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VIA EMAIL

RECEIVED
SEP 29 2023
Colorado Division of Reclamation, Mining and Safety

29 September 2023

Mr. Lucas West
Environmental Protection Specialist
Division of Reclamation, Mining and Safety
Department of Natural Resources
1313 Sherman Street, Room 215
Denver, CO 80203
303-866-3567, ext. 8187
lucas.west@state.co.us

RE: M1990-057-Leadville Mill | Request to Allow Monitoring Well MA1TMW4 as Upgradient Monitoring Well for the Proposed Filtered Tailings Deposit (FTD)

Dear Mr. West,

Thank you for reaching out to me earlier this week and for your time to catch up on our progress. As discussed, see attached an engineering report from our hydrologist which supports our request to use the historic Malta Tailings well MA1TMW4 as an upgradient monitoring well for our proposed FTD. We believe this report will alleviate your concern that this well may not provide representative upgradient water quality data.

This well is located North of our property on land owned by Salem Minerals. We have written permission by Salem Minerals (Todd Hennis, owner) to access his property and obtain samples.

With your approval, we will commence water quality testing commencing Q4 2023.

Please contact me for additional information or clarifications. I may be reached by phone at 303-947-3499, or email at nmichael@unionmilling.com.

Sincerely,

[signed]
Nick Michael, Member
Union Milling Contractors, LLC

Cc: GKnippa
SCraig
SVeith

attachment

AEC AMERICAN ENVIRONMENTAL CONSULTING, LLC

TECHNICAL MEMORANDUM

To: Gary Knippa — CJK Milling Company LLC
Nick Michael — Union Milling Company (UMC)

From: Michael Stewart, MS, PE Corporate Consultant, and
William A. Cincilla, MS, PE Senior Engineer
American Environmental Consulting, LLC (AEC)

Date: September 26, 2023

Re: Evaluation of MA1TMW-3 as the Regional Background Well Selection under Leadville Mill Permit M1990-057

This memorandum provides an evaluation related to the use of existing groundwater monitoring well MA1TMW-4 as a regional background monitoring well for the Leadville Mill expansion. The interpretations and conclusions are based on the data contained in the January 2023 Leadville Mill Permit M1990-057 that was prepared and submitted by the CJK Milling Company, LLC. The report includes background information, presentation of data and interpretations, and conclusions on regional background well suitability.

BACKGROUND INFORMATION

The Leadville Mill is located in the southern part of the California Gulch Superfund Site (CGSS). The CGSS was studied extensively during the Remedial Investigation Phase in the 1990's, and the data evaluated herein originates from either those studies or the Leadville Mill permitting efforts. Figure 1, showing the location of the Leadville Mill relative to the CGSS Operable Units, shows the following:

1. The Leadville Mill is located near the southern end of the CGSS boundaries, well away from the historic major pollutant sources;
2. The Leadville Mill is located in CGSS Operable Unit 9, Residential Soil. EPA deleted Operable Unit 9 from the NPL in September 2011 according to information listed on its web page:
   https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.cleanup&id=0801478

3. The two units that are nearest upgradient include OU2, Malta Gulch, and OU3, Denver and Rio Grande Railroad Slag Piles. The OU3 concerns were limited to inhalation risks rather than groundwater effects.

4. The proposed filtered tailings deposit (FTD) will be located directly north of the existing milling facility (Figure 2). The Leadville Mill permit proposes to use existing well MA1TMW-4, installed as part of the OU2 investigative efforts, as an upgradient monitoring well for the FTD.

