

October 3, 2023

**Electronic Mail Delivery Only**  
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Mr. Michael DeBonis  
Remedial Project Manager  
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1650 Arch Street  
Philadelphia, PA 19103-2029

**RE: ANALYSIS AND RECOMMENDED UPDATES**  
**GROUNDWATER AND SURFACE WATER MONITORING**  
FOOTE MINERAL SUPERFUND SITE  
FRAZER, PENNSYLVANIA (EPA ID # PA D077087989)

Dear Mr. DeBonis:

This letter summarizes the groundwater monitoring activities performed to date at the Foote Mineral Superfund Site (Site) shown on Figure 1 and 2. The groundwater and surface water monitoring activities have been ongoing since 2010 and 26 rounds of sampling have been completed. Additionally, a brief description of the planned development of the Superfund Site and the adjacent properties is provided. This description is provided to assist the EPA team in understanding the planned project development and how it fits within the EPA Superfund Green Remediation Strategy. The development plans allow the currently abandoned Site to be upgraded and utilized in a productive manner by using the capped area as a solar field to create a renewable energy source. The remaining portions of the Superfund Site and adjacent properties will be developed as a data center.

With regard to the monitoring data, the EPA noted in the most recent five-year review (EPA, September 2019) "[W]ith the additional available data [from the post-remedy monitoring], the downward trends in downgradient groundwater and surface water have been identified, indicating that restoration of the downgradient plume is likely..." The Record of Decision (ROD) for the Site contemplated revisions to the monitoring as the flow characteristics and downtrends in chemicals of concerns were better understood noting "[I]n alternative 2 through 7 the downgradient sampling will be reduced or discontinued as the levels of contaminants diminish over time" and "subject to EPA approval, the list of chemicals may be revised during the development and implementation of the monitoring plan to a smaller list of indicator contaminants that can adequately represent groundwater quality and cleanup goals at this Site."

This letter provides recommendation for these ROD recommended updates to the monitoring based on the data collected over the last 13 years. These recommendations are supported by the consistently decreasing data trends. Further, the remaining plume consists of only a select few parameters, which remain above the Preliminary Remediation Goals (PRGs) established in the ROD and the behavior of the plume can be tracked and understood in a more efficient manner with a smaller list of indicator

parameters monitored on a less frequent basis, by minimizing the collection of costly data that does not contribute to the understanding of the Site conditions. The remainder of this letter provides an overview of Site conditions, Site Characterizations, and historical sampling results, which have been incorporated into the Conceptual Site Model.

## 1.0 Background

### Historical Conditions and Site Remediation

The Site is located on a 79-acre property mostly in East Whiteland Township, Pennsylvania and is bordered by public roads, mixed commercial and agricultural properties, an electric utility substation, and a former railroad right-of-way that has been converted to the Chester Valley Trail. According to the EPA project close-out report, "[I]n 1932 and earlier, prior to Foote Mineral's ownership, the northeastern portion of the site was quarried for limestone." Starting in 1941, the Foote Mineral Company built and operated a variety of process buildings on the property for the manufacture of lithium metal, lithium chemicals, and inorganic fluxes for the metals industry. Ores and minerals were crushed and sized during process operations. When the plant closed in 1991, the Site included two quarries, more than 50 buildings and several lithium process areas.

The remediation, defined in the *March 31, 2006 Record of Decision—Foote Mineral Co. Superfund Site* (ROD), included excavation and off-site removal of radiation-contaminated soils; stabilization of process tailings located in one of the two on-site quarries; and consolidation of other site wastes, debris, and contaminated soils into the quarries, followed by capping of the quarries. Additional downgradient wells were installed and routine monitoring of downgradient groundwater and surface water was initiated in December 2010. A summary of the Site Conditions is provided below.

### Regional Geology, Hydrology and Site Conceptual Model

The Site is located in the Chester Valley, a topographic basin, as shown on Figure 1. The Chester Valley bedrock is broken by many geologic faults. These faults mostly parallel the east-west axis of the Valley. Dolomite of the Ledger formation directly underlies the Property. Directly north of the Property, the ground surface is underlain by a wedge of the harder Chickies Formation quartzite. The boundary between these two rock types is a highly fractured thrust fault zone. This fault zone forms a linear feature that is oriented roughly east-northeast. The fault almost coincides with the Property's northern boundary.

The Second Five Year Review Report states the specific groundwater and contaminant flow characteristics in the area of the Site were described by the United States Geological Survey (USGS) in an August 2005 report entitled *Evaluation of Hydrogeology and Ground-water flow and Transport at the Foote Mineral Company Superfund Site*, East and West Whiteland Townships, Chester County, Pennsylvania. The USGS report was commissioned by the EPA in December 2004.

The Second Five Year Review states that the local groundwater is flowing in a direction that is primarily west to east through the fractured Ledger dolomite. Contaminants leaching from sources on the Property enter the groundwater and are carried along the same path. The resulting contaminant plume has been found to be very long and narrow and is found in higher concentrations in the deeper zone monitored under the Site and downgradient from the Site, which is located under an unnamed tributary to Valley Creek, at the base of the Valley. The plume of contaminants was described in the Second

Five Year Review to extend approximately 10,000 feet east-northeast from the quarries. The contaminant plume was believed to be relatively narrow in width as a result of the fault zone from both the south and north sides of the Valley, which directs the plume to the identified Area of Concern (AOC) for groundwater at the base of the Valley, underneath an unnamed tributary to Valley Creek and eventually Valley Creek, as shown on Figure 1.

Elevated lithium was not observed in the near-site unnamed tributary to Valley Creek (i.e., historical sampling in SW-03 and SW-04 in an area of the Site where the Valley Creek tributary is believed to be a losing stream), but was identified in a section of Valley Creek along a fault line, near Mill Lane, about a mile and a half from the Property. This section of Valley Creek near Mill Lane is believed to be a gaining stream, where the groundwater from the Site vicinity discharges. As described further below, this understanding is supported by the results of monitoring conducted in the intermediate and the deep groundwater near the Property and downgradient of the Property that have the highest concentrations of lithium and the downstream surface water sampling at locations SW-01 SW-05, SW-06, where the concentrations of lithium are found to be consistently elevated at very similar concentrations. This is supported by Figure A-6 in Appendix A, which shows the similar concentrations of lithium in the stream and Figure A-7, which shows similar concentrations between the surface water and groundwater at the co-located surface water(SW-01)/groundwater(GMZ-01) sampling locations.

#### Site Characterizations

The conceptual Site Model of groundwater developed by USGS, which includes groundwater from the deeper zone monitored at the Site, moving through the ledger formation fractures under Valley Creek and discharging into Valley Creek, is supported by characterizations completed both prior to and after completion remediation at the Site.

To understand and characterize the groundwater conditions described above, eight monitoring wells were installed on the Site prior to the remediation work. These on- site wells are labeled ERM-1S, ERM-1D (shallow and deep, respectively), ERM-2S, ERM-2D, ERM-5, ERM-6, MW-22, and MW-2. The locations of these wells are shown in Figures 1 and 2. Volatile organic compounds (VOC) and the metals lithium, chromium, arsenic, and antimony were found to be elevated. Lithium, boron and chromium were detected in off-site public and private wells. In November 2001, a newly regulated contaminant, bromate, was also detected in groundwater downgradient of the Site. Additional sampling showed bromate to be present in some nearby public and private drinking water wells and in water on the Site. Wells found to be impacted are no longer used for drinking water, and nearby residents were connected to the public water supply.

Ten off-site monitoring wells were installed downgradient of the Site, after the remediation of the Site. The more recently installed wells, GMZ-2, GMZ-3, and GMZ-4, which were first sampled in September of 2013, have a nested design to draw groundwater from three depths: shallow, intermediate, and deep. The shallow depths range between 80 and 126 feet below ground surface (bgs); the intermediate depths range between 115 and 225 feet bgs; and the deep wells range between 240 and 303 feet bgs. Well screen depths are shown on Table 1. Monitoring well GMZ-1 draws water from only one depth range, 126 to 136 feet bgs, because of the poor quality of the bedrock at its location, which along with the presumed upward gradient in the area, is believed to make this sample more representative of groundwater conditions in the immediate vicinity of the groundwater discharge zone into Valley Creek. GMZ-1 is also co-located in close proximity to surface water sampling point SW-01, providing a

comparison of groundwater and surface water conditions in this discharge area and the groundwater and surface water results have historically been very similar (See Figure A-7). GMZ-2 (Shallow (S), Intermediate (I) and Deep( D)) wells are outside the plume and during the 13 years of monitoring elevated lithium has never been observed in these wells. As described further below and shown on Figure A-2 and A-3, GMZ-3 and GMZ-4 show the consistent downward trend in the plume concentrations during the period of monitoring. The wells also show nearly identical concentrations in the intermediate and deep unit, suggesting the shallow and deep groundwater wells monitor the same unit.

Following remediation, the Groundwater Monitoring Program began in December 2010 with the baseline groundwater sampling event which utilized permanent, dedicated low-flow sampling pumps in the ERM, MW-22 and GMZ wells. Based on the sampling completed, the originally proposed GMZ boundary was extended upgradient southwestward to include monitoring wells ERM-2S and ERM-2D, which originally were intended to monitor background concentrations, but ERM-2S was found to have elevated concentrations of lithium above the Groundwater PRG established for lithium in the ROD.

The groundwater monitoring wells, the Site boundary, the groundwater area of concern (AOC) with elevated lithium and the geological formations in the area and fault lines are shown in Figure 1. A summary of the Lithium data collected is provided in Appendix A along with an analysis of this information. It may be noted that the initial sampling was quarterly and the frequency of sampling has been less frequent in recent years, which should be considered when interpreting the Figures provided in Appendix A. The historical monitoring data in Appendix A was provided by the EPA and has not been independently validated. The historical monitoring data tables for lithium were updated with the information from the March 2020, November 2021 and May 2023 events and the events were renumbered as shown on the Table in Appendix A. It should also be noted the November 2021 data was developed by Montrose from the actual laboratory supplied data provided in Appendix A, and not the data provided in Table 4 and 5, which did not appear to have been updated (i.e., Tables 4 and 5 in the November 2021 report presented the exact same data as Tables 4 and 5 from the March 2020 report).

## 2.0 Current Sampling Protocol

The current monitoring program calls for collecting samples from 16 monitoring wells. Table 1 summarizes the details of the groundwater wells along with the analytical target compounds and water elevations collected during the sampling event. Surface water samples were also collected from Valley Creek at points SW-01, SW-02, SW-05, and SW-06. The locations of the monitoring wells and surface water sampling points are shown in Figures 1 and 2.

The water samples were analyzed for the following constituents of concern (COC), specified by the ROD and shown on Table 1:

- Metals: Antimony, Arsenic, Boron, Chromium, Lithium, and Thallium;
- Inorganic Anions: Fluoride, Bromate, Bromide; and
- VOCs: 1,2-dichloroethane, Benzene, Carbon P CE, Chloroform, cis-1,2-dichloroethene, Ethylbenzene, Trichloroethene (TCE), trans-1,2-dichloroethene, Bromo-form, and tetrachloroethene (PCE) were analyzed at MW-22.

Table 2 identifies the remediation goals established in the ROD at the Site. A Heron oil/water interface probe was used to detect and measure the thickness of any LNAPL layer in MW-22. However, the second five-year review notes that no LNAPL has been observed in MW-2 since the remediation and the Superfund Preliminary Close Out Report notes "the LNAPL may have been removed during the extensive excavations surrounding the well." Considering this, and the lack of LNAPL observed during the last 13 years, the sampling requirement to check for LNAPL in this well appears to no longer be necessary.

## Results and Discussion

The purpose of the monitoring program is to characterize conditions at the Site and downgradient of the Site. Recent sampling events have shown that only three metal compounds were identified above Groundwater Remediation Goals established in the ROD. These compounds are lithium, boron, and bromate as shown on the summary tables from the groundwater monitoring provided in Appendix A. Further, boron has only been identified in the near-source well MW-22 along with TCE and PCE. Considering this, monitoring of other compounds appears to be excessive and unnecessary.

As a point of comparison, under the Pennsylvania Act 2 program, groundwater is normally characterized by a minimum of two or more rounds of sampling to determine if a release has occurred (25 Pa Code 250.204(e)) and if the release has resulted in a plume, which extends offsite. At the Foote Mineral Site, there are over a dozen rounds of sampling showing it is no longer necessary to sample for any compounds except lithium boron and bromate. This effectively means that even when residual waste materials have remained on the Site, the residual waste materials are stable and the groundwater plume is stable (as it is for all compounds except lithium, boron, and bromate). Under Act 2, a groundwater monitoring program which shows there is no exceedances at the point of compliance and the groundwater monitoring for compounds which are not present can be discontinued when confirmed by four to eight rounds of monitoring.

The analytic results for inorganic anions and metals in the surface water samples are shown in the most recent round of sampling on Table 5 and the analysis of the water samples from the monitoring wells are summarized in Table 6. Constituents of concern that were found at levels above the PRGs established in the ROD are highlighted. Table 7 summarizes the results for VOCs in MW-22 with values that exceed the ROD remediation goals emphasized in bold typeface. As previously noted, Table 2 lists the remediation goals from Table III of the ROD for reference. Also, as noted above, no LNAPL was observed in MW-2 during this sampling event. Sampling results from the two preceding rounds of sampling are provided in Appendix B and are consistent with the most recent round of sampling.

Lithium is observed to be above the ROD groundwater PRG of 260 ug/l in the on-site well MW-22 and downgradient wells ERM-1D, ERM-2S, and the shallow and intermediate and deep wells at GMZ-3 and GMZ-4 and GMZ-1. Boron was found above the PRG of 1340 ug/l only in the onsite well of MW-22. It may be noted that the detection limit for bromate was above the PRG in the most recent round of sampling, so the level of bromate could not be quantified in the recent round of monitoring. The most recent monitoring report noted that future sampling events that the drinking water method of analysis (EPA Method 300.1) will be used to provide a lower detection limit. The only other compounds identified

above their PRG in the most recent round of sampling were PCE and TCE in MW-22. These compounds represent a localized condition and the concentrations are declining over time.

The following observations can be made on the lithium monitoring based on the available data.

- **On Site Source and Near Site Conditions are Declining** – As shown on Figure A-1, the on-site source-area deep well MW-22 shows a consistent source area with three of the lower concentrations of lithium documented over the last three sampling events, which cover a period of three years (as previously noted, the initial sampling events were done much more frequently). The concentration in the highest on-site well, MW-22, has declined from 24,198 ug/l in 2010 to 14,000 ug/l in the most recent sampling event. Although not definitive, this strongly suggests stabilization to a lower source area concentration may be occurring. This is supported by measurements in the downgradient well, closest to the Site, ERM 1D, which shows a consistently declining concentration from 8,476 ug/l in 2010 to the most recently documented concentration of 4,000 ug/l, as shown on Figure A-1. It may also be noted on Figure A-1, that prior to this sampling event ERM 1S had not been sampled since June 2015. The most recent November 2021 report notes ERM-1S had insufficient water in the well and it is presumed this is the reason the well had not been previously sampled.
- **Downgradient Groundwater Concentrations are Declining** – As shown on Figure A-2 and A-3 lithium concentrations are declining in cluster GM-3, located 2,200 feet downgradient, and well cluster GMZ-4 located 4,400 ft downgradient. All three zones being monitored have a consistently downward trend. In each of these clusters it was noted that the deepest monitored units had the highest concentrations.
- **Shallow and Intermediate Wells Show Similar Concentrations and Trends** – As shown on Figure A-2 and A-3 the shallow and intermediate wells show very similar results over the entire period being monitored. This suggests the shallow and intermediate wells are actually monitoring the same unit.
- **Deep Aquifer Plume is Decreasing** – Figure A-4 shows the deep aquifer conditions in each of the downgradient well clusters are decreasing. The results from well GMZ-1, shown on Figure A-7, are also decreasing over the last three monitored intervals, but the degradation is not as significant since 2010. This may be due to the location being further downgradient, which has delayed the reaction of the source and source flux stabilization.
- **No Elevated Lithium in GMZ-2 in the shallow, intermediate or deep wells** - As previously noted, this well is located outside the Groundwater AOC and future sampling of this well is unnecessary, as recommended below.
- **Surface Water Lithium Trends are Declining** – Figure A-5 and A-6 show the trends in surface water concentrations. Originally the four sampling locations were SW-1, SW-2, SW-3 and SW-4 at the locations shown on Figure 2. Of the original four locations, SW-1 is furthest from the quarry area at approximately 8,400 feet to the east; however, it is immediately downstream of an identified groundwater discharge and has historically shown the highest levels of site-related contaminants. Location SW-2, closer to the Site at approximately 7,800 feet from the quarry area, has displayed significantly lower concentrations of site-related contaminants. The two locations

closest to the quarry area, SW-3 and SW-4, typically displayed very low or non-detect levels of Site related contaminants and were, therefore reportedly discontinued in 2015. The further downstream locations SW-5 and SW-6 were selected as replacement locations. Results of the surface water sampling are presented on Figure A-6 and A-7 and show some variability likely caused by seasonal or precipitation effects on the creek. Stream flow volume, and therefore dilution, responds stronger and faster to precipitation events; the response in underlying groundwater is believed to be more moderate, as shown on Figure A-7, which shows the concentration in Well GMZ-1 has been relatively consistent and has recently been trending down, consistent with the observations in the other upgradient wells. The highest concentrations of lithium in the most recent sampling event was 600 ug/l at SW-01. It is believed that this location is at the end of the groundwater discharge area; water samples taken further downstream had lower measured concentrations believed to be a result of dilution. As shown on Figure A-6, the surface water sample results for the last six monitoring events are suggesting a downward trend of the contaminant concentrations. Consistent with the downgradient monitoring wells on-site, it is expected that the contaminant levels in the groundwater discharging to the creek will also continue to decrease with time, resulting in lower contamination levels in the stream. It was also noted that the monitoring results at locations SW-01, SW-05, SW-01 showed a very similar pattern and were nearly identical, as shown on Figure A-6. Sampling all of these wells appears redundant.

