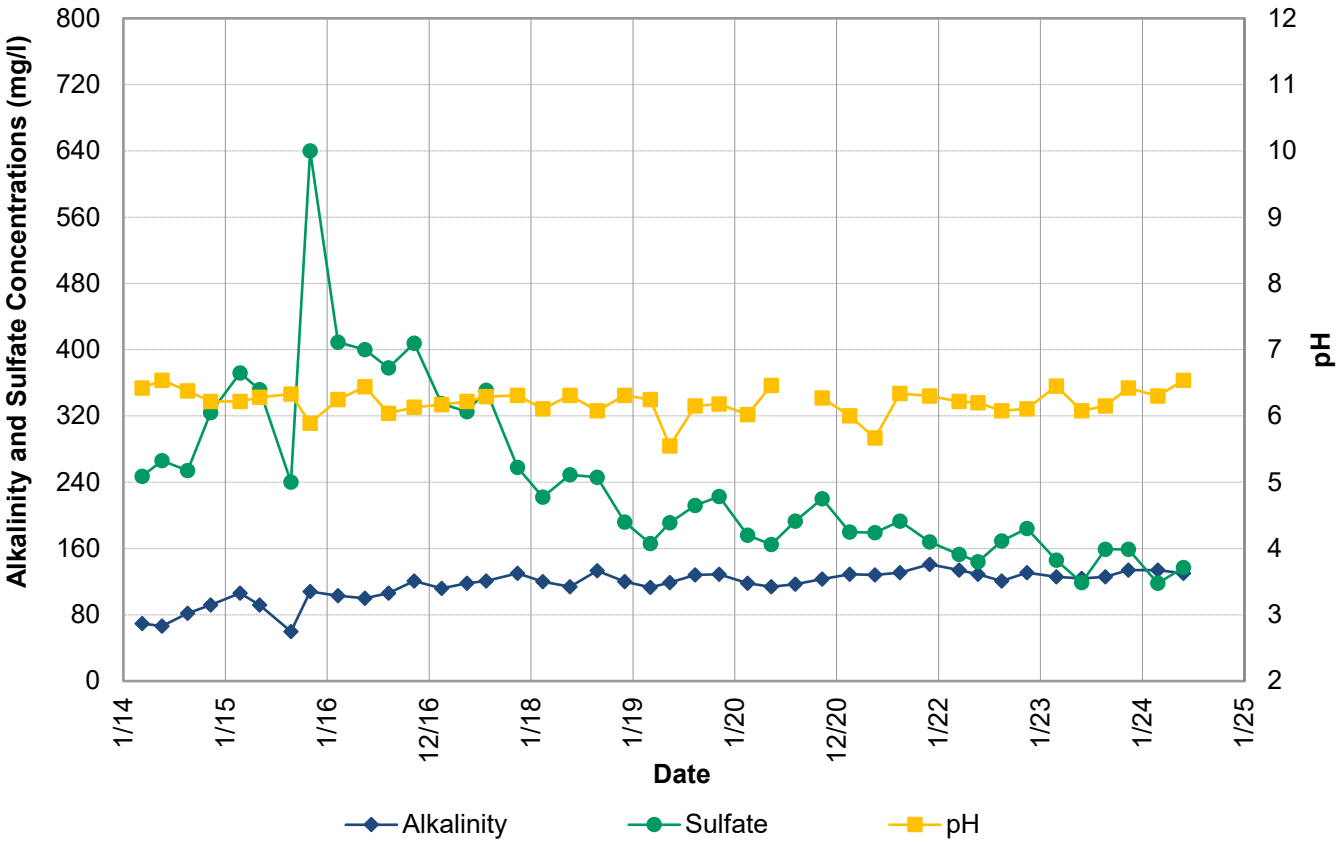
FIGURE B9





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

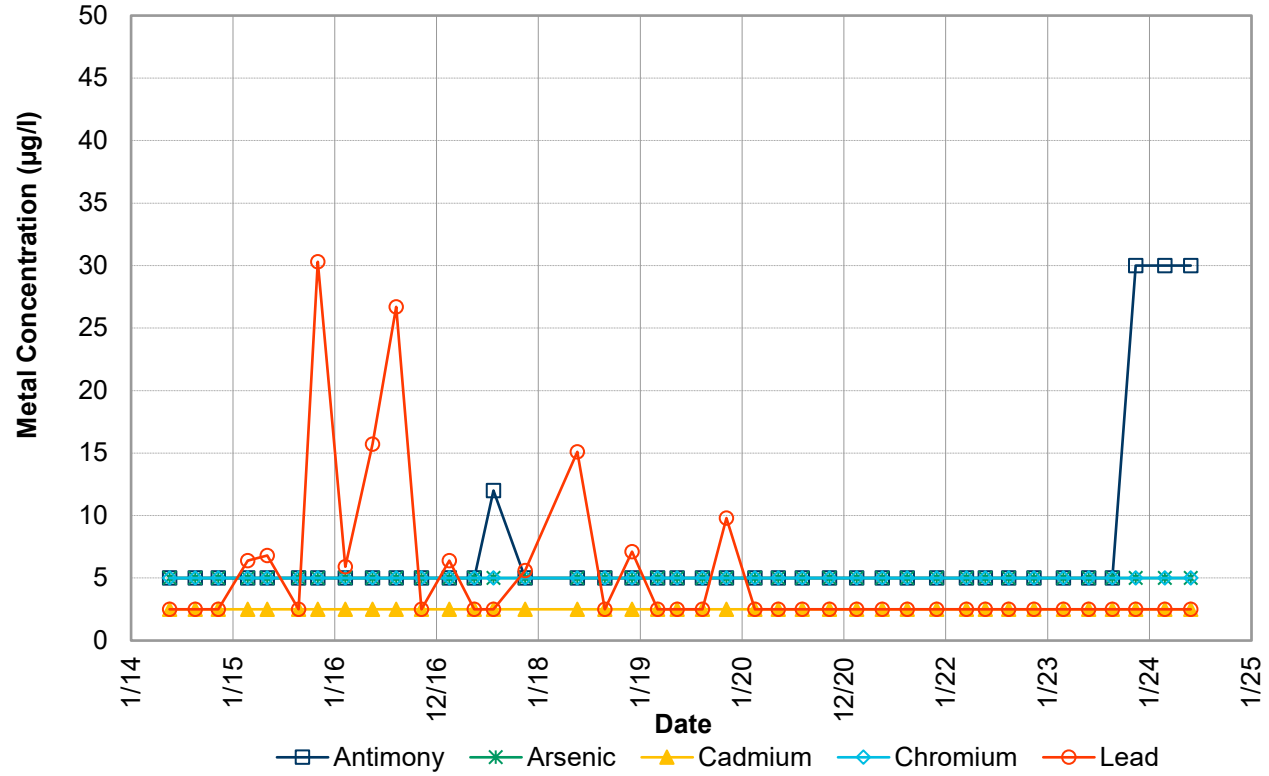
GHD

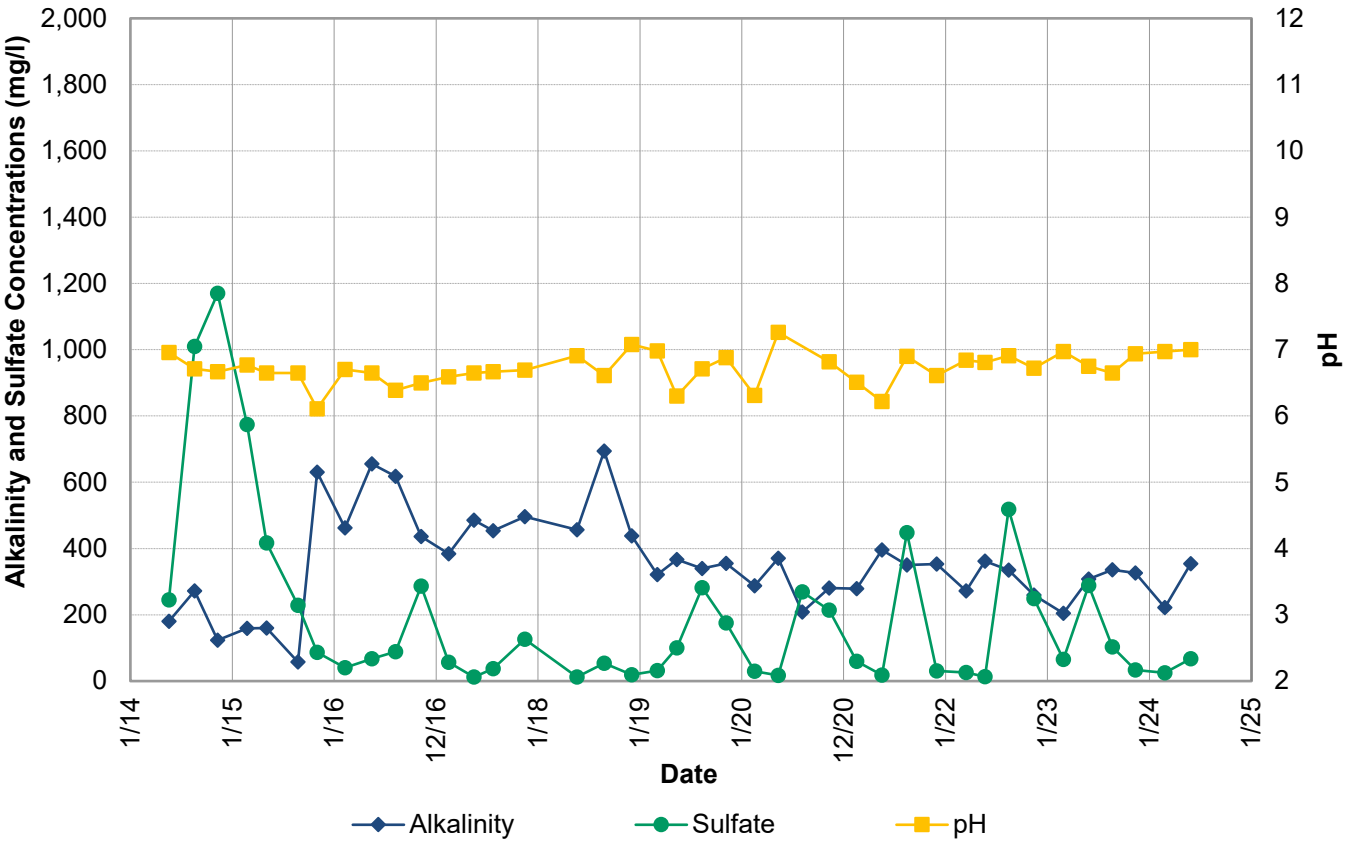
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-16S

Project No: 12586936
Date: 09/25/24

FIGURE B10





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

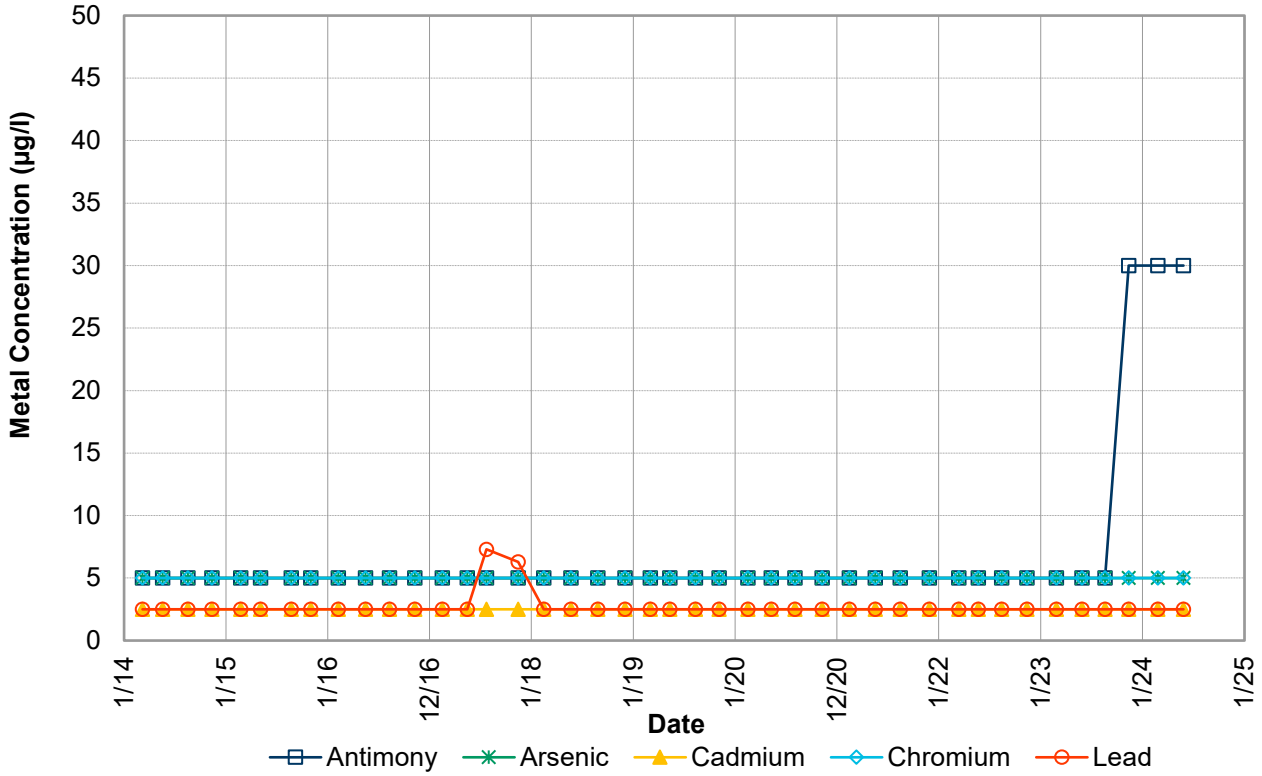
GHD

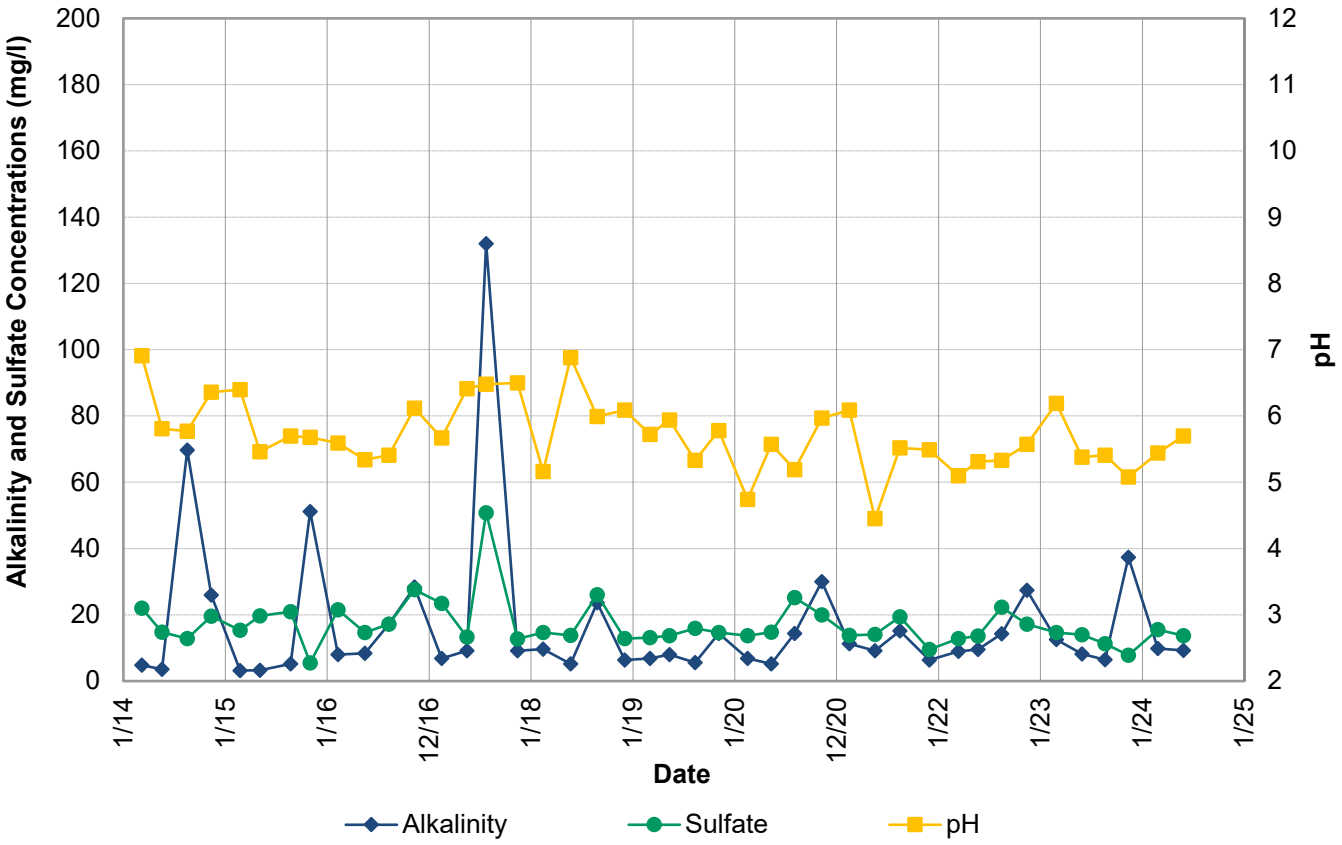
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-17S

Project No: 12586936
Date: 09/26/24

FIGURE B11





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

GHD

REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-18S

Project No: 12586936
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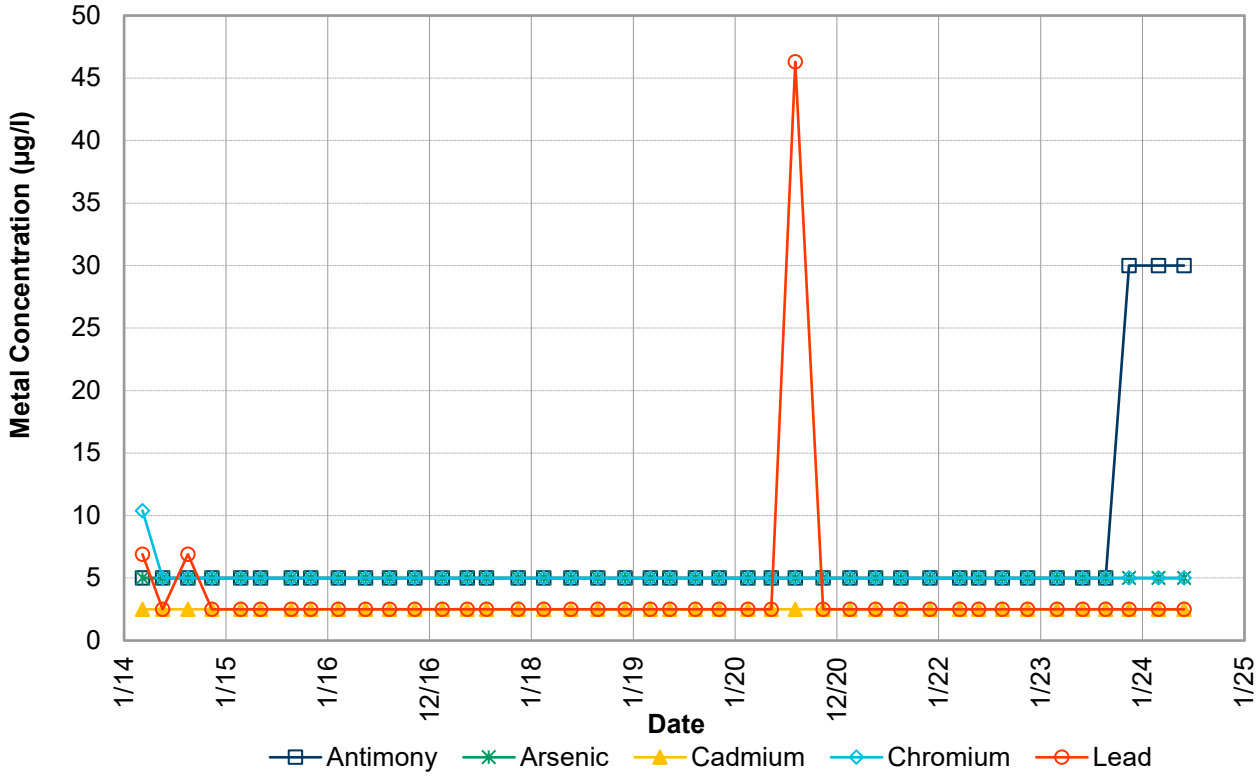
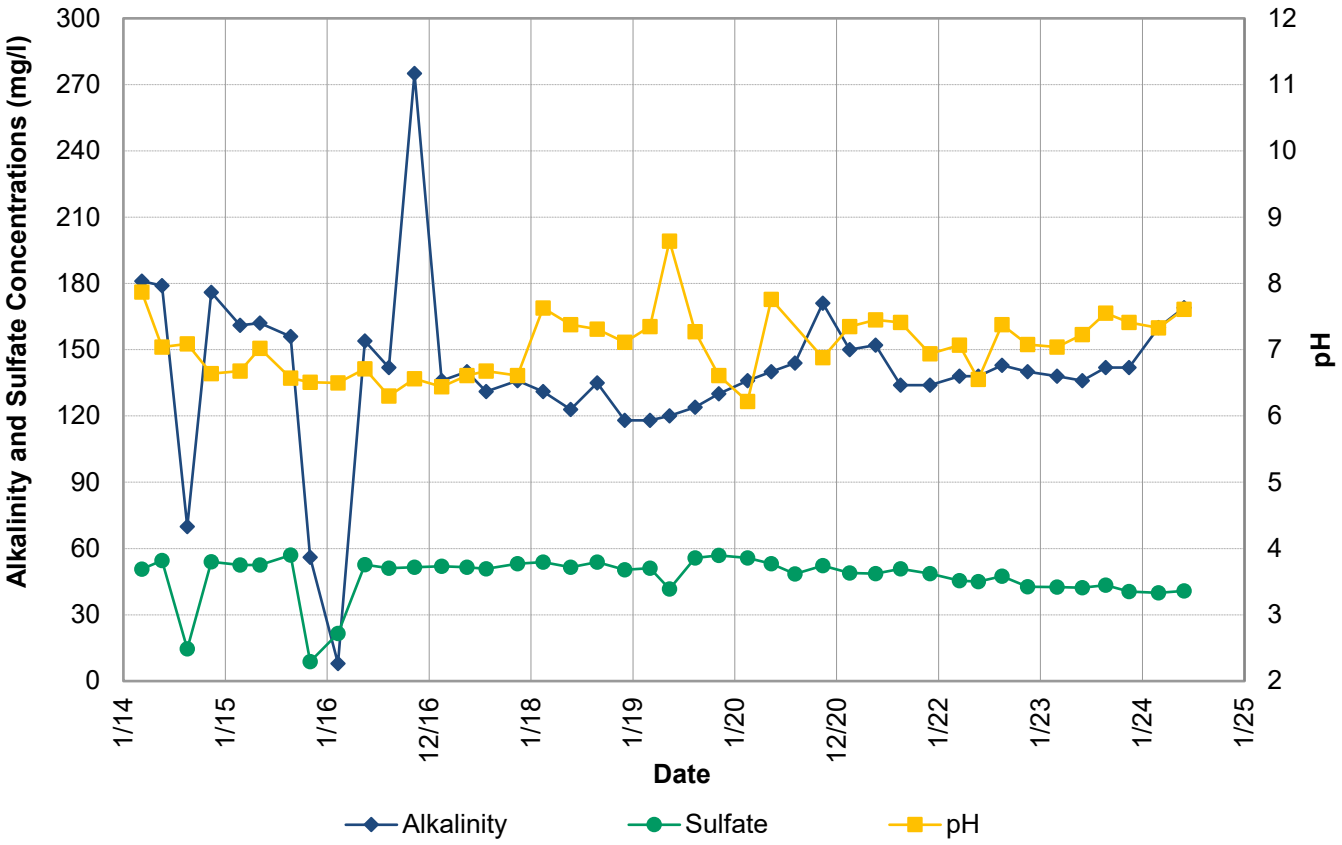
FIGURE B12





