



Denison Mines (USA) Corp.  
1050 17th Street, Suite 950  
Denver, CO 80265  
USA

Tel : 303 628-7798  
Fax : 303 389-4125

[www.denisonmines.com](http://www.denisonmines.com)

May 15, 2007

**VIA E-MAIL AND OVERNIGHT DELIVERY**

Mr. Dane L. Finerfrock  
Director  
Division of Radiation Control  
Department of Environmental Quality  
168 North 1950 West  
P.O Box 144850  
Salt Lake City, UT 84114-4850

**Re: Cell 4A Lining System Design Report, Response to DRC Request for Additional Information –  
Round 7 Interrogatory, Cell 4A Design.**

Dear Mr. Finerfrock:

We are responding to your May 2, 2007 letter, requesting additional information on the Cell 4A Lining System Design.

For ease of review, the Division of Radiation Control's ("DRC's") questions are repeated below in italics with Denison Mines (USA) Corp.'s ("DUSA's") responses following each question.

- 1. Resolution of the cleanup issues by DMC to demonstrate that the existing subgrade for Cell 4A has radiation and contamination levels that are acceptable. This is currently being addressed under a separate cover.*

Cleanup verification sample results have been submitted to DRC for staff review.

- 2. Adjustment of the specifications regarding, a 12-inch minimum thickness of soil cover over bedrock and below the GCL, an 8-inch maximum thickness of loose soil lifts, subgrade compaction and moisture content specifications to be established by soil type, and the designation of all tests in the specifications and CQA Plan to be done "in accordance" with standard specifications.*

Technical Specifications Section 02220, Subgrade Preparation, has been revised to include requirements for a maximum 8-inch loose lift thickness. DUSA does not believe that a minimum of 12-inches of subgrade soil is necessary for the performance of the proposed liner system. As this layer will be compacted and provides for a maximum protrusion height that will minimize potential damage the liner system components, there appears to be no other reason to have a minimum thickness assigned to this layer. The revised Technical Specifications, dated May 2007, is attached.

The Construction Quality Assurance (CQA) Plan has been revised to include "in accordance" requirements related to standard test methods and Table 1B has been revised to provide testing for soil type. The revised CQA Plan, dated May 2007, is attached.

- 3. Incorporation of specific listed items into the GCL hydration demonstration project. DUSA is authorized to begin the proposed hydration demonstration project as outlined in a letter from Geosyntec Consultants dated March 27, 2007, in accordance with the following conditions: a.) The project must be continued, i.e. sampling and testing GCL moisture content, until the GCL hydration level is at a minimum of 140% in accordance with ASTM D 5993, and b.) The test pad must be moved away from the toe of the slope and preclude storm water run-on from effecting the test pad.*

DUSA will begin implementation of the GCL hydration work plan on 21 May 2007. The test pad will be installed away from the toe of the slope and will be protected from storm water run-on. Furthermore, the GCL sampling will occur until the GCL moisture content reaches a minimum level of 140% in accordance with ASTM D 5993.

- 4. Resolution of specific items listed in regards to the slimes drain and its ability to dewater the tailings in a timely manner. Specifically addressing the potential for clogging the slimes drain during the impoundments operation life is also an important item that must not be omitted in the design.*

DUSA has revised the attached Slimes Drain Design calculation package, which provides analyses and discussions related to the design of the slimes drain system. The historical ore grinding reports have been included to demonstrate the anticipated gradation of the tailings materials, which were used to estimate a geomean saturated hydraulic conductivity. The hydraulic conductivity of the tailings is anticipated to be greater than compacted soils as the tailings will be deposited within the cell beneath the water level and allowed to settle, with no compactive effort. Two different sources are referenced for the saturated hydraulic conductivity value selected for use in the calculation package. In addition, the total porosity used in the previous calculation package has been changed to a more appropriate drainable porosity, which accounts for liquids that will stay in the soil under gravitational drainage conditions.

The area through which the liquid flow will pass (strip composite width) has been reduced from 50 feet to 1.17 feet (accounts for two sides and top of the strip composite, 14"), as identified by URS in Interrogatory No. 7.

Clogging potential of the strip composite has been evaluated based on the geotextile component of the strip composite and the tailings material. DUSA does not believe that the tailings will exhibit dispersive characteristics. By definition, dispersive clays are, according to ASTM D 4221, soils that are usually high in adsorbed sodium and that disperse (deflocculate) easily and rapidly in water of low salt content. The following are reasons that DUSA believes that the tailings will not behave as dispersive clay.

1. The tailings materials are primarily sandstones, which do not have an appreciable clay fraction, that are ground to a minus 30 US sieve size (-28 mesh). This grinding process creates finer materials, which are mechanically reduced particles of sands and silts.
2. The ground ore is batch processed through an acid wash which will remove sodium in the ore matrix.

3. The tailings will be emplaced within the cell beneath the fluid level and allowed to settle through the fluid. This process will allow the silt fraction, and any small amount of clay fraction present, to settle in a non-flocculated manner.
4. The slimes drain system will not be activated until the cell is completely full of tailings, long after the tailings materials have settled in the cell and become stable under the overlying normal stress.

If you have any additional questions please feel free to contact me at (303) 389-4160.

Yours very truly,

**DENISON MINES (USA) CORP.**



Harold R. Roberts  
Executive Vice President – U.S. Operations

cc: Ron F. Hochstein, DUSA  
Steve D. Landau, DUSA  
Gregory T. Corcoran, Geosyntec