As described in the last bullet above, the concentration of lithium in surface water at SW-01 has been a consistent and reliable indicator of the groundwater plume water quality.

The Second Five Year Review for the Site completed by EPA in 2019 contained a similar graphical analysis and concluded the bromate showed downward trends, but the results were more variable. The analysis by EPA is provided as Appendix B. The 2020, 2021, and 2023 sampling continued to show the downward trend continuing. The 2021 and 2022 data tables are provided in Appendix C.

PCE was detected in the on-site well MW-22 at a concentration of 120 ug/l and TCE was detected at a concentration of 8.1 ug/l. These concentrations were similar to the results from the recent previous events. Notably, benzene which had previously been identified slightly above the MCL of 5 ug/l, was below 5 ug/l in MW-22 during the most recent sampling event.

The second Five Year Review states surface water was not identified in the ROD or ESD as a medium of concern, and therefore no cleanup goals were established. However, Site-related metals are still present in surface water. Therefore, in the Second Five Year Review, surface water results were evaluated. Surface water data from June and October 2018 were available for this review. As discussed above, East Valley Creek flows across a geologic fracture zone approximately one mile downgradient of the Site where contaminated groundwater discharges into the creek. Because of this zone, the highest concentrations of metals in surface water at the time of this analysis were found in SW-1 and SW-5, relatively far from the Site. The presence of lithium and bromate indicates that the metals are likely site-related. The 2018 monitoring data were screened against ten times the tap water Regional Screening Levels (RSLs - to account for the expectation that surface water recreational exposure would be at least 10X less than tap water exposure). Arsenic, chromium, lithium, thallium, and bromate exceeded these screening levels. A simple risk assessment was performed for potential 15-kg child recreational exposure, using the maximum 2018 surface water concentrations for those five metals with conservative

exposure assumptions and it was determined the Hazard Index would not exceed 1, and the cancer risk would be approximately SE-5, within the acceptable risk range.

### Groundwater Summary Comments

The available data indicates the lithium and bromate plume extending from the groundwater site is well characterized and the monitoring data shows a decreasing trend in the primary site chemicals of concern. Although boron, TCE and PCE are present, their presence is localized in the vicinity of MW-22 and declining. Over 13 years of monitoring data has been collected that supports these conclusions.

As shown on Figures A-2 and A-3 of the report, the data from the deep and intermediate zone being monitored is nearly identical. Continuation of monitoring of both of these zones on a regular basis is redundant, particularly for a remedy that will likely require a significant amount of time to reach PRGs in the AOC area. Similarly, as shown of Figure A-6, the surface water data monitoring shows very similar results at many of the locations being monitored and the data collected is redundant. Although this data may have initially been required to understand the conditions during the Remedial Investigation, Montrose believes collecting data from all of these locations is no longer cost effective or necessary.

Initially, when the existing monitoring system was installed and sampled, the characterizations of the groundwater flow regime and dynamics were not as well documented. At this time, with the thirteen years of data collected at the Site, the available information demonstrates a steady and predictable groundwater flow regime with decaying plume of lithium and bromate within the AOC. The plume discharges near Mill Creek at surface sampling locations SW-1 and monitoring well location GMZ-01. The data shows the groundwater and surface water at this location have similar characteristics. Considering this important finding, and the fact that the behavior of the plume suggests the groundwater discharge will continue to shrink for decades, the continued annual sampling of all the wells is not necessary to understand plume behavior.

Montrose proposes a more efficient monitoring approach which includes the following:

- Annual Sampling of Surface Water – Both SW-01 and SW-05 will be sampled on an annual basis. This will provide confirmation that the plume continues to behave in accordance with expected trends. If for any reason the sampling exceeds historical standards, the surface water will be resampled. If the historical exceedance is confirmed, the entire Comprehensive monitoring well sampling will be completed.
- Comprehensive Groundwater Sampling Events – In the year prior to the Five-Year review (i.e., 2023, 2028, 2033, etc.) the wells shown on Table 8 will be sampled. It may be noted that the intermediate well for clusters GMZ -3 and GMZ-4 were not included in this sampling event. This is because Figures A-2 and A-3 results mimic the concentrations in the deeper wells. Further, cluster GMZ-2 is not being sampled since there have been no groundwater exceedances in the wells in this cluster. ERM 5, which has not had an exceedance of lithium in the last ten sampling events, and will be under the constructed area of the planned facility, will be abandoned, if approved by EPA. Montrose does not believe it is necessary to replace this well. Since the data will be collected in the year before the Five-Year Review completed by EPA, there will be time to collect additional data if there are any anomalies with the sampling conducted. Groundwater

samples will be sampled for the contaminants of concern, lithium and bromate, with the exception of MW-22, where sampling will be completed for the TCE, PCE, and benzene, the parameters which have exceeded the PRGs established in the ROD, until they are found below the PRG for four consecutive sampling events. No further sampling for LNAPL will be collected in MW-2, since it has not been observed for over 13 years. The Annual Surface Water Sampling Event will be collected coincident with this event.

- Characterization Sampling Events – Two years after the Comprehensive Groundwater Event, (i.e., 2025, 2030, 2035, etc.) the characterization event will take place. This event will include the background well and the most impacted deep wells at the facility. The deep wells shown on Table 8 will be sampled as shown and will include sampling of the MW-22 for the parameters described above. The Annual Surface Water Sampling event will be collected coincident with this event.

Montrose believes this sampling approach will provide the “milestone” data necessary to efficiently confirm the hydrogeologic system continues to behave as expected and the plume continues to degrade.

#### Other Site Development Considerations

Site layout plans for the redevelopment of the Superfund Site and the adjacent properties have been completed and are attached. Note there is no active plan to install a solar field over the cap area, however that remains an option for the future. When the solar field is proposed, special protocols will be created for its placement on the 11.33-acre property with the cap. Protocols for the placement of a solar field, when available, will be submitted to both EPA and PADEP prior to construction, consistent with the existing Institutional Controls for the Site.

The remainder of the land located in East Whiteland has been cleaned to residential standards, and will be used for a data center. Current planning calls for placement of structures over the area of well ERM-5. This well is the only proposed impact to the remedy caused by the building design. With the concurrence of EPA and PADEP, this well, which has not had an exceedance over the last ten years will be abandoned in a manner consistent with PADEP standards prior to construction. In the alternative, the well can continue to be accessible through the basement of the building. The 24.9-acre parcel in West Whiteland was never part of the superfund cleanup, but will be utilized for stormwater management for this project.

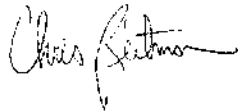
#### Closing Comments

We appreciate the opportunity to share our plans and continue our dialogue on developing the formerly abandoned Foote Mineral Superfund Site. We believe the plans described provide a unique opportunity which fits squarely within the Superfund Green Remediation Strategy by using the available cap space to develop renewable energy to support the adjacent data center. Further, the use of the abandoned Foote Mineral Superfund Site, as part of the development plan, eliminates the need to develop other land for this purpose. We believe this creates a win-win trophy-type project for all parties.

We also appreciate the opportunity to present our proposed modifications to the planned Site monitoring, which considers and builds upon the results of the previous monitoring. We feel the approach provides an efficient method to monitor the groundwater and surface water over the prolonged period of monitoring associated with the remedy, given the consistency of the existing monitoring data over the last 13 years.

We respectfully request you share our recommendations with your review team and let us know the results of your final analysis, including the team's consideration of the proposed recommendations to update the groundwater monitoring program requirements to provide a more efficient technically supportable groundwater monitoring program without collection of unnecessary data. Should you have any questions on the information presented in this report, please do not hesitate to email or call.

Sincerely,



Christopher T. Reitman, P.E.  
Principal



Gregory P. Smoot, P.G.  
Principal Geologist

CTR:GPS:mm

### **Attachments**

#### Tables

- Table 1 – Groundwater Analytical Targets and Water Elevations
- Table 2 – Remediation Goals
- Table 3 – Surface Water Analytical Targets and Water Flow Rates
- Table 4 – Groundwater Properties at Time of Sampling
- Table 5 – Analytical Results for Inorganic Anions and Metals in Surface Water Samples
- Table 6 – Analytical Results for Inorganic Anions and Metals in Groundwater Samples
- Table 7 - Analytical Results for Volatile Groundwater Sample
- Table 8 – Proposed Monitoring Sampling and Frequencies

#### Figures

- Figure 1 – Foote Mineral GMP Groundwater AOC, Site Boundary, GMZ Well Coordinates, and Geological Formations
- Figure 2 – Foote Mineral GMP Sample Site Locations

#### Appendices

- Appendix A – Analysis of Historical Lithium Results
- Appendix B – Previous 2<sup>nd</sup> Five Year Review and Analysis of Bromate Results
- Appendix C – Recent Sampling Event Data
- Appendix D - Data Center Layout with Wells

## References

Montrose notes these references were provided in the December 13, 2021 Terraneer Groundwater and Surface Water Analysis Report for the Site. References 4, and 5 were not available to Montrose in preparation of this report. Reference 6 was added by Montrose and the USGS report cited in the Reference 6 and described in this report was not available to Montrose.

1. Groundwater Monitoring Plan: Foote Mineral Company Superfund Site, East Whiteland Township, Chester County, Pennsylvania (043-6320.004), July 2008, Golder Associates, Inc.
2. Foote Mineral Co. Superfund Site, East Whiteland, Pennsylvania, Record of Decision (AR302442), 2006-03-31, EPA, Region 3.
3. Off-Site Monitoring Well Installation Report at the Foote Mineral Superfund Site, East Whiteland Township, Chester County, PA, 2010-12-03, ECOR Solutions, Inc.
4. Groundwater and Surface Water Baseline Analysis Report, letter report ECOR Solutions, Inc., March 16, 2011.
5. Innovative Approaches to Data Validation, Revision 1, June 1995, and the Quality Assurance Project Plan (QAPP) for Former Cyprus Foote Mineral Site (Frazer Exton Development), East Whiteland Township, Pennsylvania, Revision 0, July 2008.
6. Second Five Year Review Report for Foote Mineral Co. Superfund Site, East Whiteland Township, Chester County, Pennsylvania, September 20, 2019.
7. Superfund Preliminary Close Out Report, Foote Mineral Site, EPA, October 28, 2010

cc: Jenifer Fields (via email [fields.jenifer@acri-environmental.com](mailto:fields.jenifer@acri-environmental.com))  
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Greg Walters (via email [greg.walters@1547realty.com](mailto:greg.walters@1547realty.com)) **Ex. 6 Personal Privacy (PP)**  
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Groundwater and Surface Water Analysis Report  
May 2023 Sampling Event  
Foote Mineral Superfund Site  
Frazer, Pennsylvania (EPA ID # PA D077087989)  
Project No. 2023-4439  
October 3, 2023

**Table 1**  
**Groundwater Analytical Targets and Water Elevations**  
**Foote Mineral Superfund Site, Frazer PA**  
**May 2023 Sampling Event**

| <b>Well ID</b> | <b>Well Elevation<sup>1</sup></b> | <b>Well Depth (ft bgs)</b> | <b>Well Screen Depth Range (ft bgs)</b> | <b>Sample Depth (ft below top of well casing)</b> | <b>Sampling Date</b> | <b>Depth to Water (ft bgs)</b> | <b>Water Surface Elevation (ft, before purging)</b> | <b>Target Compound List/Target Analyte List (TCL/TAL)<sup>2</sup></b> |
|----------------|-----------------------------------|----------------------------|-----------------------------------------|---------------------------------------------------|----------------------|--------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------|
| ERM-1D         | 387.47                            | 300                        | 280-300                                 | 290.9                                             | 5/15/2023            | 64.28                          | 323.19                                              | Total Metals and Inorganic Anions                                     |
| ERM-1S         | 387.62                            | 60                         | 40-60                                   | 50.9                                              | 5/15/2023            | 51.93                          | 335.69                                              | Total Metals and Inorganic Anions                                     |
| ERM-2D         | 357.75                            | 247                        | 230-247                                 | 238.6                                             | 5/15/2023            | 39.78                          | 317.97                                              | Total Metals and Inorganic Anions                                     |
| ERM-2S         | 357.71                            | 140                        | 120-140                                 | 130.2                                             | 5/15/2023            | 38.48                          | 319.23                                              | Total Metals and Inorganic Anions                                     |
| ERM-5          | 373.37                            | 200                        | 40-200                                  | 120.3                                             | 5/15/2023            | 54.49                          | 318.88                                              | Total Metals and Inorganic Anions                                     |
| MW-2           | 383.76                            | 150                        | 30-150                                  | NA                                                | 5/15/2023            | 64.85                          | 318.91                                              | LNAPL layer thickness (No Measurable Thickness)                       |
| MW-22          | 370.45                            | 152                        | 50-152                                  | 99.4                                              | 5/15/2023            | 56.25                          | 314.2                                               | VOC, Total Metals and Inorganic Anions                                |
| GMZ-1          | 283.54                            | 149                        | 126-136                                 | 131.4                                             | 5/16/2023            | 10.06                          | 273.48                                              | Total Metals and Inorganic Anions                                     |
| GMZ-2S         | 347.11                            | 295                        | 80-110                                  | 95.4                                              | 5/17/2023            | 18.42                          | 328.69                                              | Total Metals and Inorganic Anions                                     |
| GMZ-2I         | 347.11                            | 295                        | 167-197                                 | 182.4                                             | 5/17/2023            | 23.78                          | 323.33                                              | Total Metals and Inorganic Anions                                     |
| GMZ-2D         | 347.11                            | 295                        | 240-270                                 | 255.4                                             | 5/17/2023            | 26.60                          | 320.51                                              | Total Metals and Inorganic Anions                                     |
| GMZ-3S         | 336.1                             | 296                        | 50-60                                   | 55.3                                              | 5/16/2023            | 25.47                          | 310.63                                              | Total Metals and Inorganic Anions                                     |
| GMZ-3I         | 336.1                             | 296                        | 115-125                                 | 120.3                                             | 5/16/2023            | 25.75                          | 310.35                                              | Total Metals and Inorganic Anions                                     |
| GMZ-3D         | 336.1                             | 296                        | 245-255                                 | 250.4                                             | 5/16/2023            | 24.90                          | 311.2                                               | Total Metals and Inorganic Anions                                     |
| GMZ-4S         | 333.75                            | 303                        | 116-126                                 | 121.3                                             | 5/16/2023            | 54.62                          | 279.13                                              | Total Metals and Inorganic Anions                                     |
| GMZ-4I         | 333.75                            | 303                        | 215-225                                 | 230.3                                             | 5/16/2023            | 54.62                          | 279.13                                              | Total Metals and Inorganic Anions                                     |
| GMZ-4D         | 333.75                            | 303                        | 288-303                                 | 294.3                                             | 5/16/2023            | 54.65                          | 279.1                                               | Total Metals and Inorganic Anions                                     |