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

GHD

REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-18D

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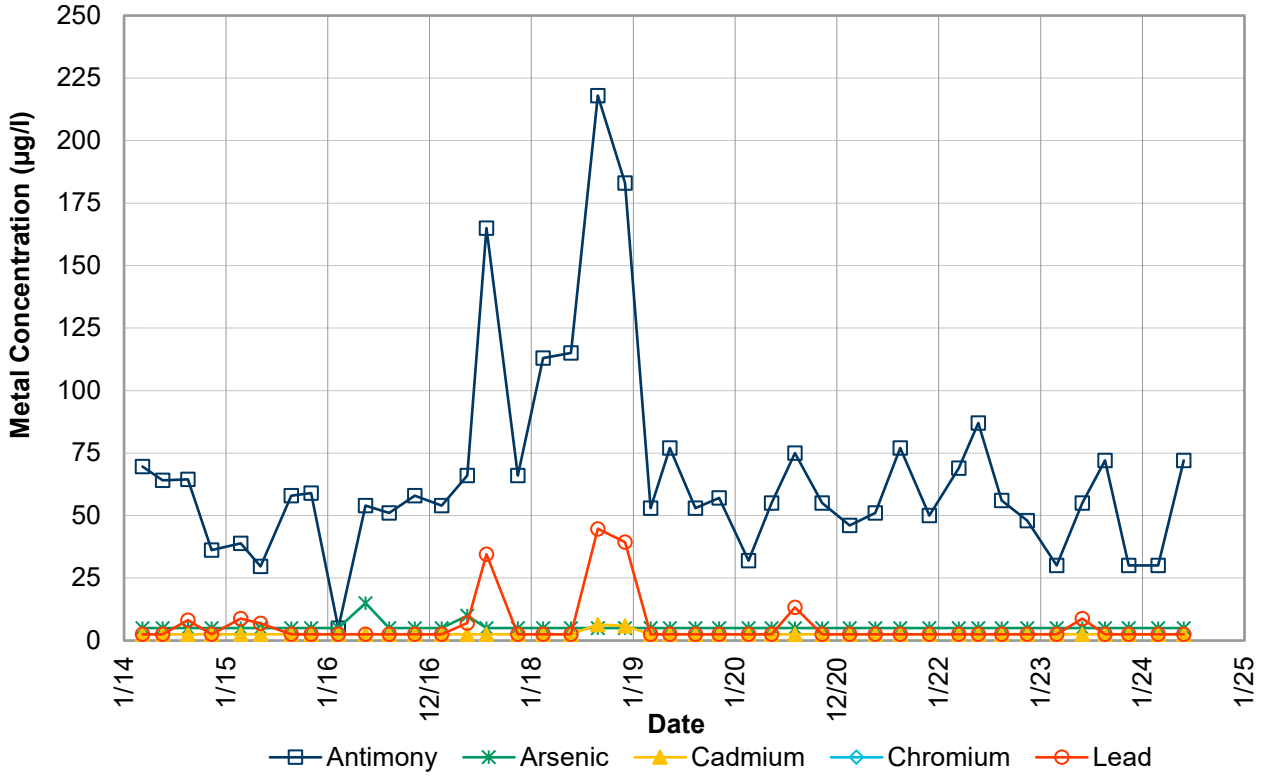
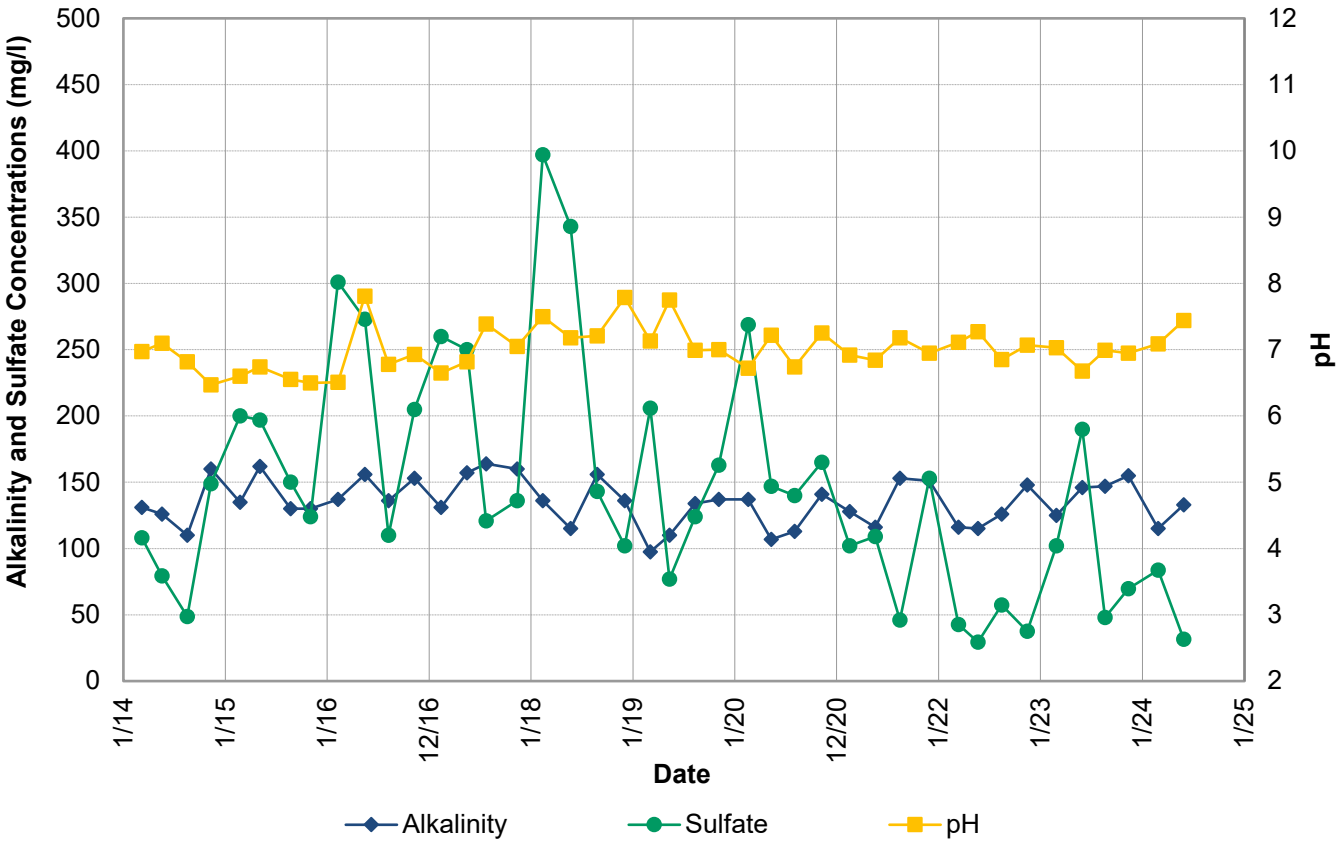
FIGURE B13





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

GHD

REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-19S

Project No: 12586936
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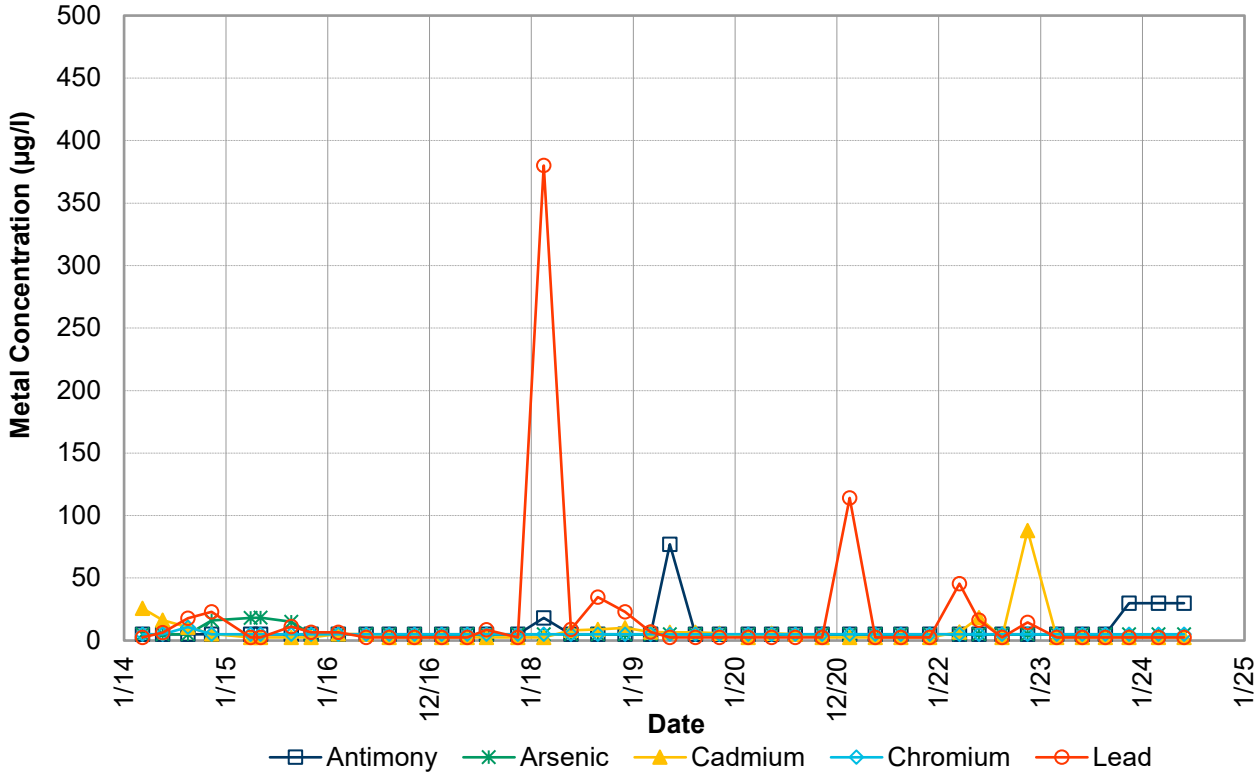
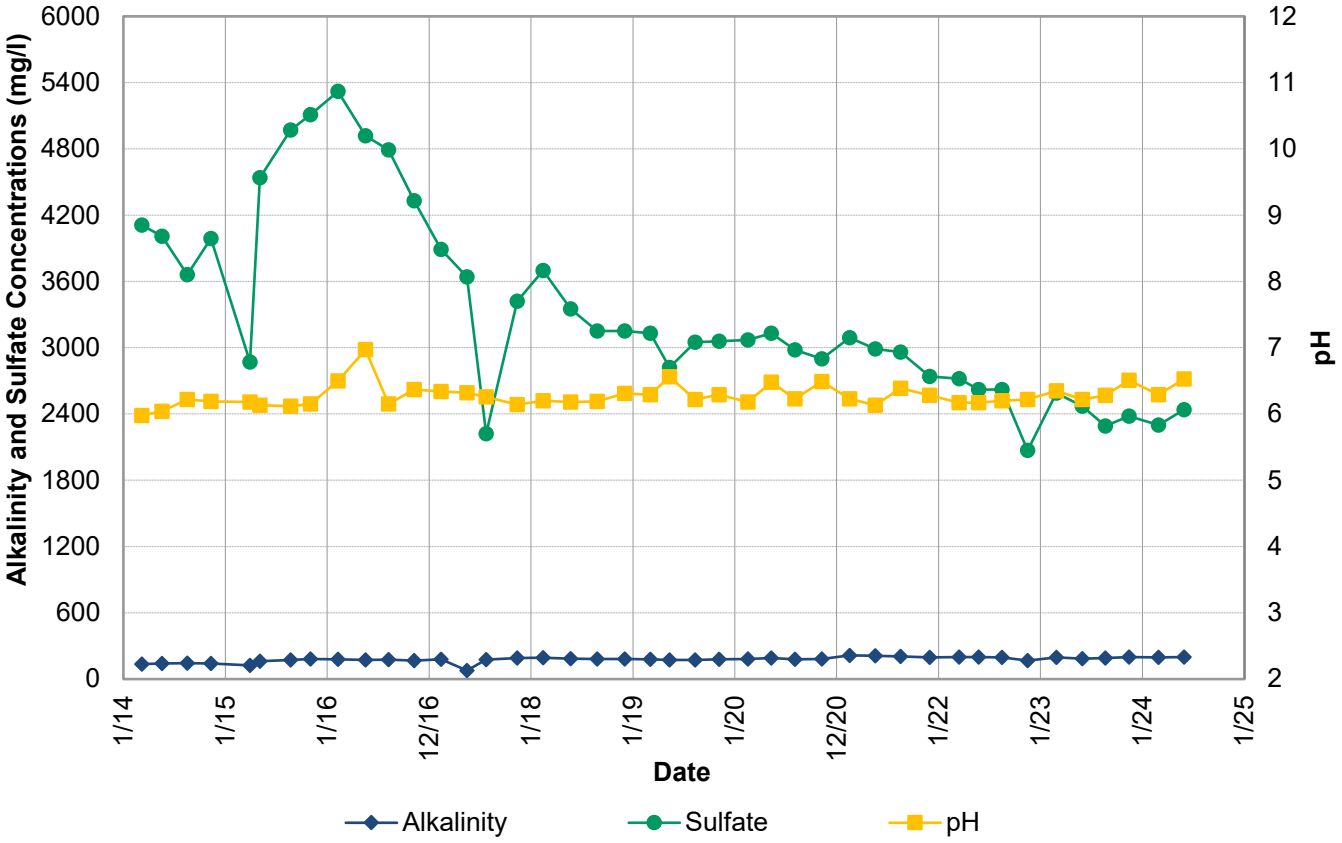
FIGURE B14





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

GHD

REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-20S

Project No: 12586936
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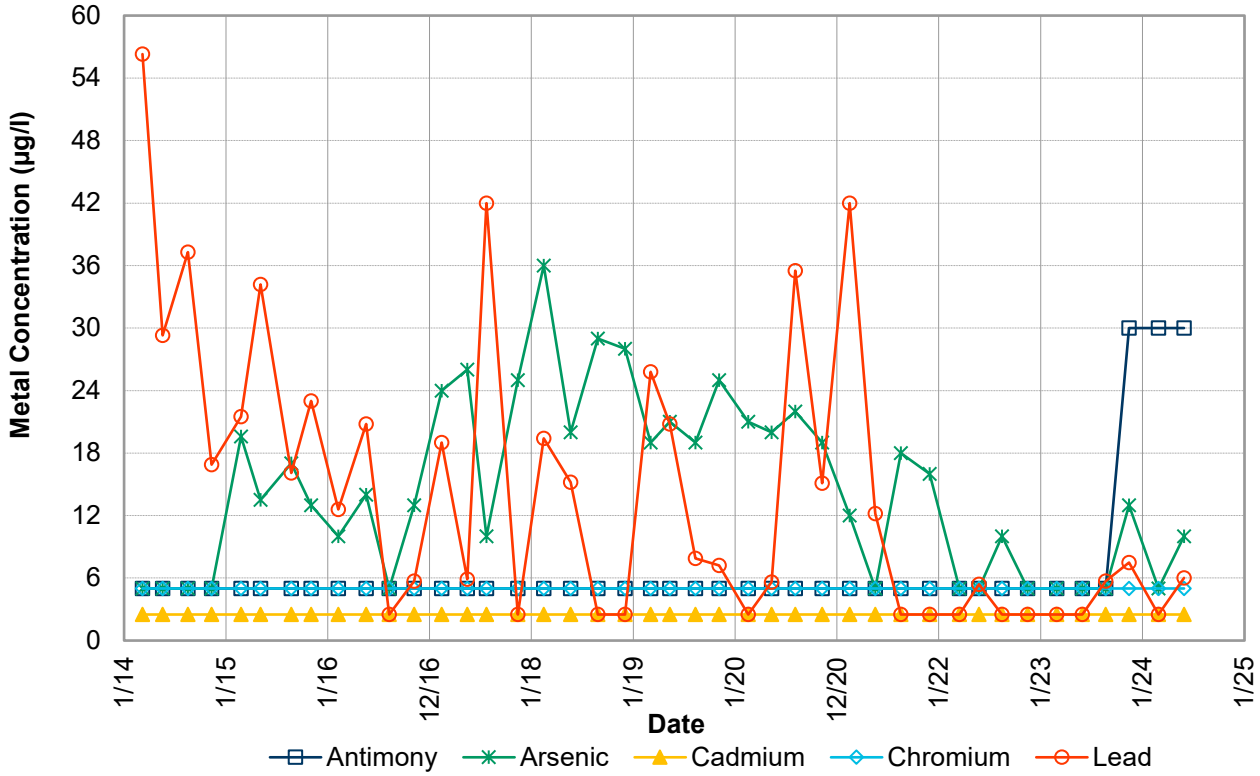
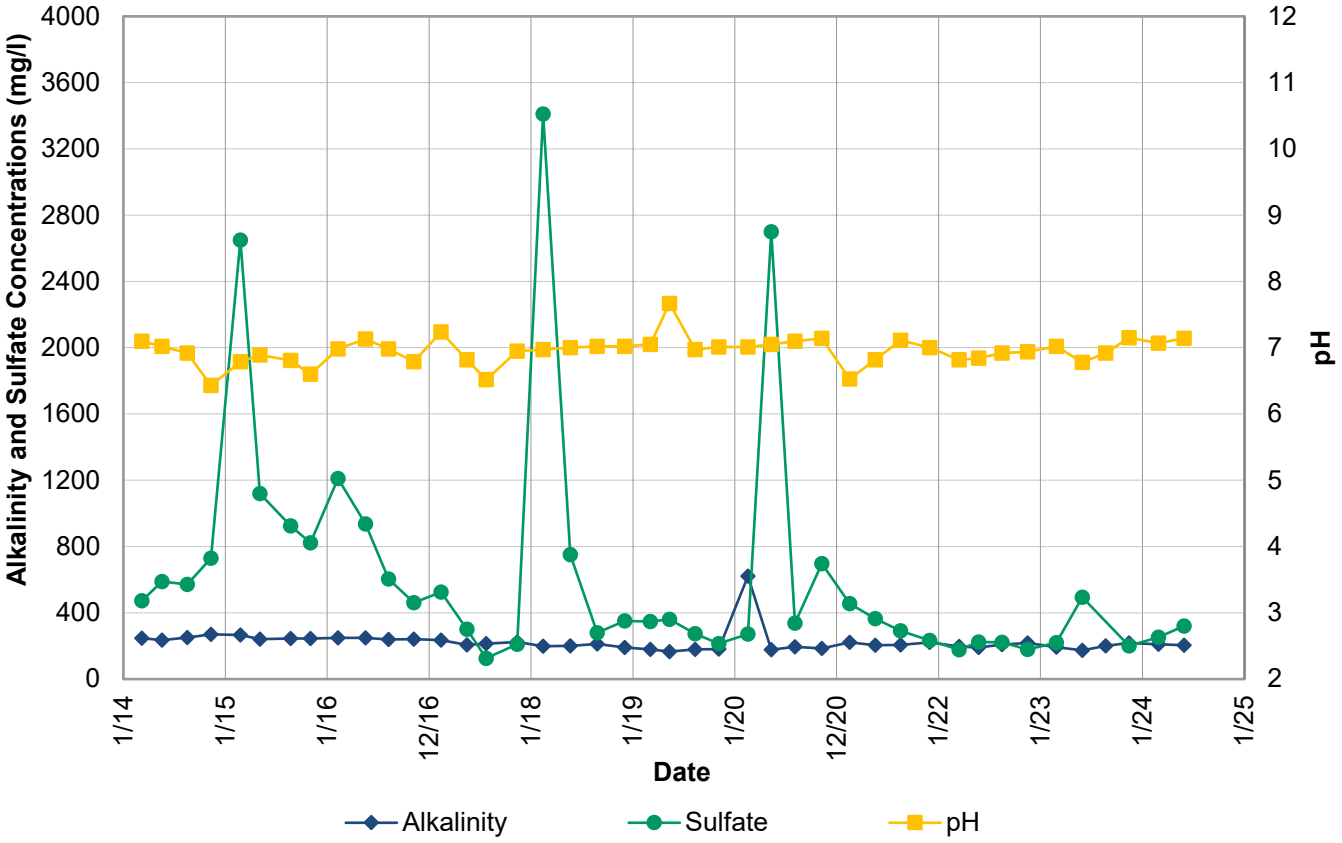
FIGURE B15