FIGURE 1

LOCATION OF THE LEADVILLE MILL IN THE CGSS

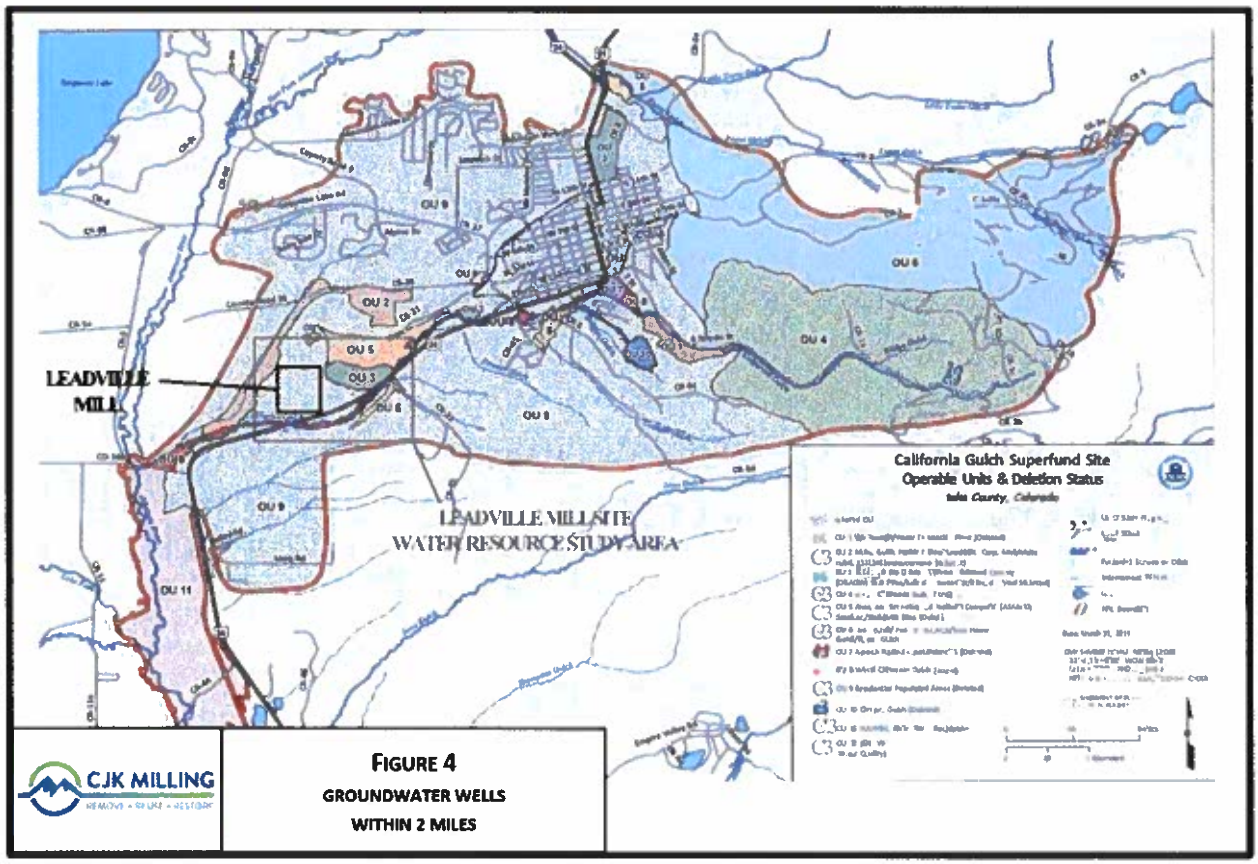

Figure 2 shows the approximate CGSS groundwater monitoring wells installed nearest to the Leadville Mill. It also shows the locations of the two on-site wells LM-MW-2 and LM-MW-3, installed on the mill property as part of the permitting process. Accurate as-surveyed well locations are indicated on Figure 2. As shown on Figure 2, little or no development is present between the proposed Leadville Mill site and the Malta Tailings

pile. It also shows that the Malta groundwater monitoring wells are the closest up-gradient wells to the Leadville Mill.

FIGURE 2

GROUNDWATER MONITORING WELL LOCATIONS

DATA AND INTERPRETATIONS

Groundwater Flow and Velocity

A representative potentiometric surface map of alluvial wells immediately up-gradient, cross-gradient and down-gradient was generated to evaluate the conditions surrounding the Leadville Mill (Attachment 1). Table 1 includes the water-level data used to generate the potentiometric surface shown in this attachment.

TABLE 1 – ALLUVIAL MONITORING WELLS SURROUNDING THE SITE

Well	Depth	Casing Elevation	Well Completion	Potentiometric Surface Elevation
MA1TWM-1	169	9884.94	143-169	9732
MA1TWM-2	80	9783.67	55-80	9714
MA1TWM-3	94	9789.78	71-93	9712
MA1TWM-4	89	9796.01	64-89	9715
PZ-2	95		77-95	9717
MW-12	50	9615.40	8-50	9602
MW-13	100	9621.59	15-100	9601
MW-13a	25	9622.27	10-25	9604
MW-14	50	9530.49	10-50	9520
LM-MW-2	53	9701	42-52	9651
L-MW-3	66	9744	56-66	9684

The groundwater flows in a primary porous medium of glacial till and alluvial materials. The resulting groundwater gradient of 50'/1,620', or 0.03 feet/foot, is sufficiently steep for the accuracy requirements of this evaluation. The estimated advective groundwater velocity is estimated using the following parameters:

V = 0.03 (feet/foot) * 12 (min) or 47 (max) feet/day) / 0.35 (max) or 0.1 (min)

The resulting velocity values vary between 1.0 and 14 feet per day: both extremely high groundwater velocities that result from the steep gradient and the material's high primary hydraulic conductivity.