<sup>1</sup> Top of casing, ft above NGVD 1929 datum

<sup>2</sup> TAL: Metals and Inorganic Anions (Sb, As, B, Cr, Li, Tl; fluoride, bromate, bromide), TCL VOC: 1,2-dichloroethane, benzene, carbon tetrachloride, bromoform, chloroform, cis-1,2-dichloroethene, ethylbenzene, tetrachloroethene, trans-1,2-dichloroethene, and trichloroethene

**Table 2**  
**Groundwater Preliminary Remediation Goals (PRGs)**  
**Foote Mineral Superfund Site, Frazer PA**

| <b>Target</b>            | <b>Concentration<br/>(µg/L)</b> |
|--------------------------|---------------------------------|
| Fluoride                 | 4000                            |
| Bromide                  |                                 |
| Bromate                  | 10                              |
| Sb                       | 6                               |
| As                       | 10                              |
| Cr                       | 100                             |
| Tl                       | 0.5                             |
| B                        | 1340                            |
| Li                       | 260                             |
| trans-1,2-Dichloroethene | 100                             |
| cis-1,2-Dichloroethene   | 70                              |
| Chloroform               | 70                              |
| Carbon tetrachloride     | 5                               |
| Benzene                  | 5                               |
| 1,2-Dichloroethane       | 5                               |
| Trichloroethene          | 5                               |
| Tetrachloroethene        | 5                               |
| Ethylbenzene             | 700                             |
| Bromoform                | 80                              |

**Table 3**  
**Surface Water Analytical Targets and Water Flow Rates**  
**Foote Mineral Superfund Site Frazer, PA**  
**May 2023 Sampling Event**

| <b>Surface Sample Location ID</b> | <b>Creek Width (inches)</b> | <b>Creek Depth (inches)</b> | <b>Sample Depth (inches)</b> | <b>Sample Date</b> | <b>Water Flow Rate (ft/s)</b> | <b>Temp (°C)</b> | <b>pH (standard unit)</b> | <b>SpC (ms/cm)</b> | <b>ORP (mV)</b> | <b>DO (mg/L)</b> | <b>Turbidity (NTU)</b> |
|-----------------------------------|-----------------------------|-----------------------------|------------------------------|--------------------|-------------------------------|------------------|---------------------------|--------------------|-----------------|------------------|------------------------|
| SW-01                             | 228                         | 26                          | 6                            | 5/17/2023          | 0.2                           | 15.1             | 8.09                      | 0.860              | 74.4            | 6.12             | 1.44                   |
| SW-02                             | 132                         | 15                          | 6                            | 5/17/2023          | 0.4                           | 16.1             | 8.03                      | 0.861              | 76.2            | 5.92             | 1.80                   |
| SW-2A                             | 132                         | 15                          | 6                            | 5/17/2023          | 0.4                           | 16.1             | 8.03                      | 0.861              | 76.2            | 5.92             | 1.80                   |
| SW-05                             | 132                         | 20                          | 6                            | 5/17/2023          | 1.3                           | 16.5             | 8.42                      | 0.849              | 62.8            | 6.94             | 1.35                   |
| SW-06                             | 156                         | 13                          | 5                            | 5/17/2023          | 0.8                           | 16.6             | 8.45                      | 0.839              | 15.5            | 7.87             | 1.96                   |

Analysis: TAL Metals and Inorganic Anions (Sb, As, B, Cr, Li, Tl; fluoride, bromate, bromide),

**Table 4**  
**Groundwater Properties at Time of Sampling**  
**Foote Mineral Superfund Site Frazer, PA**  
**May 2023 Sampling Event**

| <b>Well ID</b> | <b>Sample Date</b> | <b>Sample Time</b> | <b>Purge Rate<br/>(mL/min)</b> | <b>Temp<br/>(oC)</b> | <b>Conductivity<br/>(mS/cm)</b> | <b>DO<br/>(mg/L)</b> | <b>pH</b> | <b>ORP<br/>(mV)</b> | <b>Turbidity<br/>(NTU)</b> |
|----------------|--------------------|--------------------|--------------------------------|----------------------|---------------------------------|----------------------|-----------|---------------------|----------------------------|
| ERM-1D         | 5/15/2023          | 1552               | 120                            | 19.62                | 1.074                           | 0.44                 | 8.26      | 59.8                | 0.92                       |
| ERM-1S         | 5/15/2023          | 1642               | 110                            | 19.80                | 0.783                           | 2.89                 | 7.18      | 131.7               | 4.68                       |
| ERM-2D         | 5/15/2023          | 1042               | 150                            | 14.49                | 0.896                           | 0.78                 | 12.01     | -86.4               | 17.59                      |
| ERM-2S         | 5/15/2023          | 0947               | 110                            | 13.12                | 3.045                           | 2.05                 | 12.73     | -145.8              | 1.87                       |
| ERM-5          | 5/15/2023          | 1222               | 120                            | 16.80                | 0.457                           | 3.45                 | 7.64      | 96.1                | 5.65                       |
| MW-22          | 5/15/2023          | 1433               | 120                            | 16.05                | 0.753                           | 0.37                 | 8.03      | -33.1               | 14.25                      |
| GMZ-1          | 5/16/2023          | 1552               | 120                            | 17.50                | 0.862                           | 1.69                 | 9.01      | -116.4              | 2.83                       |
| GMZ-2S         | 5/17/2023          | 1027               | 110                            | 14.05                | 0.539                           | 0.63                 | 6.99      | -74.2               | 5.90                       |
| GMZ-2I         | 5/17/2023          | 0942               | 120                            | 19.95                | 0.520                           | 0.80                 | 7.51      | -149.1              | 1.08                       |
| GMZ-2D         | 5/17/2023          | 0857               | 120                            | 12.25                | 0.574                           | 1.75                 | 7.36      | -62.3               | 2.01                       |
| GMZ-3S         | 5/16/2023          | 1017               | 120                            | 14.95                | 1.049                           | 1.95                 | 8.62      | 108.2               | 4.58                       |
| GMZ-3I         | 5/16/2023          | 0937               | 120                            | 14.89                | 1.110                           | 1.80                 | 8.45      | 111.2               | 8.31                       |
| GMZ-3D         | 5/16/2023          | 0852               | 120                            | 14.97                | 1.135                           | 1.70                 | 7.62      | 120.0               | 1.38                       |
| GMZ-4S         | 5/16/2023          | 1447               | 120                            | 16.29                | 0.871                           | 2.83                 | 9.06      | 90.7                | 1.51                       |
| GMZ-4I         | 5/16/2023          | 1402               | 120                            | 14.94                | 0.833                           | 2.50                 | 8.92      | 78.7                | 7.50                       |
| GMZ-4D         | 5/16/2023          | 1312               | 140                            | 14.90                | 0.830                           | 2.46                 | 8.91      | 95.2                | 6.11                       |

Table 5  
Analytical Results for Inorganic Anions and Metals in Surface Water  
Foote Mineral Superfund Site, Frazer PA  
May 2023 Sampling Event

| Sample Location     |       | SW-01         |   |      | SW-02         |   |      | SW-2A         |   |      | SW-05         |   |      | SW-06         |   |      |
|---------------------|-------|---------------|---|------|---------------|---|------|---------------|---|------|---------------|---|------|---------------|---|------|
| Lab ID              |       | 410-127243-21 |   |      | 410-127243-22 |   |      | 410-127243-23 |   |      | 410-127243-20 |   |      | 410-127243-19 |   |      |
| Sample Date         |       | 5/17/2023     |   |      | 5/17/2023     |   |      | 5/17/2023     |   |      | 5/17/2023     |   |      | 5/17/2023     |   |      |
| Matrix              |       | Surface water |   |      | Surface water |   |      | Surface water |   |      | Surface water |   |      | Surface water |   |      |
| Remarks             |       |               |   |      |               |   |      |               |   |      |               |   |      |               |   |      |
| Parameter           | Units | Result        | Q | RL   | Result        | Q | RL   | Result        | Q | RL   | Result        | Q | RL   | Result        | Q | RL   |
| <b>Total Metals</b> |       |               |   |      |               |   |      |               |   |      |               |   |      |               |   |      |
| Antimony            | ug/L  |               | U | 1    |               | U | 1    |               | U | 1    |               | U | 1    |               | U | 1    |
| Arsenic             | ug/L  |               | U | 2    |               | U | 2    |               | U | 2    |               | U | 2    |               | U | 2    |
| Boron               | ug/L  | 190           |   | 50   | 74            |   | 50   | 75            |   | 50   | 160           |   | 50   | 160           |   | 50   |
| Bromate             | ug/L  |               | U | 1000 |               | U | 1000 |               | U | 1000 |               | U | 1000 |               | U | 1000 |
| Bromide             | mg/L  | 0.73          | J | 1    |               | U | 1    |               | U | 1    | 0.62          | J | 1    | 0.57          | J | 1    |
| Chromium            | ug/L  | 9             |   | 2    | 2             |   | 2    | 2.1           |   | 2    | 6.6           |   | 2    | 6             |   | 2    |
| Fluoride            | mg/L  |               | U | 1    |               | U | 1    |               | U | 1    |               | U | 1    |               | U | 1    |
| Lithium             | ug/L  | 600           |   | 50   | 160           |   | 50   | 170           |   | 50   | 510           |   | 50   | 480           |   | 50   |
| Thallium            | ug/L  |               | U | 0.5  |               | U | 0.5  |               | U | 0.5  |               | U | 0.5  |               | U | 0.5  |

## Notes:

ug/L - Microgram per liter

mg/L - Milligram per liter

RL - Reporting Limit

Q - Qualifier

U - Non-detected

J - Estimated value

UJ - Estimated Reporting Limit

Table 6  
Analytical Results for Inorganic Anions and Metals in Groundwater  
Foote Mineral Superfund Site, Frazer PA  
May 2023 Sampling Event

| Sample Location | Remediation<br>Goals<br>(ROD 2006) | ERM-1S        |        |   | ERM-1D        |        |   | ERM-2S        |        |   | ERM-2D        |        |   | ERM-5         |        |   | GMZ-1         |        |   | GMZ-2S        |        |   | GMZ-2I        |        |   | GMZ-2D        |        |   | GMZ-2SD       |        |   |      |
|-----------------|------------------------------------|---------------|--------|---|---------------|--------|---|---------------|--------|---|---------------|--------|---|---------------|--------|---|---------------|--------|---|---------------|--------|---|---------------|--------|---|---------------|--------|---|---------------|--------|---|------|
| Lab ID          |                                    | 410-127243-06 |        |   | 410-127243-07 |        |   | 410-127243-01 |        |   | 410-127243-02 |        |   | 410-127243-03 |        |   | 410-127243-14 |        |   | 410-127243-17 |        |   | 410-127243-16 |        |   | 410-127243-15 |        |   | 410-127243-18 |        |   |      |
| Sample Date     |                                    | 5/15/2023     |        |   | 5/15/2023     |        |   | 5/15/2023     |        |   | 5/15/2023     |        |   | 5/15/2023     |        |   | 5/16/2023     |        |   | 5/17/2023     |        |   | 5/17/2023     |        |   | 5/17/2023     |        |   | 5/17/2023     |        |   |      |
| Matrix          |                                    | Groundwater   |        |   | Groundwater   |        |   | Groundwater   |        |   | Groundwater   |        |   | Groundwater   |        |   | Groundwater   |        |   | Groundwater   |        |   | Groundwater   |        |   | Groundwater   |        |   | Groundwater   |        |   |      |
| Remarks         |                                    |               |        |   |               |        |   |               |        |   |               |        |   |               |        |   |               |        |   |               |        |   |               |        |   |               |        |   | FD of GMZ-2S  |        |   |      |
| Parameter       |                                    | Units         | Result | Q | RL            | Result | Q | RL            | Result | Q | RL            | Result | Q | RL            | Result | Q | RL            | Result | Q | RL            | Result | Q | RL            | Result | Q | RL            | Result | Q | RL            | Result | Q | RL   |
| Total Metals    |                                    |               |        |   |               |        |   |               |        |   |               |        |   |               |        |   |               |        |   |               |        |   |               |        |   |               |        |   |               |        |   |      |
| Antimony        | 6                                  | ug/L          | 0.68   | J | 1             | 0.86   | J | 1             |        | U | 1             |        | U | 1             |        | U | 1             |        | U | 1             |        | U | 1             |        | U | 1             |        | U | 1             |        | U | 1    |
| Arsenic         | 10                                 | ug/L          |        | U | 2             |        | U | 2             |        | U | 2             |        | U | 2             |        | U | 2             |        | U | 2             | 0.74   | J | 2             |        | U | 2             |        | U | 2             |        | U | 2    |
| Boron           | 1340                               | ug/L          | 590    |   | 50            | 230    |   | 50            |        | U | 50            |        | U | 50            | 73     |   | 50            | 160    |   | 50            |        | U | 50            |        | U | 50            | 16     | J | 50            |        | U | 50   |
| Bromate         | 10                                 | ug/L          |        | U | 1000          |        | U | 1000          |        | U | 1000          |        | U | 1000          |        | U | 1000          |        | U | 1000          |        | U | 1000          |        | U | 1000          |        | U | 1000          |        | U | 1000 |
| Bromide         | NS                                 | mg/L          |        | U | 1             | 8.5    |   | 1             |        | U | 1             |        | U | 1             |        | U | 1             | 1.2    |   | 1             |        | U | 1             |        | U | 1             |        | U | 1             |        | U | 1    |
| Chromium        | 100                                | ug/L          | 2.6    |   | 2             | 24     |   | 2             | 0.57   | J | 2             |        | U | 2             |        | U | 2             | 9.8    |   | 2             |        | U | 2             |        | U | 2             |        | U | 2             |        | U | 2    |
| Fluoride        | 4                                  | mg/L          | 0.18   | J | 1             | 0.27   | J | 1             | 0.25   | J | 1             |        | U | 1             |        | U | 1             |        | U | 1             |        | U | 1             |        | U | 1             |        | U | 1             |        | U | 1    |
| Lithium         | 260                                | ug/L          | 100    |   | 50            | 4000   |   | 50            | 350    |   | 50            | 79     |   | 50            | 26     | J | 50            | 550    |   | 50            |        | U | 50            |        | U | 50            |        | U | 50            |        | U | 50   |
| Thallium        | 0.5                                | ug/L          |        | U | 0.5           |        | U | 0.5           |        | U | 0.5           |        | U | 0.5           |        | U | 0.5           | 0.21   | J | 0.5           |        | U | 0.5           |        | U | 0.5           |        | U | 0.5           |        | U | 0.5  |

| Sample Location | Remediation<br>Goals<br>(ROD 2006) |       | GMZ-3S        |   |      | GMZ-3I        |   |      | GMZ-3D        |   |      | GMZ-4S        |   |      | GMZ-4I        |   |      | GMZ-4D        |   |      | MW-22         |   |      |
|-----------------|------------------------------------|-------|---------------|---|------|---------------|---|------|---------------|---|------|---------------|---|------|---------------|---|------|---------------|---|------|---------------|---|------|
| Lab ID          |                                    |       | 410-127243-10 |   |      | 410-127243-09 |   |      | 410-127243-08 |   |      | 410-127243-13 |   |      | 410-127243-12 |   |      | 410-127243-11 |   |      | 410-127243-04 |   |      |
| Sample Date     |                                    |       | 5/16/2023     |   |      | 5/16/2023     |   |      | 5/16/2023     |   |      | 5/16/2023     |   |      | 5/16/2023     |   |      | 5/16/2023     |   |      | 5/15/2023     |   |      |
| Matrix          |                                    |       | Groundwater   |   |      | Groundwater   |   |      | Groundwater   |   |      | Groundwater   |   |      | Groundwater   |   |      | Groundwater   |   |      | Groundwater   |   |      |
| Remarks         |                                    |       |               |   |      |               |   |      |               |   |      |               |   |      |               |   |      |               |   |      |               |   |      |
| Parameter       |                                    | Units | Result        | Q | RL   | Result        | Q | RL   | Result        | Q | RL   | Result        | Q | RL   | Result        | Q | RL   | Result        | Q | RL   | Result        | Q | RL   |
|                 |                                    |       |               |   |      |               |   |      |               |   |      |               |   |      |               |   |      |               |   |      |               |   |      |
| Antimony        | 6                                  | ug/L  |               | U | 1    |               | U | 1    |               | U | 1    |               | U | 1    |               | U | 1    |               | U | 1    |               | U | 1    |
| Arsenic         | 10                                 | ug/L  |               | U | 2    |               | U | 2    |               | U | 2    |               | U | 2    |               | U | 2    |               | U | 2    | 5.2           |   | 2    |
| Boron           | 1340                               | ug/L  | 460           |   | 50   | 690           |   | 50   | 710           |   | 50   | 290           |   | 50   | 400           |   | 50   | 360           |   | 50   | 3700          |   | 50   |
| Bromate         | 10                                 | ug/L  |               | U | 1000 |               | U | 1000 |               | U | 1000 |               | U | 1000 |               | U | 1000 |               | U | 1000 |               | U | 1000 |
| Bromide         | NS                                 | mg/L  | 1.6           |   | 1    | 2.3           |   | 1    | 2.8           |   | 1    | 0.68          | J | 1    | 1.5           |   | 1    | 1.3           |   | 1    |               | U | 1    |
| Chromium        | 100                                | ug/L  | 18            |   | 2    | 27            |   | 2    | 27            |   | 2    | 13            |   | 2    | 20            |   | 2    | 21            |   | 2    | 0.48          | J | 2    |
| Fluoride        | 4                                  | mg/L  |               | U | 1    |               | U | 1    |               | U | 1    |               | U | 1    |               | U | 1    |               | U | 1    | 1             |   | 1    |
| Lithium         | 260                                | ug/L  | 1900          |   | 50   | 2800          |   | 50   | 3000          |   | 50   | 900           |   | 50   | 1400          |   | 50   | 1300          |   | 50   | 14000         |   | 50   |
| Thallium        | 0.5                                | ug/L  |               | U | 0.5  |               | U | 0.5  |               | U | 0.5  |               | U | 0.5  |               | U | 0.5  |               | U | 0.5  |               | U | 0.5  |