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

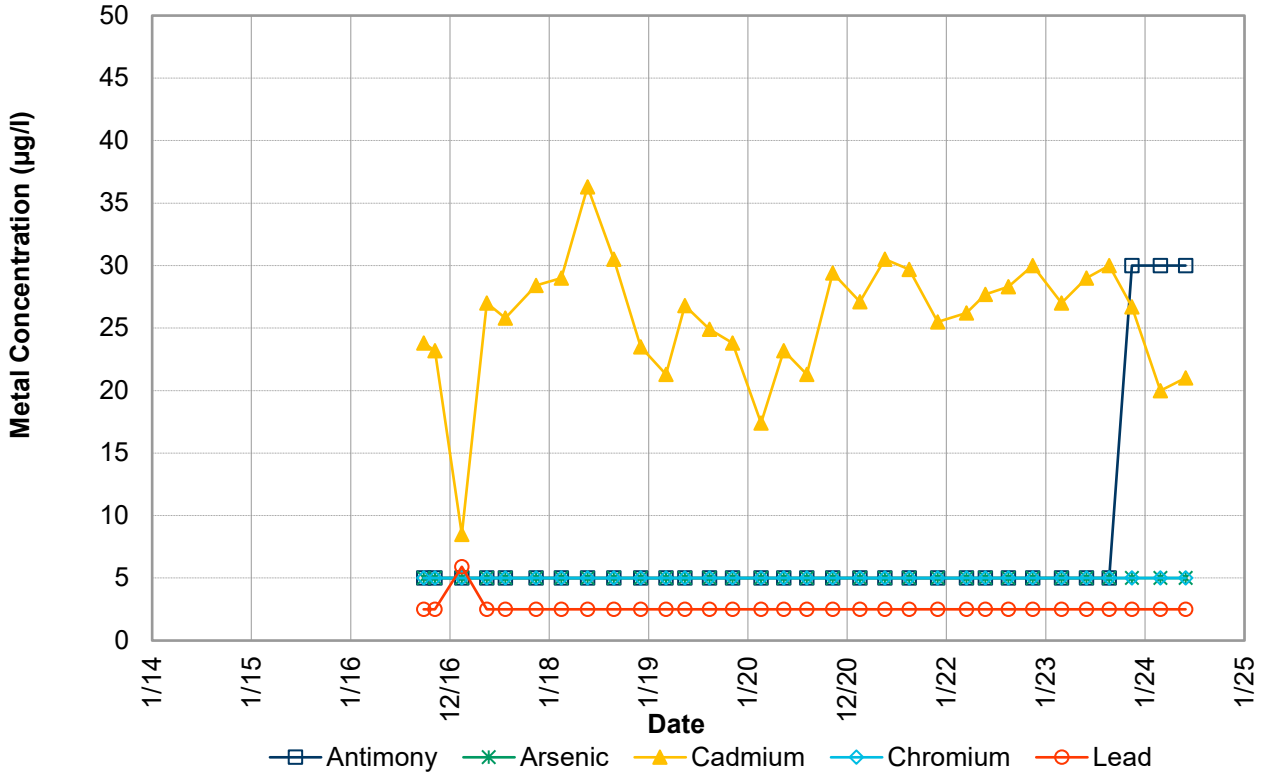
GHD

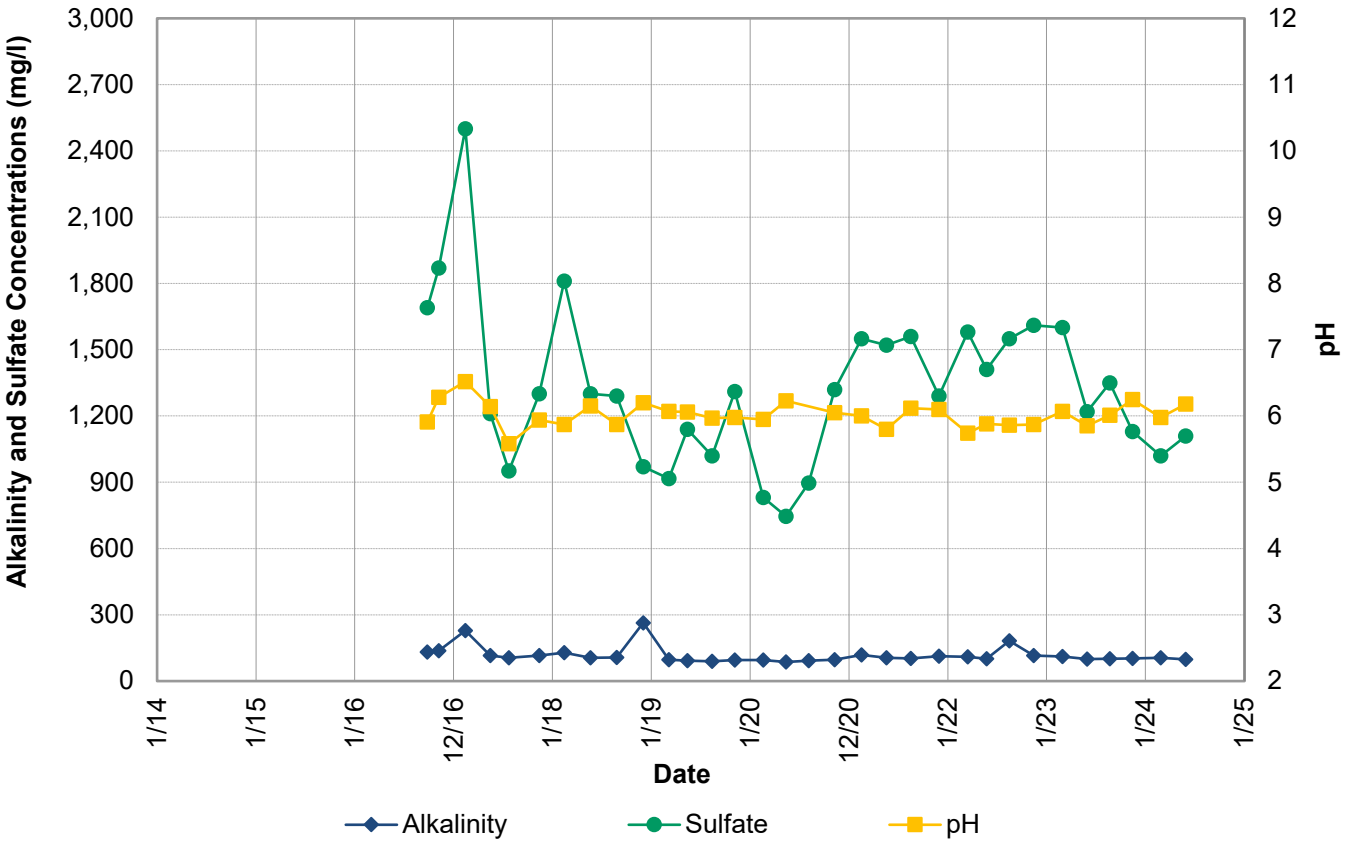
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-21D

Project No: 12586936
Date: 09/26/24

FIGURE B16





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

GHD

REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-23S-R

Project No: 12586936
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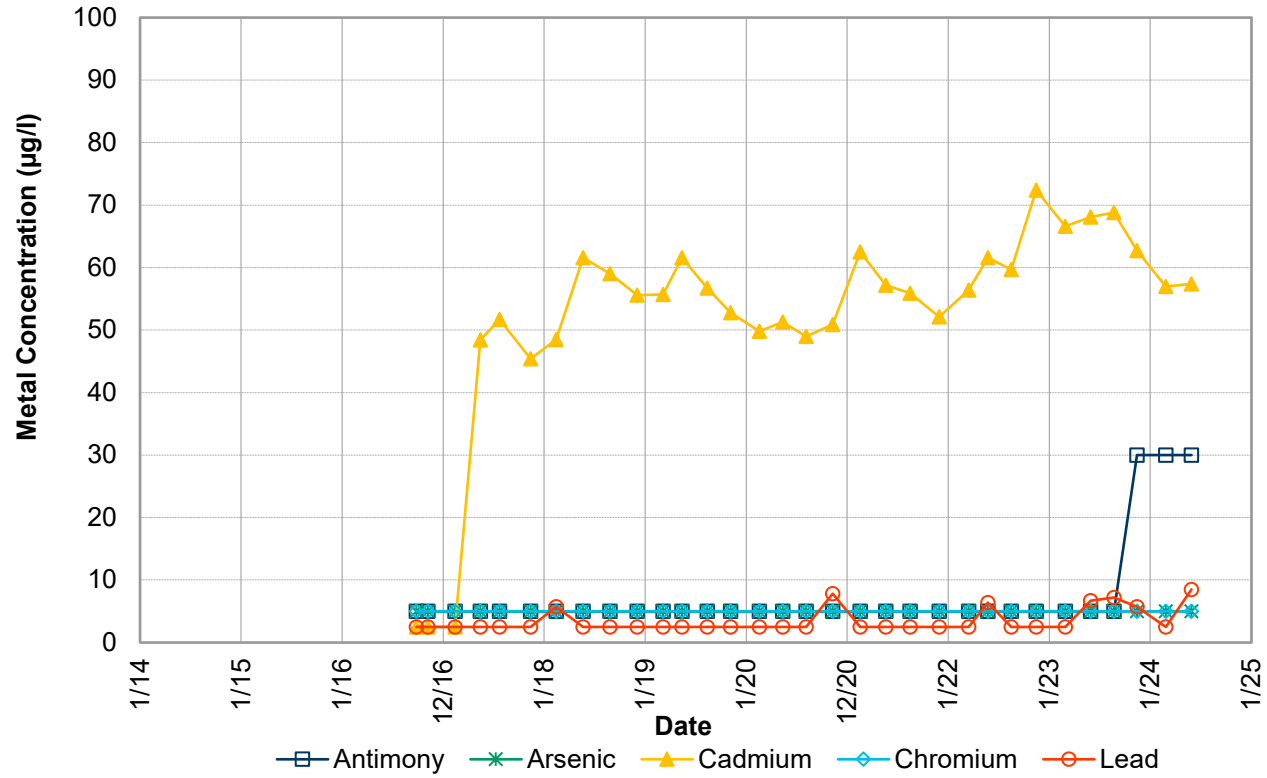
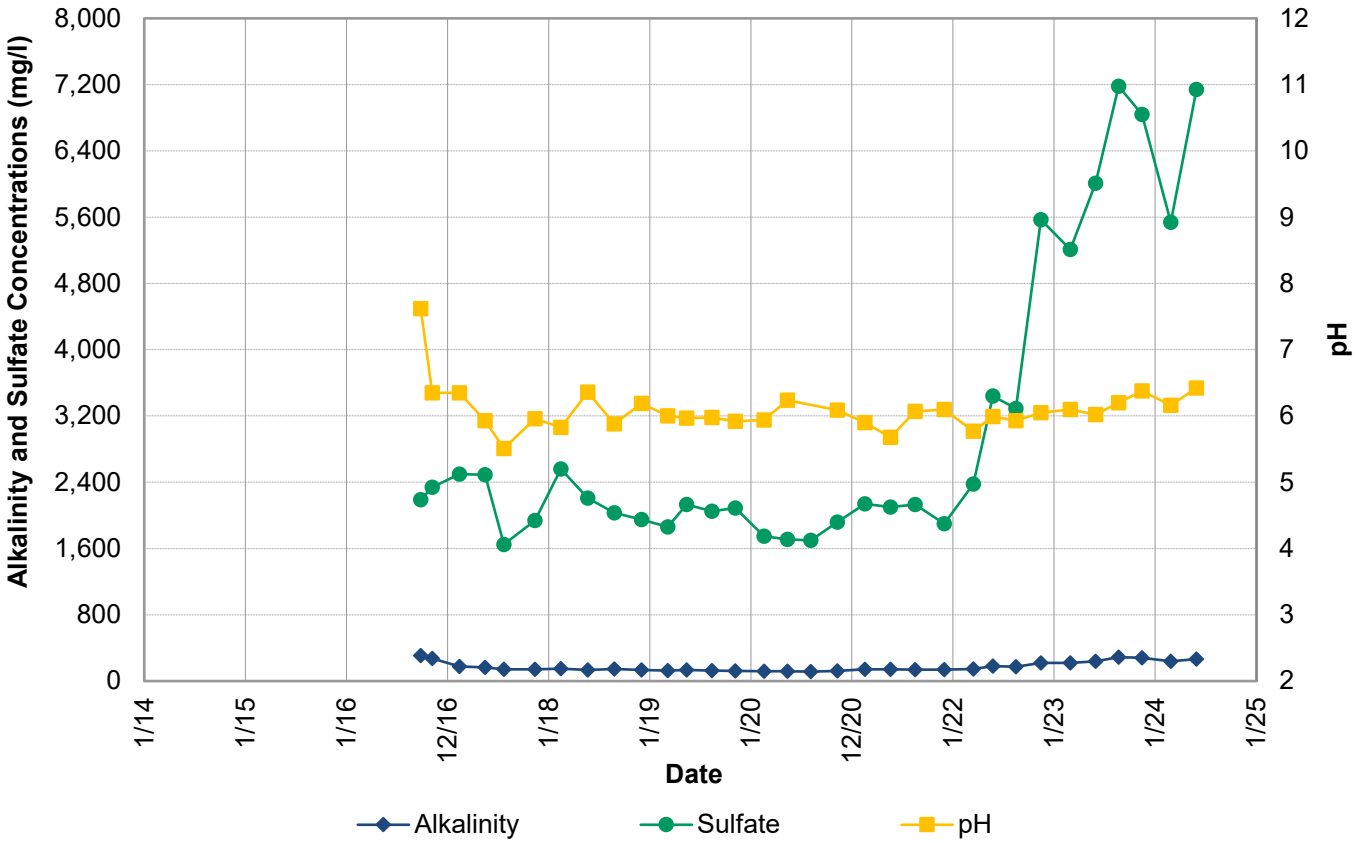
FIGURE B17





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

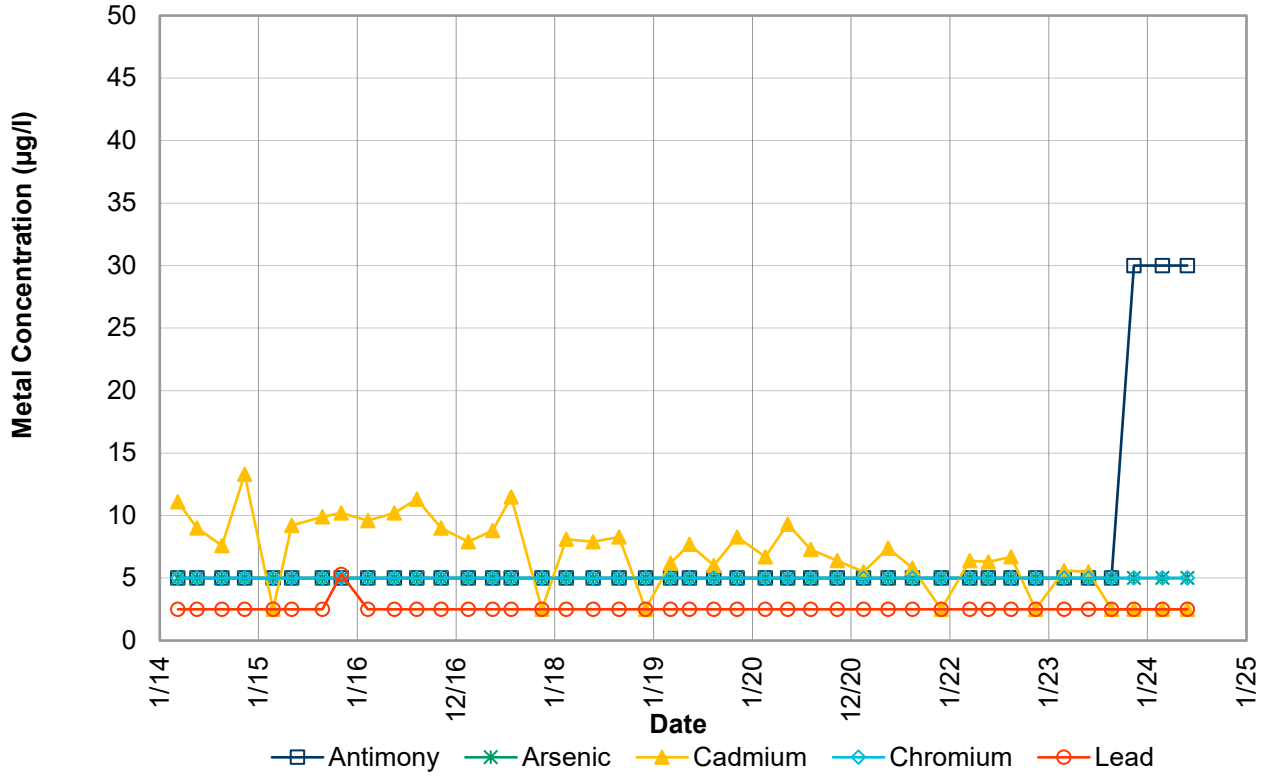
GHD

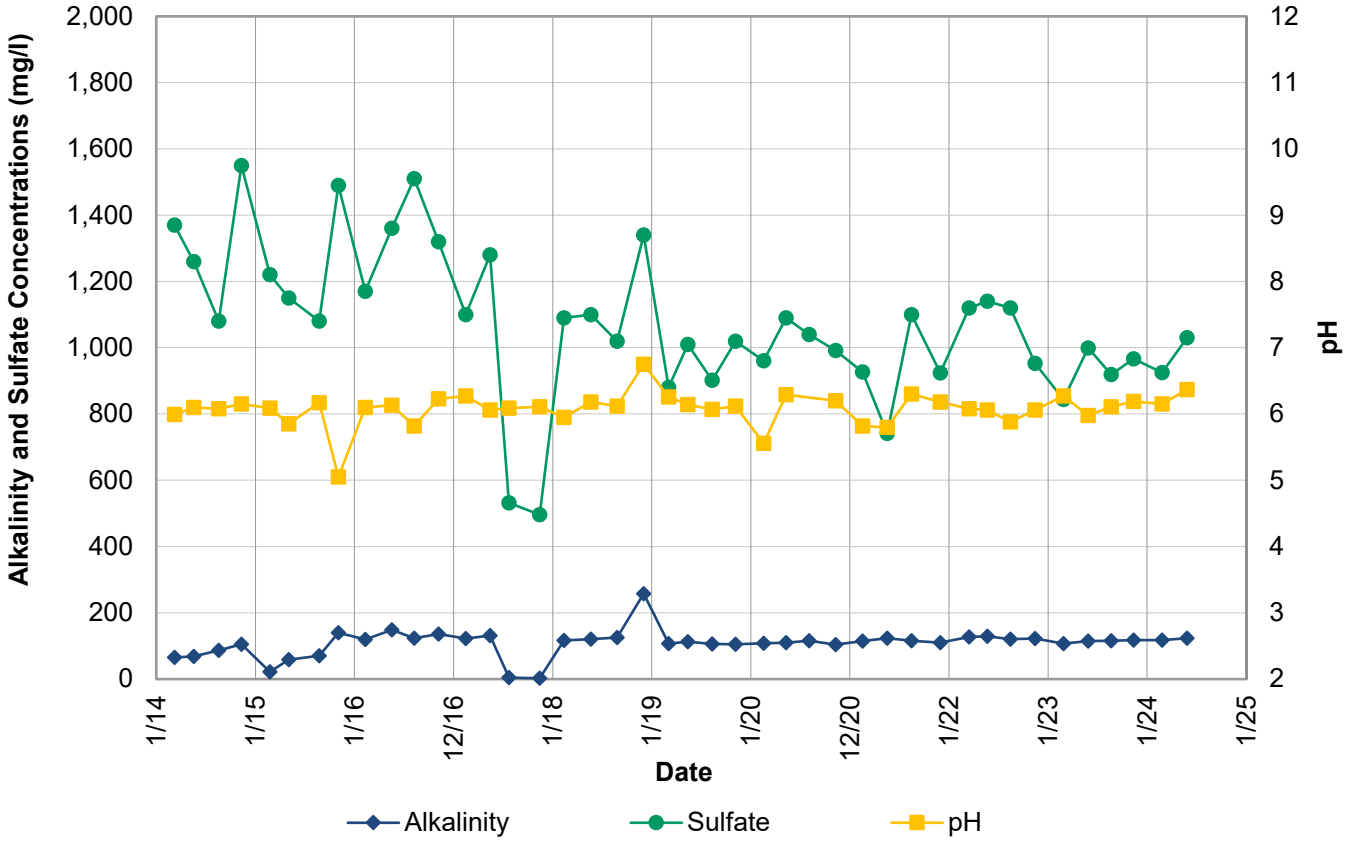
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-23D-R

Project No: 12586936
Date: 09/26/24

FIGURE B18





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

GHD

REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-24S

Project No: 12586936
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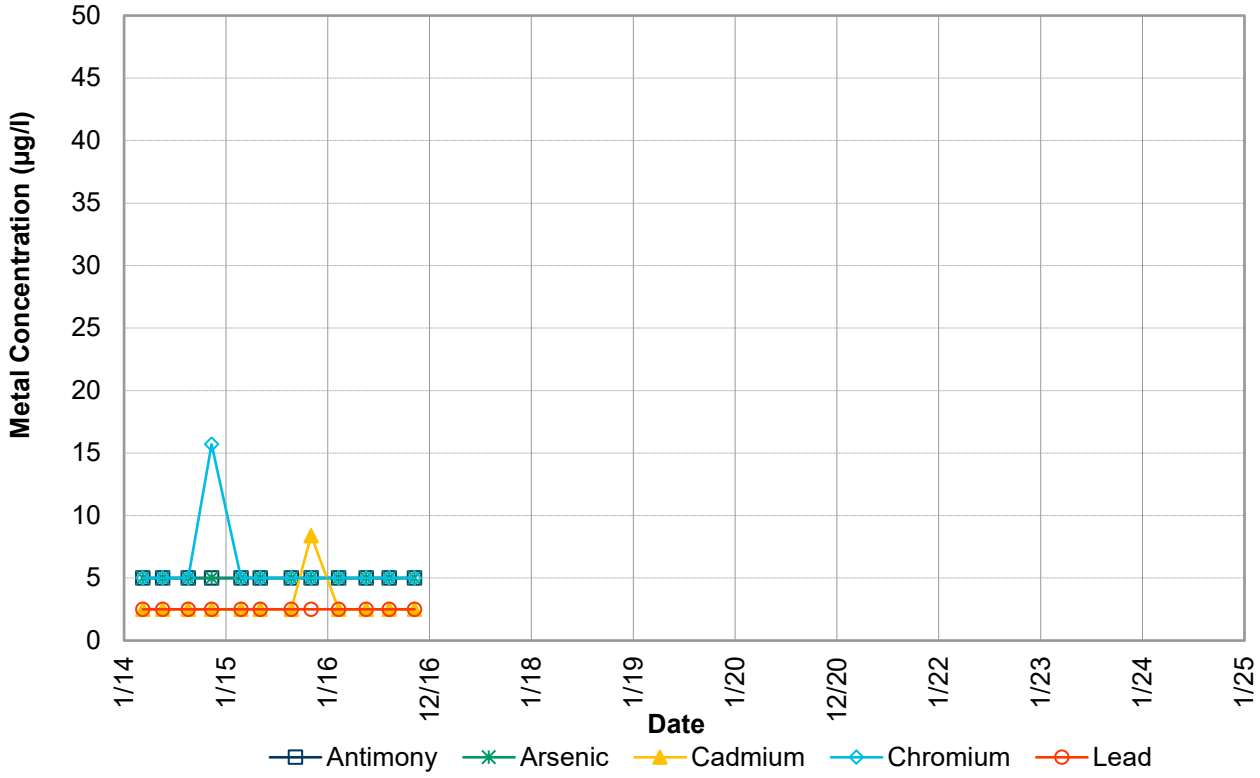
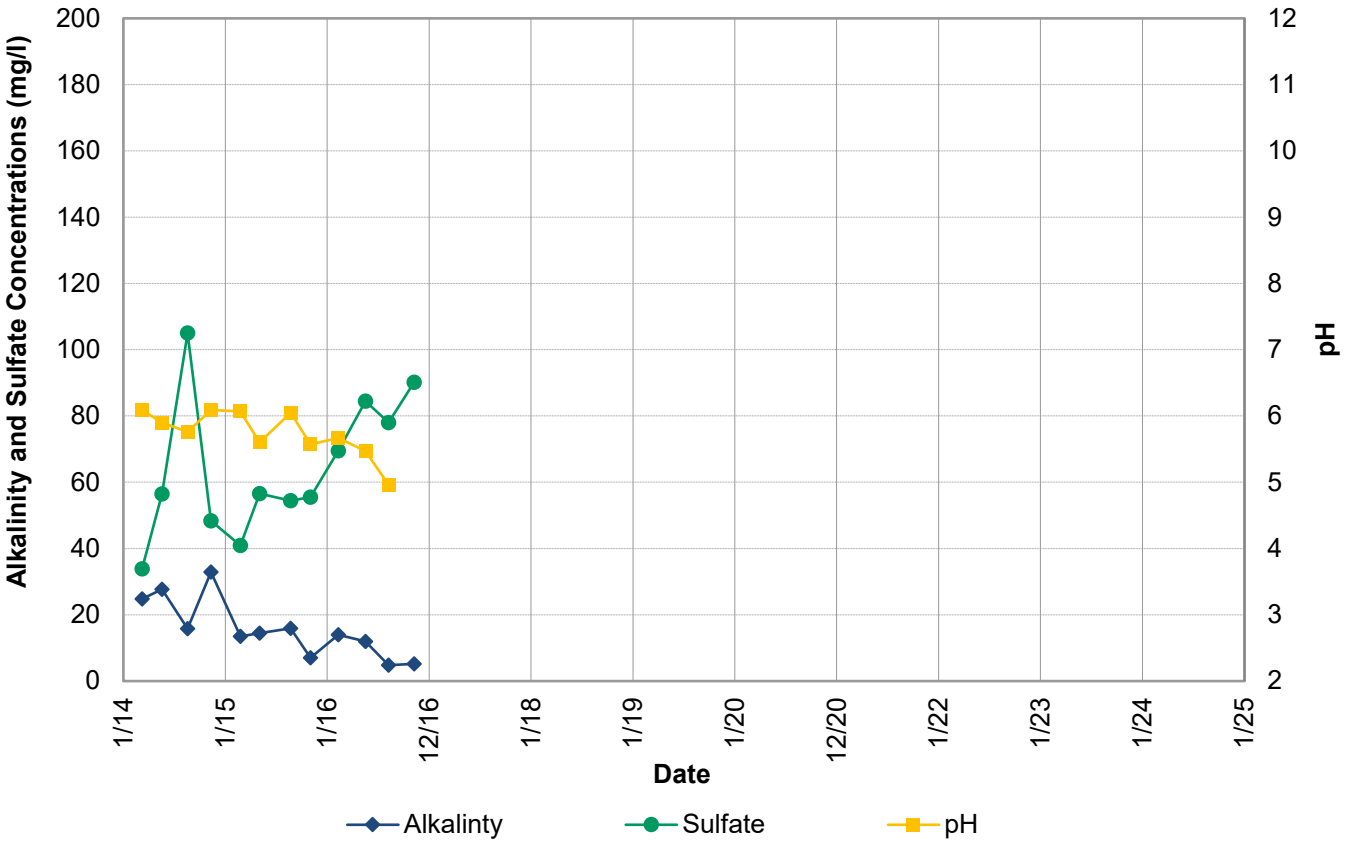
FIGURE B19