The width of the alluvial aquifer also decreases to the south were Malta Gulch joins California Gulch. This change should result in the groundwater flowing beneath MA1TWM-4 being deflected further east toward the proposed pile.

Groundwater Chemistry

Two data sets were combined to evaluate the groundwater chemistry in the Leadville Mill area. The first set includes Malta Tailings groundwater monitoring wells MA1T-MW2, MA1T-MW3, and MA1T-MW4 that were all sampled one time as part of the CGSS investigation. All three wells are upgradient from the site. The statistical summary from wells LM-MW-2 and LM-MW-3, taken from the permit, comprise the second set. Both of these wells are downgradient from the proposed pile. Table 2 summarizes the common constituents in these two data sets. Again, these results are for comparative purposes only and cannot be used for statistical evaluation. Comparing them yields the following observations:

1. Four of the constituents were not detected in either data set. The Leadville Mill constituents were not reported; however, the corresponding constituents from the upgradient Malta wells were also not detected.

2. The constituents that were detected in the Leadville Mill data set were generally measured at concentrations below the method detection concentrations for the CGSS data set.
3. Sulfate was the only constituent measured in both data sets. The concentrations in both data sets were generally equivalent, given that sulfate is a major anion, with the concentrations from the CGSS wells both higher and lower than the Leadville Mill values.

TABLE 2- COMMON CONSTITUENTS IN MONITORING WELLS NEAR THE LEADVILLE MILL

Constituent	MA1T MW2	MA1T MW3	MA1T MW4	LM-MW-3 Background	LM-MW-2 Point of Compliance
Nitrate/nitrite	7.55 J	4.55 J	4.38 J	ND	ND
Sulfate	453	280	294 J	399	320
Antimony	0.12 U	0.12 U	0.12 U	ND	ND
Arsenic	0.02 U	0.02 U	0.02 U	0.028	0.001
Cadmium	0.01 U	0.01 U	0.01 U	0.002	ND
Copper	0.05 U	0.05 U	0.05 U	0.054	0.008
Iron	100 U	100 U	100 U	12.12	20.978
Lead	0.006U	0.006U	0.006U	0.027	0.005
Manganese	0.03 U	0.075	0.171	0.48	0.219
Mercury	0.0002U	0.0002U	0.0002U	0.00003	0.00003
Nickel	0.08 U	0.08 U	0.08 U	0.001	0.003
Selenium	0.01 U	0.01 U	0.01 U	ND	ND
Silver	0.02 U	0.02 U	0.02 U	ND	ND
Zinc	0.02 U	0.02 U	0.02 U	0.142	0.031

CONCLUSIONS

AEC concludes that groundwater monitoring well MA1TWM-4 can provide representative background data for the following reasons:

1. The wells included in this discussion are downstream from outside of any of the Operable Unit boundaries where groundwater remediation or continued monitoring was necessary.

2. The very-high hydraulic conductivities and groundwater gradients should result in higher-than-normal mixing in the saturated zone being monitored, leading to consistent distribution of constituents throughout the aquifer.
3. The existing conditions both up-gradient and down-gradient from the MA1TWM-4 groundwater flow path are very similar to the conditions immediately up-gradient from the proposed pile location, with no evidence of sources that could potentially impact the groundwater chemistry.
4. The constituents measured in both the CGSS well datasets and the Leadville Mill well datasets do not exhibit any appreciable differences based upon a semi-qualitative evaluation.

Respectfully,

American Environmental Consulting, LLC

Michael H. Stewart

Michael H. Stewart, MS PE
Corporate Consultant

William A. (Bill) Cincilla, MS PE
Senior Engineer

ATTACHMENT 1 – ALLUVIAL AQUIFER POTENTIOMETRIC CONTOURS