Notes:

ug/L - Microgram per liter  
mg/L - Milligram per liter  
RL - Reporting Limit  
Q - Qualifier  
U - Non-detected  
J - Estimated value  
UJ - Estimated Reporting Limit  
NS - No Standard

**Table 7**  
**Analytical Results for Volatile Groundwater Samples**  
**Foot Mineral Superfund Site, Frazer PA**  
**May 2023 Sampling Event**

| Sample Location          | Remediation<br>Goal<br>(ROD 2006) |       | MW-22         |   |    | MW-22D        |   |    |
|--------------------------|-----------------------------------|-------|---------------|---|----|---------------|---|----|
| Lab ID                   |                                   |       | 410-127243-04 |   |    | 410-127243-05 |   |    |
| Sample Date              |                                   |       | 5/15/2023     |   |    | 5/15/2023     |   |    |
| Matrix                   |                                   |       | Groundwater   |   |    | Groundwater   |   |    |
| Remarks                  |                                   |       |               |   |    | FD of MW-22   |   |    |
| Parameter                |                                   | Units | Result        | Q | RL | Result        | Q | RL |
| 1,2-Dichloroethane       | 5                                 | ug/L  |               | U | 1  |               | U | 1  |
| Benzene                  | 5                                 | ug/L  | 1.6           |   | 1  | 1.7           |   | 1  |
| Bromoform                | 80                                | ug/L  |               | U | 4  |               | U | 4  |
| Carbon tetrachloride     | 5                                 | ug/L  |               | U | 1  |               | U | 1  |
| Chloroform               | 70                                | ug/L  |               | U | 1  |               | U | 1  |
| cis-1,2-Dichloroethene   | 70                                | ug/L  | 5.6           |   | 1  | 5.6           |   | 1  |
| Ethylbenzene             | 700                               | ug/L  |               | U | 1  |               | U | 1  |
| Tetrachloroethene        | 5                                 | ug/L  | 120           |   | 1  | 120           |   | 1  |
| trans-1,2-Dichloroethene | 100                               | ug/L  |               | U | 2  |               | U | 2  |
| Trichloroethene          | 5                                 | ug/L  | 8.1           |   | 1  | 7.6           |   | 1  |

**Notes:**

ug/L - Microgram per liter

mg/L - Milligram per liter

RL - Reporting Limit

Q - Qualifier

U - Non-detected

J - Estimated value

UJ - Estimated Reporting Limit

**TABLE 8**  
**PROPOSED MONITORING SAMPLING FREQUENCIES AND ANALYSES**

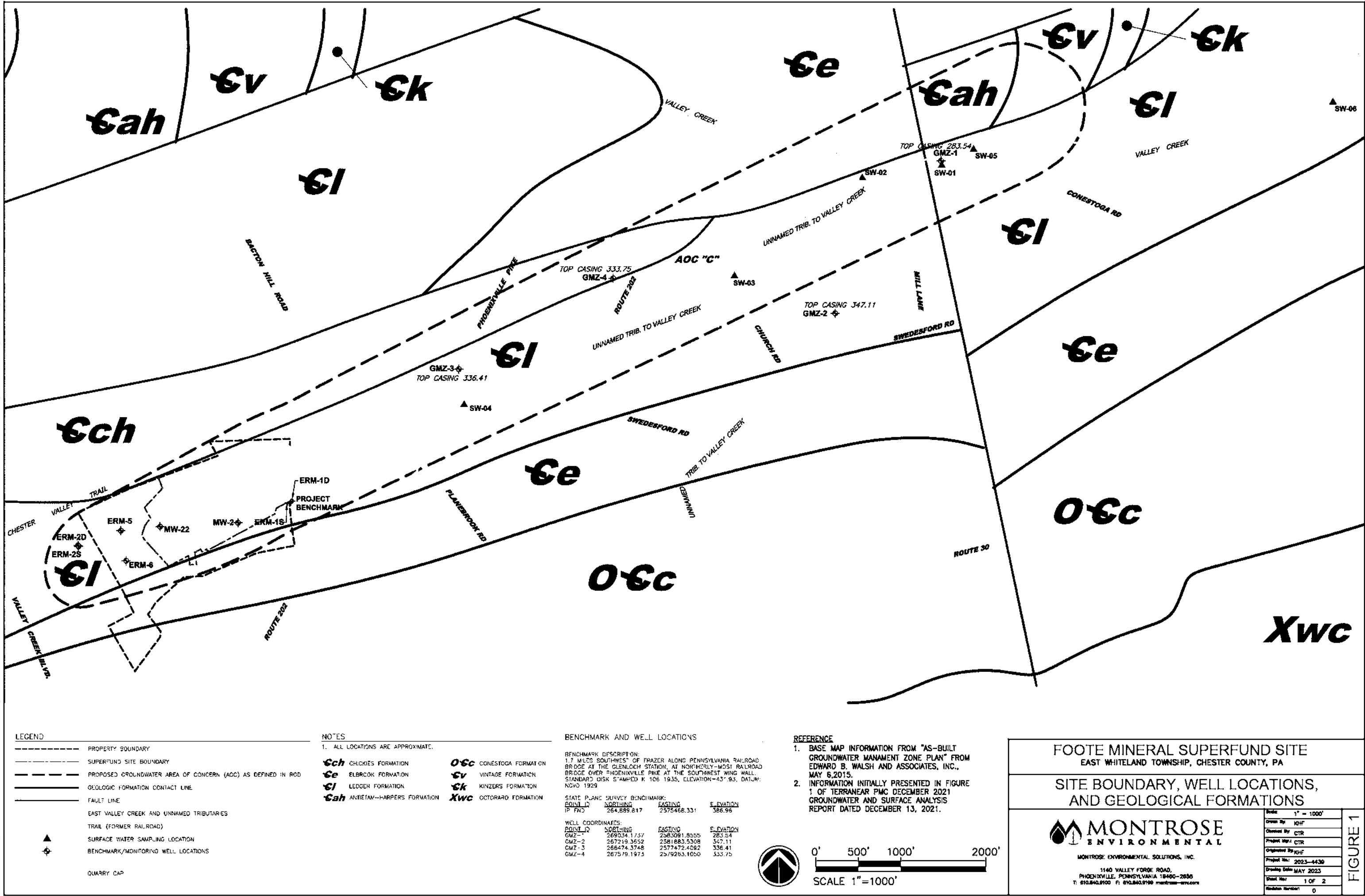
| <b>MEDIA OF CONCERN<br/>and LOCATION</b>                                                                                                           | <b>FREQUENCY OF<br/>ANALYSIS</b>                                                                                                                                                                                       | <b>ANALYSIS REQUIRED</b>                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>Comprehensive<br/>Groundwater Monitoring<br/>Wells</b><br>ERM -1S and 1D<br>ERM-2D and 2S<br>MW-22<br>GMZ-1<br>GMZ-3S, and 3D<br>GMZ-4S, and 4D | Once every 5 years to<br>characterize the plume for the<br>Five-Year Review in the year<br>prior to the Five-Year review<br>(i.e., 2023, 2028, 2033, etc.)                                                             | Lithium and Bromate, at wells shown.<br>Benzene, Tetrachloroethene and<br>Trichloroethene and Boron at MW-22. |
| <b>Characterization<br/>Sampling Event –<br/>Groundwater Monitoring<br/>Wells</b><br>ERM -1D<br>ERM-2D<br>MW-22<br>GMZ-1<br>GMZ- 3D<br>GMZ- 4D     | Once every 5 years to<br>characterize the plume<br>condition approximately half<br>way through the 5 year review<br>period – two years after the<br>Comprehensive Sampling<br>Event (i.e., 2025, 2030, 2035,<br>etc.)t | Lithium and Bromate at wells shown.<br>Benzene, Tetrachloroethene and<br>Trichloroethene and Boron at MW-22.  |
| <b>Annual Surface Water<br/>Sampling Event</b><br>SW-1 and SW-5                                                                                    | Annual                                                                                                                                                                                                                 | Lithium and Bromate                                                                                           |

**Note**

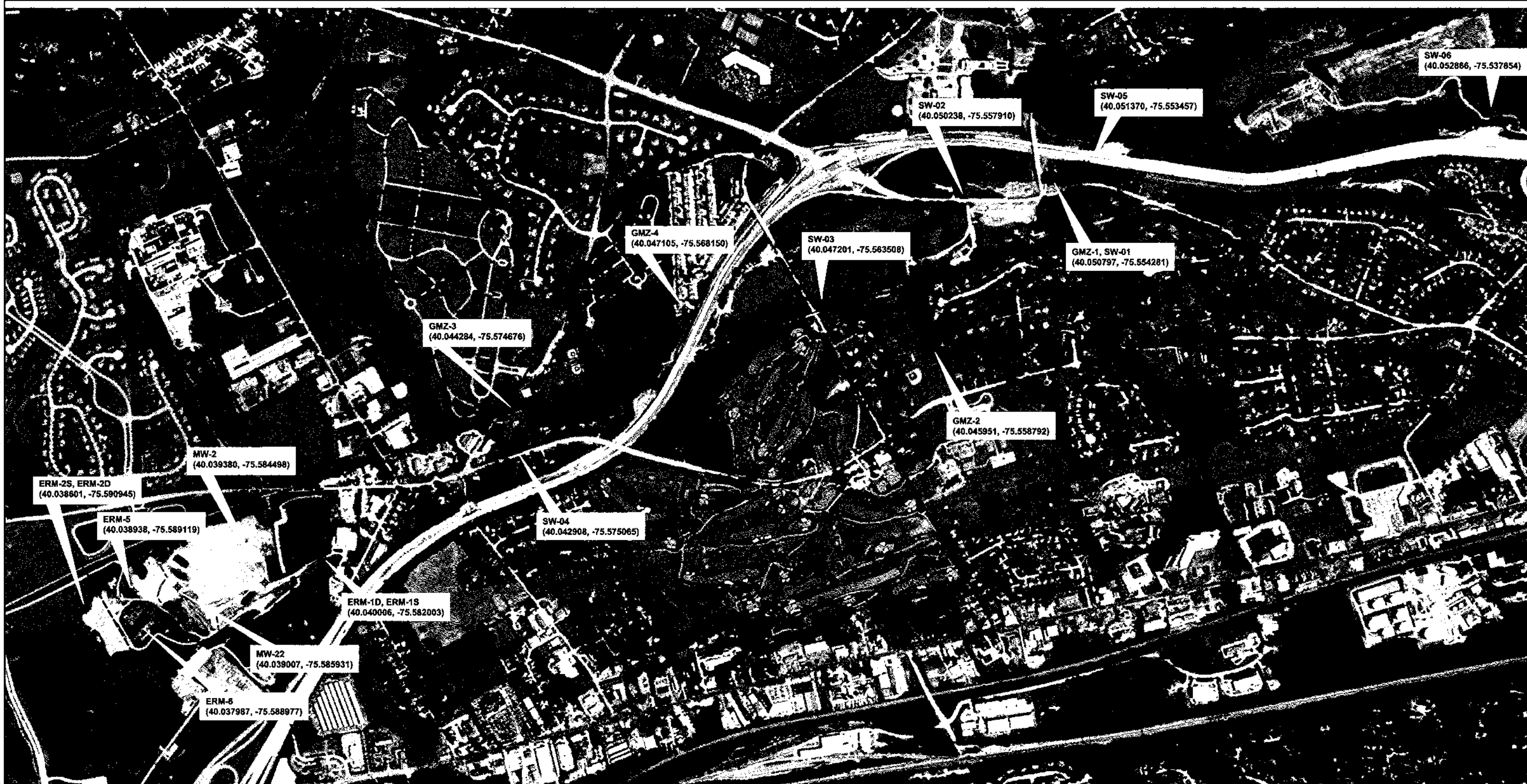
1. If annual surface water samples identify plume characteristics in excess of historical characteristics, the plume will be resampled within 3 months. If the both rounds of sampling show plume characteristics above the historical range, a Comprehensive Groundwater



Groundwater and Surface Water Analysis Report  
May 2023 Sampling Event  
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G:\Projects\2023\20234439 - Green Fig - Foote Mineral GW - SW Sampling\CAD\DWG\SHEETS\Well Sampling Location Figures.dwg



LEGEND

- PROPERTY BOUNDARY
- SUPERFUND SITE BOUNDARY
- SURFACE WATER SAMPLING LOCATION
- BENCH-MARK/MONITORING WELL LOCATIONS

NOTES

- ALL LOCATIONS ARE APPROXIMATE.
- INFORMATION INITIAL PRESENTED IN FIGURE 2 OF TERRANEAR PMC DECEMBER 2021 GROUNDWATER AND SURFACE WATER ANALYSIS REPORT DATED DECEMBER 13, 2021.