NOTES:

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2. Only data from the past 10 years (2014-2024) are included on these graphs.

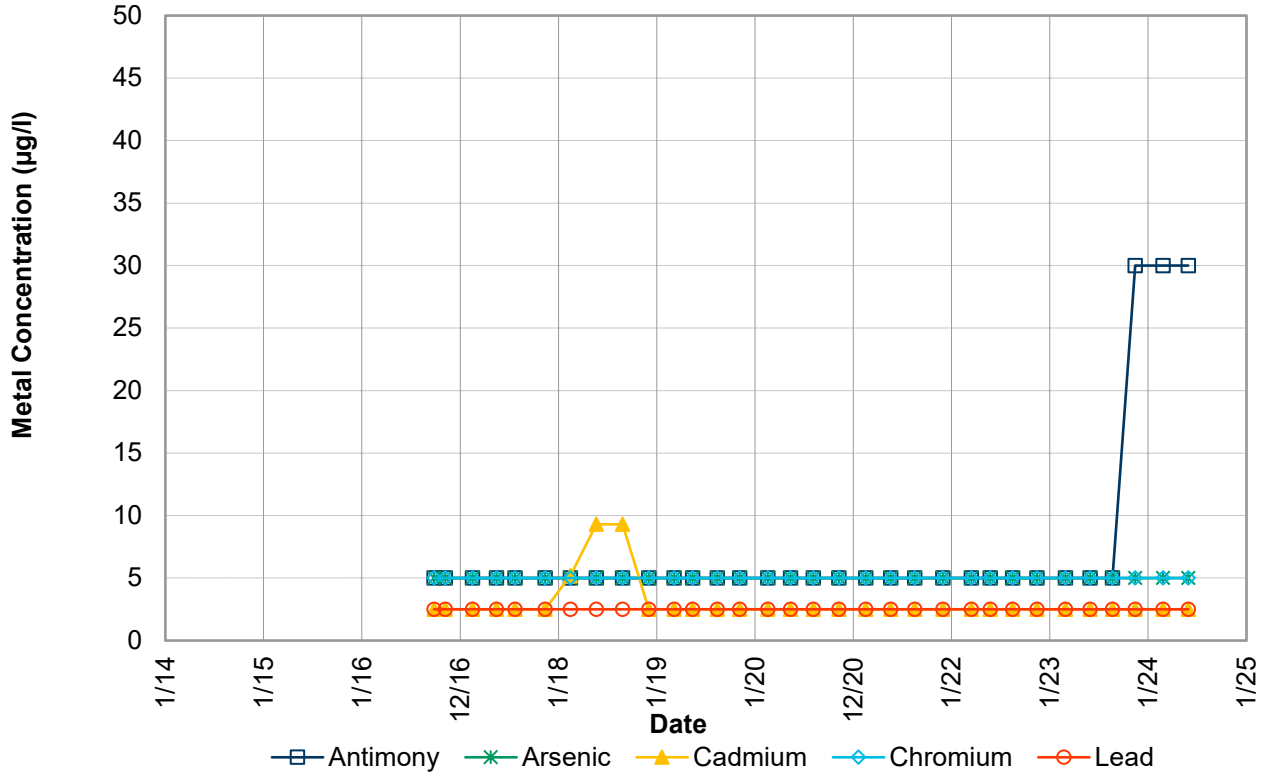
GHD

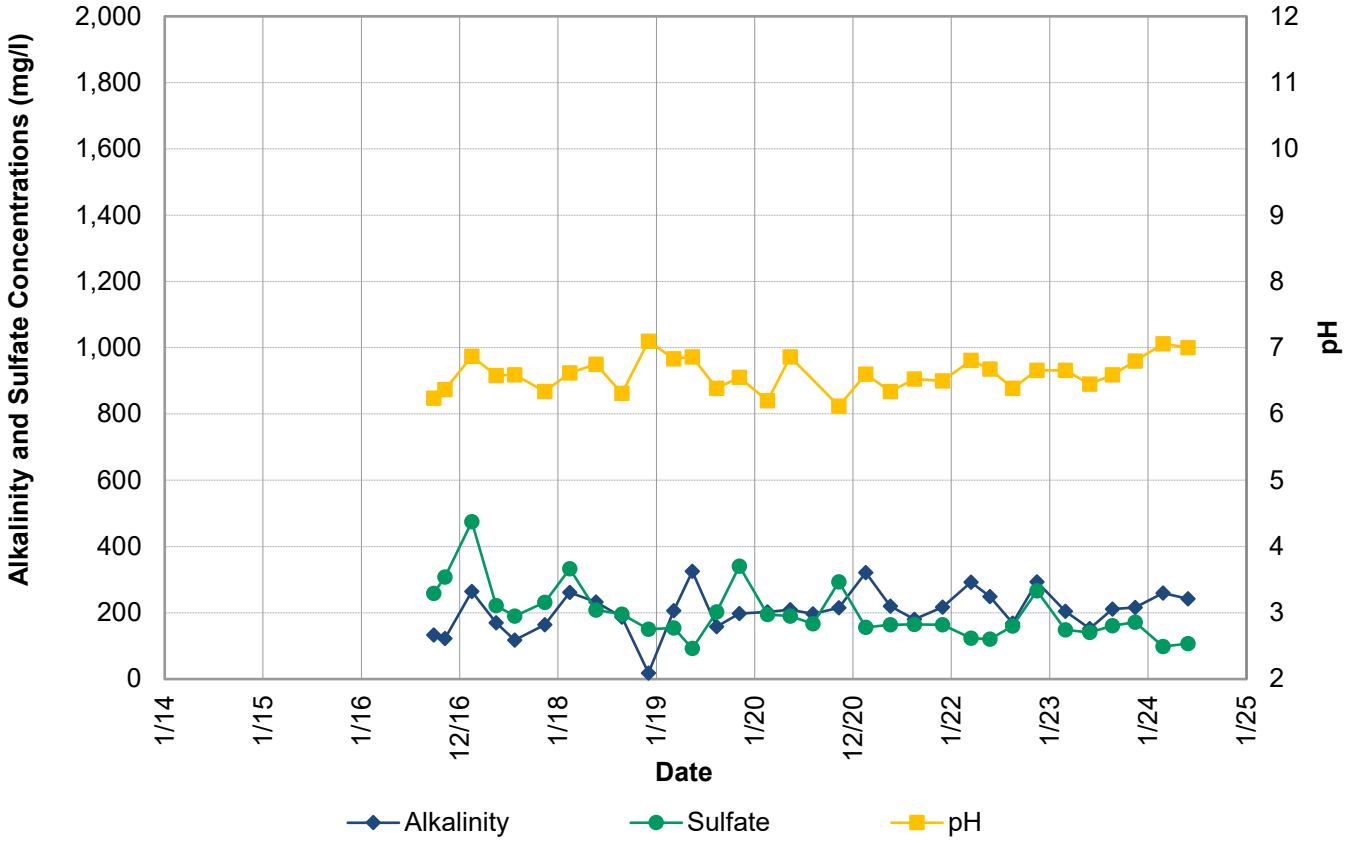
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-25S

Project No: 12586936
Date: 09/26/24

FIGURE B20





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

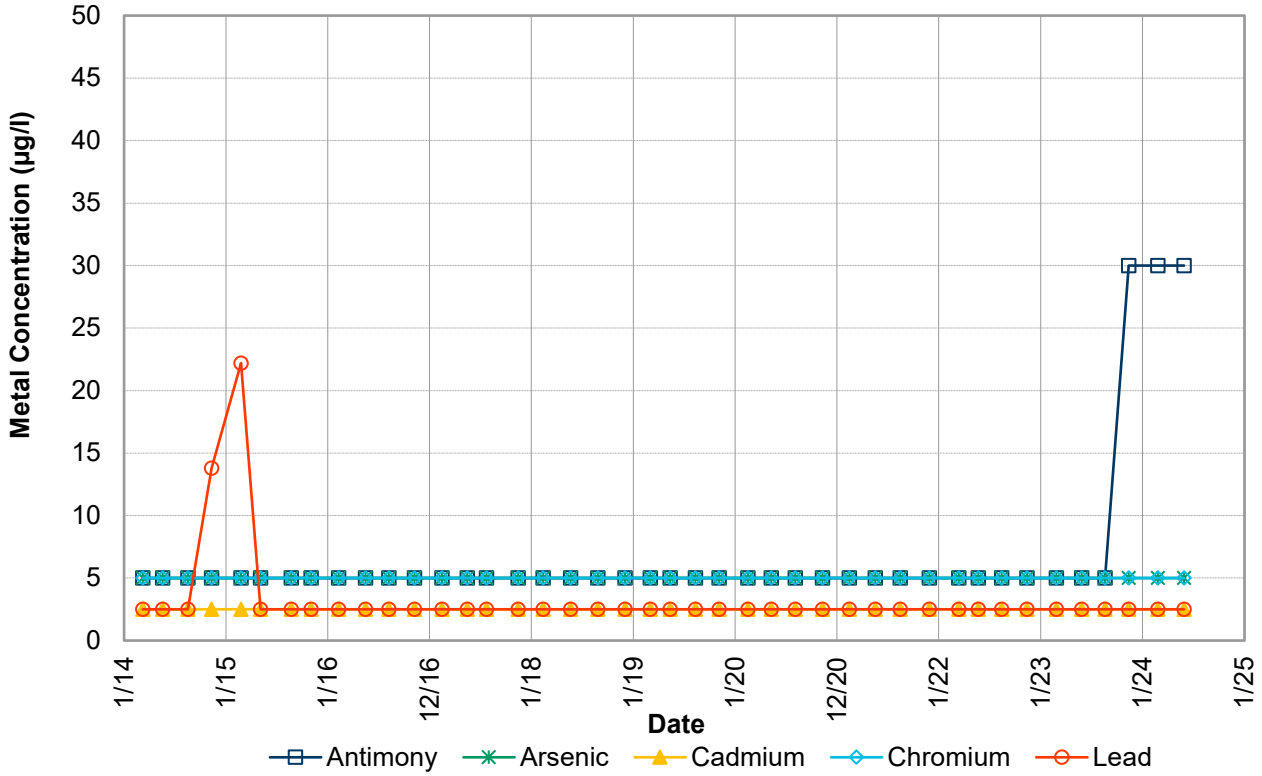
GHD

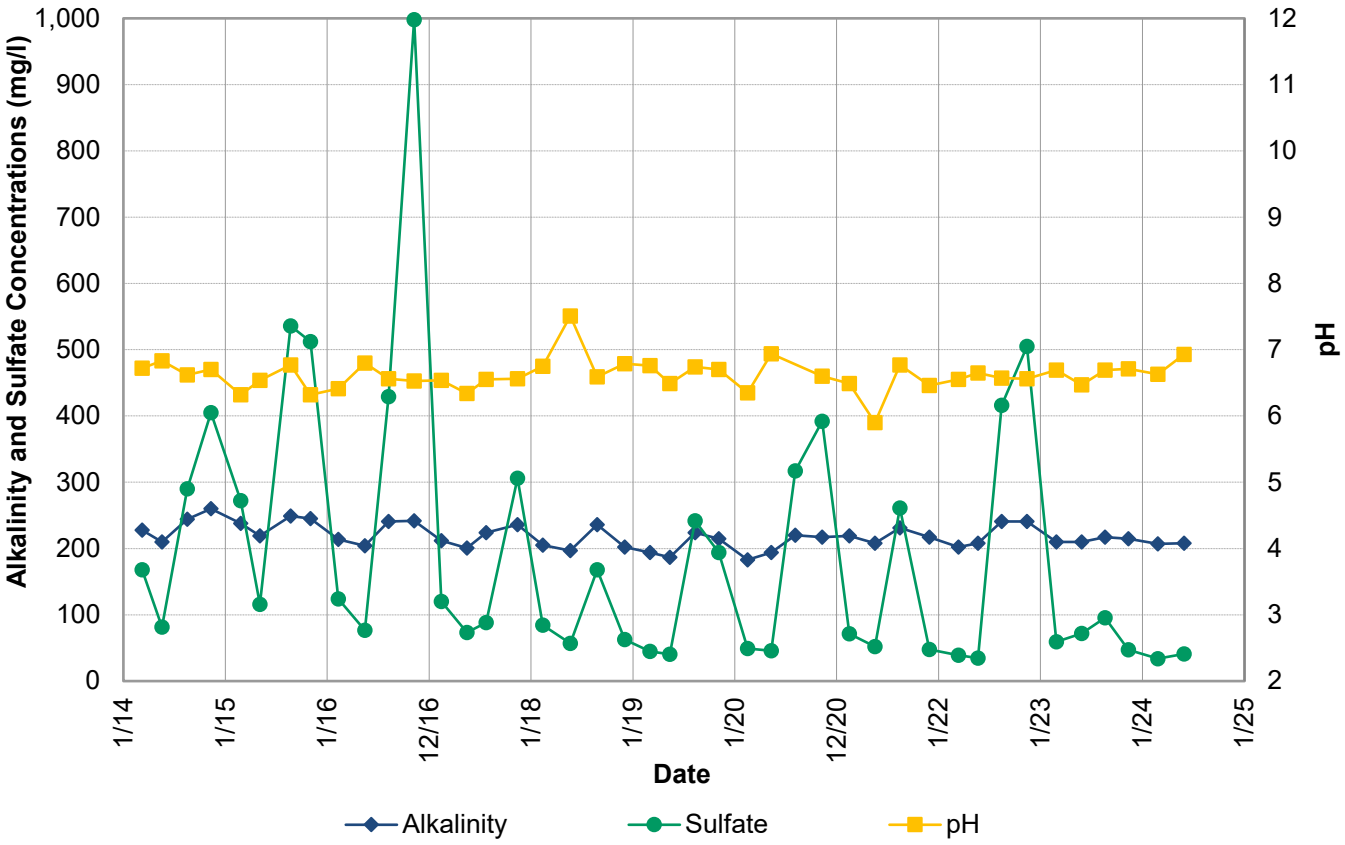
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-26S-R

Project No: 12586936
Date: 09/26/24

FIGURE B21





NOTES:

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GHD

REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-27S

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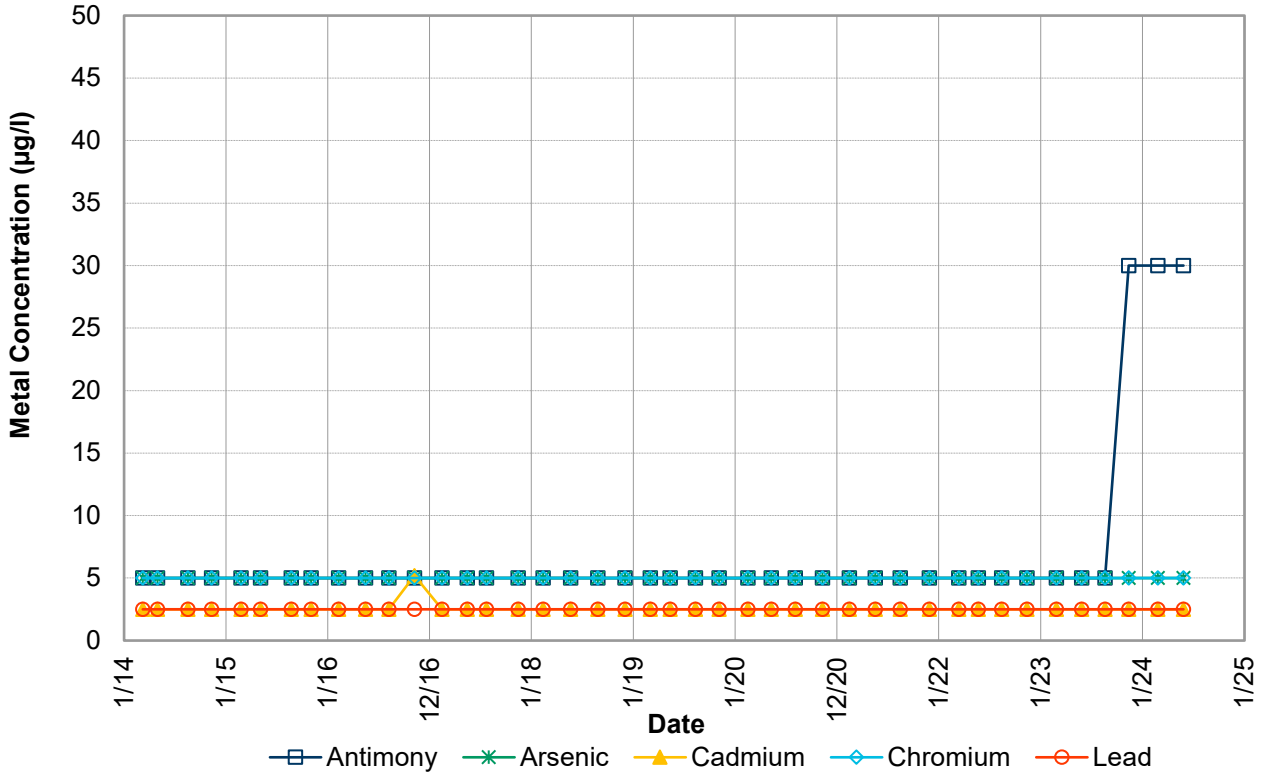
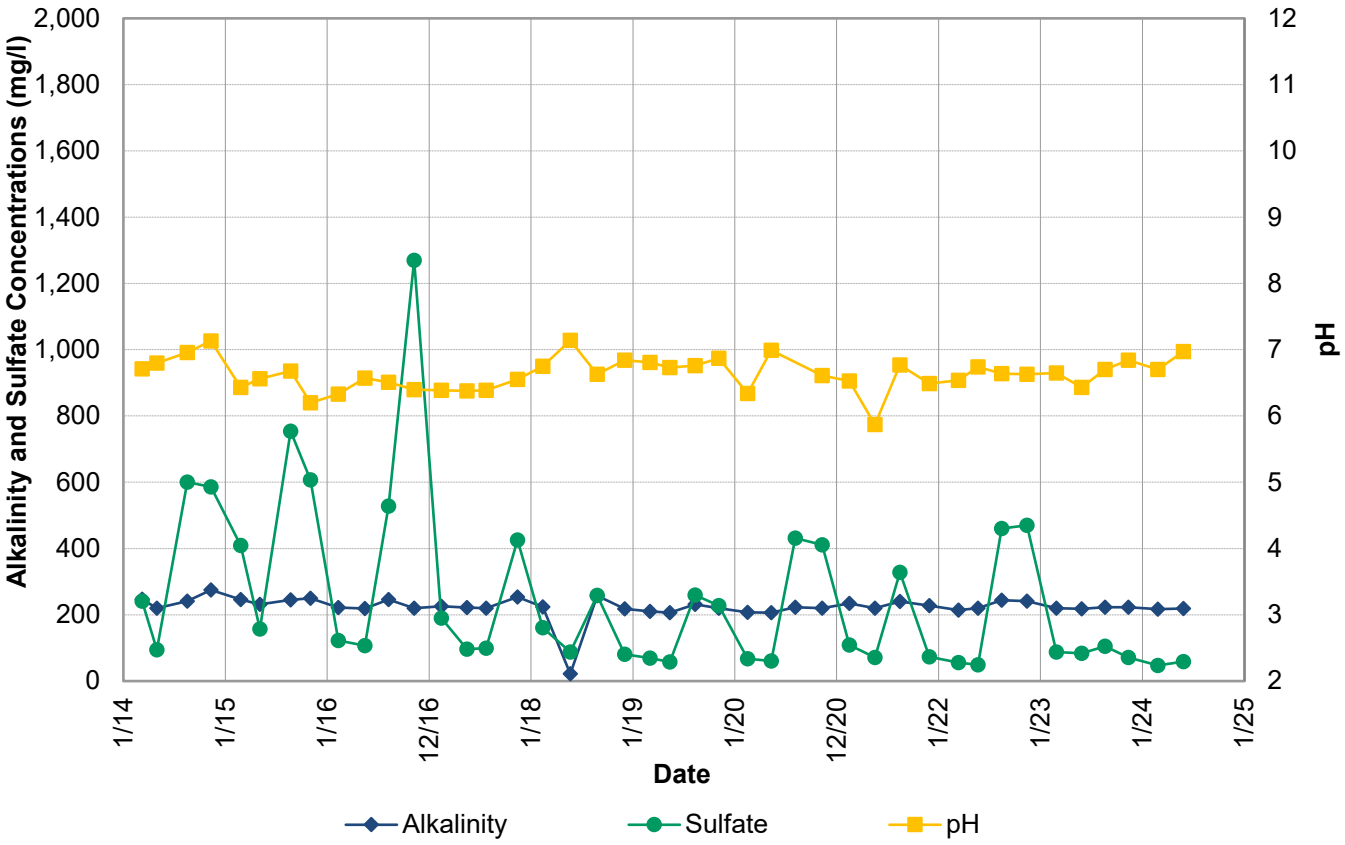
FIGURE B22





