

October 26, 2005

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Manager, Mining, Geotechnical, and Facility Engineering
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Subject: Intermediate Milestone No. 20.06002.01.342.510, "Structural Performance of Drip Shield Subjected to Static and Dynamic Loading."

Dear Dr. Chowdhury,

We have received and reviewed the subject Intermediate Milestone Report "Structural Performance of Drip Shield Subjected to Static and Dynamic Loading." The report presents the Center for Nuclear Waste Regulatory Analyses (CNWRA hereafter Center) staff analyses of the United States Department of Energy's (DOE's) conceptual design of the drip shield. Per DOE design assumptions, the drip shield is intended to protect the waste package from static and dynamic loads due to accumulated rock rubble from gradual drift degradation and rockfall, in addition to preventing dripping water from contacting the waste package.

The report discusses the structural evaluation of the drip shield for two load cases: (1) static condition of the rubble around the drip shield; and (2) dynamic behavior of the drip shield under a seismic event. The structural evaluation is performed using a simplified frame model (SAP2000 Code), with input from a finite-element model (ABAQUS Code). A range of possible loading conditions are analyzed. Results show that the drip shield as designed, and under the assumptions made in the simplified analyses, may not be able to maintain its configuration for the loadings evaluated in the report.

The U.S. Nuclear Regulatory Commission (NRC) staff comments on the subject report were discussed in detail with the Center staff during a meeting at the NRC office on October 11, 12 and 13, 2005. The general approach to solving this complex problem and the associated simplifying assumptions are in accordance with the guidance provided to you during NRC staff visit to the Center in May 2005. General and specific comments on the subject report are attached to this letter. The subject report fulfills the contractual obligations for this intermediate milestone.

A. Chowdhury

If you have any questions regarding the contents of this letter, you may contact me at (301) 415-6695 or via e-mail msn1@nrc.gov. Some minor revisions to the report may be necessary to address the staff comments found in the attachment, however, no written response to this letter is required.

Sincerely.

/RA/

Mysore Nataraja,
Project Officer

Enclosure: Comments on CNWRA Report "Structural Performance of Drip Shield Subjected to Static and Dynamic Loading," (IM 20.06002.01.342.510 dated September 2005)

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