0' 500' 1000' 2000'  
SCALE 1"=1000'

FOOTE MINERAL SUPERFUND SITE  
EAST WHITELAND TOWNSHIP, CHESTER COUNTY, PA

MONITORING PLAN SAMPLE LOCATIONS

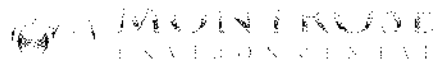


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|                 |            |
|-----------------|------------|
| Scale           | 1" = 1000' |
| Drawn By        | KHF        |
| Checked By      | CTR        |
| Project Mgr     | CTR        |
| Original By     | KHF        |
| Project No.     | 2023-4439  |
| Drawing Date    | MAY 2023   |
| Sheet No.       | 2 OF 2     |
| Revision Number | 0          |

FIGURE 2



Groundwater and Surface Water Analysis Report  
May 2023 Sampling Event  
Foote Mineral Superfund Site  
Frazer, Pennsylvania (EPA ID # PA D077087989)  
Project No. 2023-4439  
October 3, 2023

Figure A -1  
Lithium In Source (MW -22) and Near Source Wells (MW 1D/1S)

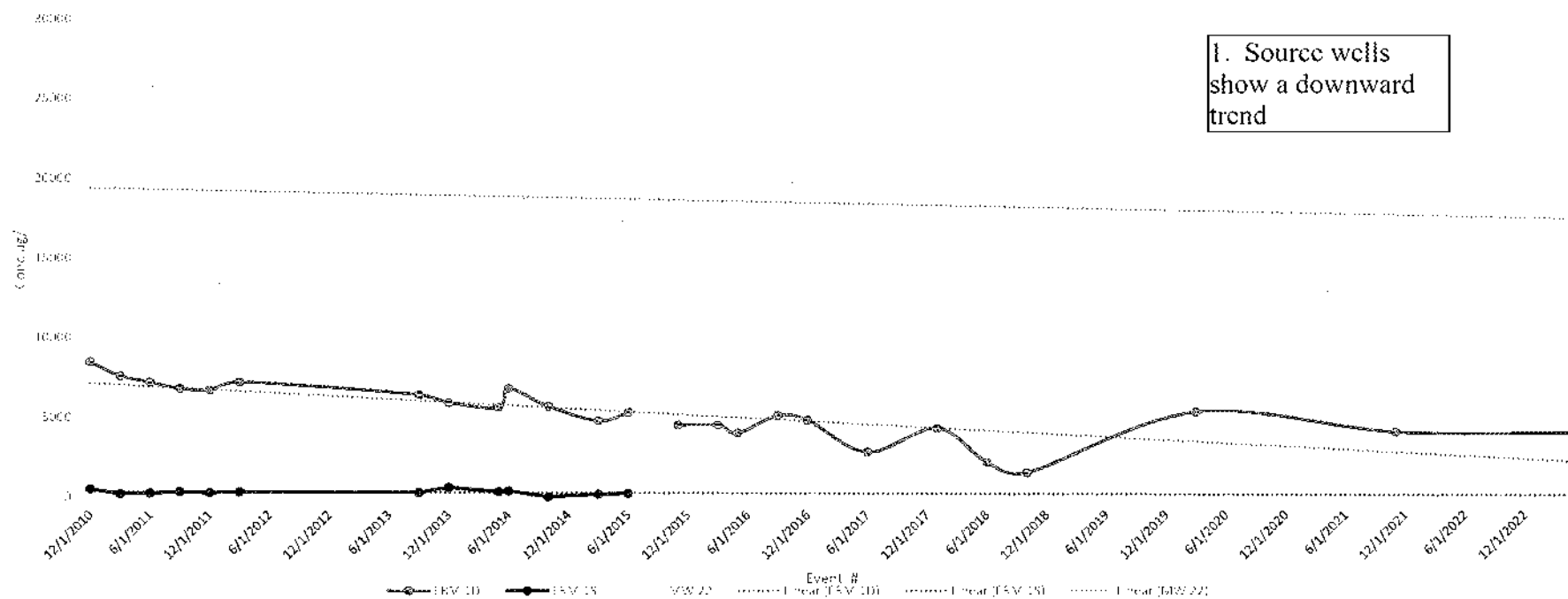
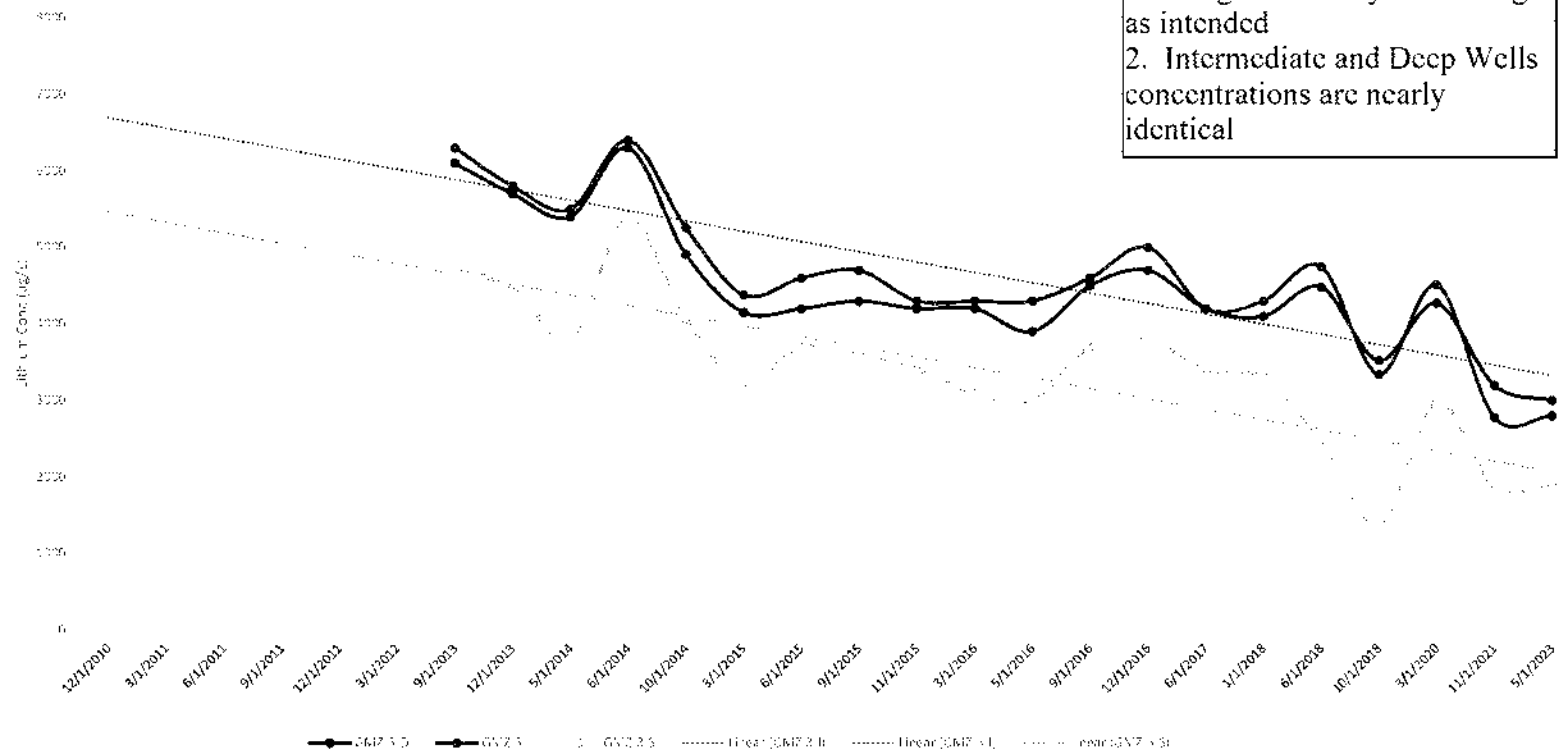
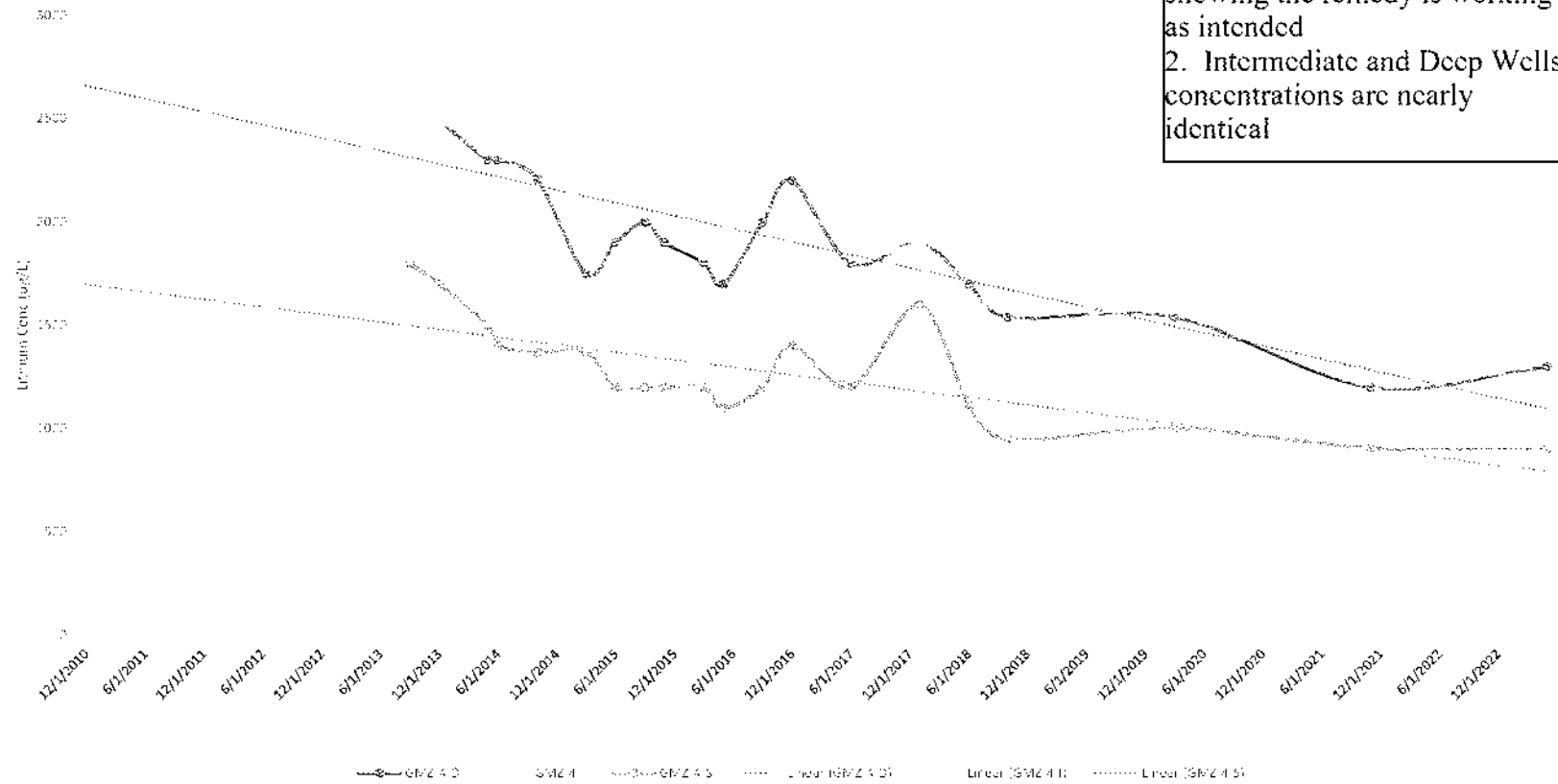


Figure A-2  
Lithium in GMZ-3S, 3I, and 3D  
(2,200 ft downgradient)



1. Downgradient wells show a consistent downward trend showing the remedy is working as intended
2. Intermediate and Deep Wells concentrations are nearly identical

Figure A-3  
Lithium in GMZ-4S, 4I, and 4D  
(4,400 ft Downgradient)



1. Downgradient wells show a consistent downward trend showing the remedy is working as intended
2. Intermediate and Deep Wells concentrations are nearly identical

