MONTROSE ENVIRONMENTAL

September 26, 2023 Project Number: 2023-4439

Electronic Mail Delivery Only
Email address

Mr. Michael DeBonis
Remedial Project Manager
US Environmental Protection Agency
Region III
Four Penn Center
1600 John F. Kennedy Boulevard
Philadelphia, PA 19103-2852

RE: **FOOTE MINERAL SUPERFUND SITE GROUNDWATER & SURACE WATER ANALYSIS REPORT DATED JULY 13TH – RESPONSE TO EPA COMMENTS FROM SEPTEMBR 14TH 2023**

Dear Mr. DeBonis:

Responses to EPA Comments
2023 Foote Mineral Superfund Site Monitoring Plan

Montrose submitted the Foote Mineral Groundwater and Surface Water Report on July 13, 2023. The following comments were received from EPA on September 14, 2023. Each comment is stated in bold, followed by a response from Montrose in italics.

General Comments

1. **Bromide is not an anion chemical found in the RSL table, nor does it have an MCL. Please clarify how Bromide is being evaluated to determine if it exceeds or is within acceptable remediation criteria.**

RESPONSE:

*Thank you for the comment. The table with bromide on it was based on previous historical monitoring reports. Based on your comment we reviewed the history of bromide at the site. We found bromide was not a contaminant of concern identified in the ROD or any other available document. Further, there is no Maximum Contaminant Level (MCL) and bromide is not considered a regulated substance by PADEP. Bromide does not have established regulatory standards since bromide is not expected to harm humans or ecosystems at concentrations typically observed in surface waters (*Flury, M.; Papritz, A. Bromide in the natural environment: occurrence and toxicity. J. Environ. Qual. 1993, 22 (4), 747-758 and Power Plant Bromide Discharges and Downstream Drinking Water Systems in Pennsylvania, Environmental Science and Technology, 2017*). However, despite the fact that it was not included as a contaminant of concern, previous sampling at the Site did apparently include bromide and it was observed to be highest in ERM-1D at a relatively low concentrations of 7 ug/l in the previous two rounds of sampling. Downgradient concentrations are less than 3 ug/l. Given its apparent errant inclusion in monitoring, its low concentration, its lack of status as an EPA or PADEP regulated substance, and the relatively low concentrations observed at*

the Site, it does not appear appropriate or necessary to continue monitoring bromide. Montrose noted several other parameters that, similar to bromide, were never present at elevated concentrations, or are no longer present at elevated concentration and is preparing a letter with recommendations on the most appropriate way to continue monitoring.

2. **The currently available ecotox data indicates that concentrations of site contaminants, notably lithium, at downstream locations may be at levels that pose an unacceptable ecological risk. The downward trend of surface water contaminant levels noted in the Second Five-Year Review Report (FYR) no longer appears as significant since concentrations have rebounded from the levels preceding the FYR. Of the four surface water locations sampled, three have concentrations of lithium that may pose a risk to ecological receptors.**

   At a minimum, the current surface water monitoring program should continue. Given the elevated concentrations of lithium at the furthest downstream sample station, it may be warranted to add a station further downstream. If a sustainable and notable downward trend does not become apparent, site-specific toxicity evaluations will be warranted.

RESPONSE:

The EPA statements provided are not consistent with the available data presented in the report, the understandings and approach laid out in the Second Five Year Review, or our understanding of conditions. First, SW-05 has consistently had the highest, or nearly the highest, concentrations of lithium in the stream. The four measurements prior to the Second Five Year Review in 2019 were:

- *453 ug/l (10/2018),*
- *900 ug/l (6/2018),*
- *1100 ug/l (1/2018), and*
- *870 ug/l (6/2017).*

The average of these readings 830 ug/l.

The last two measurements at this location were 571 ug/l (11/21) and 510 ug/l (5/2023) for an average of 541 ug/l. This represents a 35% reduction from the average of the 2017/2018 sampling events. This appears to be a relatively significant downward trend and the current monitoring program appears to be adequate for monitoring this trend.

Montrose also agrees with the analysis described in the Second Five-Year review that

> *"Lithium results from the furthest monitoring well, GMZ-1, which is a single deep well located approximately 8,400 feet from the quarry area, have been variable within the range from 610 µg/l to 940 µg/l [i.e., Montrose notes this is very similar to the stream concentrations described above]. The results suggest an apparent increasing contaminant trend which at this location could be an expression of the lag time associated with groundwater movement. As this monitoring point is over 8,000 feet distant from the quarry area, it is believed that the well is still showing the temporary increase in contamination due to the disturbance of the waste caused by the remedial activities conducted between 2007 and 2010;* [emphasis added] *the expected reduction in groundwater contamination as a result of stabilizing and capping the waste would not have had time to travel the distance to this well."*

This statement from the Second Five Year Review is supported by the data provided on Figure A-7, provided as Attachment A to this letter which seem to be "playing-out" in the manner described above, with the elevated concentrations which were measured in 2017/2018 being followed by a significant declining trend at GMZ-1. The specific measurements ranged from 940 in June of 2018, to 708 in October 2018, to 688 ug/l in March 2020, to 625 ug/l in November of 2021 and most recently 550 ug/l in the most recent sampling event. This is exactly the behavior anticipated in accordance with the Second Five Year Review statements. The same trend is observed with the surface water, which is represented by SW-01 of Figure A-7. Specifically, once the higher concentration lithium, associated with the remedial disturbance, passes through the system, the lithium concentrations decline. In fact, since 2018 there has been a 41% reduction in the concentration.

We also note this data, together with the upgradient data showing a decreasing concentration of the plume, supports the conceptual site model developed by both the USGS and ERM. Specifically, the higher concentration source areas are located near the site and as the plume move away from the Site, the concentrations decrease. Over time, at each set of nested wells and the downgradient surface water locations, the concentrations are also decreasing as the plume degrades. All of these observations confirm the conceptual Site model is representative of Site conditions with some volatility between data points which are close to each other.

3. **Can you please provide an updated figure overlaying the current groundwater lithium plume with contours displaying concentrations over a map of the Site, displaying the full extent of the plume for shallow, intermediate, and deep aquifer intervals.**

RESPONSE

The information provided in the Monitoring Report was consistent with previous monitoring reports. At your request, this information is provided as Attachment B. Montrose notes the intermediate and deep plume concentrations shown on Figure A-2 and A-3 are nearly identical.

4. **Pg. 1 - Background Section states, "When the plant closed in 1991 the Site included two quarries, a pit used to burn solvents, a lined basin and more than 50 buildings and process areas". Given historical site usage as burn pit, it might be useful to include dioxin and furans analysis, since these chemicals are frequently associated with burning of solvents, especially chlorinated solvents.**

RESPONSE

The comment seems to be suggesting the Record of Decision (ROD) and selected remedy for the Site may not have been protective and/or the approved Groundwater Monitoring Plan developed for the Site was not appropriately designed. We do not believe this to be the case.

A complete Remedial Investigation, Feasibility Study, and Remedial Design, were completed at the Site along with the remediation which had a cost of $16,000,000 according the EPA close-out report. We trust as part of these activities the Site was well studied and each of the issues of concern were identified. Dioxins and furans, which include compounds like 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and 2,3,7,8-tetrachlorodibenzofuran (TCDF), have very low solubility in water. The NIOSH website (CDC.gov) states TCDD is essentially insoluble in water and TCDF has similar solubility properties. Montrose is not aware of any plumes of these materials in groundwater, where there were no other organic compounds present (i.e., like solvents which might increase their solubility).

We also note the analysis of the potential presence of 1,4 Dioxane which was evaluated as part of the Second Five Year review. 1,4 Dioxane is much more soluble than most dioxanes and furans. The Second Five Year Review noted "For sites where volatile solvents have been found, EPA has become aware that the solvent stabilizer 1,4-dioxane may be present also. However, 1,1,1-trichloroethane, the chemical most closely associated with 1,4-dioxane, was not detected at substantial concentrations in the RI. (It was detected occasionally at trace to low levels.) Therefore, sampling for 1,4-dioxane was not conducted."

