

20 September 2007

Mr. Dane Finerfrock  
Executive Secretary  
Utah Radiation Control Board  
State of Utah Department of Environmental Quality  
168 North 1950 West  
P.O. Box 144850  
Salt Lake City, UT 84114-4850

**Subject:                   Geosynthetic Clay Liner Hydration Demonstration  
Letter Report  
Denison Mines Corporation  
White Mesa Mill, Cell 4A  
Blanding, Utah**

Dear Mr. Finerfrock,

Geosyntec Consultants (Geosyntec) is pleased to submit to the Utah Department of Environmental Quality (UDEQ), on behalf of Denison Mines (USA) Corp (DMC), this letter responding to comments provided in a letter dated 18 September 2007 from Mr. David A. Rupp of UDEQ to Mr. Harold R. Roberts of DMC. For ease of review, the UDEQ comments are repeated below in italics with DMC's responses following each comment.

- 1. The specifications be revised for wetting and covering the GCL with the FML expeditiously to avoid evaporation losses.*

The attached specifications have been updated.

- 2. Consideration be given to adjusting the amount of water to be used to hydrate the GCL and subgrade, considering evaporation as noted above, as well as subgrade soil suction, per the enclosed article by Daniel, Shan, and Anderson. In the FD-3 demonstration, water losses (using the direct watering method to the GCL) appear to have been experienced, i.e. the hydration may have been lower than anticipated, from the amount of water added. Also, in the FD-3 field test, the subgrade appears it may have been pre-hydrated as well, from the effects of the pre-hydrating the subgrade in the FD-2 field test.*

As identified in Table 2 of the UDEQ referenced article by Daniel, et. al. ("Effects of Partial Wetting on the Performance of Bentonite Component of a Geosynthetic Clay Liner", 1993), the water content of the bentonite at vapor equilibrium would be expected

to be approximately 101%. Based on this article, a water content of 145% could be attained by direct soaking and adding a compressive stress of 14 kPa. Since the application for DMC Cell 4A has no compressive stress, the approximate 98% moisture contents observed in Field Demonstration 3 (FD-3) appears to comply with the water content - suction relationship. Based on this information, DMC does not believe that the underlying soil subgrade reduced the moisture content of the GCL.

In addition, given the short duration of FD-3 (1 day), DMC does not believe that the hydration of the subgrade soils impacted the FD-3 testing, as the one week sample from soil subgrade hydration alone increased the moisture content of the GCL by approximately 12% (26% - 14% dry GCL).

Lastly, the Daniel, et. al. article indicates that soil with a suction of greater than 15 bars would not support vegetation, but would still result in a bentonite moisture content of approximately 50%. Soils on the site were supporting vegetation prior to beginning construction of the re-lining project (vegetation has been stripped and removed) and will be moisture conditioned for dust control during construction, which based on Daniel, et. al., will result in moisture contents of between 50% and 100%.

Therefore, DMC proposes to wet the top surface of the GCL using the same methodology as in FD-3. This methodology will result in GCL moisture contents greater than 50%.

- 3. As per item 7 of our email to Greg Corcoran of Geosyntec from Loren Morton of DRC dated September 4, 2007, please provide the lab data used in making the permeability vs. time and pore volume graphs for the four MCs tested. Any additional completed lab data since the report submission is also requested.*

Laboratory data is attached, along with the final report on the permeability testing performed by TRI Environmental.

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If you have any questions or require additional information, please contact the undersigned at (858) 674-6559.

Sincerely,

Gregory T. Corcoran, PE  
Principal Engineer

Revised Technical Specifications

Attachments: Letter Report from TRI Environmental, Inc. dated 19 September 2007

Geosynthetic Clay Liner Permeability Data

Copies to: Harold R. Roberts – DMC

David A. Rupp, P.E. – Utah Department of Environmental Quality