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

GHD

REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-27D

Project No: 12586936
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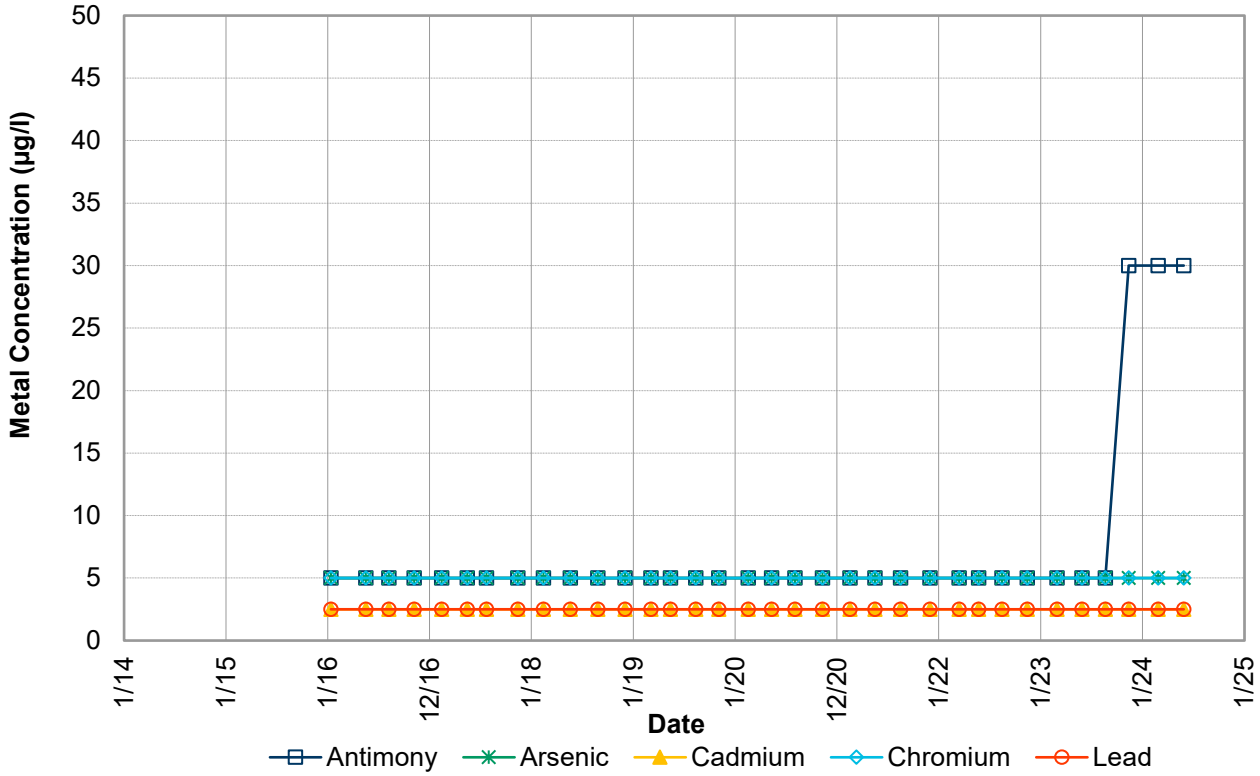
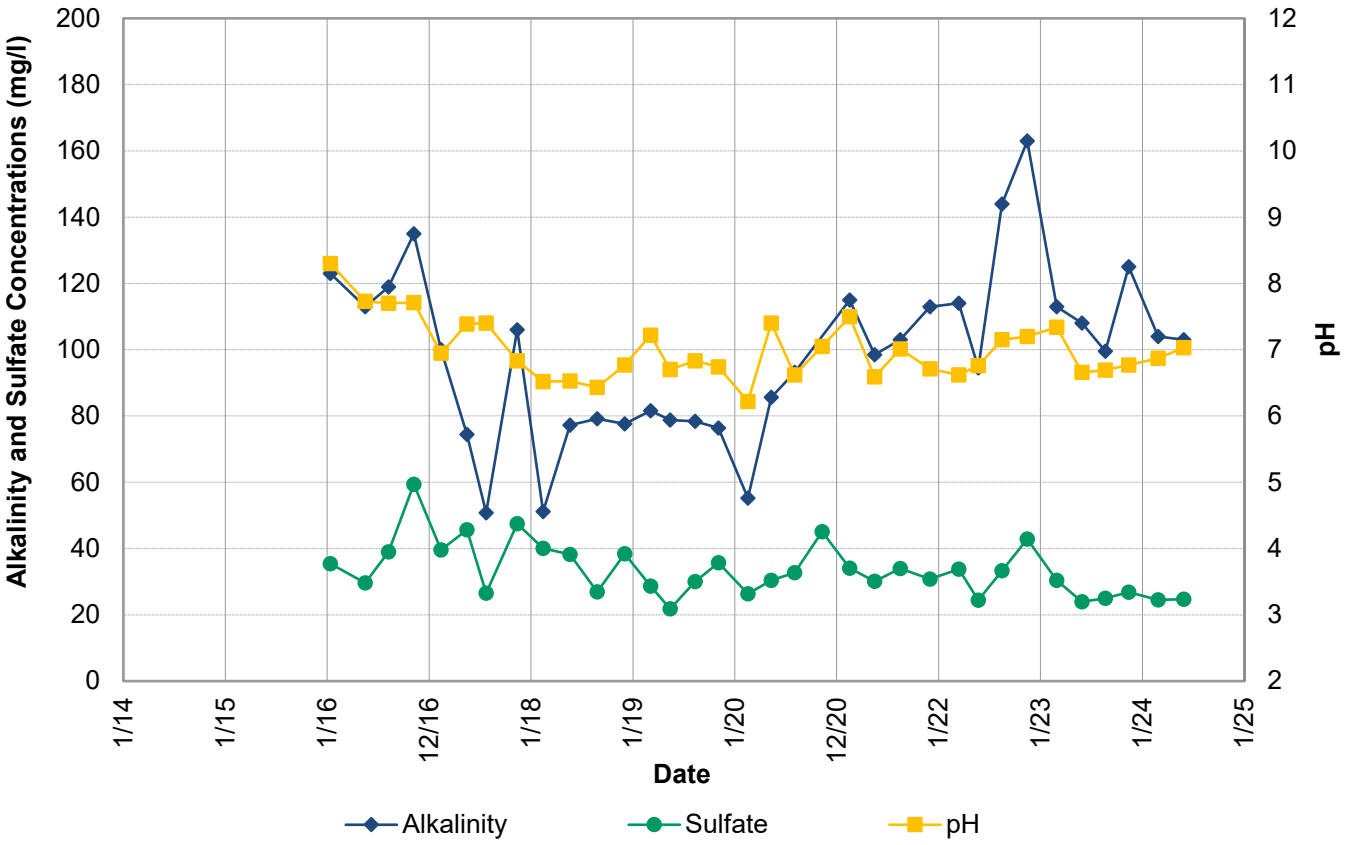
FIGURE B23





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

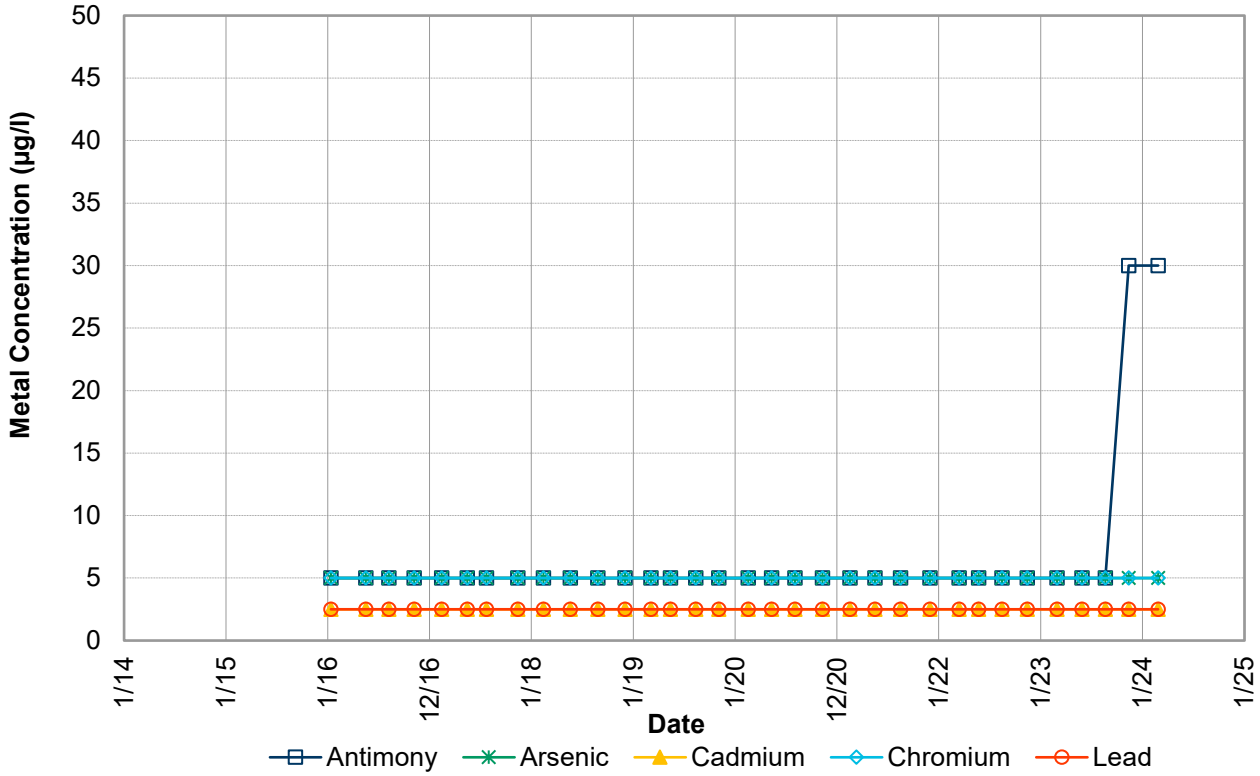
GHD

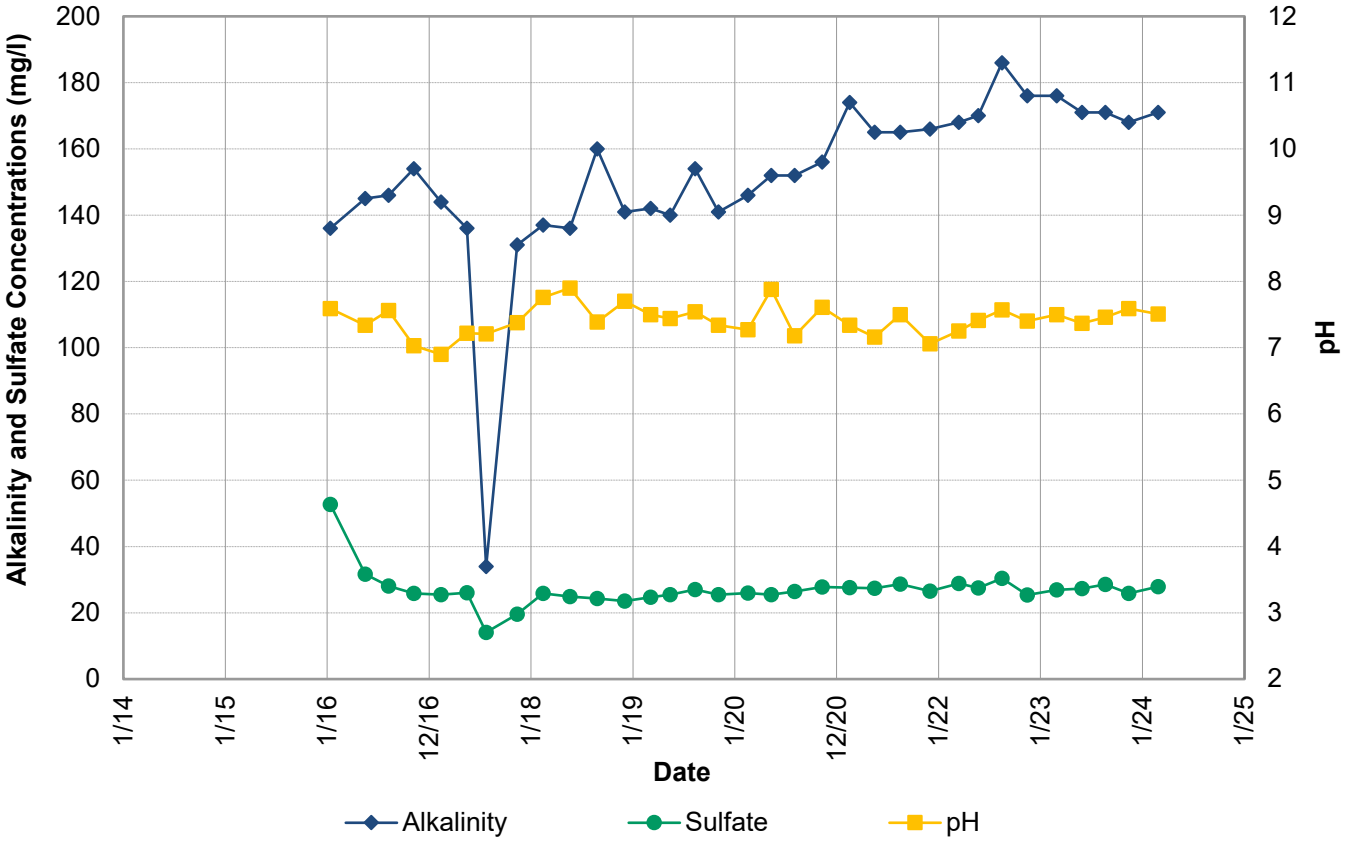
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-28S

Project No: 12586936
Date: 09/26/24

FIGURE B24





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

GHD

REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-28D

Project No: 12586936
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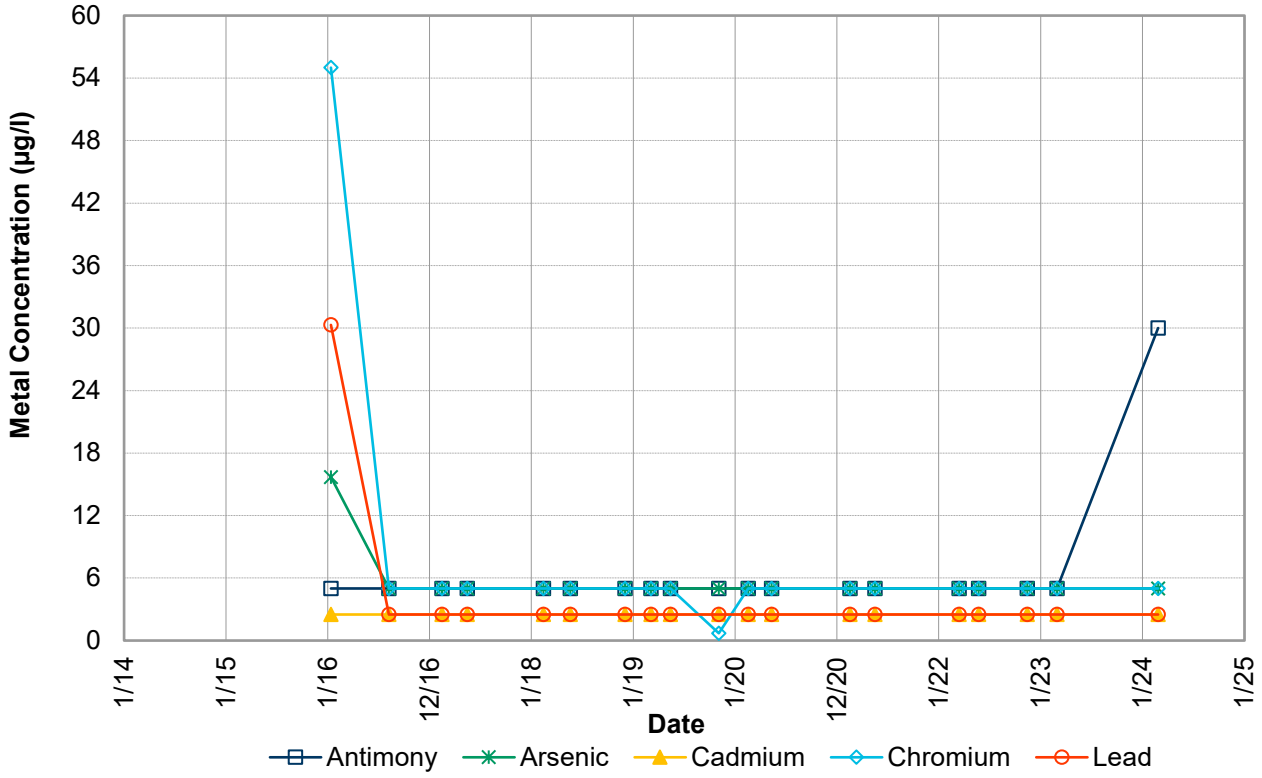
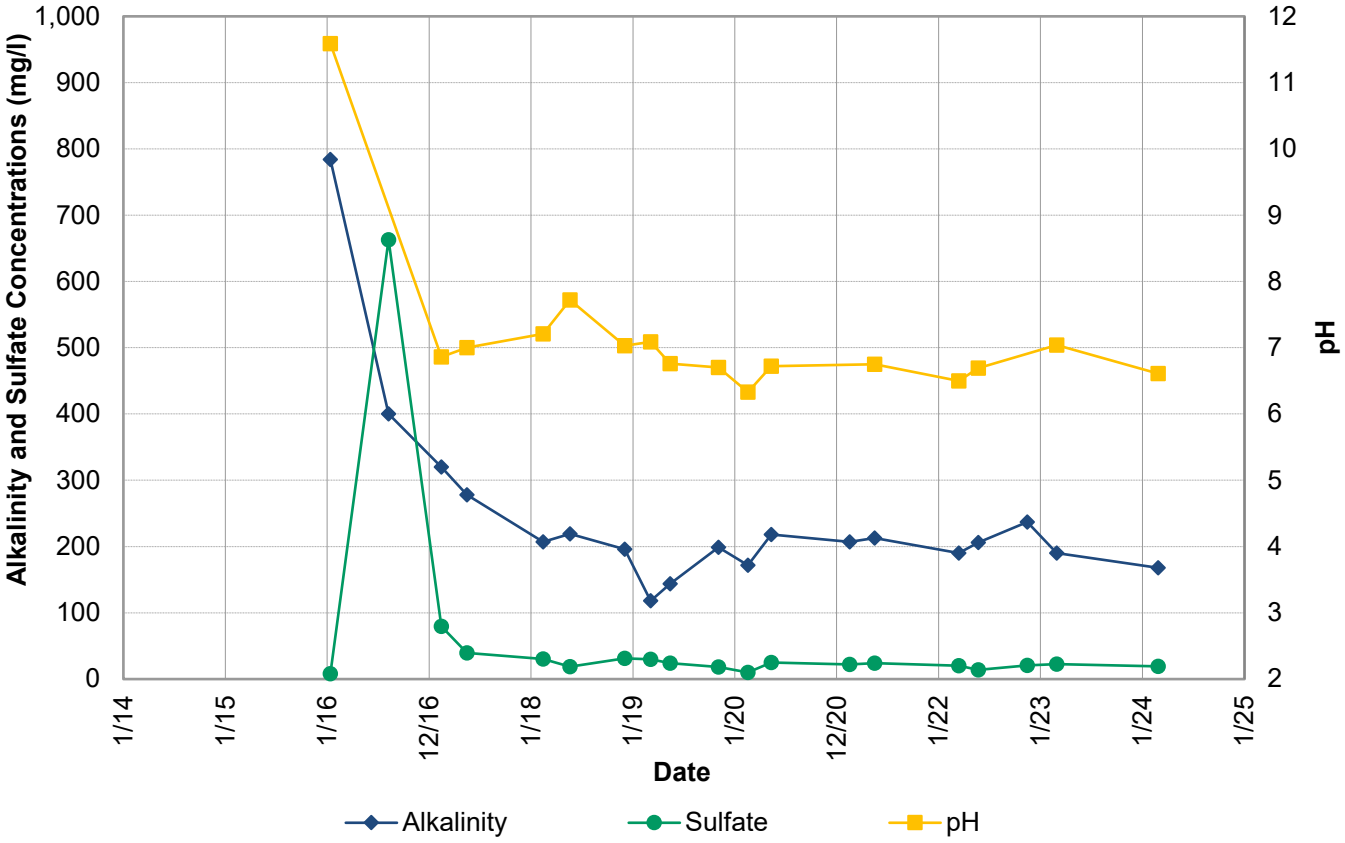
FIGURE B25