Although Montrose realizes the potential presence of 1,4-dioxane is much different than the presence of dioxins and furans like TCDD and TCDF, the limited presence of chlorinated solvents in groundwater, which were found in only one well at low concentrations, along with the low solubility as described above, similarly strongly suggests that dioxins and furans don't pose a concern and Montrose believes no further monitoring is required.

Specific Comments

1. **Pg.1 – EPA Region 3 Headquarters has moved, we are no longer located on Arch Street and our new address is 1600 John F. Kennedy Boulevard, Philadelphia, PA 19103-2852**

RESPONSE

Thank you.

2. **Pg. 7 – Monitoring of both intermediate and deep zones in groundwater is not redundant, this captures the full extent of the contamination. In the event both samples meet Remediation Goals it can provide information on a "clean" boundary, and if the samples are above Remediation Goals, they should continue to be monitored to ensure protectiveness of the remedy.**

RESPONSE

We believe the information on clean boundaries has been sufficiently established and this "RI-type" information reconfirming this clean boundary with each round of sampling over 13 years, is not necessary or appropriate, as described below. This is because there is a significant expense associated with this data, since it has been demonstrated for 13 years that well cluster GMZ-2 (S, I, D) are located outside the plume. Similarly, the studies completed have shown over 13 years the shallow and intermediate wells are showing essentially the same concentration, as shown on Figures A-2 and A-3. Given this information, it may be more cost-effective to monitor only a single well at each of these location during routine monitoring and to complete a more comprehensive monitoring event when results are closer to the PRGs for the Site. We offer some context on our thinking on this issue below.

When the monitoring wells were installed 13 years ago, the dynamics of the movement of groundwater through the AOC underneath Valley Creek were not understood and definition of a clean boundary was helpful. Thirteen years of monitoring has shown the intermediate and deep monitoring zone monitoring are essentially the same as shown on the graphs included in Attachment A-2 and A-3 and the limits are well known. Given that the plume extent, magnitude, and dynamics have been confirmed and the monitoring is extremely expensive and will likely go on for a significant period of

time, Green Fig is looking for methods to provide the comfort that the plume is behaving as expected in a cost-effective way (i.e., to keep "tabs" on the plume without having to analyze almost every site well as if the Site conditions were not understood). Montrose has worked with EPA to reduce unnecessary or redundant manner at the Jacks Creek Superfund Site, Tonnolli Superfund Site, and other sites. At these Sites, the existing data was evaluated, and the monitoring plans were modified to develop plans which both consider site understandings from the many years of monitoring, are cost-effective, and still provide enough data to understand the characterize the plume degradation. Montrose believes these goals can be completed at this Site and is looking for ways to meet them together with upgrades to the monitoring program.

Pg. 7 – Monitoring surface water, even with similar results at various locations, is not redundant. It captures the full extent of contamination so it can be measured over time. In the event multiple samples meet Remediation Goals it can provide information on a "clean" boundary, and if the samples are above Remediation Goals, they should continue to be monitored to ensure protectiveness of the remedy.

RESPONSE

As described above, much more is understood about the movement of the groundwater, than at the time the surface water monitoring program was developed. Similarly, the many years of monitoring have shown the results at each of these sampling locations is very similar. Given the similarity of the results, and the close proximity of the sampling, Montrose suggests we work together with EPA to develop a plan which provides the data required as cost effectively as possible. In the opinion of Montrose, the consistency of the data at these locations over 13 years suggests the surface water is actually measuring the same discharge and is similar to sampling two wells in close proximity; (i.e., the data will be a little different, but it may not make much difference for the analysis being conducted).

3. **Pg. 16 - Table 2 Groundwater Remediation Goals. Table states, "First Quarter 2014 Sampling Event". I believe this should read "May 2023 Sampling Event".**

RESPONSE

Thank you.

4. **Pg. 20 – Table 6 (Analytical Results for Inorganic Anions and Metals in Groundwater). Bromate has a Remediation goal of 10 µg/L, however the reporting limit is 1000 µg/L and the Method Detection limit is 500 µg/L. Bromate results in Table 6 (and Table 5 on page 19) all show U qualifier non-detects for Bromate presumably because the method cannot accurately detect below 500 µg/L. This is problematic because the only way to determine if analytical results are meeting the remediation goals is if we can detect this contaminate at the remediation goal. It would be helpful to see laboratory result values that are detected at or below the remediation goal value. Please advise if a better method could be used with a lower method detection limit whereby Bromate remediation goals values will be detected and can be properly evaluated by the analytical method.**

RESPONSE

We agree with this comment. For this reason, Montrose made the following statement in the Quality Assurance/Quality Control section of the report "It was noted during the data review that the reporting limit or the method detection limit reported under EPA Method 300.0 used for the bromate analysis

did not meet the Remediation Goal of 10 ug/l. The EPA Method 300.1 Determination of Inorganic Anions in Drinking Water by Ion Chromatography does meet the Remediation goal with a reporting limit of 5 ug/l. The next sampling event Montrose will request Bromate analysis by EPA method 300.1 to ensure the remediation goal is met."

5. **Pg. 20 - Table 6 - Analytical Results for Inorganic Anions and Metals in Groundwater. Although Total Chromium is detected and within acceptable limits below the remediation goals/MCL, I do not see mention of speciation to determine what fraction of total Chromium, if any, is hexavalent Chromium (Cr6+). Given the site history and mention of high levels of Cr6+ in the ROD at the North Quarry above 10 orders of magnitude higher than screening levels, it would be helpful to include Cr6+ in the sampling to ensure Cr6+ is also within acceptable limits. If we were to take a conservative approach and presume all the Chromium is Cr6+, then the Carcinogenic Risk (CR) would exceed EPA acceptable criteria. As a reminder, to be protective of human health, cumulative risk must be within EPAs acceptable criteria: Total Noncancer (NC) Hazard Index (HI) not to exceed 1 and CR not to exceed 1E-04.**

RESPONSE

This question seems to be suggesting the PRGs developed in the ROD and the federal MCL for chromium are not protective. It is our understanding that the ROD considered the careful analysis conducted in the FS and Risk Assessment which developed the PRGs and formed the basis for both the remediation and the groundwater monitoring program.

In groundwater, chromium is typically found in its trivalent (Cr+3) form rather than hexavalent (Cr+6) form (CA State Water Resources Control Board Groundwater Information Sheet, 11/2017). This is consistent with the generally neutral pH, and slightly oxygenated conditions measured in Site groundwater. Considering this, and the understanding that the Site was extensively characterized previously under the observation of EPA, the use of both the100 ug/l PRG developed in the ROD and the 100 ug/l MCL seems reasonable and appropriate.

6. **Pg. 20-21 - Table 6 (Analytical Results for Inorganic Anions and Metals in Groundwater), and Table 7 (Analytical Results for Volatile Groundwater Samples). It should be noted that Lithium exceed the Groundwater Remediation goals in multiple sampling locations, and Boron, Lithium, PCE and TCE exceed the Groundwater Remediation goals MW-22 location. The analytical sampling results seen in Table 6 and 7 exceed EPAs cumulative acceptable NC HI criteria (NC HI not to exceed 1) for Lithium, TCE and PCE.**

RESPONSE

We agree with this statement. Each of these exceedances were highlighted on the tables and discussed in the report. As a result of these exceedances the ROD established the AOC for the site and the surface and ongoing groundwater monitoring and surface program. The Second Five Year Review states "concentrations in the downgradient plume indicate the expected decline in downgradient contamination is progressing (p.13)."

7. **Appendix A – Can Figures displaying contaminant concentrations please show not only what sampling event number on the X axis, but also when the sampling event occurred for context.**

RESPONSE

The figures were presented and labeled in the same manner as the Figures in Attachment 3 of the Second Five Year review from which they were derived. Per your comment, the figures were updated and are provided as Attachment A.

Closing Comments

The groundwater and surface water monitoring activities have been ongoing since 2010 and 26 rounds of sampling have been completed. 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." Green Fig believes this is an appropriate time to have this discussion.

Green Fig and Montrose will develop proposed recommended reductions based on the monitoring data collected over the last 13 years and present them to EPA under separate cover. These recommendations will be supported by the consistent 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. The behavior of the plume can be understood and tracked 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 is no longer necessary and does not contribute to the understanding of the Site conditions.

