

STATE OF COLORADO

DIVISION OF RECLAMATION, MINING AND SAFETY

Department of Natural Resources

1313 Sherman St., Room 215
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MEMORANDUM

John W. Hickenlooper
Governor

Mike King
Executive Director

Loretta Piñeda
Director

To: Dustin Czapla

From: Tim Cazier, P.E. 

Date: June 10, 2013

**Re: SR-13A Mine Drainage Design Plan – Third General Stormwater Comments,
Permit No. M-1977-311 / AM-01**

The Division of Reclamation, Mining and Safety (DRMS) engineering staff has reviewed the Response to Adequacy Review #5 for the SR-13A Mine prepared by O'Connor Design Group, Inc., dated May 24, 2013. The following comments are posed to ensure adequate engineering analyses and design practices are implemented to eliminate or reduce to the extent practical the disturbance to the hydrologic balance expected by the mining operation with respect to water quality and quantity in accordance with Rules 3.1.6(1), 6.4.21(10) and 7.3.1. Please note, as this site is a designated mining operation (DMO), compliance with Rule 7.3.1 is applicable, thus requiring certified designs and specifications for engineered elements associated with the environmental protection plan (EPP). The original comment numbers have been retained for the purpose of tracking responses.

5. Page ESWMP-6, second paragraph and FlowMaster output pages. The May 24, 2013 response to this comment is adequate. However, the results of the FlowMaster analysis provided indicate the expected flow velocity exceeds five feet per second. As such, this channel will require armoring, such as riprap. The DRMS's analysis suggests any channel segment operating under the 5.16 cfs design flow and the 3H:1V "V" ditch will require armoring on slopes exceeding 7.6 percent. Please provide:
 - a. An analysis to select appropriate sized riprap and.
 - b. Add a detail to the drawings showing the appropriate armoring and which segments will require armoring (e.g., channel segments greater than 7.6 percent).
7. Page ESWMP-7, last paragraph. The DRMS appreciates the decision to breach the embankment upon the cessation of mining. In order to further reduce the potential for erosion and sediment problems, please commit to the following:
 - a. Provide a maximum slope... The May 24, 2013 response to this comment is adequate.

April 16, 2013

- b. Provide a cross-section of the channel through the breach... The side berms for the spillway channel are not ideal, as these berms will eventually erode away. However, given that the spillway channel is to be aligned along the natural drainage, the discharges should be confined to the existing drainage way and the proposed riprap should minimize the expected erosion. The response to this comment is adequate.
- c. Flatten the inlet channel to competent rock or armor it... The note added to Drawing 3A points to the spillway approach, not the inlet channel cut/filled in east side of the pond. Please add the note the inlet channel as previously requested.
- d. Commit to delaying the breaching of the embankment... The May 24, 2013 response to this comment is adequate.

Drawings:

- 12. Sheet 3 and hydraulic analysis. The analysis provided for the spillway chute does not include an evaluation for the maximum roughness. Based on previously provided hydraulic analyses for riprap-lined channels, there should be an analysis for $n = 0.045$. this would result in an expected flow depth of 0.33 feet. As, such, the required 0.5 feet of freeboard would not be available with a 0.76-foot deep channel. Please provide an analysis for the maximum Manning's roughness (for capacity) and a design detail on the drawings with adequate freeboard.

If either you or the applicants have any questions regarding the comments above, please call me at (303) 866-3567, extension 8169.