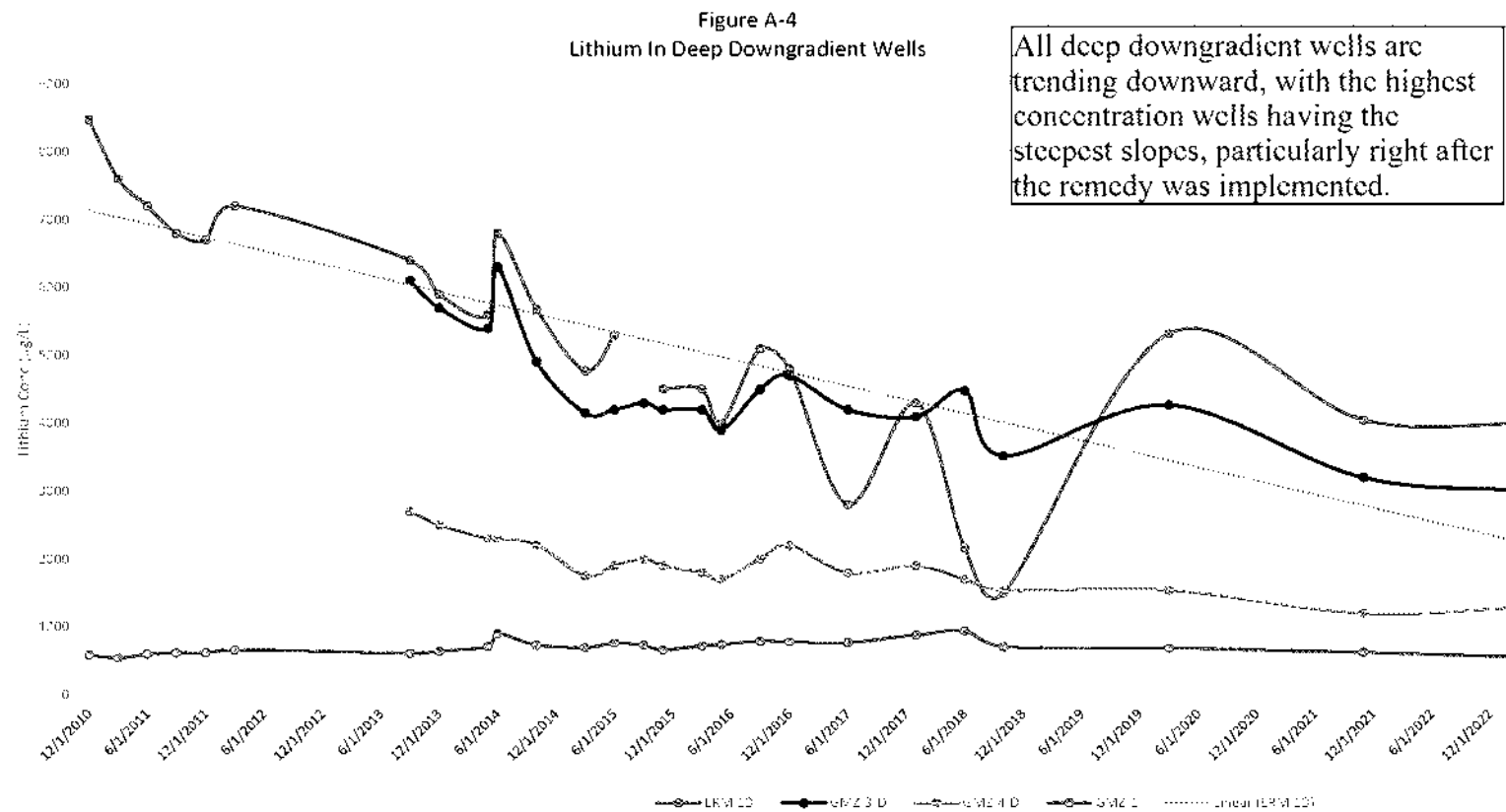


Figure A-5  
Lithium In Downgradient Surface Water Locations and GMZ-1

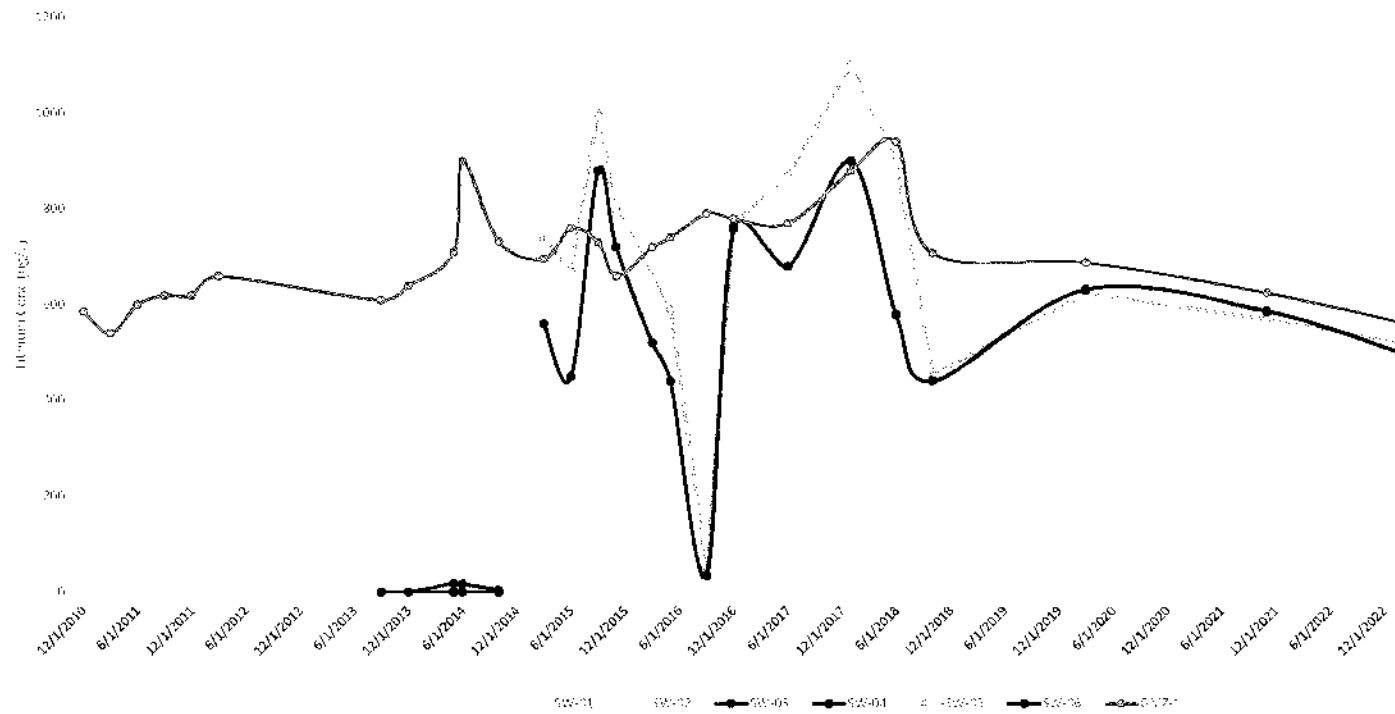
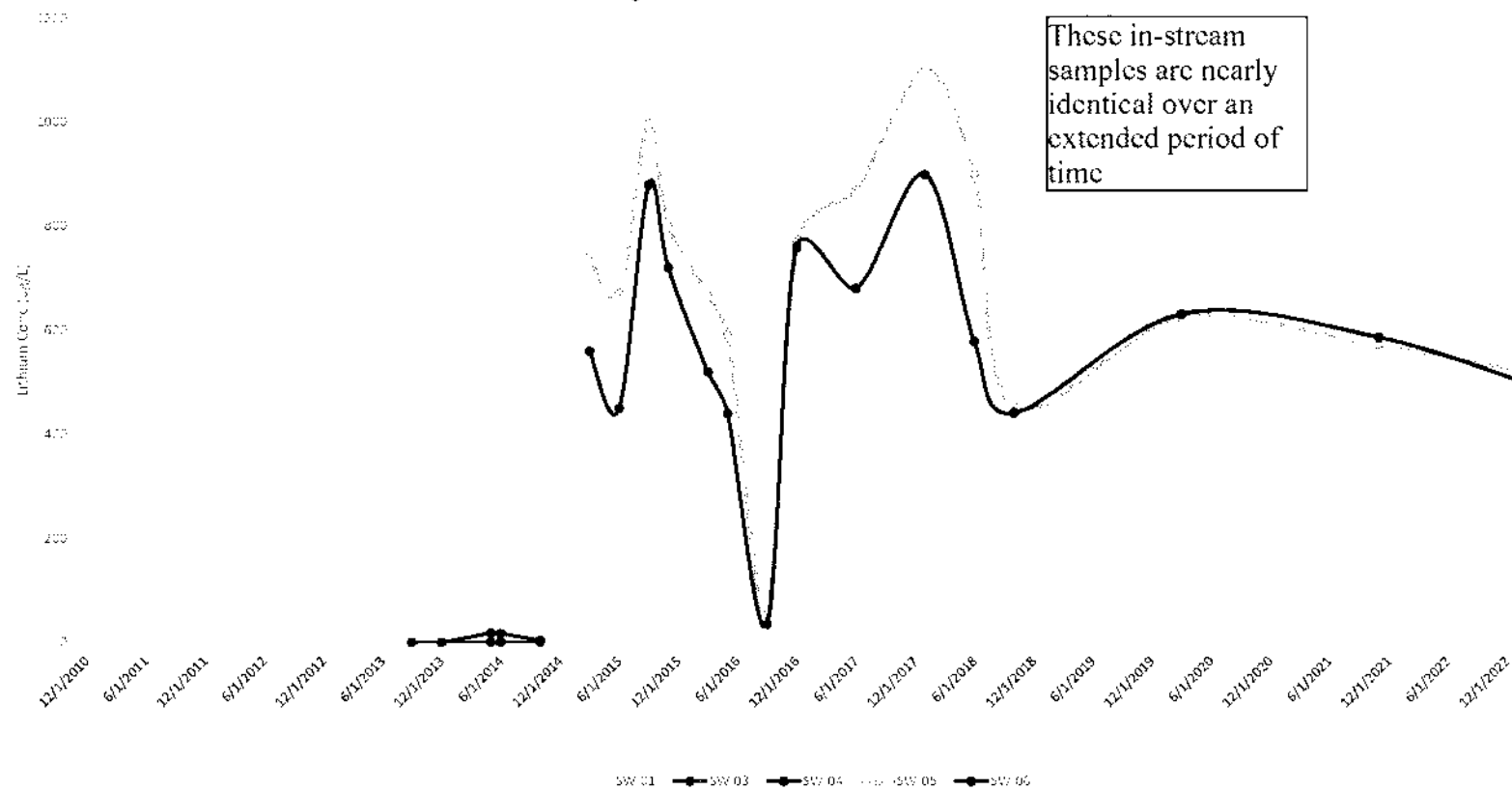
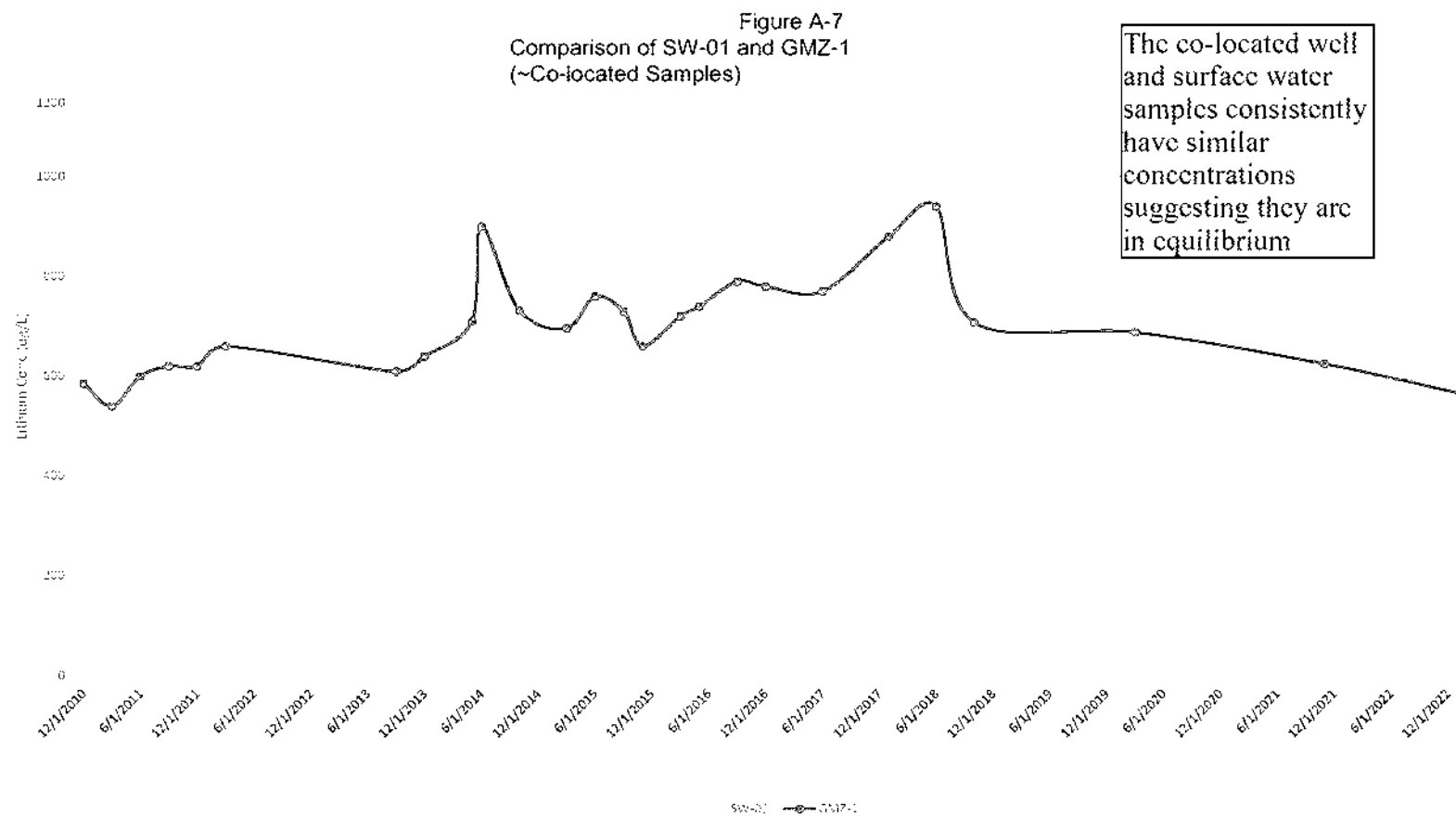


Figure A-6  
Lithium in Select Downgradient Surface Water Locations





LITHIUM

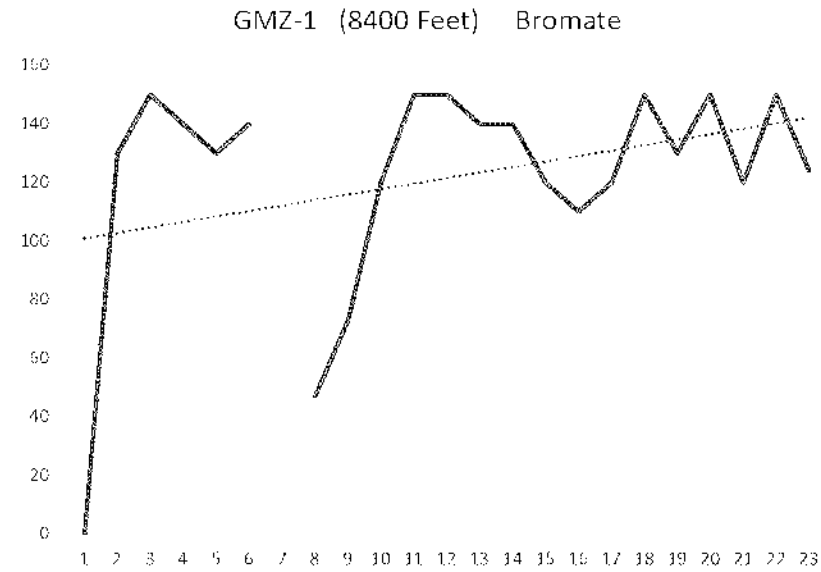
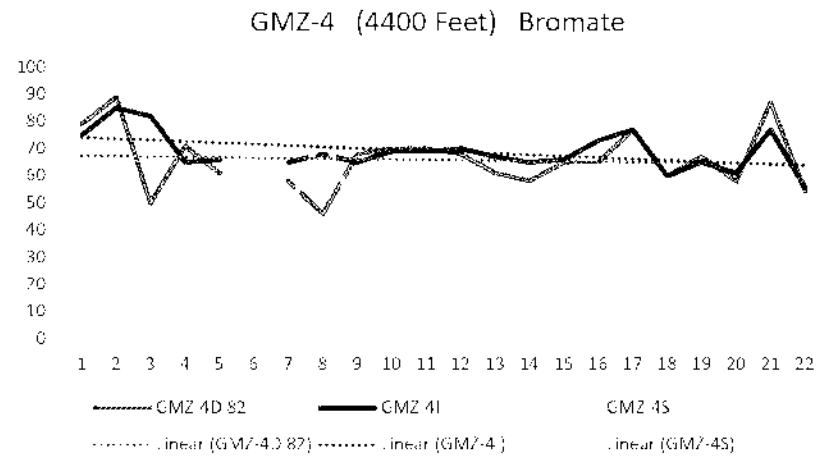
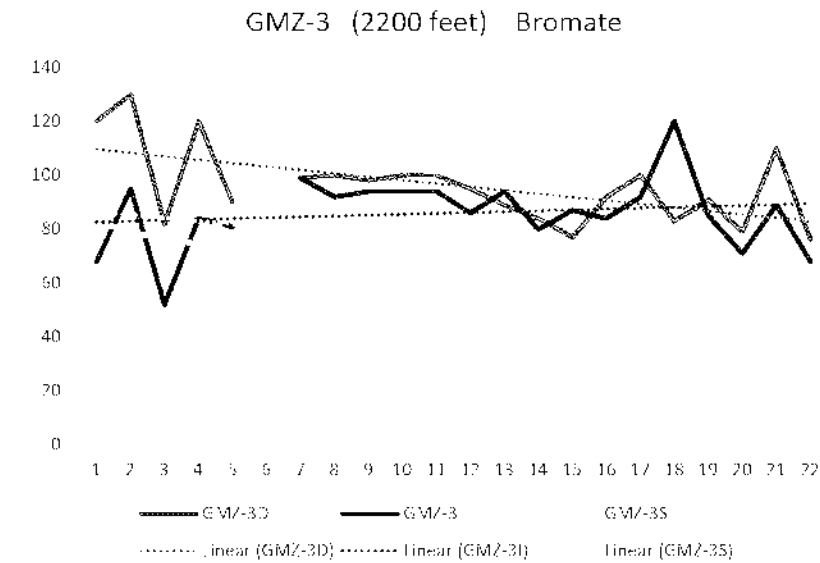
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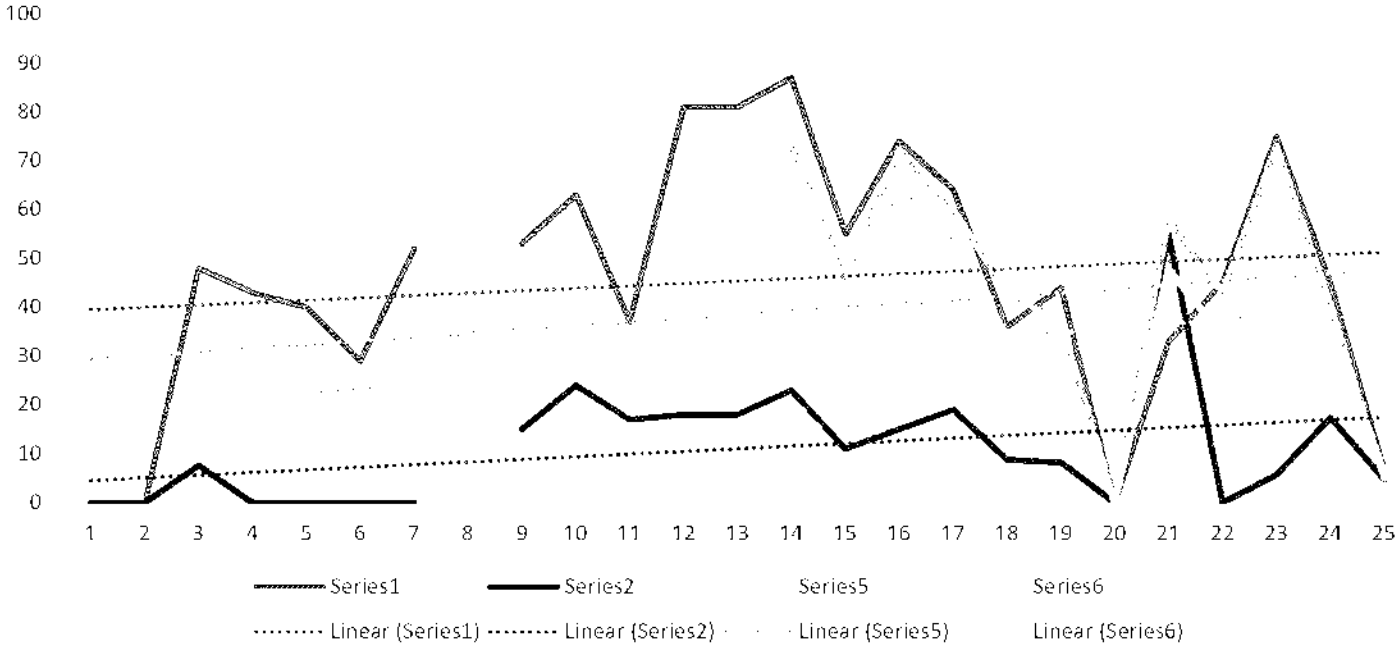
Groundwater and Surface Water Analysis Report  
May 2023 Sampling Event  
Foote Mineral Superfund Site  
Frazer, Pennsylvania (EPA ID # PA D077087989)  
Project No. 2023-4439  
October 3, 2023