Sincerely,

Christopher T. Reitman, P.E.
Principal

Gregory P. Smoot, P.G.
Principal Geologist

CTR:GPS:mm

Attachments

Appendices

Attachment A – Updated Analysis of Historical Lithium Results
Attachment B – Updated Report Figures

cc: Jenifer Fields (via email fields.jenifer@acri-environmental.com)
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Attachment A – Analysis of Historical Lithium Results

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

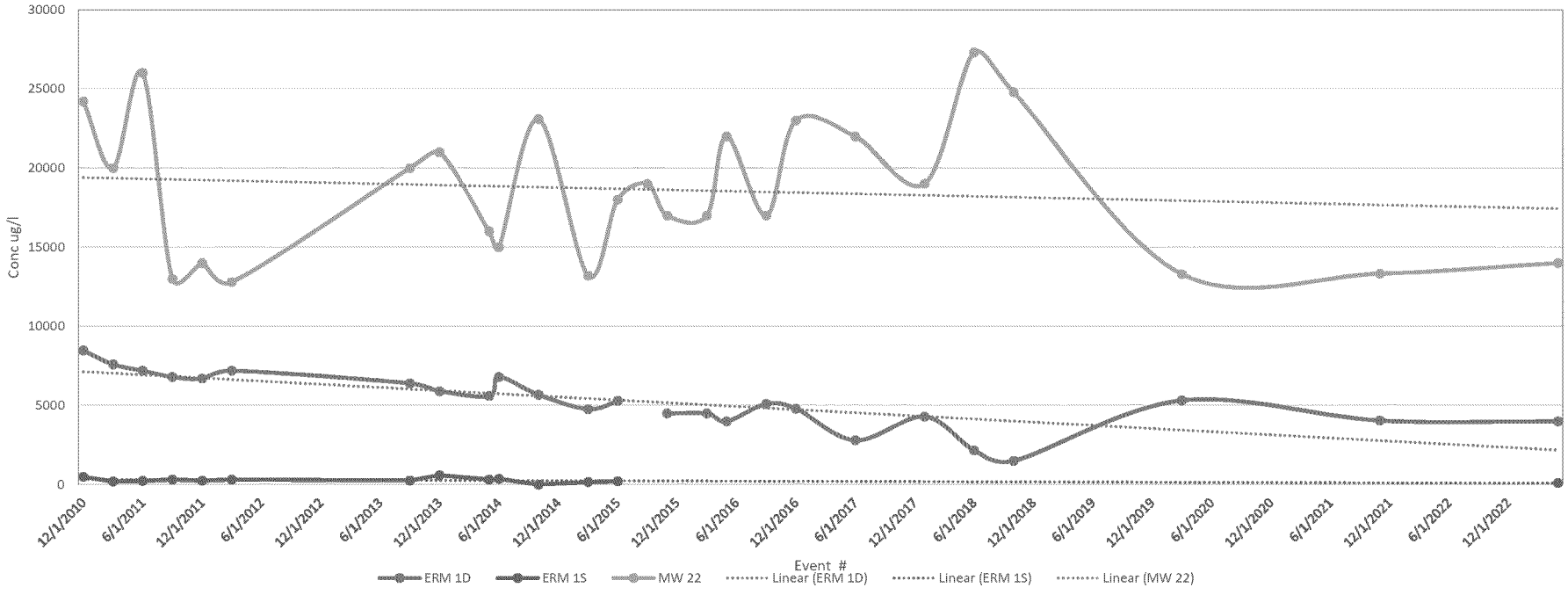


Figure A-2
Lithium in GMZ-3S, 3I, and 3D
(2,200 ft downgradient)

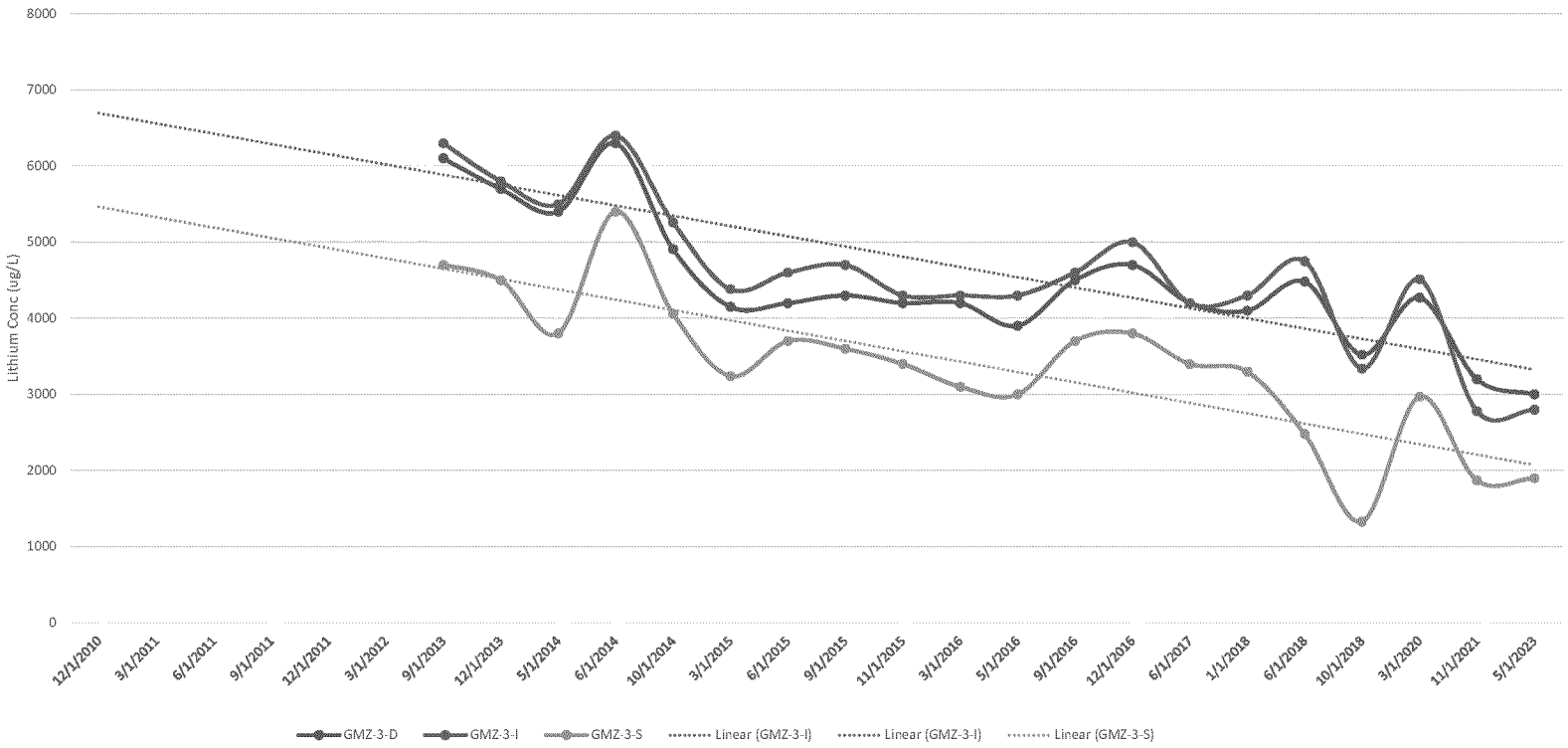


Figure A-3
Lithium in GMZ-4S, 4I, and 4D
(4,400 ft Downgradient)

