



November 26, 2019

Andre Laroche
Aggregate Industries - WCR, Inc.
1687 Cole Boulevard, Suite 300
Golden, CO 80401

**Re: Daniels Sand Pit 2, Permit No. M-1973-007-SG;
Technical Revision (TR-09) Preliminary Adequacy Review**

Dear Mr. Laroche:

On November 7, 2019 the Division of Reclamation, Mining and Safety (DRMS) received your Technical Revision application TR-9 for the Daniels Sand Pit 2 Permit No. M-1973-007-SG addressing the following:

Slope stability geotechnical analyses and additional engineering evaluation for adjacent roads.

The submittal was called complete for the purpose of filing on November 7, 2019. The current **decision date for TR-09 is December 7, 2019**. 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.

The following comments are based on the DRMS review of the request for TR-09:

- 1) Figure 3, Cross Section #3: The AutoCAD section indicates a 6.6H:1V slope from the old wash pond crest down to Bradley Road. This was not the case when the DRMS inspected the site on December 7, 2016 (see **Photo 1** below). The slope at the time of the inspection appeared to be steeper than 2H:1V. Has this slope been flattened since December 2016?





Photo 1. View from Old Wash Pond Crest towards Bradley Road

Appendix A

- 2) Factors of Safety Requiring Mitigation: Both Cross Sections D-1 [Fountain Mutual Ditch above the Recharge Pond to the south] and D-4 [Fountain Mutual Ditch above the New Wash Pond to the south] have Factors of Safety (FoS) for stability well below that required by the Mined Land Reclamation Board Policy 30. A mitigation plan is required. Please submit a mitigation plan for both these areas demonstrating how the required FoS will be met, including a schedule for the work. Both the mitigation plan and the schedule will require approval by the DRMS.
- 3) Cross Section D-3 Cohesion: Slope stability analyses for Cross Sections D-1, D-2, and D-4 use a cohesion value of 50 pounds per square foot. The analyses for Cross Section D-3 uses zero. Please explain the difference.
- 4) Strength Parameters: The first paragraph of Appendix A states "...37 strength values determined multiple tests have been conducted." The third paragraph states "Geotechnical information collected during previous investigations are presented in Appendix B". There is no map in Appendix B showing sample locations, nor are there any test results presented. The results of the SlopeW analyses are either well below the FoS of 1.3 for multiple strength tests

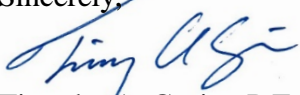
or well above the FoS of 1.5 for “table values”. If the goal is to demonstrate multiple strength tests support the goal of using the lower FoS of 1.3, this data and test results must be provided. If the goal is to demonstrate the gradations and USCS soil classifications support the strength parameters used in the analyses of the four cross sections, some rationale linking these parameters and the strength parameters must be provided.

Appendix B

- 5) Lyman Henn 2006 Data: The narrative in Section 1.2.1 references a proposed slurry wall and bedrock elevations ranging from “4577 to ft to 4584 ft” with the “The depth to the top of bedrock ranged from 31 to 44 ft bgs,”. This puts the ground surface at no more than 4628. The lowest elevation of the ground surface at the Daniels Pit appears to be closer to 5700, a 1,000 feet higher. The DRMS is not aware of a slurry wall proposed for the Daniels Pit. Where is this data from? It does not appear to be related to the Daniels Pit.

If you have any questions or need further information, please contact me at (303)866-3567 x8169.

Sincerely,



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

ec: Michael Cunningham, DRMS
DRMS file