



**COLORADO**

**Division of Reclamation,  
Mining and Safety**

Department of Natural Resources

1313 Sherman Street, Room 215  
Denver, CO 80203

October 3, 2018

Bernard Frei  
Alert Frei and Sons, Inc.  
P.O. Box 700  
Henderson, Colorado 80640

**RE: Hatchery Pit, M-2014-043, Technical Revision No.1 (TR01), Adequacy Review No. 1**

Dear Mr. Frei,

The Colorado Division of Reclamation, Mining, and Safety (DRMS or Division) has reviewed the Technical Revision (TR01) received on September 25, 2018. The following adequacy issues will need to be addressed prior to the Division's approval of the Technical Revision.

**Pit dewatering:**

The proposed revision request to change the mining and reclamation plan for the Stage 2 area by allowing for dewatering of the site during the mining of this area and installing a clay liner as opposed to a slurry wall. Mining below the groundwater table in the Stage 2 area was not to occur until after collecting monthly water level data for one year and a quarter and prior to the installation of the slurry wall. Also, dewatering of the area was not contemplated in the original permitting process for the installation of the plant site and the first phase of mining in the Phase 2 area. According to the information in TR01, it appears dewatering has already occurred within the Phase 2 area and is occurring presently and appears to have already impacted the groundwater levels in the area. Upon a closer review of the CTL and Deere and Ault drilling data submitted with the original application, groundwater levels ranged from 5,071 feet on the west side near the plant site to 5,083 feet on the east side of the site. Based on the September 4, 2018 monitoring data the water levels on the east side (MW01, 02 and 03) were reported to be at an average level of 5,073.591 feet. This is a fairly significant drop. Please address the following:

- 1.) Based on the Division of Water Resources well permit data a domestic well (Permit No. 5350) is located just north of the plant site adjacent to the two monitoring wells owned by Patrick Broda identified in the original permit application. This appears to be a fairly shallow well at 34 feet deep. This well was not identified in the original permitting process. How will this well be protected from impact?
- 2.) Page 2 of the technical revision indicates in August of 2018, the groundwater elevation in the three monitoring wells along the east and south side averaged 5,078.5 feet. This does not appear to be correct (See discussion above). Please provide the Division a date when dewatering began.



- 3.) As the water levels of the area have now been altered due to dewatering, there now is only limited pre-mine water level data that can be used to evaluate off-site impacts. Given this, please update the groundwater monitoring and mitigation plan with the following:
- a. Establish baseline high and low water levels for each of the monitoring wells. This can be done using the pre-dewatering water levels and the information provided in the CTL and Deere and Ault studies included in the original application. For each well please provide a justification for each high and low elevation.
  - b. Please re-evaluate the during mining and post mining water level impacts and provide a mitigation plan to address these impacts. The installation of a perimeter drain should address groundwater mounding and shadowing issues associated with the installation of the clay liner and the monitoring plan should help evaluate the effectiveness of the drain. However, adequacy issues regarding the clay liner and French drain will need to be addressed (see below).
  - c. Update the trigger levels identified for mitigation. Given the already lowered groundwater levels in the Stage 2 area, the two foot trigger has already been hit. The trigger for mitigation measures needed as a result of groundwater drawdown will now be trigger by a complaint. There are several commercial, domestic and irrigation wells located outside of the 600 foot radius of the site but within about 800 feet of the operation that could potentially be impacted by dewatering.

**Clay liner and French Drain:**

The top of the clay liner and the current design for the top of the slurry wall for Stage 2 is set at 5,072 feet. Based on the pre-mining water levels on the east side of the site being recorded at 5,083+/- feet, it does not appear the top elevation of the clay liner and the slurry wall will effectively block the groundwater flow to the site. Also, by placing a French drain at the top of the clay liner this could effectively dewater the groundwater levels to this elevation continually. Given these issues, please address the following:

- 4.) Please evaluate the effectiveness of the design of the clay liner and revise the design as necessary.
- 5.) Given the possible revision to the clay liner design, the location and elevation of the French drain may need to be updated, please evaluate. Please provide a design of the French drain, this should include:
  - a. Sizing information of the drain and a demonstration the size will be adequate.

October 3, 2018

- b. Please indicate how the drain will be maintained. Most French drains the Division has observed have standpipes at regular intervals along the drain to provide access for maintenance.
- c. Please provide a profile for the pipe and demonstrate how it will positively drain.

**Reclamation Cost Estimate**

- 6.) Please provide an updated reclamation cost estimate for the proposed revisions to the mining and reclamation plan. This should account for pit dewatering, installation of the clay liner and French drain.

This concludes the Division's preliminary review of the Technical Revision. The decision date for the technical revision is October 25, 2018. These issues will need to be addressed to the Division's satisfaction prior to the approval of the revision. If you need additional time to address these issues please request an extension of the decision date. If you have any questions feel free to contact me at (303) 866-3567, extension 8120.

Sincerely,



Jared Ebert  
Environmental Protection Specialist III

EC: Steve, O'Brian, Environment, Inc. [Environment-inc@outdrs.net](mailto:Environment-inc@outdrs.net)