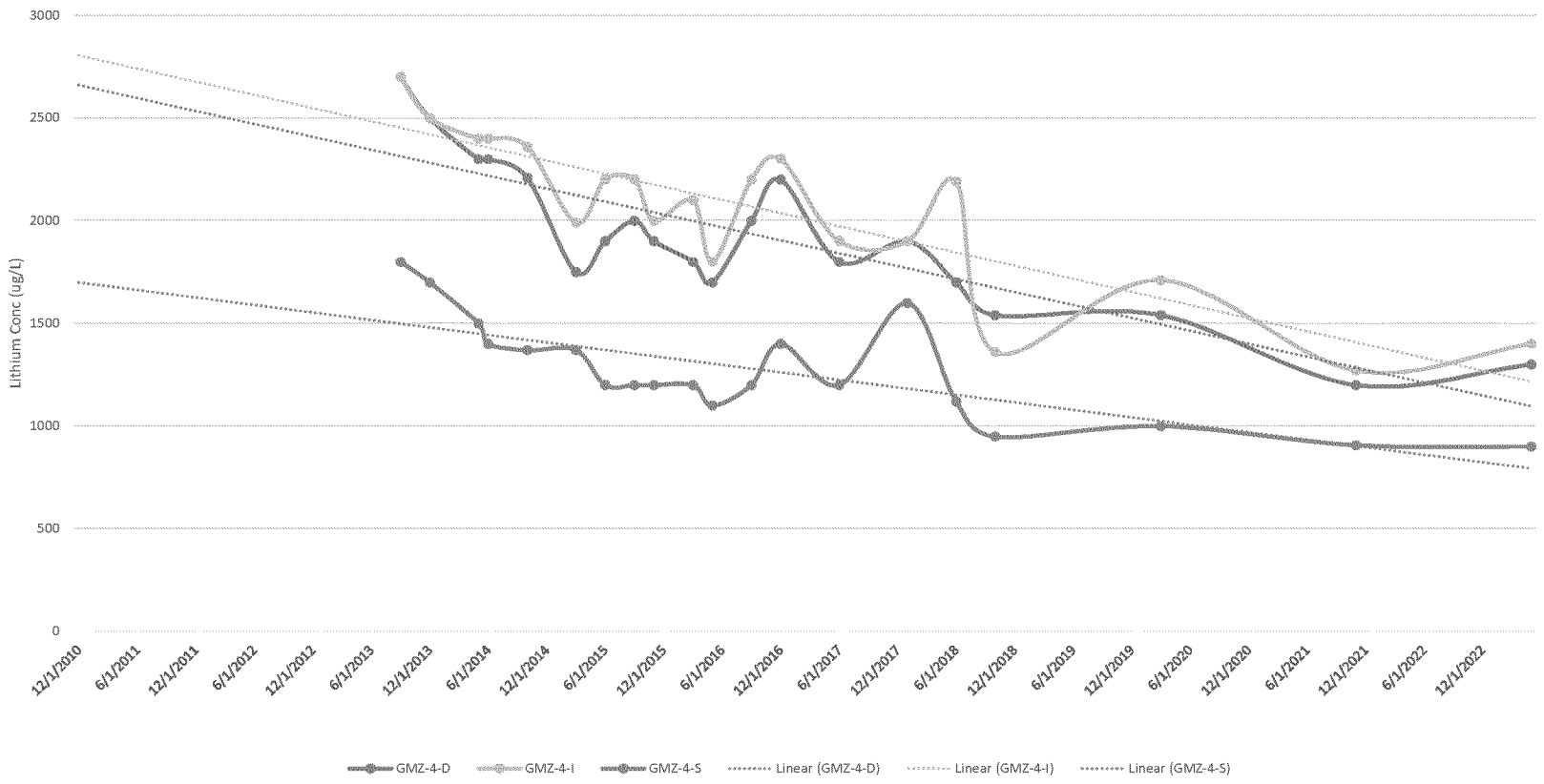


Figure A-4
Lithium In Deep Downgradient Wells

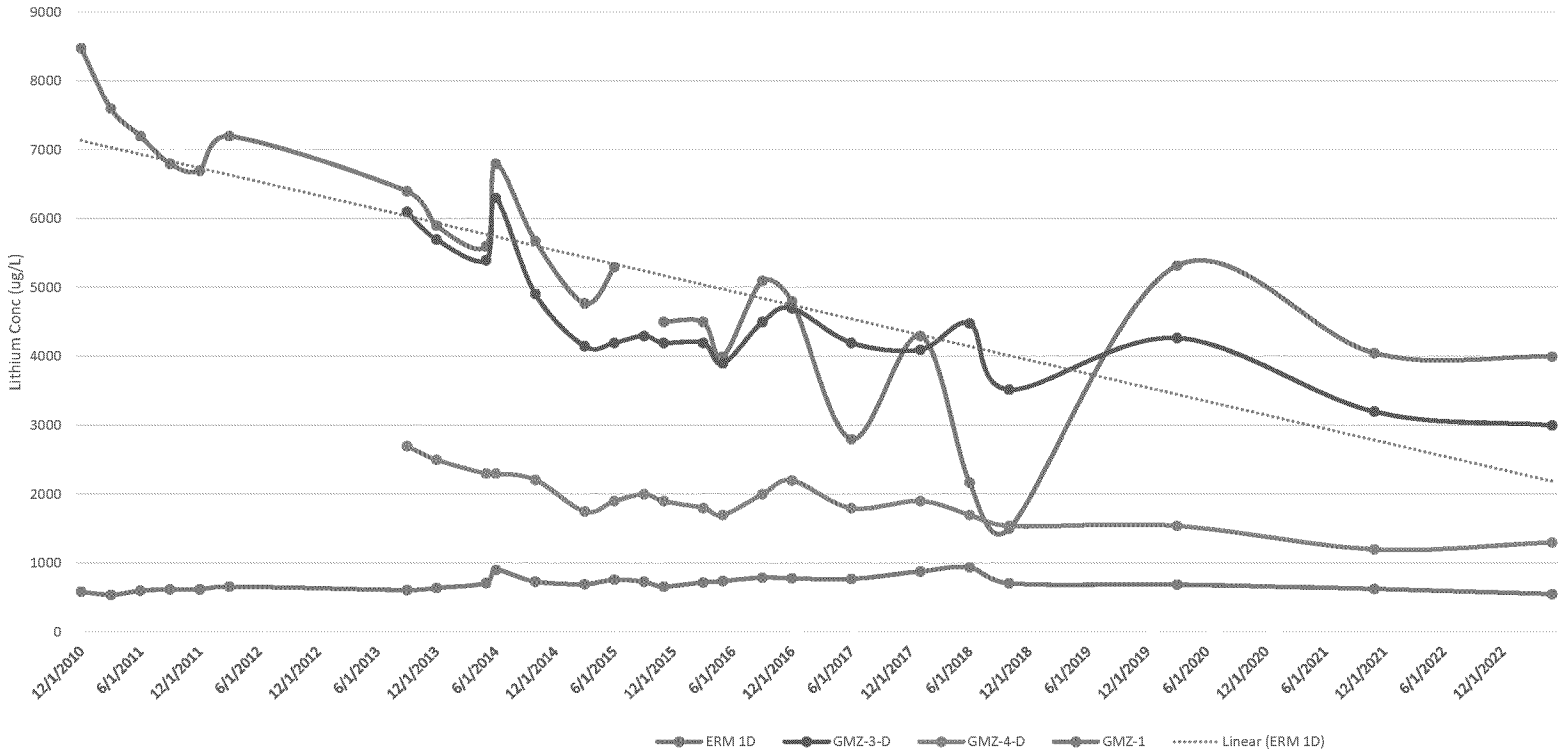


Figure A-5
Lithium In Downgradient Surface Water Locations and GMZ-1

