COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

1313 Sherman Street, Room 215
Denver, CO 80203

April 13, 2017

Randy DiLuzio
Tezak Heavy Equipment Co. Inc.
205 Tunnel Dr.
Cañon City, CO 81212

Re: T.H.E. Aggregate Source, Permit M-1977-193;
Preliminary Adequacy Review, Technical Revision TR-09

Dear Mr. DiLuzio:

On April 12, 2017, the Division of Reclamation, Mining and Safety received your Technical Revision application (TR-09) and the required fee for the T.H.E. Aggregate Source Permit M-1977-193, which is located in Fremont County. The revision requested addresses the following items:

The construction of a process fines stockpile/permanent storage structure within the existing bonded property boundaries.

The submittal was called complete for the purpose of filing on April 12, 2017. The decision date for TR-09 is May 12, 2017. Please be advised that if you are unable to satisfactorily address any concerns identified in this review before the decision date, it will be your responsibility to request an extension of the review period. If there are outstanding issues that have not been adequately addressed prior to the end of the review period, and no extension has been requested, the Division may deny this TR.

The following comments are based on the Division's review of the request for TR-09:

1) Hydrologic Balance and Erosion Control. The second paragraph on page 2 of the request identifies a series of "V" ditch channels intended to manage stormwater on the proposed constructed fines stockpile. The proposed "V" ditches would be constructed with a one percent slope directing intercepted runoff from roughly south to north with apparently a 10-foot backslope at 10H:1V on the proposed 3H:1V slope, a depth of one foot, and an estimated top width of 13 feet. Shallow "V" ditches have very limited flow capacity. The one percent longitudinal gradient may lead to additional maintenance, as more frequent low intensity rain storms may not yield sufficient flows to "flush" sediment down to the proposed riprap lined downchute channel. No peak runoff estimate was included in the TR, but the Division estimates each ditch can only convey 3.5 to 4 cubic feet per second (cfs) peak runoff while maintaining a minimum freeboard of six inches. As this is a closure design, the Division would expect the stormwater ditches to convey the peak flow resulting from the 100-year, 24-hour

design storm. A review of the drawing labeled "Cross Section Layout for the Proposed Stockpile Area" indicates three of these "V" ditches have corners with close to 90 degree turns on the sloped stockpile. The flow in these corners will experience super elevation, thereby reducing the limited freeboard. The Division's experience with shallow ditches constructed with a flatter backslope, is that corners like these are subject to flow overtopping leading to a ditch blowout and significant erosion below the failed channel section. In addition, this same drawing shows all three of these ditches upstream ends terminating between 45 and 120 feet from the southwest stockpile contact "groin" with the native material, leaving a significant portion of the stockpile without stormwater controls. The Division's experience suggests slope lengths exceeding 150 to 200 feet on a 3H:1V grade are highly susceptible to rill and gulley erosion. Please provide the following:

a. A hydrologic evaluation estimating the peak flow from the design storm discussed above.

b. A hydraulic analysis demonstrating adequate freeboard while conveying the estimated peak flow and accounting for super elevation on the corners. (note: *the operator may want to consider increasing the depth and/or longitudinal slope, to no more than two percent to increase the ditch capacity and reduce potential maintenance*).

c. Some evaluation and design criteria for the hydraulic performance of the riprap-lined downchute.

2) Broadcast Seeding. The last paragraph on p. 2 references an "attached" seed mixture. The submittal did not include a seed mixture. Please provide the referenced seed mixture.

The decision date for TR-09 is May 12, 2017. Please be advised that if you are unable to satisfactorily address any concerns identified in this review before the decision date, **it will be your responsibility to request an extension of the review period**. If there are outstanding issues that have not been adequately addressed prior to the end of the review period, and no extension has been requested, the Division may deny this Technical Revision.

If you have any questions, please contact me (303-866-3567 ext. 8169).

Sincerely,

Timothy A. Cazier, P.E.
Environmental Protection Specialist

ec: DRMS file
Ken Klco, Azurite Inc.