STATE OF COLORADO

DIVISION OF RECLAMATION, MINING AND SAFETY
Department of Natural Resources

1313 Sherman St., Room 215
Denver, Colorado 80203
Phone: (303) 866-3567
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COLORADO DIVISION OF RECLAMATION MINING & SAFETY

November 20, 2012

Glen Williams
Cotter Corp.
P.O. Box 700
Nucla, CO
81424

RE: CM-25 Mine, File No. M-1977-307, Amendment (AM1) Application Adequacy Review (2)

Dear Mr. Williams:

The Division of Reclamation, Mining and Safety (Division) is in the process of reviewing the above referenced application in order to ensure that it satisfies the requirements of the *Colorado Mined Land Reclamation Act* (Act) and the associated *Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for Hard Rock, Metal, and Designated Mining Operations* (Rules). The attached memorandum from Division staff member, Tim Cazier, includes comments regarding the Drainage Design Plan submitted with the AM1 application. Please submit response(s) to the issue(s) presented in Mr. Cazier's memo by Friday, December 28, 2012, in order to allow the Division sufficient time for review.

The Division will continue to review your application and will contact you if additional information is needed.

If you require additional information or have questions or concerns, please contact me at the DRMS Grand Junction Field Office.

Sincerely,

Dustin Czapla
Environmental Protection Specialist
Department of Natural Resources
Division of Reclamation, Mining and Safety
101 South 3rd, Suite 301
Grand Junction, CO 81501
Phone: (970) 243-6299
Fax: (970) 241-1516

Cc: Ed Cotter, DOE

Ec: Russ Means, DRMS GJFO

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MEMORANDUM

To: Dustin Czapla

From: Tim Cazier, P.E.

Date: November 16, 2012

Re: **CM-25 Mine Drainage Design Plan – General Stormwater Comments, Permit No. M-1977-307 / AM-01**

The Division of Reclamation, Mining and Safety (DRMS) engineering staff has reviewed the August 24, 2012 Drainage Design Plan (Engineered Stormwater Management Plan) for the CM-25 Mine prepared by O'Connor Design Group, Inc. 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).

1. Page ESWMP-2, third paragraph and Sheets 2 and 3 – Waste rock stockpile. The waste rock stockpile discussed in these two paragraphs is not labeled on either Sheet 2 or 3, unless the Applicant is referring to the "Reclaimed Waste Pile". Please clarify where the waste rock stockpile and other facilities mentioned in the second paragraph are to be located and identify this area on Sheets 2 and 3.

    a. The third paragraph states clay will be placed on the waste rock stockpile. Please clarify as to whether this clay is intended to be a liner, cap or both; and provide some engineering details (e.g., thickness, compaction, permeability, etc.).

2. Page ESWMP-5, third paragraph.

    a. This paragraph states the surface soils at the site are considered Hydrologic Soils Group (HSG) B, but no specific references are given. The soil group on Figure T3 indicates the natural soils in the area defined by the three subasins analyzed are "23", Bodot. According to the soil survey in Exhibit B, the soil profile is described as "0 to 3 inches Cobbly clay loam"; and "3 to 30 inches Cobbly silty clay". Both clay loam and silty clay are considered HSG D. Furthermore, the Soil Survey of San Miguel Area, Colorado Parts of Dolores, Montrose, and San

Miguel Counties lists the Bodot series runoff class as "very high". Please revise the selected curve numbers (CN) to reflect HSG D (CN = 89/80 – poor/fair), or provide documentation to substantiate the claim of HSG B.

b. Assuming the disturbed areas discussed in the onsite basins are also soil group 23 and are "void of vegetation" the CN for these areas should be 94 (TR-55 Table 2-2b, fallow, bare soil) instead of 75. Please revise the selected CNs to reflect HSG D and bare soil (CN = 94), or provide documentation to substantiate the claim of HSG B. Also note "void of vegetation" is not the same as "poor vegetation".

3. Page ESWMP-6, first paragraph and FlowMaster output pages. It is stated "no velocities exceeded 5 feet-per-second for the 100-year flows". A Manning's n = 0.035 is used for the design analysis. However, no rationale is provided for the selected roughness coefficient, which implies a rough cut in bedrock or rock in the channel. Because channel roughness is seldom uniform, the DRMS requires channels be evaluated for both stability and capacity, i.e., minimum and maximum expected roughness. For example, an excavated earth channel, after weathering would be expected to have a minimum n = 0.018 (use to evaluate stability or maximum expected velocity); and a maximum n = 0.025 (use to evaluate capacity). In addition, the DRMS requires channel freeboard be evaluated: channels shall be designed with a minimum of 0.5 feet of freeboard unless the velocity head ($v^2/2g$) is significant, then the minimum required freeboard is half the velocity head, or $v^2/4g$.

   a. Please provide a rationale for the selected roughness coefficients, and evaluate each designated channel/ditch design slope for both capacity and stability.

   b. Please design all the ditches with the appropriate freeboard and provide channel design depths for construction.

4. Page ESWMP-6, second paragraph and Retention Pond Drainage Design Plan (Sheet 5 of 5). The 100-year, 24-hour runoff volume criteria used for sizing storage in the pond is acceptable. However, a spillway is necessary to pass runoff from successive storms as there is no way presented in the Retention Pond design plan to drain the pond via gravity. As such, the emergency spillway for the pond needs to be designed to convey 100-year peak flow, assuming the ponds are full (to the spillway invert elevation) at the onset of the design storm. Please provide analyses and designs to demonstrate the spillway has the capacity to pass the peak flow resulting from the 100-year, 24-hour design storm. (*NOTE – The DRMS checked with the Colorado Division of Water Resources District 60 water commissioner (Aaron Todd) regarding the status of the San Miguel River appropriations. Mr. Todd stated that the San Miguel River is not currently over appropriated and as such, DWR has no current requirement to release retained stormwater within 72 hours. He also indicated this is subject to change.*)

5. Page ESWMP-7, last paragraph. This paragraph references the Environmental Protection Plan for details related to the reclamation of stormwater features. The DRMS could find no discussion of stormwater feature reclamation in Exhibit T, nor any discussion of the retention pond in the Exhibit D Reclamation Plan. Please indicate whether the retention pond will be left in place, breached, filled in, etc.

Drawings:

6. Sheets 1 and 2. Please discuss why no stormwater management is proposed or discussed for the "Reclaimed Waste Pile".
7. Sheet 4. Please provide some material and compaction specifications for the berm and the retention pond embankment.
8. Sheet 5. Please provide spillway location, designs (sections and profile), and specifications sufficient to convey the design flow to the toe of the embankment.

General Comments:

9. No calculations were found related to estimate the capacity or expected velocity for flows diverted to the retention pond by the proposed berm. There are two steep sections (measured to be approximately 26 and 58 percent longitudinal slope), as well as relatively flat sections. Please provide hydraulic analyses addressing the conveyance capacity and stability of the proposed berm.
10. Page ESWMP-4, paragraph 7. The NRCS is referenced as the "National Resource Conservation Service". The "N" stands for "Natural", not "National".
11. Page ESWMP-5, last word. Velocities based on design storm events are "estimated", not "Actual", which suggests the velocities were measured.

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