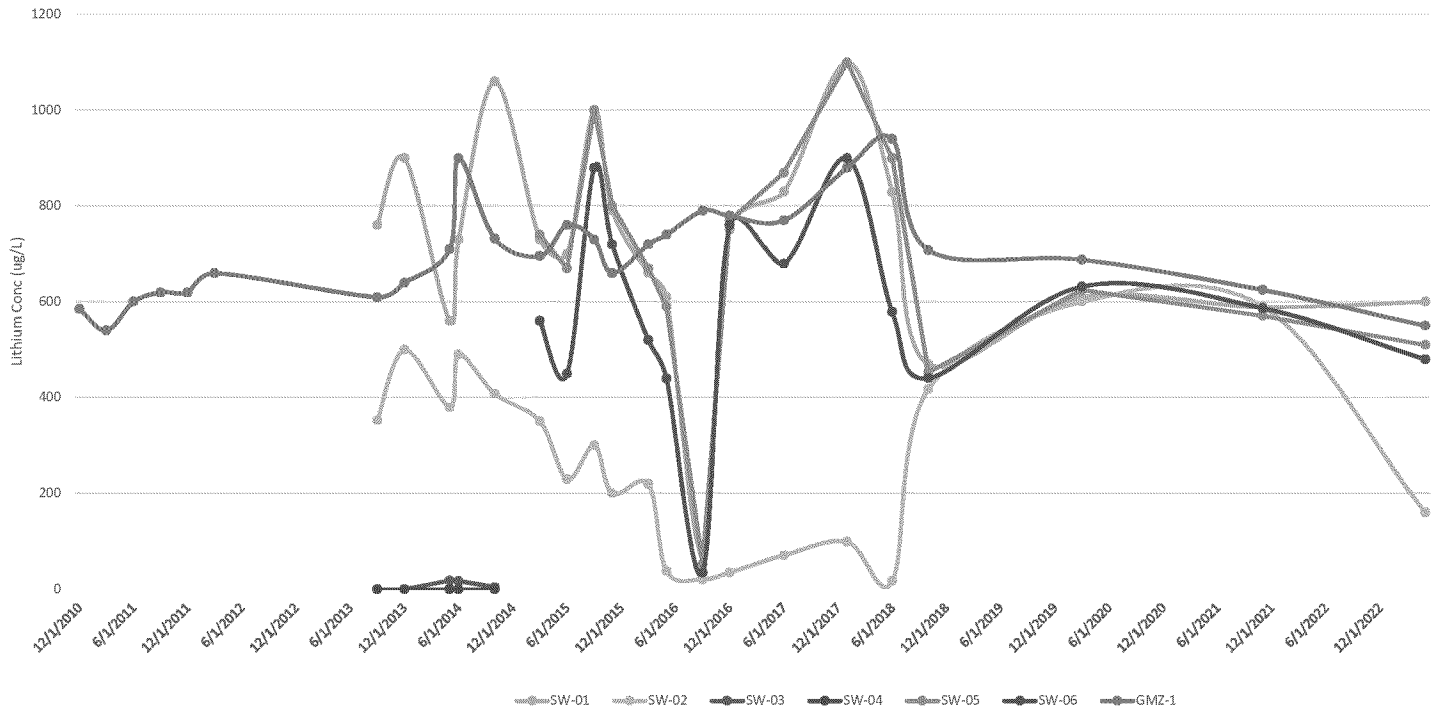


Figure A-6
Lithium in Select Downgradient Surface Water Locations

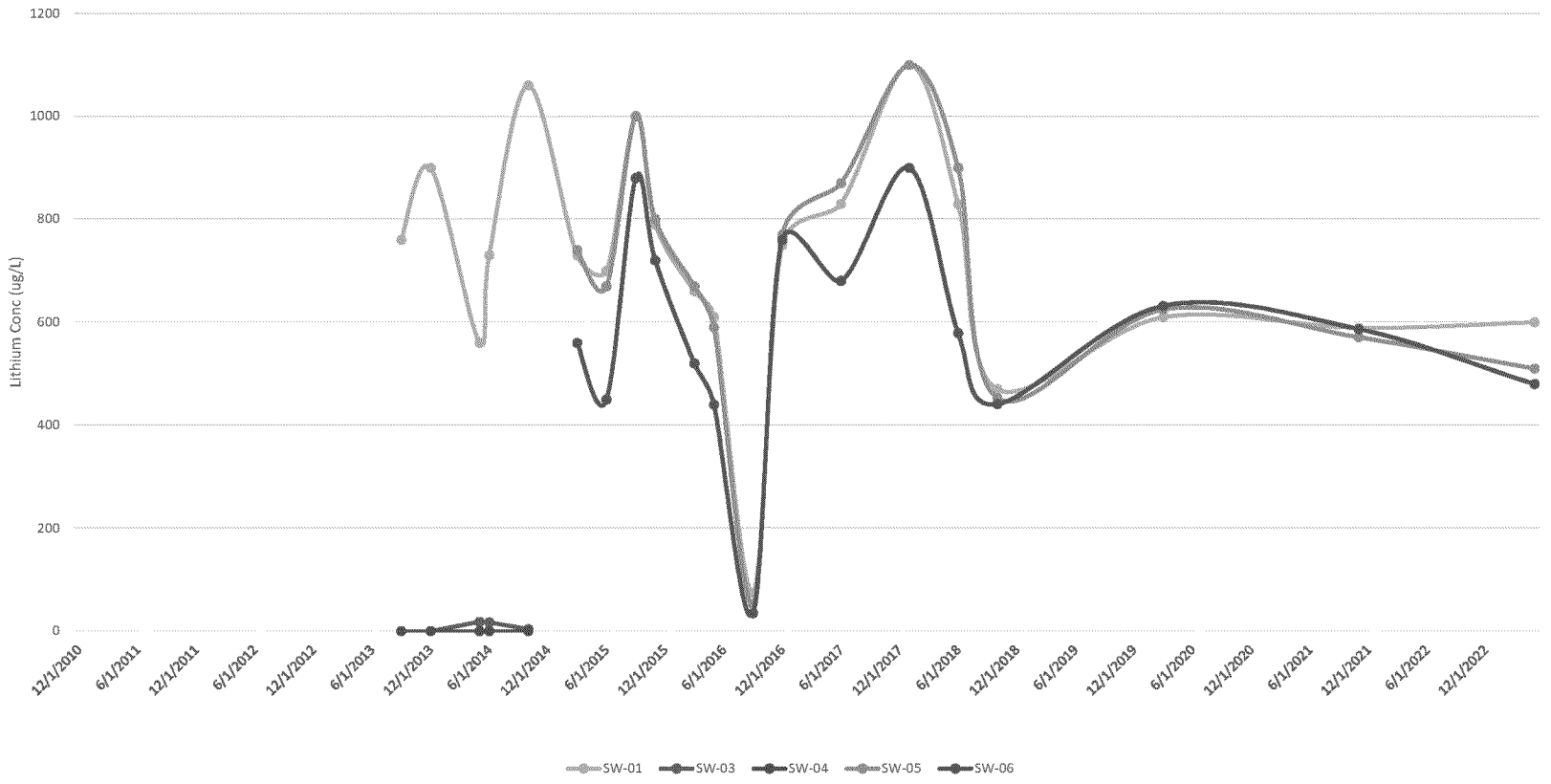
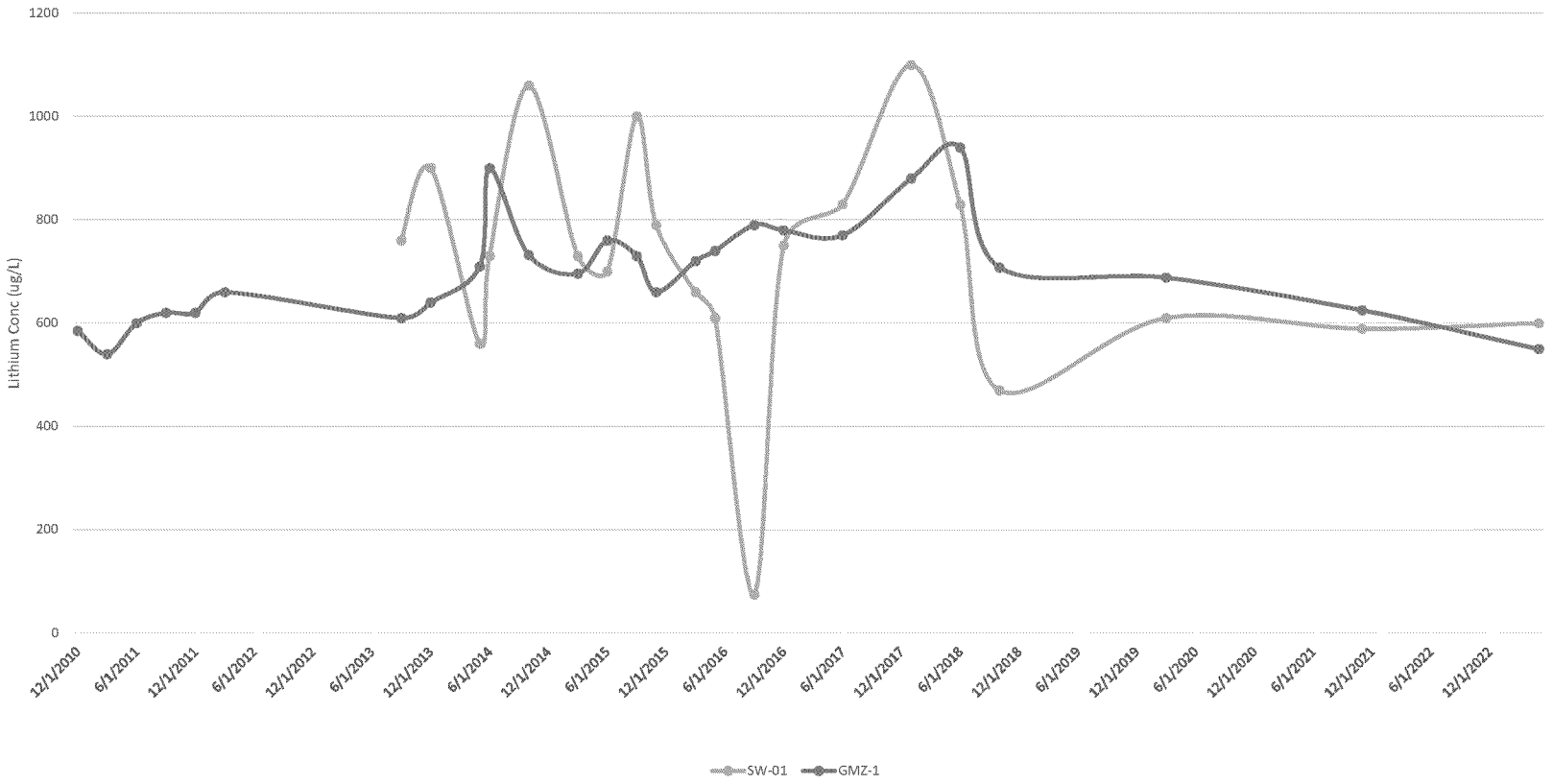