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

GHD

REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-29I

Project No: 12586936
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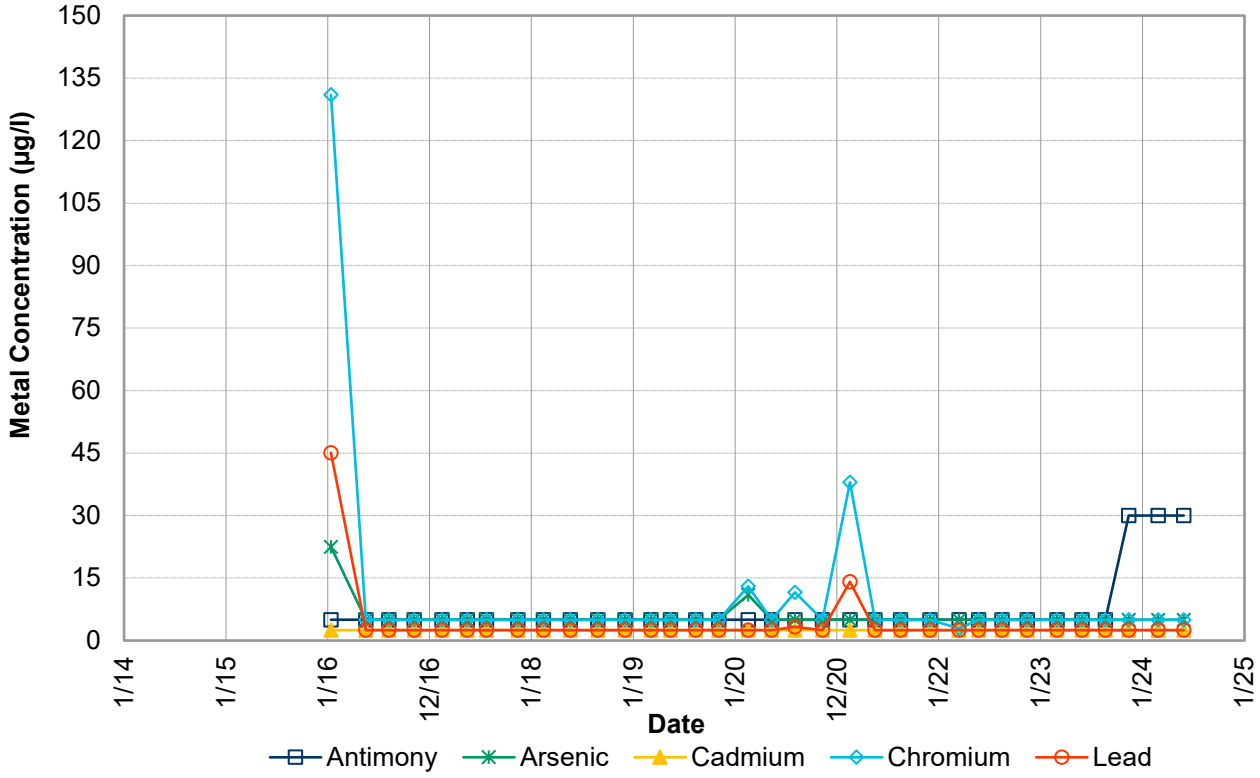
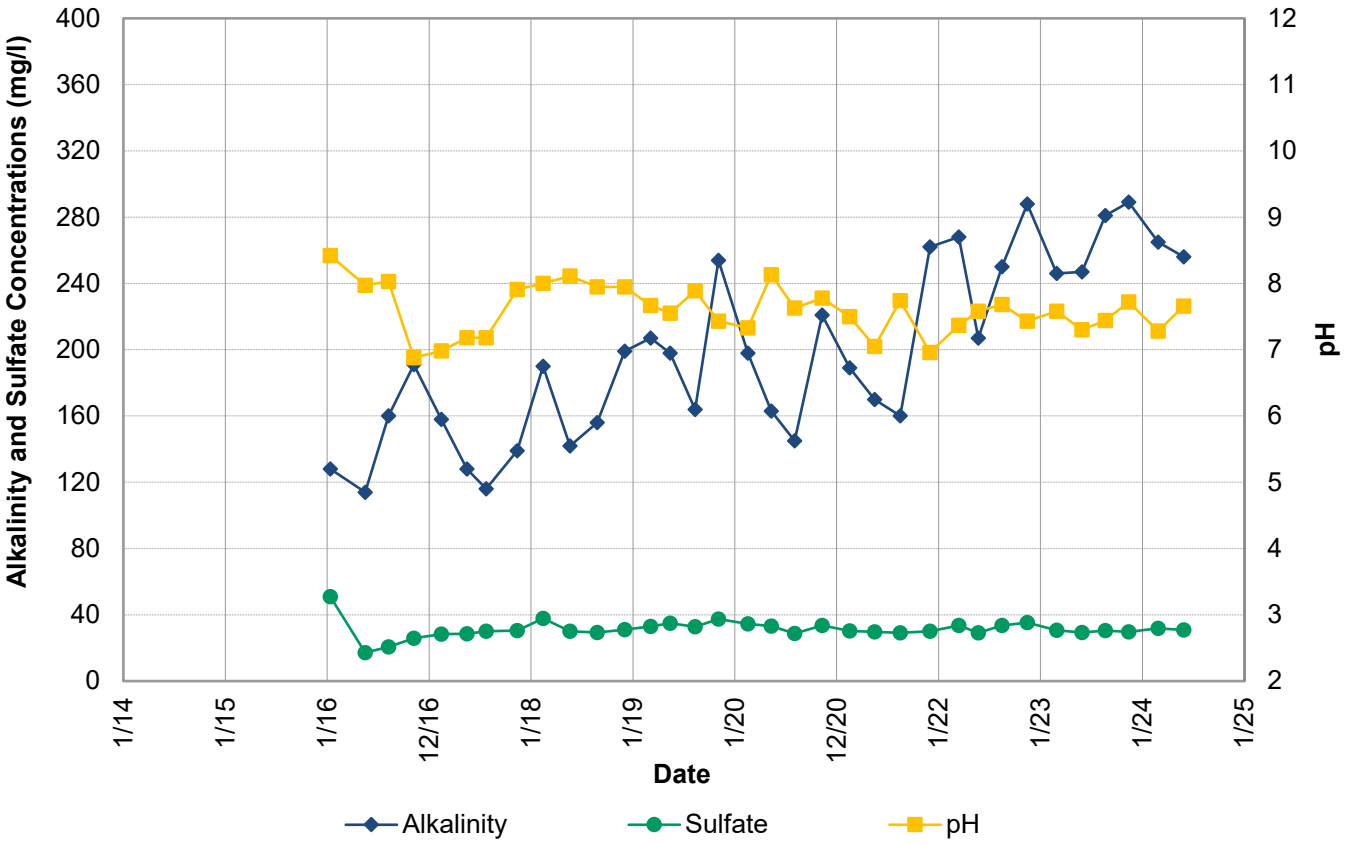
FIGURE B26





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

GHD

REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-29D

Project No: 12586936
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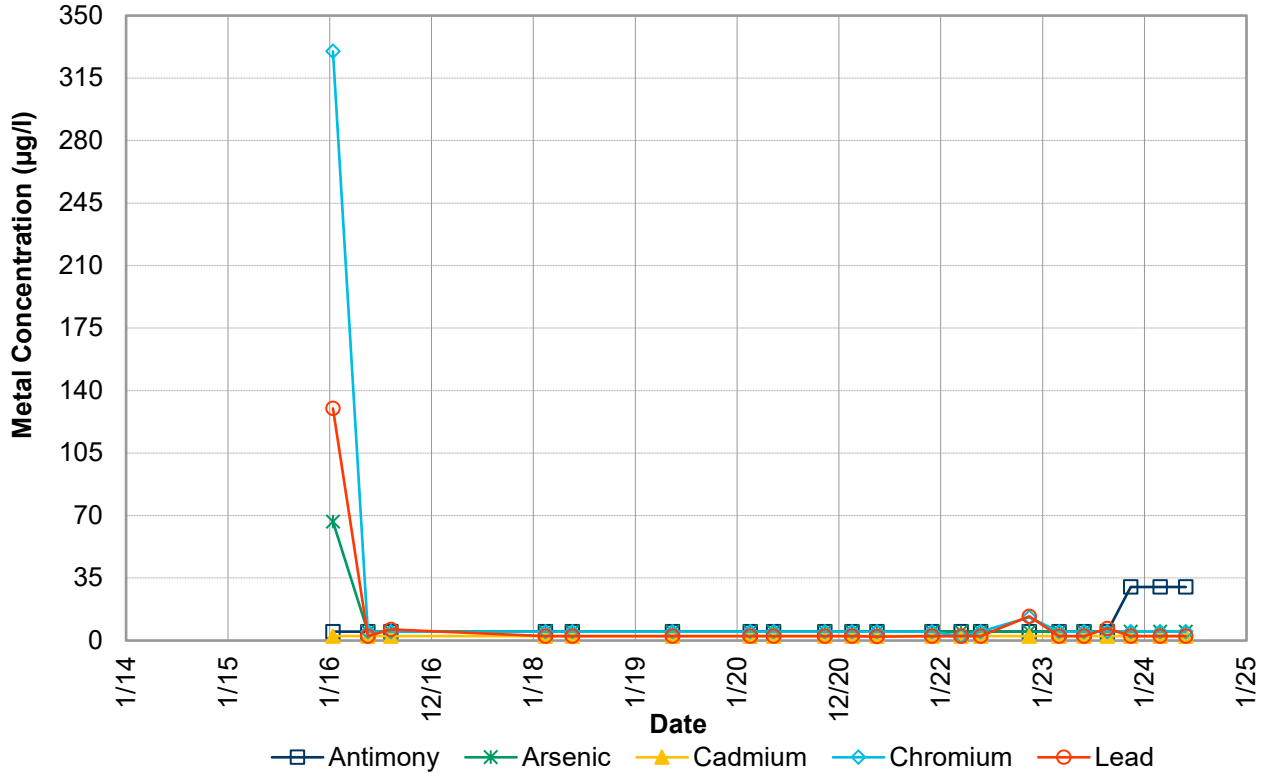
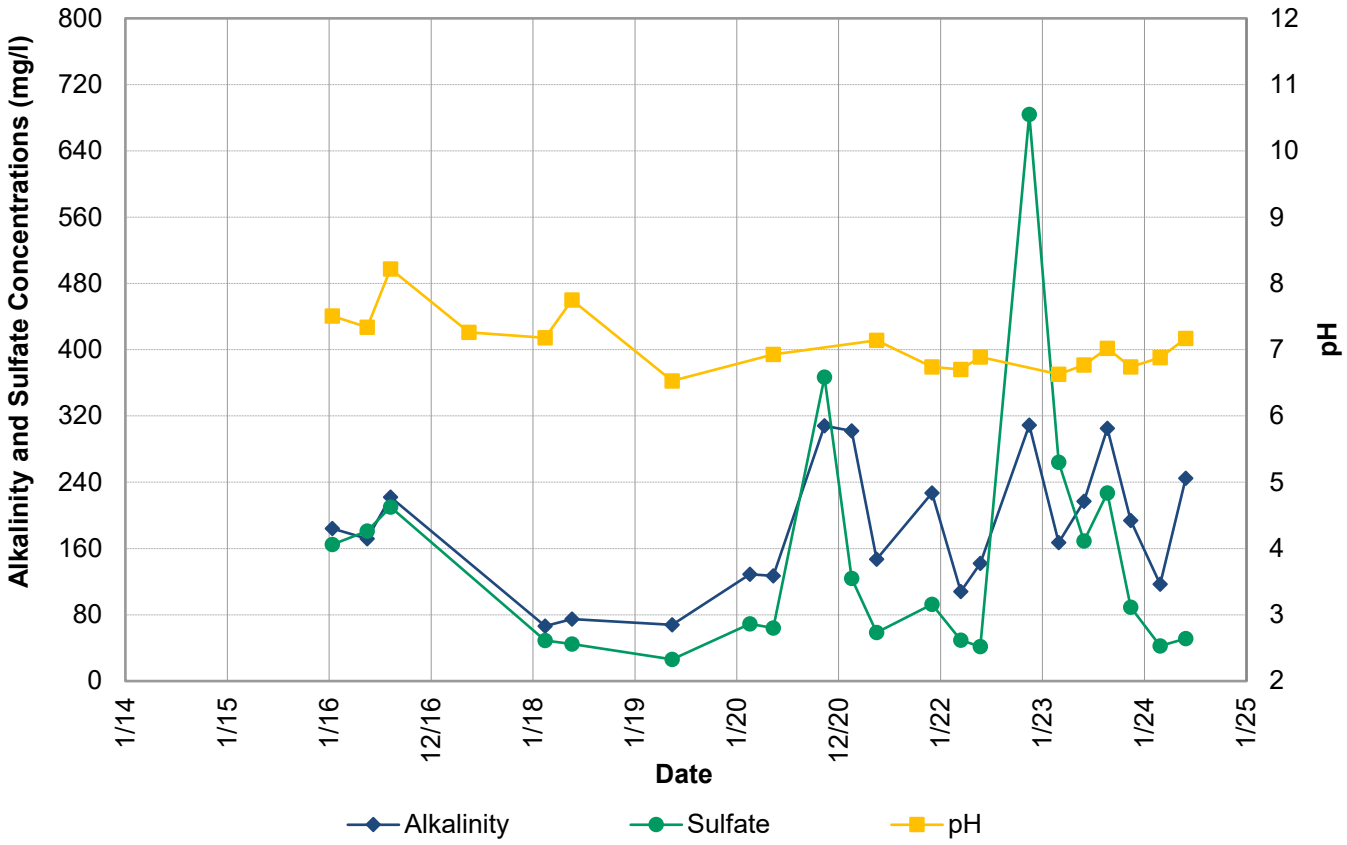
FIGURE B27





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

GHD

REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-30S

Project No: 12586936
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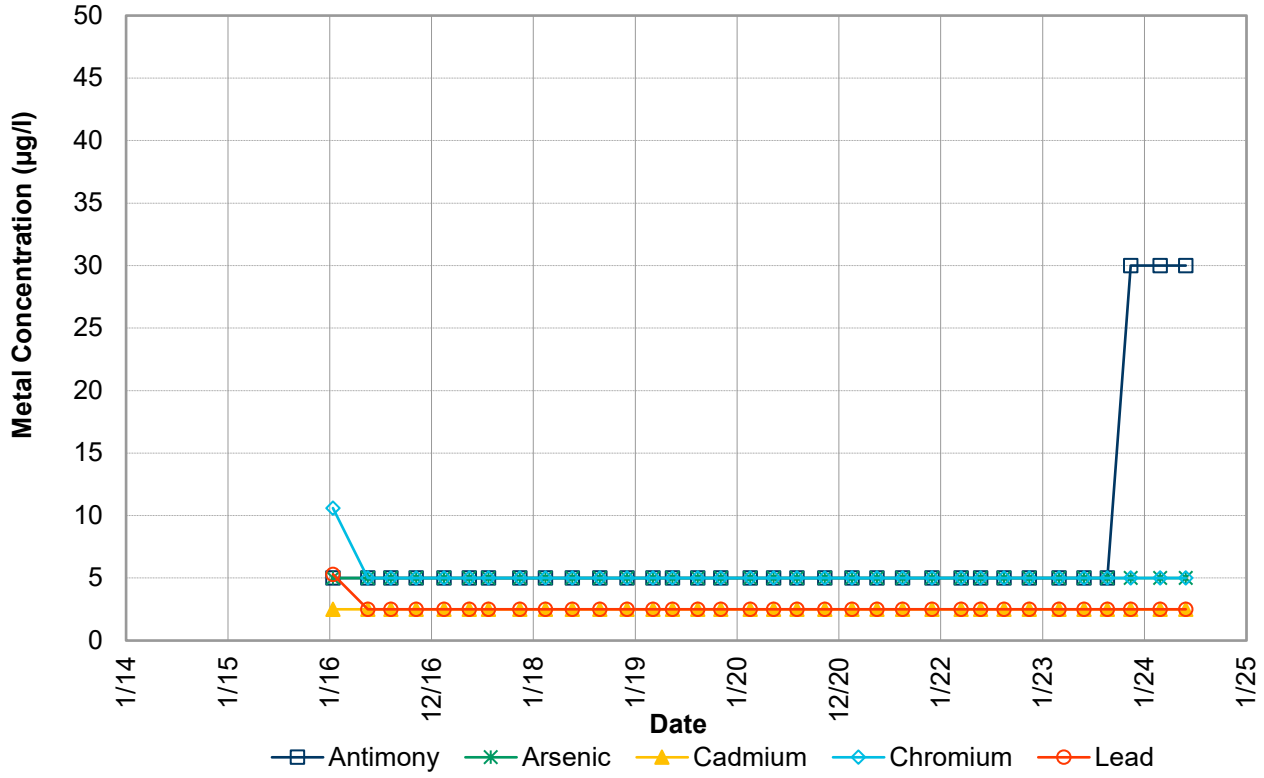
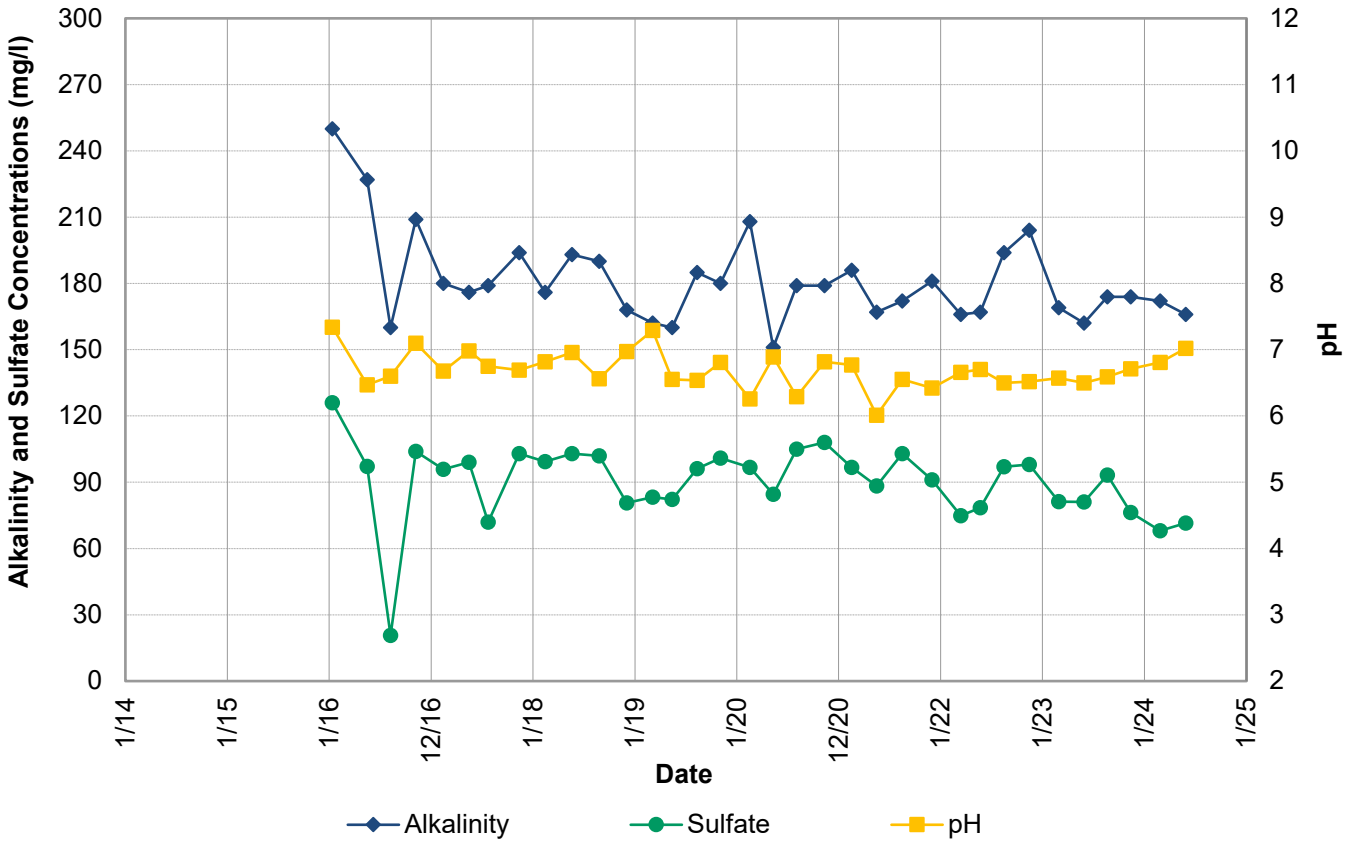
FIGURE B28