FOOTE MINERAL SUPERFUND SITE  
GROUNDWATER MONITORING RESULTS (unfiltered, except where noted)

| BROMATE (STD-10) |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
|------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                  | 1        | 2        | 3        | 4        | 5        | 6        | 12       | 13       | 14       | 15       | 16       | 17       | 18       | 19       | 20       | 10       | 22       | 23       | 24       | 25       | 26       | 27       | 28       |
| (on-site)        | 2010 DEC | 2011 MAR | 2011 JUN | 2011 SEP | 2011 DEC | 2012 MAR | 2013 SEP | 2013 DEC | 2014 MAR | 2014 JUN | 2014 OCT | 2015 MAR | 2015 JUN | 2015 SEP | 2015 NOV | 2016 MAR | 2016 MAY | 2016 SEP | 2016 DEC | 2017 JUN | 2018 JAN | 2018 JUN | 2018 OCT |
| ERM 1D           | 140      | 240      | 200      | 210      | 280      | 250      | 220      | 240      | 220      | 210      | 210      | 200      | 190      | NS       | 180      | 200      | 230      | 190      | 200      | 190      | 230      | 189      | 37       |
| ERM 1S           | 0        | <5       | <5       | SU       | SU       | SU       | SU       | ND       | ND       | NS       | ND       | ND       | NS       | NS       | NS       | NS       | NS       | NS       | NS       | NS       | NS       | NS       | NS       |
| ERM 2D           | 0        | <5       | <5       | SU       | SU       | SU       | SU       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | 12       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       |
| ERM 2S           | 0        | <5       | <5       | SU       | SU       | SU       | SU       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | 18       | ND       | ND       | ND       | ND       | ND       | ND       | ND       |
| ERM 5            | 0        | <5       | <5       | SU       | SU       | SU       | SU       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | 47       | ND       | ND       | ND       | ND       | ND       | ND       |
| MW 22            | ND       | <5       | <5       | SU       | SU       | 69       | SU       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | 6.5      | ND       | ND       | ND       | ND       | ND       |
|                  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| (plume)          | 2010 DEC | 2011 MAR | 2011 JUN | 2011 SEP | 2011 DEC | 2012 MAR | 2013 SEP | 2013 DEC | 2014 MAR | 2014 JUN | 2014 OCT | 2015 MAR | 2015 JUN | 2015 SEP | 2015 NOV | 2016 MAR | 2016 MAY | 2016 SEP | 2016 DEC | 2017 JUN | 2018 JAN | 2018 JUN | 2018 OCT |
| GMZ-1            | 0        | 130      | 150      | 140      | 130      | 140      | 47       | 73       | 120      | 150      | 150      | 140      | 140      | 120      | 110      | 120      | 150      | 130      | 150      | 120      | 150      | 124      | 35.9     |
| GMZ-2D           | 0        | 5.4      | <5       | SU       | SU       | SU       | SU       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | 16       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       |
| GMZ-2I           | 0        | <5       | <5       | SU       | SU       | SU       | SU       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       | ND       |
| GMZ-2S           | 0        | <5       | <5       | SU       | SU       | SU       | SU       | ND       | ND       | 9.2      | 9.2      | ND       | ND       | ND       | ND       | 9.5      | 30       | <25      | ND       | ND       | ND       | ND       | ND       |
| GMZ-3D           | 110      | 120      | 130      | 82       | 120      | 90       | 99       | 100      | 98       | 100      | 100      | 95       | 89       | 84       | 77       | 92       | 100      | 83       | 91       | 79       | 110      | 76.2     | 7.97     |
| GMZ-3I           | 0        | 68       | 95       | 52       | 84       | 81       | 99       | 92       | 94       | 94       | 94       | 86       | 94       | 80       | 87       | 84       | 92       | 120      | 85       | 71       | 89       | 68.1     | 7.39     |
| GMZ-3S           | 110      | 84       | 78       | 78       | 74       | 87       | 82       | 85       | 70       | 87       | 87       | 73       | 78       | 73       | 73       | 70       | 78       | 67       | 75       | 57       | 74       | 35.3     | ND       |
| GMZ-4D           | 82       | 79       | 89       | 50       | 71       | 61       | 58       | 46       | 68       | 70       | 70       | 68       | 61       | 58       | 65       | 65       | 77       | 60       | 67       | 58       | 87       | 54.3     | 7.83     |
| GMZ-4I           | 55 F     | 75       | 85       | 82       | 65       | 66       | 65       | 68       | 65       | 69       | 69       | 70       | 67       | 65       | 66       | 73       | 77       | 60       | 65       | 61       | 77       | 55.8     | 9.35     |
| GMZ-4S           | 78 F     | 29       | 25       | 27       | 22       | 30       | 47       | 76       | 45       | 35       | 35       | 46       | 35       | 37       | 46       | 30       | 41       | 33       | 33       | 31       | 36       | 39.8     | ND       |
|                  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
| (Surf Wtr)       | 2010 DEC | 2011 MAR | 2011 JUN | 2011 SEP | 2011 DEC | 2012 MAR | 2013 SEP | 2013 DEC | 2014 MAR | 2014 JUN | 2014 OCT | 2015 MAR | 2015 JUN | 2015 SEP | 2015 NOV | 2016 MAR | 2016 MAY | 2016 SEP | 2016 DEC | 2017 JUN | 2018 JAN | 2018 JUN | 2018 OCT |
| SW-01            | 0        | 48       | 43       | 40       | 29       | 52       | 53       | 63       | 37       | 81       | 81       | 87       | 55       | 74       | 64       | 36       | 44       | ND       | 33       | 45       | 75       | 44.9     | 6.59     |
| SW-02            | 0        | 7.6      | <5       | SU       | SU       | 8.5U     | 15       | 24       | 17       | 18       | 18       | 23       | 11       | 15       | 19       | 8.8      | 8.2      | ND       | 55       | ND       | 5.7      | 17.4     | 4.7      |
| SW-03            | 0        | <5       | <5       | SU       | SU       | SU       | SU       | ND       | ND       | ND       | ND       |          |          |          |          |          |          |          |          |          |          |          |          |
| SW-04            | 0        | <5       | <5       | SU       | SU       | SU       | SU       | ND       | ND       |          | NS       |          |          |          |          |          |          |          |          |          |          |          |          |
| SW-05            |          |          |          |          |          |          |          |          |          |          |          | 73       | 46       | 72       | 60       | 43       | 37       | ND       | 58       | 43       | 73       | 40.5     | 4.99     |
| SW-06            |          |          |          |          |          |          |          |          |          |          |          | 43       | 29       | 64       | 53       | 34       | 31       | ND       | 48       | 34       | 63       | 36       | 6.15     |



Stream Samples -- Bromate by Sampling Location  
December 2010 to Oct 2018



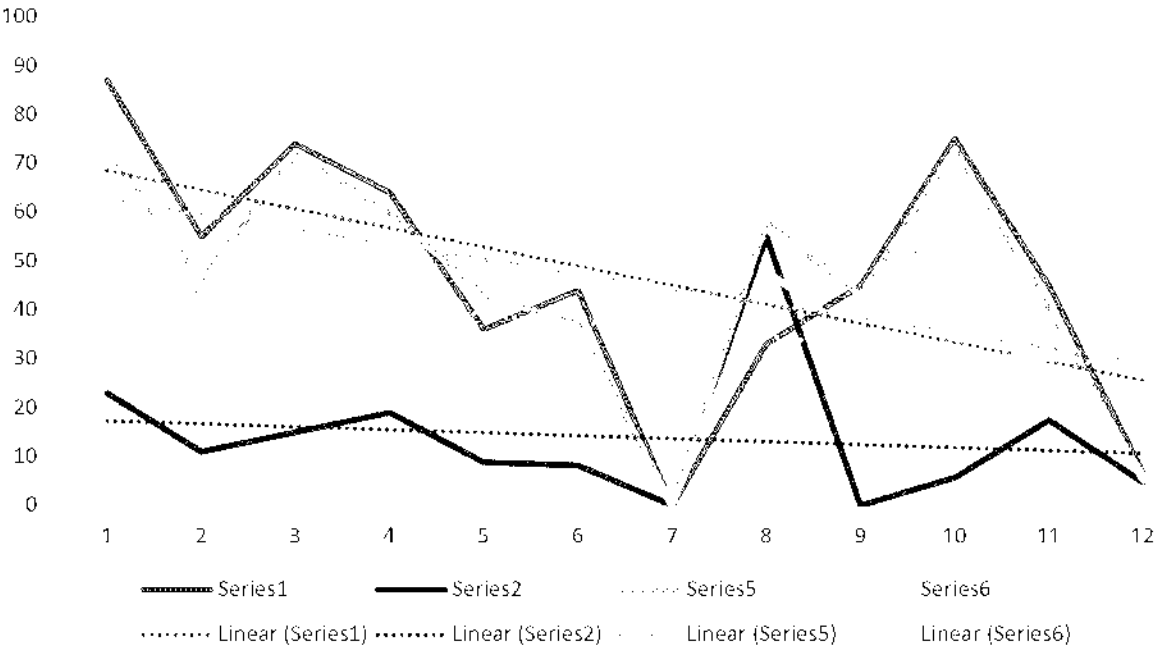
SW-1 = Series 1

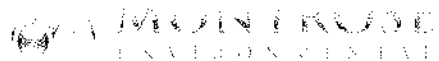
SW-2 = Series 2

SW-5 = Series 5

SW-6 = Series 6

Stream Samples -- Bromate by Sampling Location  
March 2014 to Oct 2018





Groundwater and Surface Water Analysis Report  
May 2023 Sampling Event  
Foote Mineral Superfund Site  
Frazer, Pennsylvania (EPA ID # PA D077087989)  
Project No. 2023-4439  
October 3, 2023

Table 4

Analytical Results for Inorganic Anions and Metals in Groundwater and Surface Water Samples  
 Foote Mineral Superfund Site, Frazer PA  
 November 2021 Sampling Event

| Client ID     |      |        | SW-1       | SW-2       | SW-5       | SW-6       | SW-2A      | GMZ-1      | GMZ-2S   | GMZ-2I   | GMZ-2D       | GMZ-4S     | GMZ-4I      |
|---------------|------|--------|------------|------------|------------|------------|------------|------------|----------|----------|--------------|------------|-------------|
| Sampling Date |      |        | 11/15/21   | 11/15/21   | 11/15/21   | 11/15/21   | 11/15/21   | 11/15/21   | 11/15/21 | 11/15/21 | 11/15/21     | 11/16/21   | 11/16/21    |
|               | Goal | Unit   | Result     | Result     | Result     | Result     | Result     | Result     | Result   | Result   | Result       | Result     | Result      |
| Antimony      | 6    | (µg/L) | 0.38 U     | 0.38 U     | 0.38 U     | 0.38 U     | 0.38 U     | 0.38 U     | 0.38 U   | 0.38 U   | 0.38 U       | 0.38 U     | 0.38 U      |
| Arsenic       |      | (µg/L) | 0.31 U     | 0.42 J     | 0.31 U     | 0.31 U     | 0.31 U     | 0.31 U     | 0.31 U   | 1.1      | 0.31 U       | 0.31 U     | 0.31 U      |
| Boron         | 1340 | (µg/L) | 191        | 183        | 207        | 199        | 253        | 181        | 41.4 J   | 38.6 U   | 38.6 U       | 323        | 452         |
| Bromate       |      | (µg/L) | 27.4       | 28.3       | 34.0       | 30.7       | 28.4       | 84.3       | 2.50 U   | 2.50 U   | 2.50 U       | 2.50 U     | 35.4 F1     |
| Bromide       |      | (µg/L) | 0.74       | 0.73       | 0.74       | 0.73       | 0.73       | 1.29       | 0.053 U  | 0.053 U  | 0.053 U      | 0.74       | 1.08        |
| Chromium      | 100  | (µg/L) | 8.0        | 8.0        | 8.1        | 8.2        | 7.9        | 11.3       | 1.5 U    | 1.5 U    | 1.5 U        | 13.6       | 21.8        |
| Fluoride      | 4000 | (µg/L) | 0.052 J    | 0.046 J    | 0.043 J    | 0.055 J    | 0.046 J    | 0.053 J    | 0.091 J  | 0.077 J  | 0.080 U      | 0.026 U    | 0.047 J     |
| Lithium       | 260  | (µg/L) | <b>589</b> | <b>590</b> | <b>571</b> | <b>587</b> | <b>567</b> | <b>625</b> | 3.4 U    | 3.4 U    | <b>3.8 J</b> | <b>907</b> | <b>1270</b> |
| Thallium      | 0.5  | (µg/L) | 0.15 U     | 0.15 U     | 0.15 U     | 0.15 U     | 0.15 U     | 0.15 U     | 0.15 U   | 0.15 U   | 0.15 U       | 0.15 U     | 0.15 U      |

Table 4 and 5 in this report have been updated by Montrose to be consistent with the laboratory data report provided in Appendix A.

Concentrations in bold exceed the ROD's remediation goals

J: Result is < the RL but > or equal to the MDL and the concentration is an approximate value.

U: Indicates the analyte was not detected.

F1: MS/MSD Recovery is outside acceptance limits.

Table 4

Analytical Results for Inorganic Anions and Metals in Groundwater and Surface Water Samples  
 Foote Mineral Superfund Site, Frazer PA  
 November 2021 Sampling Event

| Client ID     |      |        | GMZ-4D   | GMZ-3D   | GMZ-3I   | GMZ-3S   | ERM-1D   | ERM-5    | ERM-2S   | ERM-2D   | MW-22    | MW-22D    |
|---------------|------|--------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Sampling Date |      |        | 11/16/21 | 11/16/21 | 11/16/21 | 11/16/21 | 11/17/21 | 11/17/21 | 11/17/21 | 11/17/21 | 11/17/21 | 11/17/21  |
|               | Goal | Unit   | Result   | Result   | Result   | Result   | Result   | Result   | Result   | Result   | Result   | Result    |
| Antimony      | 6    | (µg/L) | 0.38 U   | 0.38 U   | 0.38 U   | 0.38 U   | 0.85 J   | 0.38 U   | 0.38 U   | 0.38 U   | 0.38 U   | 0.38 U    |
| Arsenic       |      | (µg/L) | 0.31 U   | 0.31 U   | 0.31 U   | 0.31 U   | 0.49 J   | 0.31 U   | 0.35 J   | 0.31 J   | 2.5      | 2.6       |
| Boron         | 1340 | (µg/L) | 414      | 850      | 770      | 588      | 294      | 114 J    | 38.6 U   | 47.0 J   | 1220 B   | 1270      |
| Bromate       |      | (µg/L) | 38.3     | 44.3     | 35.9     | 30.4     | 2.50 U   | 2.50 U   | 12.5 U   | 2.50 U   | 2.50 U   | 2.50 U F1 |
| Bromide       |      | (µg/L) | 1.06     | 2.45     | 2.09     | 1.62     | 7.01     | 0.053 U  | 0.13 U   | 0.053 U  | 0.053 U  | 0.053 U   |
| Chromium      | 100  | (µg/L) | 20.8     | 27.3     | 25.3     | 20.7     | 37.6     | 1.5 U    | 1.5 U    | 3.0      | 1.5 U    | 1.5 U     |
| Fluoride      | 4000 | (µg/L) | 0.043 J  | 0.098 J  | 0.084 J  | 0.067 J  | 0.23     | 0.026 J  | 0.11     | 0.026 U  | 0.91     | 0.91      |
| Lithium       | 260  | (µg/L) | 1200     | 3200     | 2780     | 1870     | 4050     | 26.4     | 317      | 82.7     | 13200 U  | 13300     |
| Thallium      | 0.5  | (µg/L) | 0.15 U   | 0.15 U   | 0.15 U   | 0.15 U   | 0.15 U   | 0.15 U   | 0.15 U   | 0.15 U   | 0.19 J   | 0.15 U    |

Table 4 and 5 in this report have been updated by Montrose to be consistent with the laboratory data report provided in Appendix A.