Figure A-7
Comparison of SW-01 and GMZ-1 (~Colocated Samples

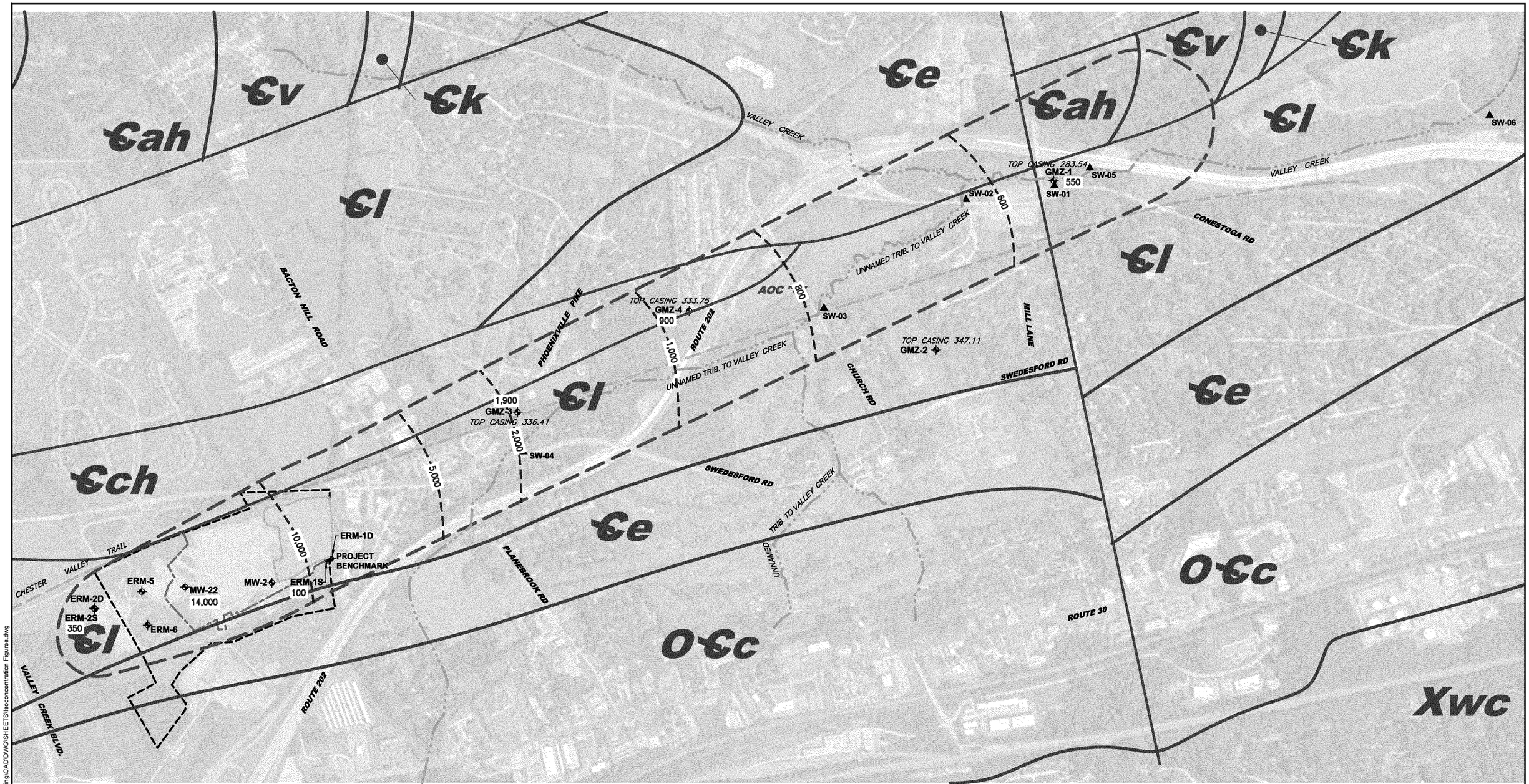


FOOTE MINERAL SUPERFUND SITE
GROUNDWATER MONITORING RESULTS

LITHIUM

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
		12/1/2010	3/1/2011	6/1/2011	9/1/2011	12/1/2011	3/1/2012	9/1/2013	12/1/2013	#######	6/1/2014	10/1/2014	3/1/2015	########	9/1/2015	11/1/2015	3/1/2016	5/1/2016	9/1/2016	12/1/2016	6/1/2017	1/1/2018	6/1/2018	10/1/2018	3/1/2020	11/1/2021	5/1/2023
(on-site)	ERM 1D	**8475.8**	**7600**	**7200**	**6800**	**6700**	**7200**	**6400**	**5900**	**5600**	**6800**	**5680**	**4770**	**5300**		**4500**	**4500**	**4000**	**5100**	**4800**	**2800**	**4300**	**2170**	**1500**	**5320**	**4050**	**4000**
(on-site)	ERM 1S	**492.6**	200	240	**330**	250	**330**	**270**	**600**	**330**	**370**	NS	170	**220**													100
(on-site)	ERM 2D	91.8	92	99	87	81	90	91	89	84	87	75	81.3	75	ND	83	83	73	89	85	84	81	74.5	8.1	6	82.7	79
(on-site)	ERM 2S	**357.5**	**370**	**330**	**320**	**320**	**360**	**330**	**350**	**380**	**360**	**341**	**330**	**330**	**2.1J**	310	**350**	**350**	**350**	**400**	**340**	**350**	**372**	**306**	**337**	**317**	**350**
(on-site)	ERM 5	26.5	28	27	30	16	25	24	27	24	**30**	30.8	285	**24**	24	27	21	23	24	32	29	31	23.5	24.6	26.1	26.4	26
(on-site)	MW 22	**24198**	**20000**	**26000**	**13000**	**14000**	**12800**	**20000**	**21000**	**16000**	**15000**	**23100**	**13200**	**18000**	**19000**	**17000**	**17000**	**22000**	**17000**	**23000**	**22000**	**19000**	**27300**	**24800**	**13300**	**13330**	**14000**
Down Grad	GMZ-1	**585**	**540**	**600**	**620**	**620**	**660**	**610**	**640**	**710**	**900**	**732**	**696**	**760**	**730**	**660**	**720**	**740**	**790**	**780**	**770**	**880**	**940**	**708**	**688**	**625**	**550**
Down Grad	GMZ-2-D							10 U	10 U	ND	ND	0.59 j	1.7J	1.6j		81	8.4j	1.1J	1.8J	1.9j		1.6	2.2	2.5j		6	4.2j		85.8	82.7	50U
Down Grad	GMZ-2-I							10 U	10 U	ND	ND	2.8 j	2.5J	4.1j	5j	6.7j	4J	3.2J	3.5j		3.5	4	4.1j	4.1j	3.3j		4.9	3.8J			50U
Down Grad	GMZ-2-S							10 U	10 U	ND	ND	1.2 j	0.56J	2.0j	340j	5.9j	1.6J	1.7J	1.5j		1.2	1.3	1.1j	2.6j	2.6j		5.2		317	50U
Down Grad	GMZ-3-D							**6100**	**5700**	**5400**	**6300**	**4910**	4150	**4200**	**4300**	**4200**	**4200**	**3900**	**4500**	**4700**	**4200**	**4100**	**4480**	**3520**	**4270**	**3200**	**3000**
Down Grad	GMZ-3-I							**6300**	**5800**	**5500**	**6400**	**5260**	**4380**	**4600**	**4700**	**4300**	**4300**	**4300**	**4600**	**5000**	**4200**	**4300**	**4750**	**3340**	**4510**	**2780**	**2800**
Down Grad	GMZ-3-S							**4700**	**4500**	**3800**	**5400**	**4060**	**3240**	**3700**	**3600**	**3400**	**3100**	**3000**	**3700**	**3800**	**3400**	**3300**	**2480**	**1330**	**2970**	**1870**	**1900**
Down Grad	GMZ-4-D							**2700**	**2500**	**2300**	**2300**	**2210**	**1750**	**1900**	**2000**	**1900**	**1800**	**1700**	**2000**	**2200**	**1800**	**1900**	**1700**	**1540**	**1540**	**1200**	**1300**
Down Grad	GMZ-4-I							**2700**	**2500**	**2400**	**2400**	**2360**	**1990**	**2200**	**2200**	**2000**	**2100**	**1800**	**2200**	**2300**	**1900**	**1900**	**2190**	**1360**	**1710**	**1270**	**1400**