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

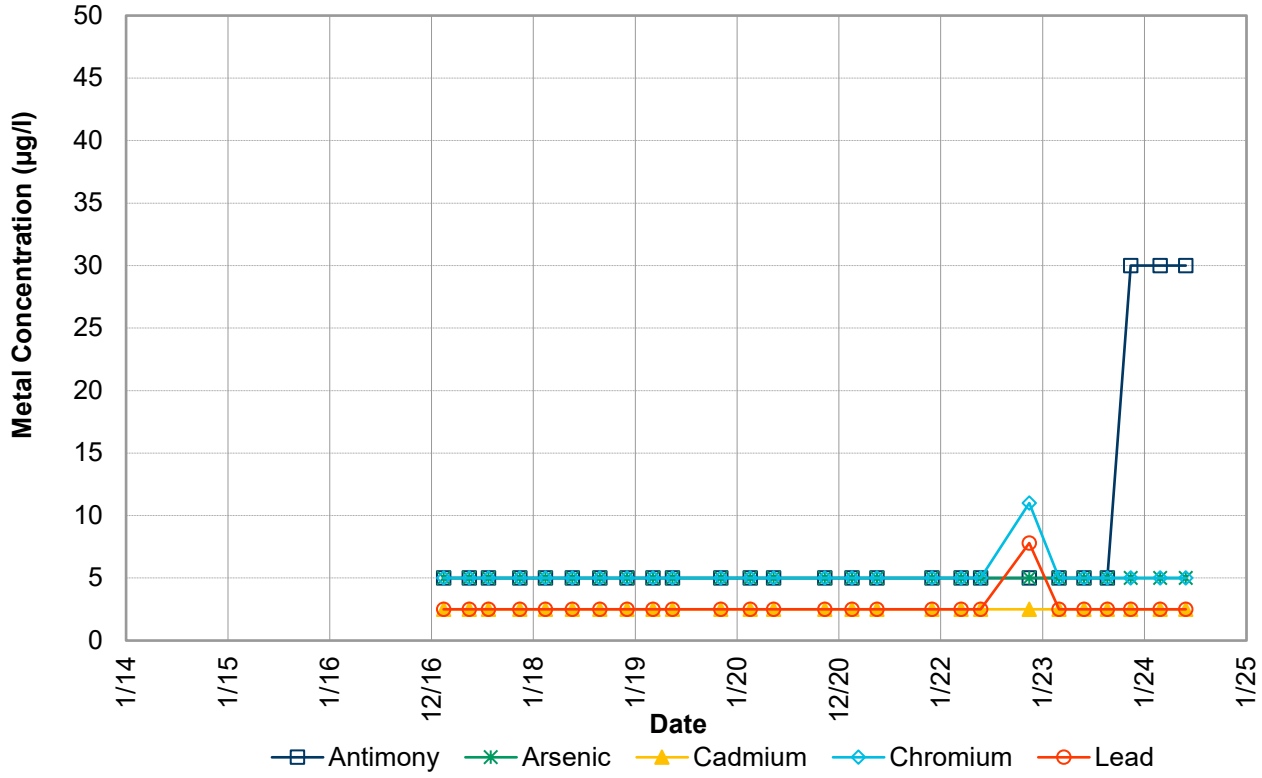
GHD

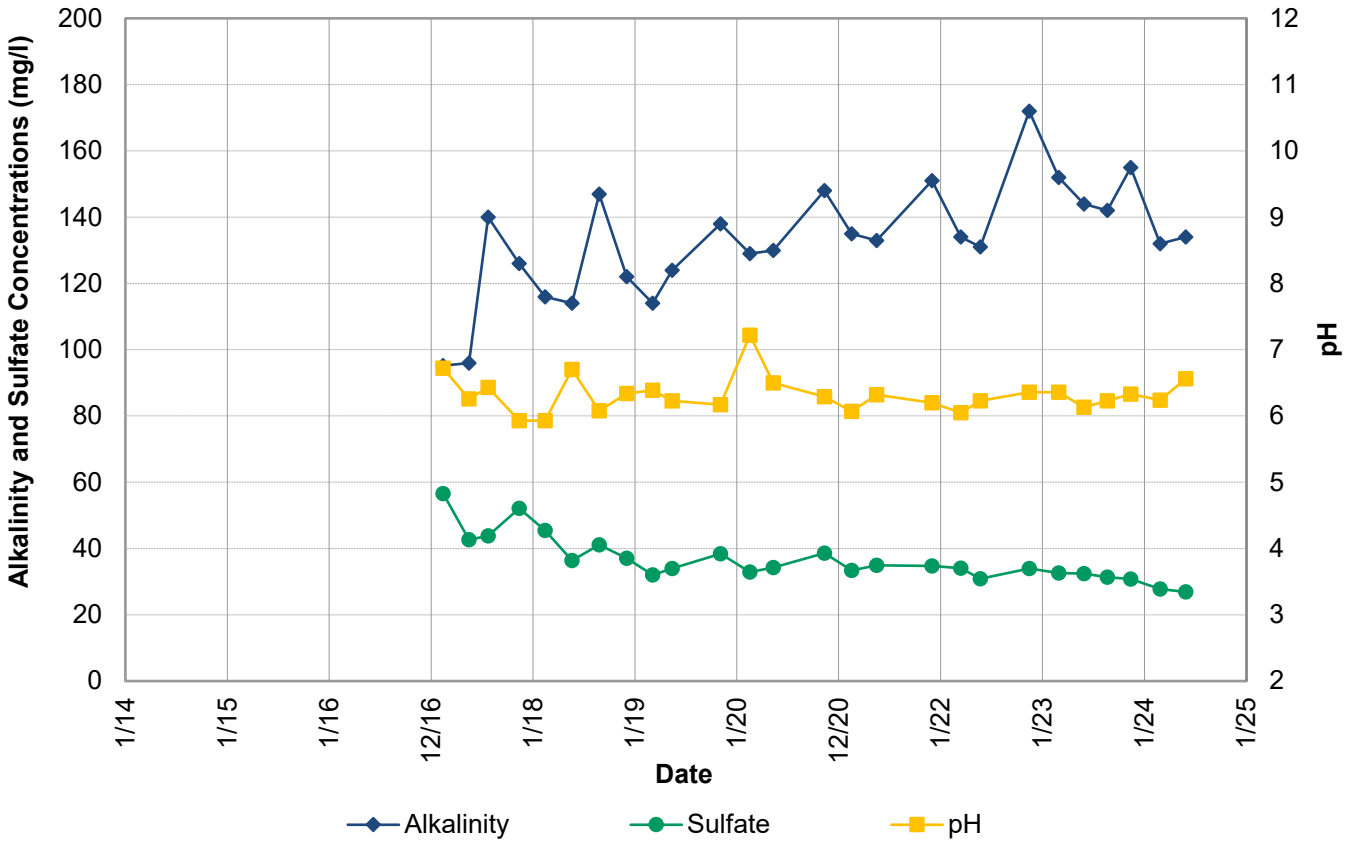
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-30D

Project No: 12586936
Date: 09/26/24

FIGURE B29





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

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REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-31S

Project No: 12586936
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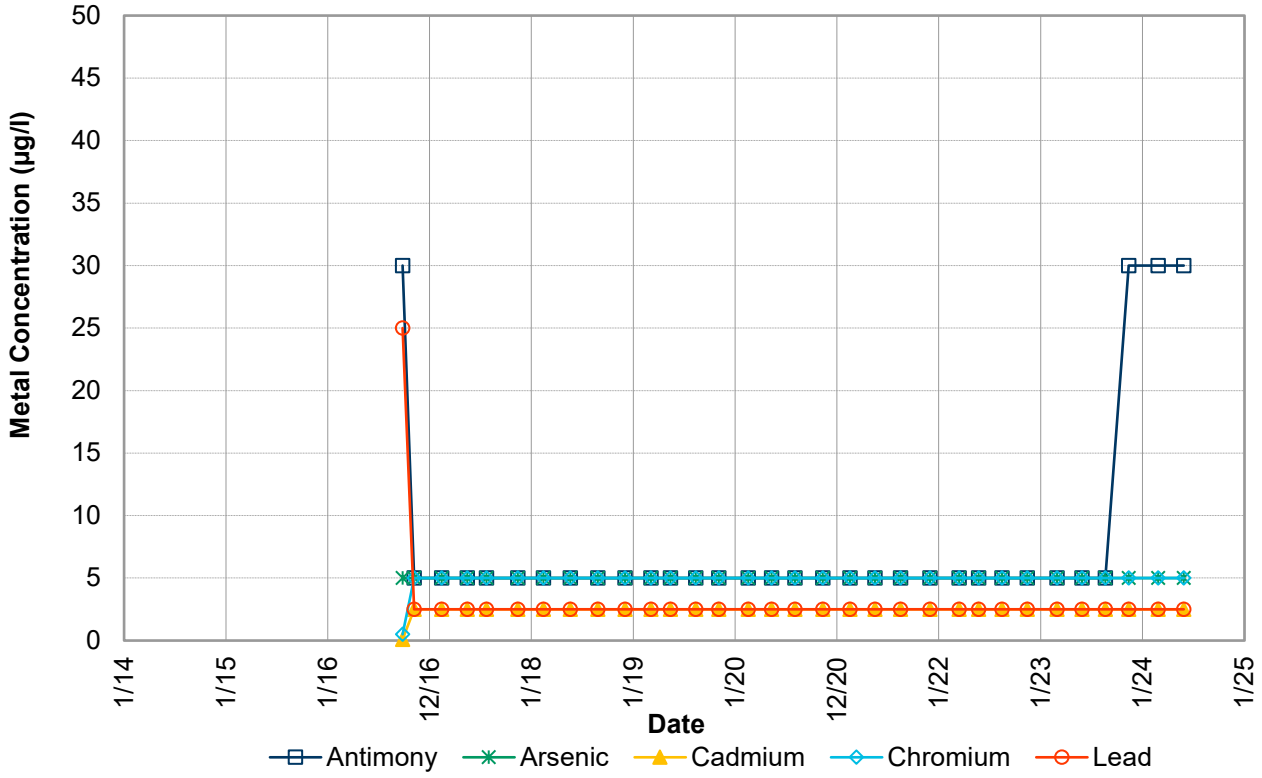
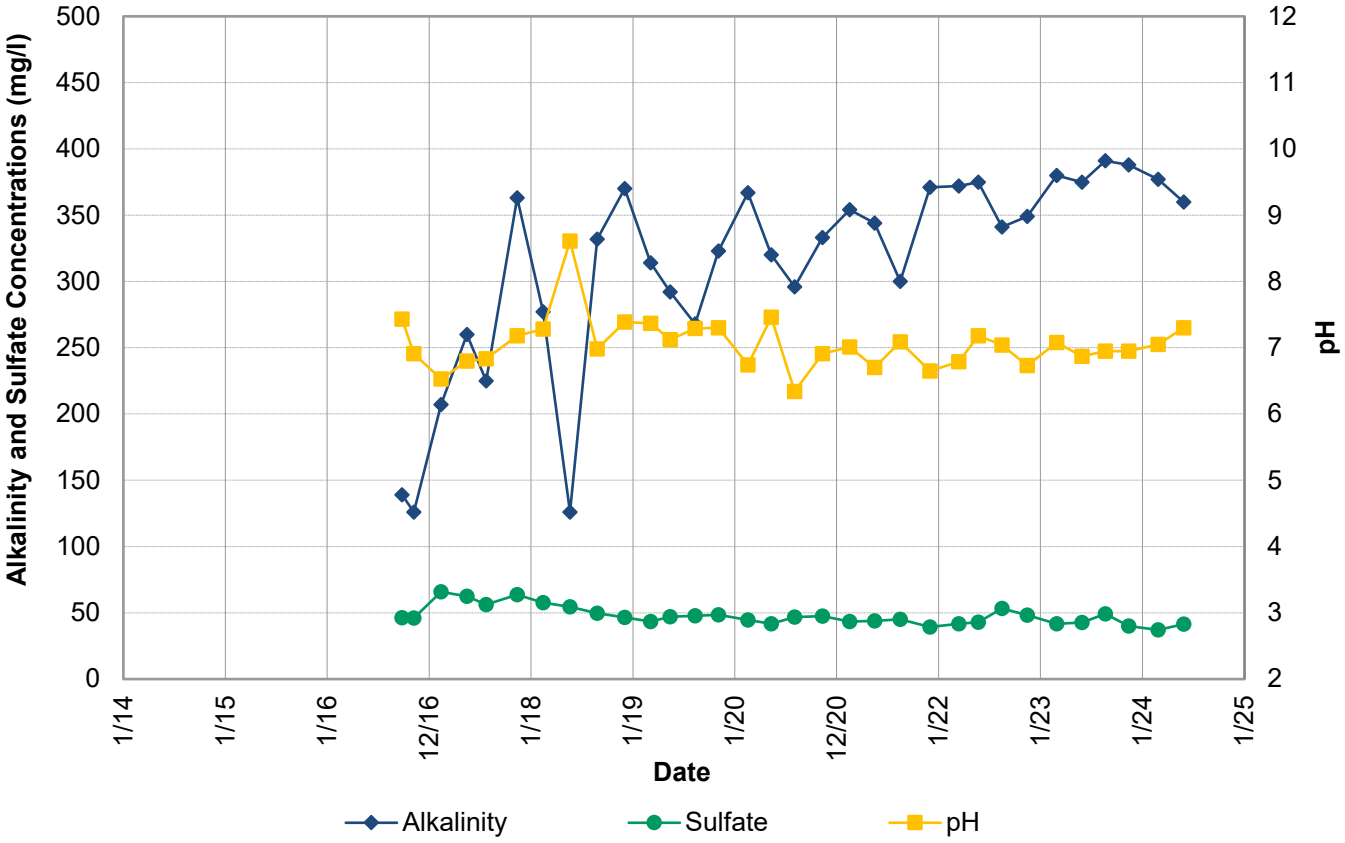
FIGURE B30





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

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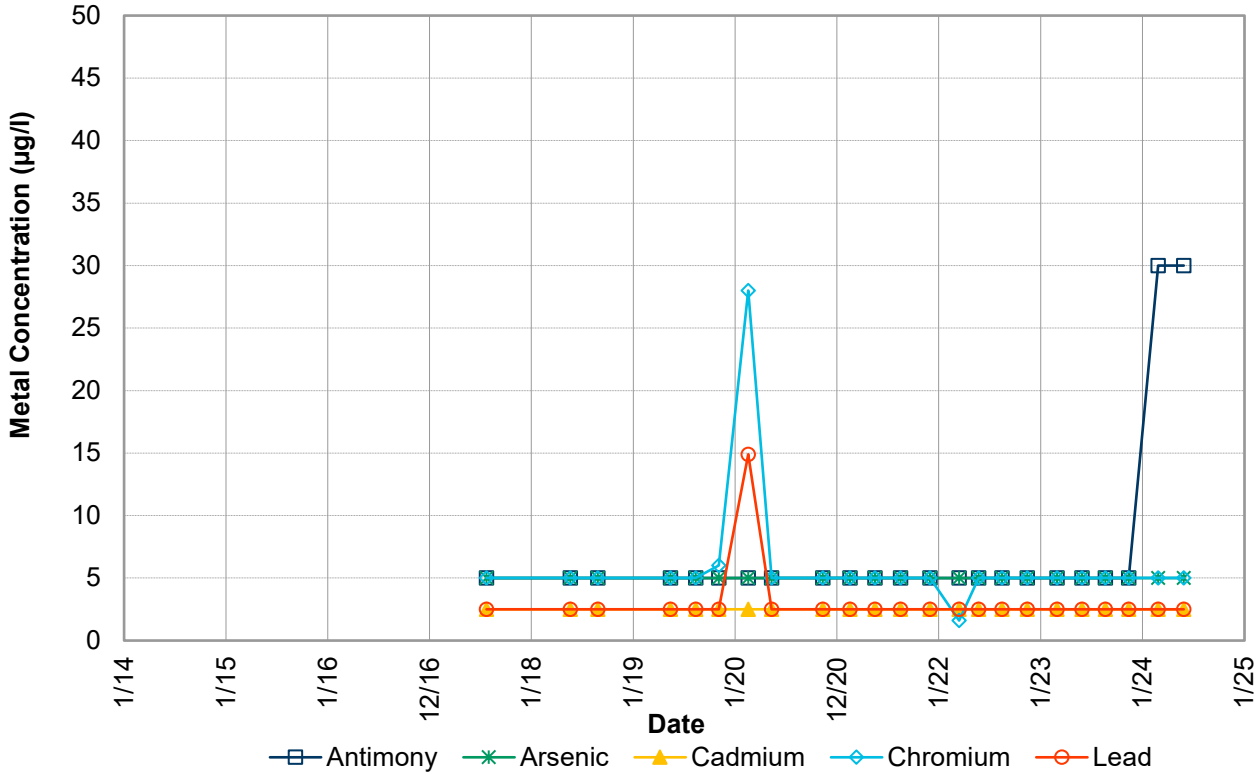
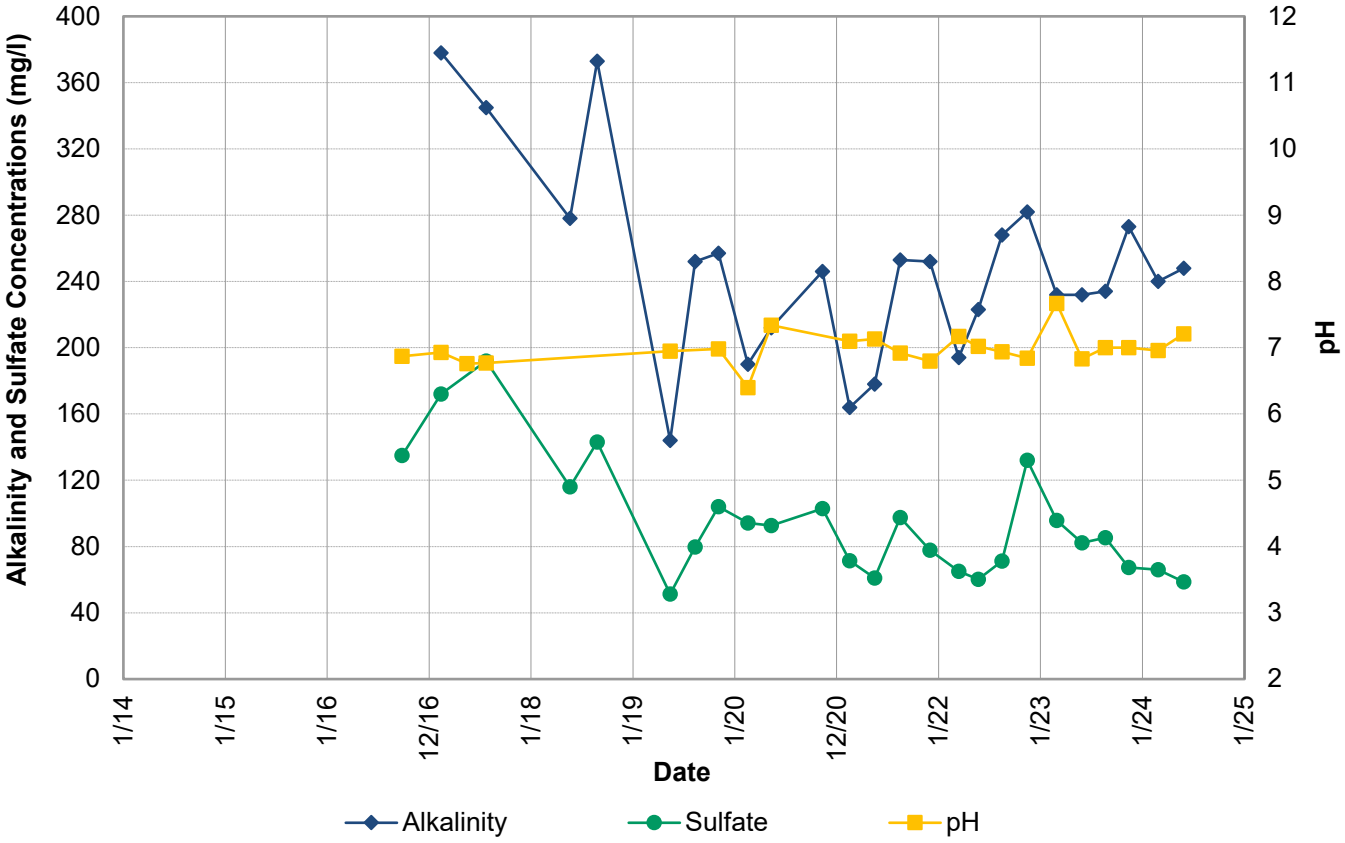
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-31D

Project No: 12586936
Date: 09/26/24

FIGURE B31





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

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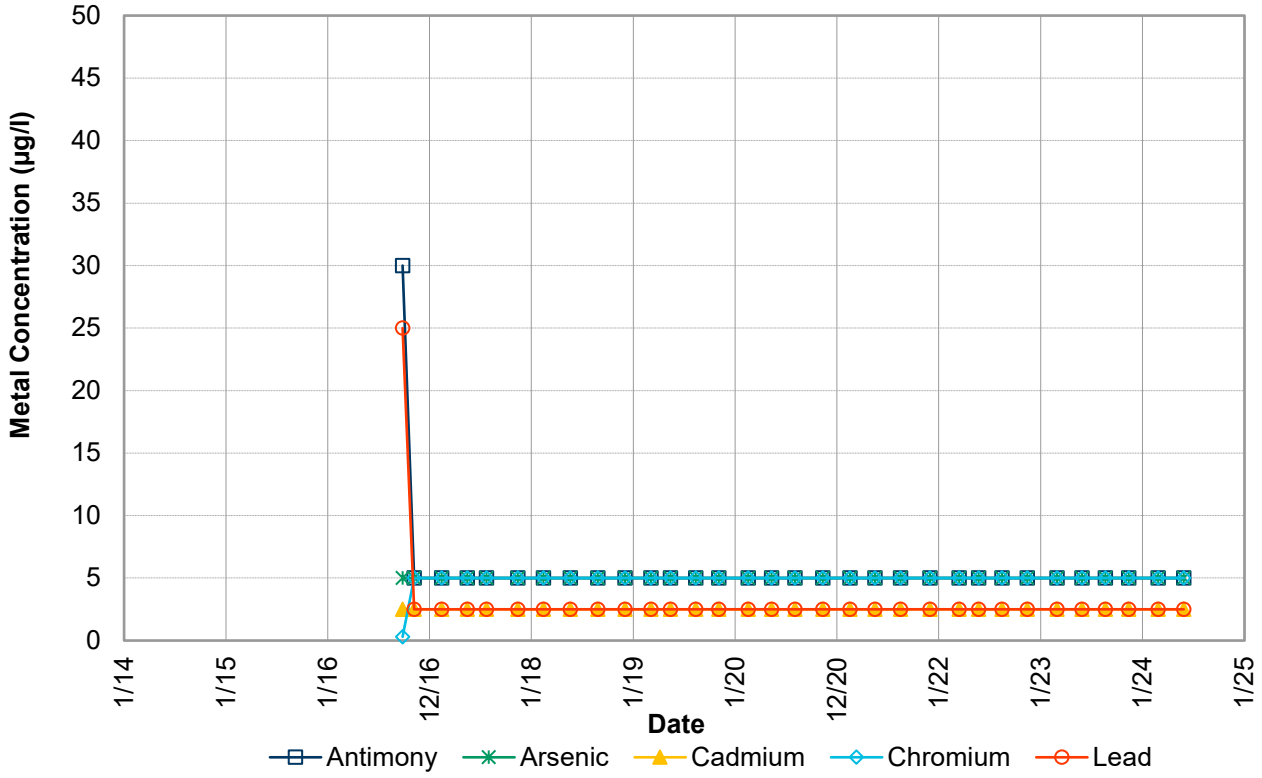
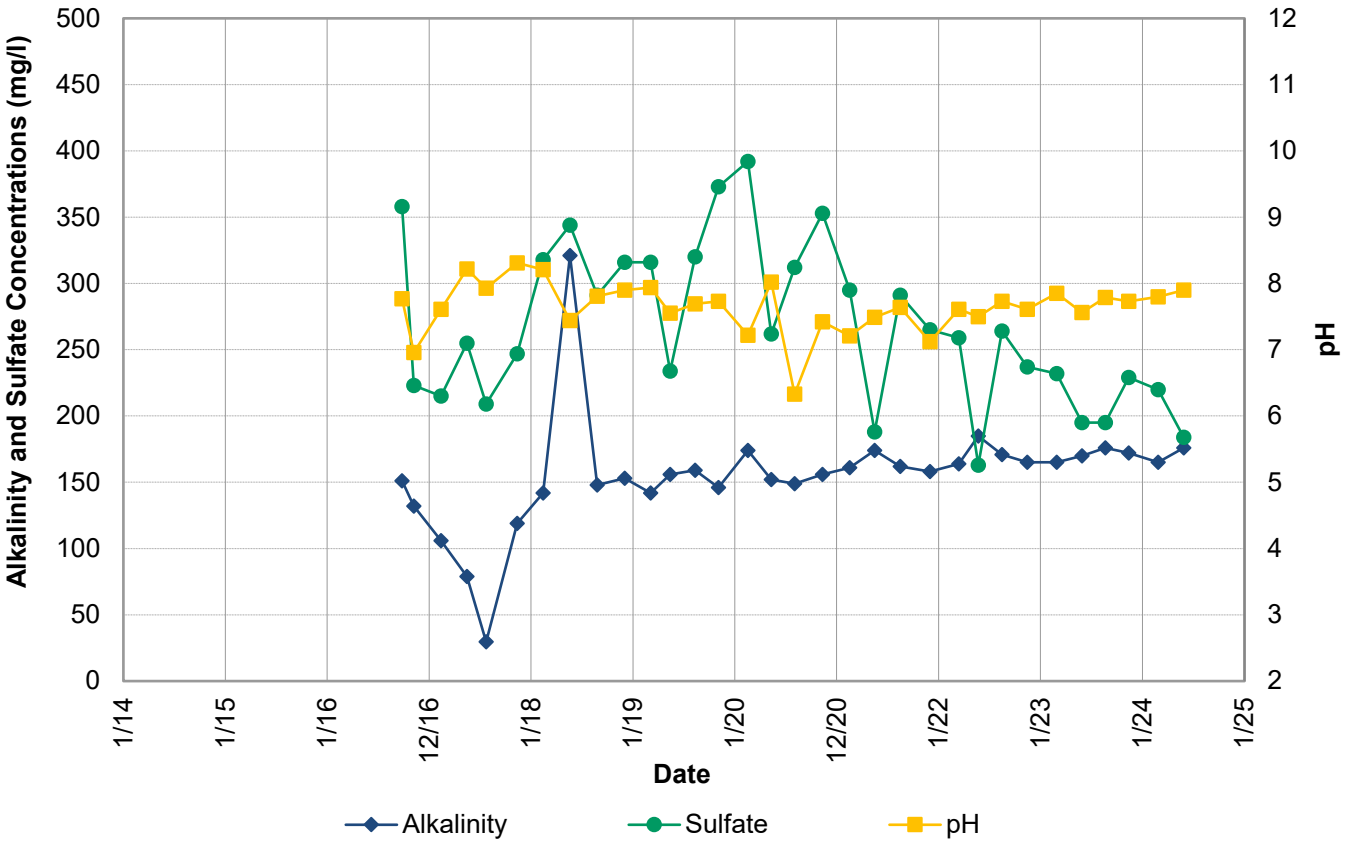
REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-32S