Concentrations in bold exceed the ROD's remediation goals

J: Result is < the RL but > or equal to the MDL and the concentration is an approximate value.

U: Indicates the analyte was not detected.

F1: MS/MSD Recovery is outside acceptance limits.

Table 5

**Analytical Results for VOCs in MW-22 Water Samples  
Foote Mineral Superfund Site, Frazer PA  
November 2021 Sampling Event**

| Client ID<br>Sampling Date | Goal | Unit | MW-22<br>11/17/2021<br>Result | MW-22D<br>11/17/2021<br>Result |
|----------------------------|------|------|-------------------------------|--------------------------------|
| 1,2-Dichloroethane         | 5    | ug/l | 1.5 U                         | 1.5 U                          |
| Benzene                    | 5    | ug/l | 5.1                           | 5.0                            |
| Bromoform                  | 80   | ug/l | 2.6 U                         | 2.6 U                          |
| Carbon tetrachloride       | 5    | ug/l | 3.3 U                         | 3.3 U                          |
| Chloroform                 | 70   | ug/l | 2.1 U                         | 2.1 U                          |
| cis-1,2-Dichloroethene     | 70   | ug/l | 5.6                           | 5.7                            |
| Ethylbenzene               | 700  | ug/l | 2.2 U                         | 2.2 U                          |
| Tetrachloroethene          | 5    | ug/l | 82                            | 81                             |
| trans-1,2-Dichloroethene   | 100  | ug/l | 2.5 U                         | 2.5 U                          |
| Trichloroethene            | 5    | ug/l | 6.5                           | 6.5                            |

J : Result is less than the RL but greater than or equal to the MDL  
and the concentration is an approximate value.

U : Indicates the analyte was analyzed for but not detected.

**Bold** values exceed the ROD's remediation goals.

Table 5 and 5 in this report have been updated by Montrose to be consistent with the laboratory data report provided in Appendix A.

Table 4

Analytical Results for Inorganic Anions and Metals in Groundwater and Surface Water Samples  
Foote Mineral Superfund Site, Frazer PA  
March 2020 Sampling Event

| Client ID     |      |        | SW-1       |   | SW-2       |    | SW-5       |   | SW-6       |   | SW-2A      |   | GMZ-1      |   | GMZ-2S  |   | GMZ-2I  |   | GMZ-2D      |   | GMZ-4S      |   | GMZ-4I      |   |
|---------------|------|--------|------------|---|------------|----|------------|---|------------|---|------------|---|------------|---|---------|---|---------|---|-------------|---|-------------|---|-------------|---|
| Sampling Date |      |        | 3/16/20    |   | 3/16/20    |    | 3/16/20    |   | 3/16/20    |   | 3/16/20    |   | 3/16/20    |   | 3/16/20 |   | 3/16/20 |   | 3/16/20     |   | 3/17/20     |   | 3/17/20     |   |
|               | Goal | Unit   | Result     |   | Result     |    | Result     |   | Result     |   | Result     |   | Result     |   | Result  |   | Result  |   | Result      |   | Result      |   | Result      |   |
| Antimony      | 6    | (µg/L) | 0.38       | U | 0.38       | U  | 0.38       | U | 0.38       | U | 0.38       | U | 0.38       | U | 0.60    | J | 0.39    | J | 0.38        | U | 0.38        | U | 0.38        | U |
| Arsenic       |      | (µg/L) | 0.31       | U | 0.31       | U  | 0.31       | U | 0.31       | U | 0.31       | U | 0.31       | U | 3.0     |   | 2.4     |   | 0.31        | U | 0.31        | U | 0.31        | U |
| Boron         | 1340 | (µg/L) | 163        |   | 168        |    | 175        |   | 174        |   | 175        |   | 170        |   | 38.6    | U | 38.6    | U | 38.6        | U | 278         |   | 406         |   |
| Bromate       |      | (µg/L) | 39         |   | 36.8       | F1 | 36.7       |   | 37.4       |   | 37.0       |   | 187        |   | 2.5     | U | 2.5     | U | 2.5         | U | 5.33        |   | 39.3        |   |
| Bromide       |      | (µg/L) | 0.63       |   | 0.57       |    | 0.60       |   | 0.61       |   | 0.61       |   | 1.05       |   | 0.053   | U | 0.053   | U | 0.053       | U | 0.80        |   | 1.02        |   |
| Chromium      | 100  | (µg/L) | 10         |   | 9.3        |    | 9.4        |   | 9.2        |   | 9.1        |   | 14.1       |   | 1.5     | U | 1.5     | U | 1.5         | U | 13.6        |   | 25.2        |   |
| Fluoride      | 4000 | (µg/L) | 0.051      | J | 0.053      | J  | 0.052      | J | 0.051      | J | 0.051      | J | 0.034      | J | 0.069   | J | 0.070   | J | 0.026       | U | 0.026       | U | 0.042       | J |
| Lithium       | 260  | (µg/L) | <b>610</b> |   | <b>600</b> |    | <b>625</b> |   | <b>632</b> |   | <b>604</b> |   | <b>688</b> |   | 5.2     |   | 4.9     | J | <b>85.8</b> |   | <b>1000</b> |   | <b>1710</b> |   |
| Thallium      | 0.5  | (µg/L) | 0.15       | U | 0.15       | U  | 0.15       | U | 0.15       | U | 0.15       | U | 0.15       | U | 0.15    | U | 0.15    | U | 0.15        | U | 0.15        | U | 0.15        | U |

F1 : MS and/or MSD recovery exceeds control limits.

U : Indicates the analyte was analyzed for but not detected.

J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Concentrations in bold exceed the ROD's remediation goals

J : Result is < the RL but > or equal to the MDL and the concentration is an approximate value.

U : Indicates the analyte was not detected.

F1: MS/MSD Recovery is outside acceptance limits.

Table 4

Analytical Results for Inorganic Anions and Metals in Groundwater and Surface Water Samples  
 Foote Mineral Superfund Site, Frazer PA  
 March 2020 Sampling Event

| Client ID     |      |        | GMZ-4D      |   | GMZ-3D      |   | GMZ-3I      |   | GMZ-3S      |   | ERM-1D      |   | ERM-5   |   | ERM-2S     |   | ERM-2D  |   | MW-22   |   | MW-22D       |      |
|---------------|------|--------|-------------|---|-------------|---|-------------|---|-------------|---|-------------|---|---------|---|------------|---|---------|---|---------|---|--------------|------|
| Sampling Date |      |        | 3/17/20     |   | 3/17/20     |   | 3/17/20     |   | 3/17/20     |   | 3/18/20     |   | 3/18/20 |   | 3/18/20    |   | 3/18/20 |   | 3/18/20 |   | 3/18/20      |      |
|               | Goal | Unit   | Result      |   | Result      |   | Result      |   | Result      |   | Result      |   | Result  |   | Result     |   | Result  |   | Result  |   | Result       |      |
| Antimony      | 6    | (µg/L) | 0.38        | U | 0.38        | U | 0.38        | U | 0.38        | U | 0.77        | J | 0.38    | U | 0.38       | U | 0.38    | U | 0.38    | U | 0.38         | U    |
| Arsenic       |      | (µg/L) | 0.31        | U | 0.31        | U | 0.31        | U | 0.31        | U | 0.58        | J | 0.31    | U | 0.49       | J | 0.33    | J | 3.7     |   | 3.9          |      |
| Boron         | 1340 | (µg/L) | 375         |   | 732         |   | 770         |   | 557         |   | 190         |   | 68.0    | J | 38.6       | U | 38.6    | U | 965     | U | 3800         |      |
| Bromate       |      | (µg/L) | 41.1        |   | 29.9        |   | 38.5        |   | 26.9        |   | 151         |   | 2.5     | U | 2.5        | U | 2.5     | U | 6.4     |   | 2.5          | U F1 |
| Bromide       |      | (µg/L) | 0.94        |   | 0.17        |   | 0.18        |   | 2.18        |   | 7.32        |   | 0.053   | U | 0.25       |   | 0.053   | U | 0.053   | U | 0.053        | U    |
| Chromium      | 100  | (µg/L) | 24.5        |   | 32.1        |   | 32.8        |   | 24.7        |   | 49.8        |   | 1.5     | U | 1.5        | U | 1.5     | U | 1.5     | U | 1.5          | U    |
| Fluoride      | 4000 | (µg/L) | 0.047       | J | 0.18        |   | 0.16        |   | 0.083       | J | 0.27        |   | 0.042   | J | 0.91       |   | 0.10    |   | 1.10    |   | 1.13         |      |
| Lithium       | 260  | (µg/L) | <b>1540</b> |   | <b>4270</b> |   | <b>4510</b> |   | <b>2970</b> |   | <b>5320</b> |   | 26.1    |   | <b>337</b> |   | 6.0     |   | 84.8    | U | <b>13300</b> |      |
| Thallium      | 0.5  | (µg/L) | 0.15        | U | 0.15        | U | 0.15        | U | 0.15        | U | 0.15        | U | 0.15    | U | 0.15       | U | 0.15    | U | 0.15    | U | 0.15         | U    |

F1 : MS and/or MSD recovery exceeds control limits.

U : Indicates the analyte was analyzed for but not detected.

J : Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Concentrations in bold exceed the ROD's remediation goals

J : Result is < the RL but > or equal to the MDL and the concentration is an approximate value.

U : Indicates the analyte was not detected.

F1: MS/MSD Recovery is outside acceptance limits.

Table 5

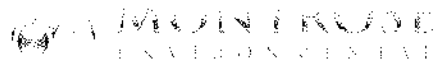
**Analytical Results for VOCs in MW-22 Water Samples  
Foote Mineral Superfund Site, Frazer PA  
March 2020 Sampling Event**

| Client ID<br>Sampling Date |      |      | MW-22<br>3/18/2020 |   | MW-22A<br>3/18/2020 |   |
|----------------------------|------|------|--------------------|---|---------------------|---|
|                            | Goal | Unit | Result             |   | Result              |   |
| 1,2-Dichloroethane         | 5    | ug/l | 1.5                | U | 1.5                 | U |
| Benzene                    | 5    | ug/l | <b>8.3</b>         |   | <b>8.4</b>          |   |
| Bromoform                  | 80   | ug/l | 2.6                | U | 2.6                 | U |
| Carbon tetrachloride       | 5    | ug/l | 3.3                | U | 3.3                 | U |
| Chloroform                 | 70   | ug/l | 2.1                | U | 2.1                 | U |
| cis-1,2-Dichloroethene     | 70   | ug/l | 7.6                |   | 7.8                 |   |
| Ethylbenzene               | 700  | ug/l | 2.2                | U | 2.2                 | U |
| Tetrachloroethene          | 5    | ug/l | <b>94</b>          |   | <b>97</b>           |   |
| trans-1,2-Dichloroethene   | 100  | ug/l | 2.5                | U | 2.5                 | U |
| Trichloroethene            | 5    | ug/l | <b>8.2</b>         |   | <b>8.2</b>          |   |

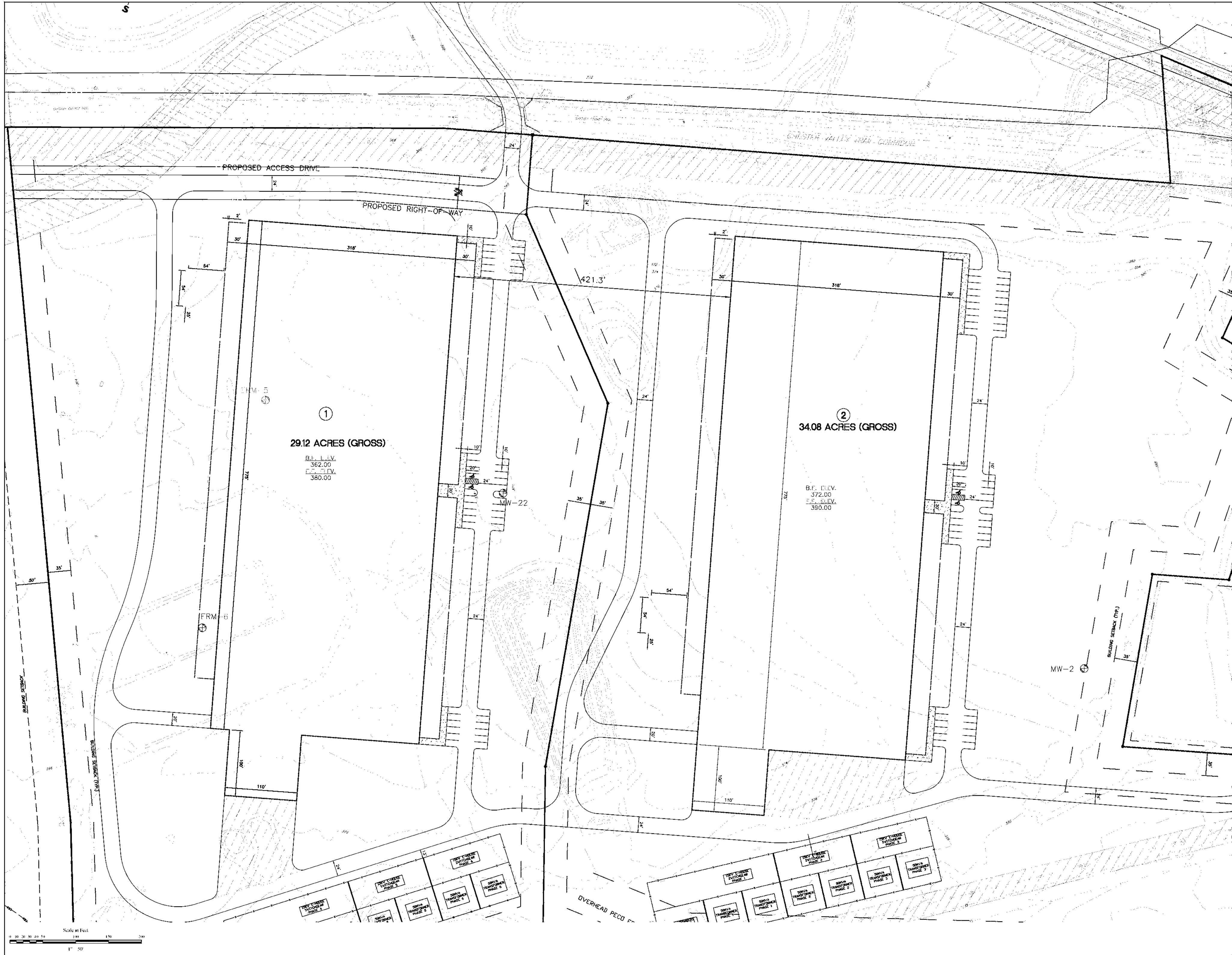
J : Result is less than the RL but greater than or equal to the MDL  
and the concentration is an approximate value.

U : Indicates the analyte was analyzed for but not detected.

**Bold values** exceed the ROD's remediation goals.



Groundwater and Surface Water Analysis Report  
May 2023 Sampling Event  
Foote Mineral Superfund Site  
Frazer, Pennsylvania (EPA ID # PA D077087989)  
Project No. 2023-4439  
October 3, 2023





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WWW.JMRENGINEERING.COM

**SITE PLAN**  
FOR  
GREEN FIG LAND COMPANY

LOCATION:  
800 SWEDESFORD ROAD  
EXTON, PA 19341  
EAST WHITELAND TOWNSHIP  
CHESTER COUNTY, PA

PARCELS:  
TAX PARCEL NUMBER:  
42-3-127

CLIENT:  
GREEN FIG LAND COMPANY  
600 EAGLEVIEW BLVD, STE 300  
EXTON, PA 19341

PROJECT NO.: 1508-B  
SURVEY REF.: 1195-B (055)  
DRAWN BY: E.C.R.  
CHECKED BY: J.M.R.  
PLAN DATE: JULY 22, 2021  
PLAN SCALE: AS NOTED

**SKETCH PLAN**  
SHEET NUMBER:  
1 OF 1