Down Grad	GMZ-4-S							**1800**	**1700**	**1500**	**1400**	**1370**	**1370**	**1200**	**1200**	**1200**	**1200**	**1100**	**1200**	**1400**	**1200**	**1600**	**1120**	**949**	**1000**	**907**	**900**
Surf Water	SW-01							**760**	**900**	**560**	**730**	**1060**	**730**	**700**	**1000**	**790**	**660**	**610**	**75**	**750**	**830**	**1100**	**829**	**470**	**610**	**589**	**600**
Surf Water	SW-02							**352**	**500**	**380**	490	**408**	**350**	230	**300**	200	220	38	21	35	71	99	17.4	**418**	**600**	**590**	**160**
Surf Water	SW-03						5 U		10 U		18	17	**4.1**														
Surf Water	SW-04						5 U		10 U	ND	NS	NS															
Surf Water	SW-05												**740**	**670**	**1000**	**800**	**670**	**590**	53	**770**	**870**	**1100**	**900**	**453**	**625**	**571**	**510**
Surf Water	SW-06												**560**	**450**	**880**	**720**	**520**	440	35	**760**	**680**	**900**	**579**	**441**	**632**	**587**	**480**
Offsite Well	GMZ-1	**585**	**540**	**600**	**620**	**620**	**660**	**610**	**640**	**710**	**900**	**732**	**696**	**760**	**730**	**660**	**720**	**740**	**790**	**780**	**770**	**880**	**940**	**708**	**688**	**625**	**550**

Attachment B – Updated Report Figures



LEGEND

- PROPERTY BOUNDARY
- SUPERFUND SITE BOUNDARY
- PROPOSED GROUNDWATER AREA OF CONCERN (AOC) AS DEFINED IN ROD
- GEOLOGIC FORMATION CONTACT LINE
- FAULT LINE
- EAST VALLEY CREEK AND UNNAMED TRIBUTARIES
- TRAIL (FORMER RAILROAD)
- SURFACE WATER SAMPLING LOCATION
- BENCHMARK/MONITORING WELL LOCATIONS WITH MAY 2023 LITHIUM RESULT (µg/L)
- QUARRY CAP

NOTES

1. ALL LOCATIONS ARE APPROXIMATE.

- Ech CHICKIES FORMATION
- Ee ELBROOK FORMATION
- El LEDGER FORMATION
- Eah ANTIETAM–HARPERS FORMATION
- OEc CONESTOGA FORMATION
- Ev VINTAGE FORMATION
- Ek KINZERS FORMATION
- Xwc OCTORARO FORMATION

— · 800 · — LITHIUM ISOCONCENTRATION CONTOUR (µg/L)

SITE SOURCE CONCENTRATION IS REPRESENTED BY MW–22

BENCHMARK AND WELL LOCATIONS

BENCHMARK DESCRIPTION:
1.7 MILES SOUTHWEST OF FRAZER ALONG PENNSYLVANIA RAILROAD BRIDGE AT THE GLENLOCH STATION, AT NORTHERLY–MOST RAILROAD BRIDGE OVER PHOENIXVILLE PIKE AT THE SOUTHWEST WING WALL. STANDARD DISK STAMPED K 106 1935, ELEVATION=431.93, DATUM: NGVD 1929

STATE PLANE SURVEY BENCHMARK:

POINT ID	NORTHING	EASTING	ELEVATION
IP FND	264,889.817	2575468.331	386.96

WELL COORDINATES:

POINT ID	NORTHING	EASTING	ELEVATION
GMZ–1	269034.1737	2583091.8555	283.54
GMZ–2	267219.3652	2581883.5308	347.11
GMZ–3	266474.3748	2577472.4092	336.41
GMZ–4	267579.1973	2579263.1050	333.75

REFERENCE

1. BASE MAP INFORMATION FROM "AS–BUILT GROUNDWATER MANAMENT ZONE PLAN" FROM EDWARD B. WALSH AND ASSOCIATES, INC., MAY 6,2015.
2. INFORMATION INITIALLY PRESENTED IN FIGURE 1 OF TERRANEAR PMC DECEMBER 2021 GROUNDWATER AND SURFACE ANALYSIS REPORT DATED DECEMBER 13, 2021.

0' 500' 1000' 2000'

SCALE 1"=1000'

FOOTE MINERAL SUPERFUND SITE

EAST WHITELAND TOWNSHIP, CHESTER COUNTY, PA

SHALLOW GROUNDWATER ISOCONCENTRATION - LITHIUM

MONTROSE ENVIRONMENTAL

MONTROSE ENVIRONMENTAL SOLUTIONS, INC.