Project No: 12586936
Date: 09/26/24

FIGURE B32





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

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REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

GROUNDWATER ANALYTICAL RESULTS
MONITORING WELL MW-32D

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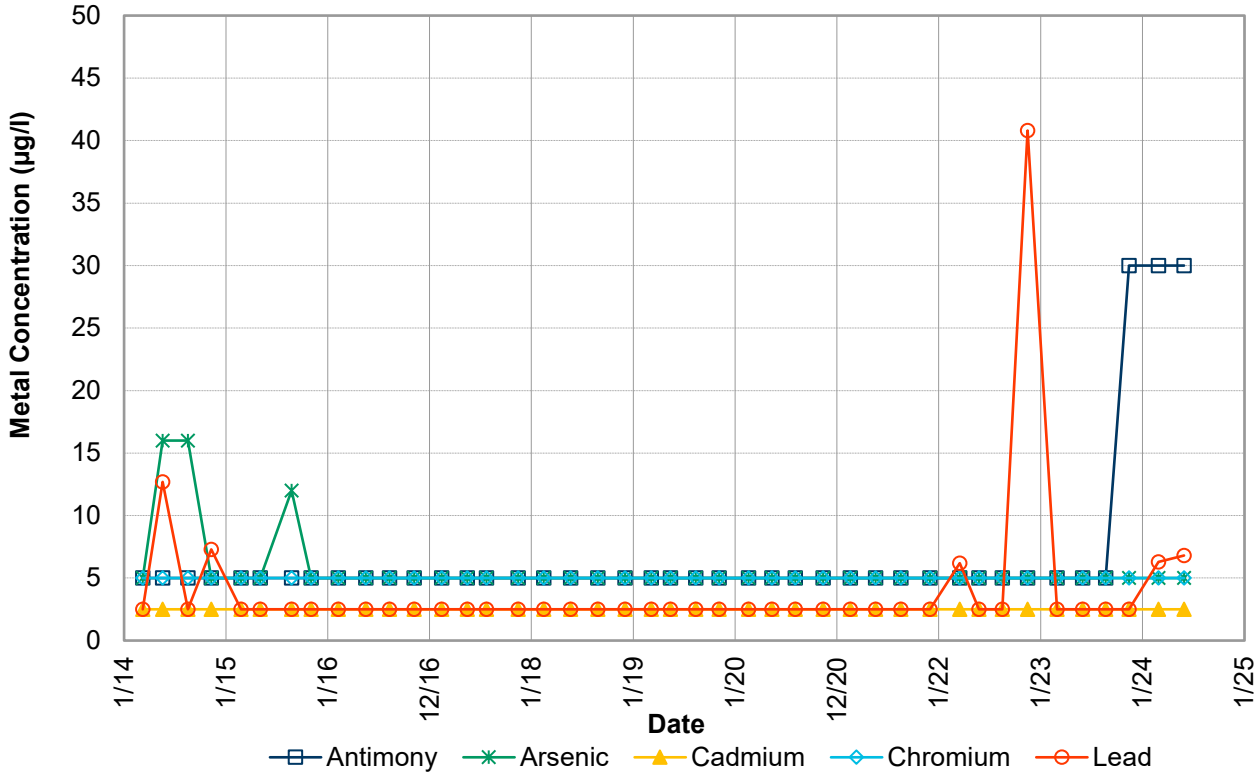
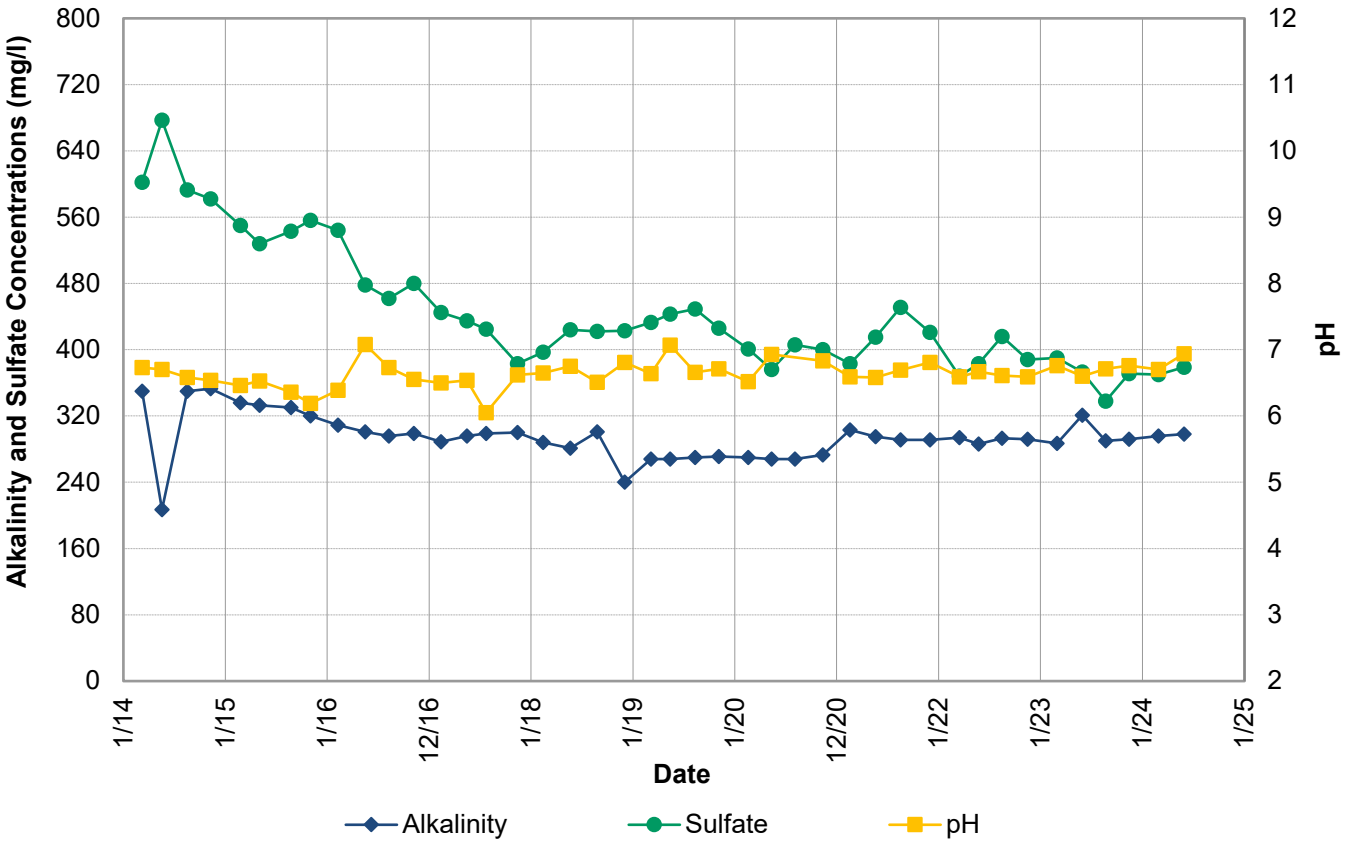
FIGURE B33

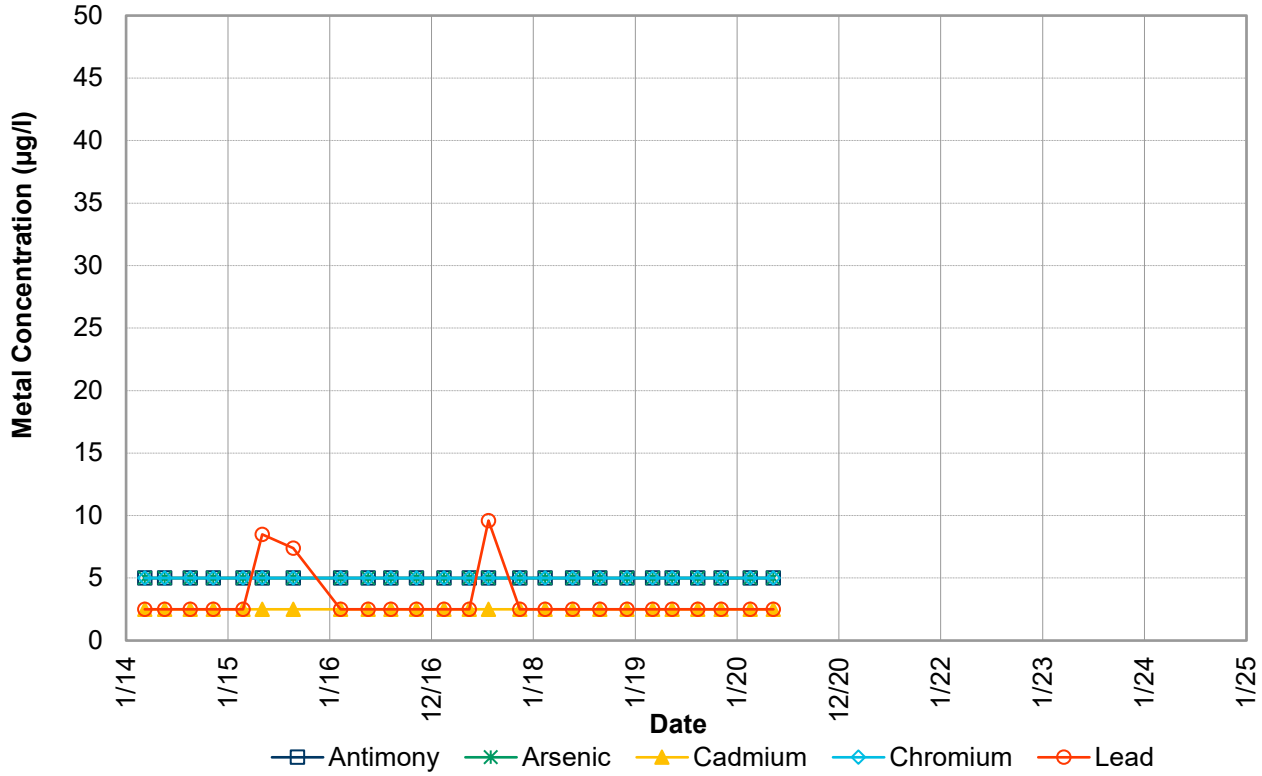


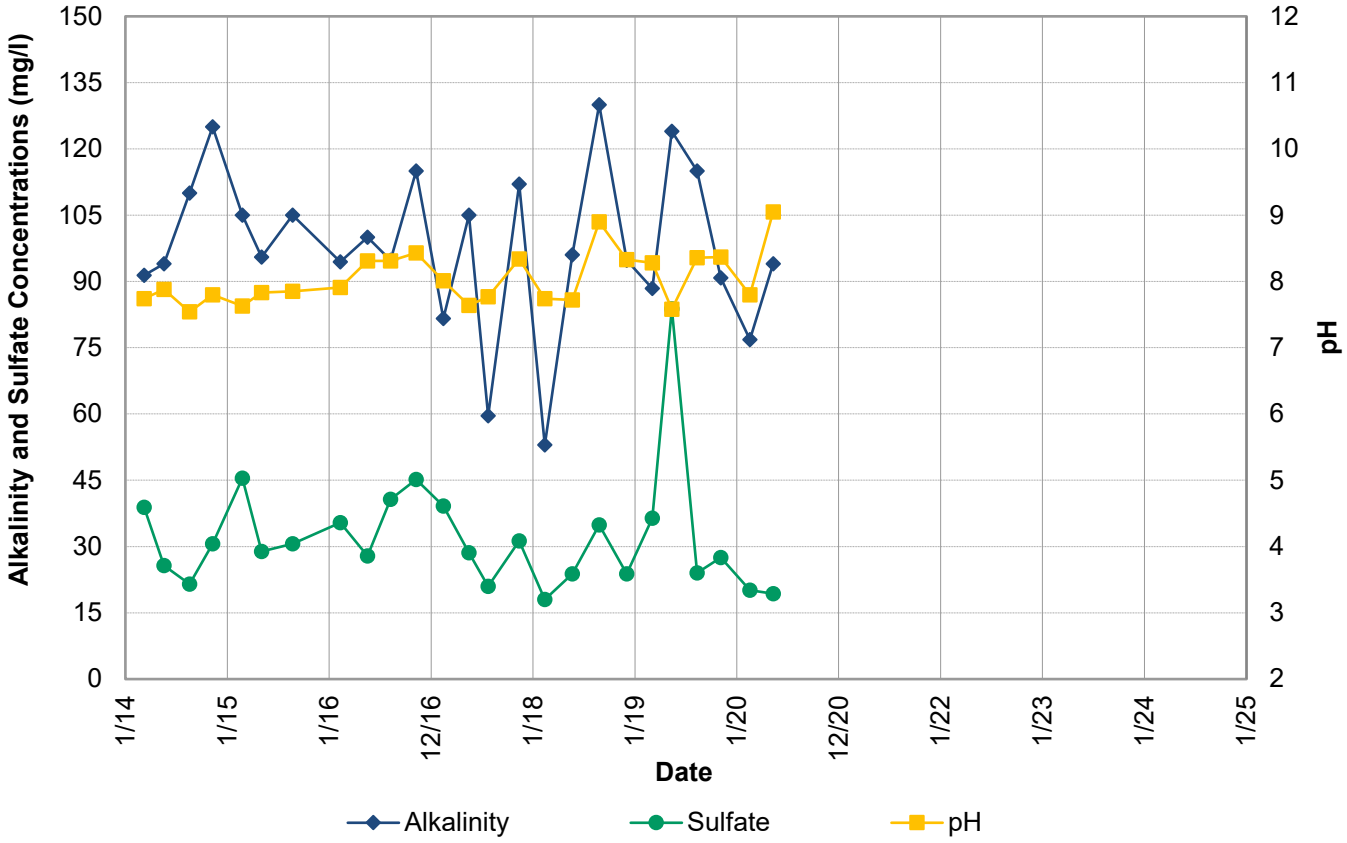


NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from the past 10 years (2014-2024) are included on these graphs.

GHD	REVERE SMELTING AND REFINING SITE MIDDLETOWN, NEW YORK **GROUNDWATER ANALYTICAL RESULTS** **PIEZOMETER PZ-13**	Project No: 12586936 Date: 09/26/24 **FIGURE B34**





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from 2014 until sampling was ceased in 2020 are included on these graphs.

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REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

SURFACEWATER ANALYTICAL RESULTS
SURFACE WATER LOCATION SW-1

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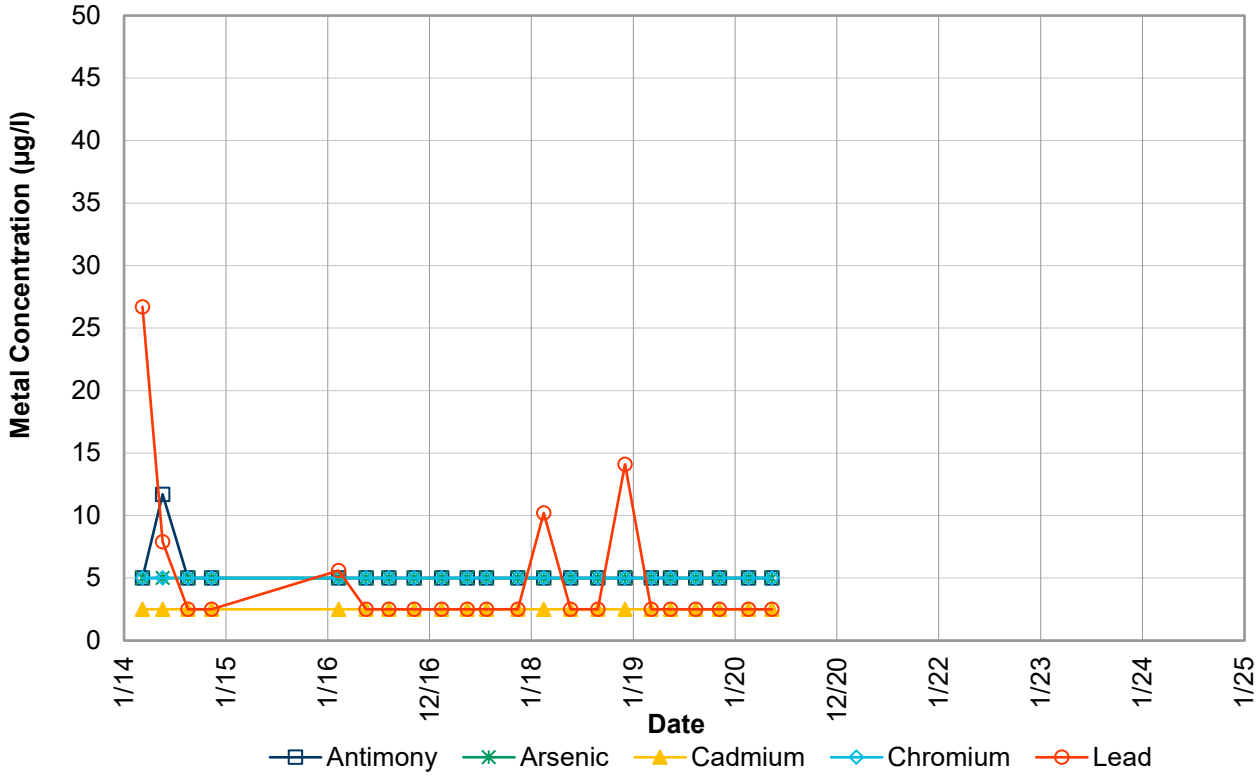
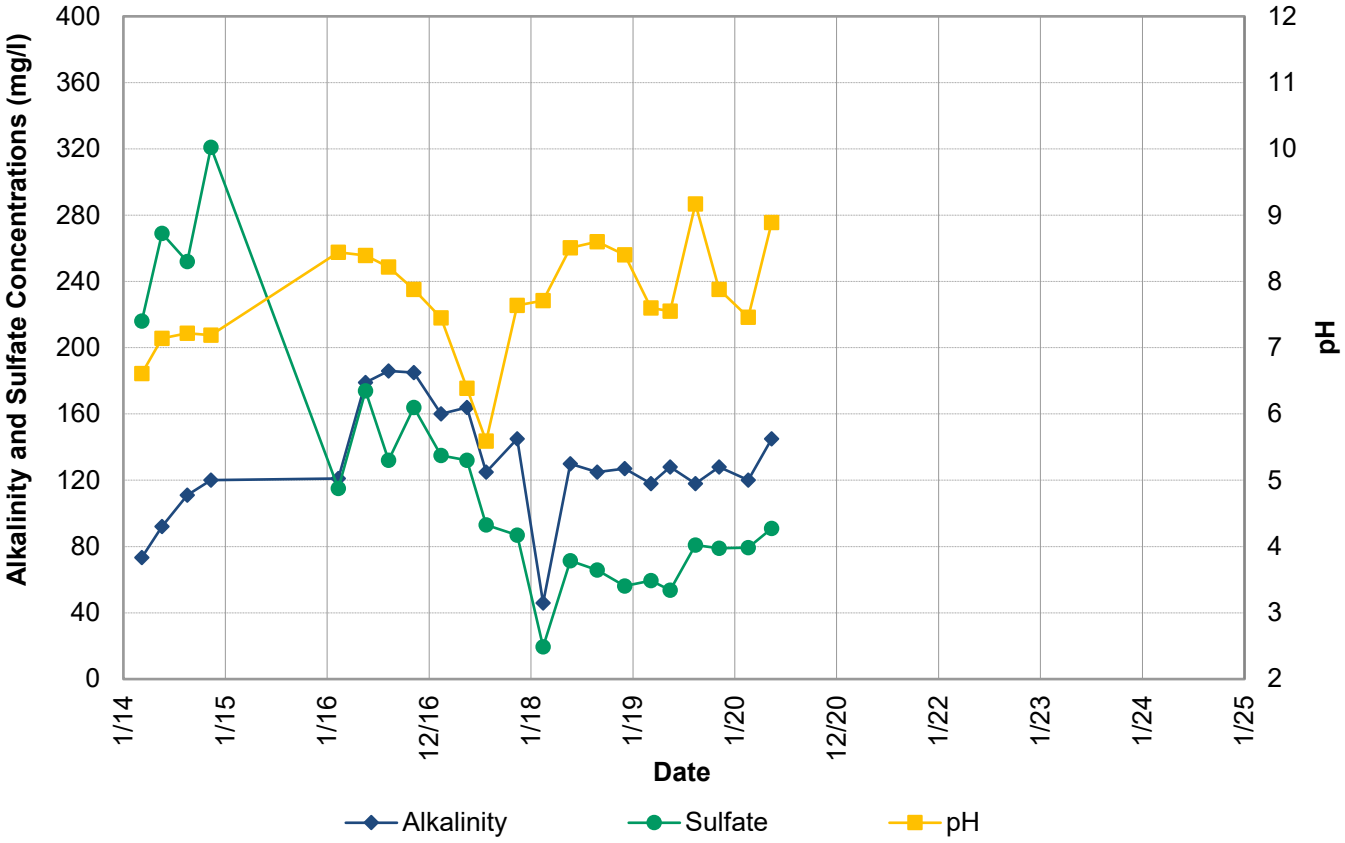
FIGURE B35





NOTES:

1. If a compound was not detected, half the detection limit is shown.
2. Only data from 2014 until sampling was ceased in 2020 are included on these graphs.

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REVERE SMELTING AND REFINING SITE
MIDDLETOWN, NEW YORK

SURFACEWATER ANALYTICAL RESULTS
SURFACE WATER LOCATION SW-5

Project No: 12586936
Date: 09/26/24

FIGURE B36

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The Power of Commitment