1140 VALLEY FORGE ROAD,
PHOENIXVILLE, PENNSYLVANIA 19460–2656
T: 610.840.9100 F: 610.840.9199 montrose–env.com

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

FIGURE 1

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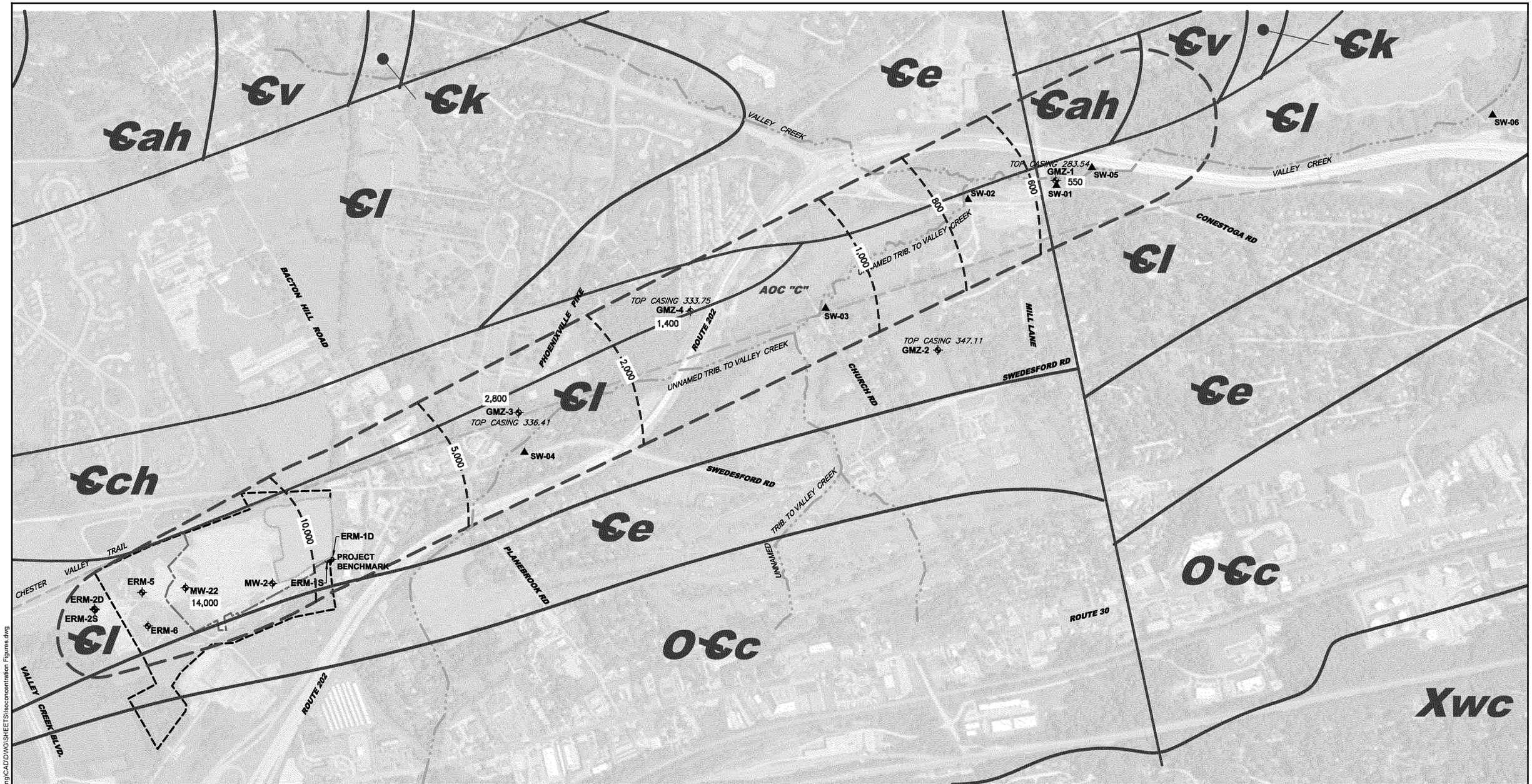

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NOTES

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- Ev VINTAGE FORMATION
- Ek KINZERS FORMATION
- Xwc OCTORARO FORMATION

— ·800· — LITHIUM ISOCONCENTRATION CONTOUR (µg/L)

SITE SOURCE CONCENTRATION IS REPRESENTED BY MW–22

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SCALE 1"=1000'

FOOTE MINERAL SUPERFUND SITE

EAST WHITELAND TOWNSHIP, CHESTER COUNTY, PA

INTERMEDIATE GROUNDWATER ISOCONCENTRATION - LITHIUM

MONTROSE ENVIRONMENTAL

MONTROSE ENVIRONMENTAL SOLUTIONS, INC.

1140 VALLEY FORGE ROAD,
PHOENIXVILLE, PENNSYLVANIA 19460–2656
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Checked By:	CTR
Project Mgr.:	CTR
Originated By:	KHF
Project No.:	2023–4439
Drawing Date:	MAY 2023
Sheet No.:	1 OF 2
Revision Number:	0

FIGURE 1

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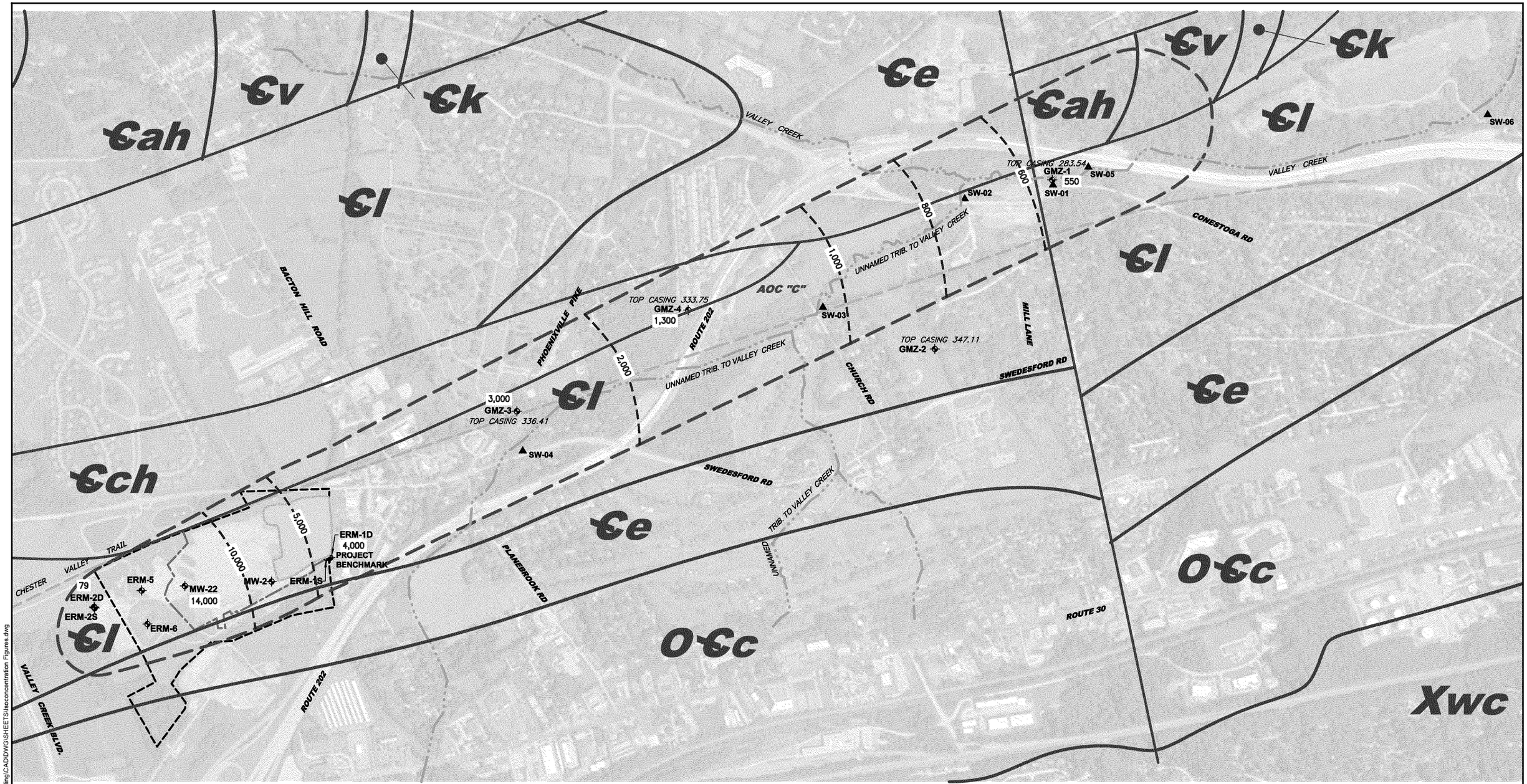

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- OCc CONESTOGA FORMATION
- Cv VINTAGE FORMATION
- Ck KINZERS FORMATION
- Xwc OCTORARO FORMATION

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FOOTE MINERAL SUPERFUND SITE

EAST WHITELAND TOWNSHIP, CHESTER COUNTY, PA

DEEP GROUNDWATER ISOCONCENTRATION - LITHIUM

MONTROSE ENVIRONMENTAL

MONTROSE ENVIRONMENTAL SOLUTIONS, INC.

1140 VALLEY FORGE ROAD,
PHOENIXVILLE, PENNSYLVANIA 19460–2656
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FIGURE 1

G:\Projects\2023\20234439 - Green Fig - Foote Mineral GW - SW Sampling\CAD\DWG\SHEETS\isoconcentration Figures.dwg