May 30, 2008

Mr. Bryan C. Bower, Director
West Valley Demonstration Project
U.S. Department of Energy
10282 Rock Springs Road
West Valley, NY 14171-9799

SUBJECT: ADDITIONAL U.S. NUCLEAR REGULATORY COMMISSION STAFF REVIEW OF THE COVER DESIGN FOR THE NUCLEAR REGULATORY COMMISSION LICENSED DISPOSAL AREA AT WEST VALLEY, NEW YORK

Dear Mr. Bower:

By letter dated November 9, 2007, the U.S. Department of Energy (DOE) transmitted "U.S. Department of Energy Supplemental Responses to U. S. Nuclear Regulatory Commission [NRC] Comments on 30% Design for the Nuclear Regulatory Commission Licensed Disposal Area [NDA] Cap and Slurry Wall." The NRC staff reviewed those responses, and indicated in a letter dated March 6, 2008, that the proposed design adequately addressed those previous NRC comments.

On April 24, 2008, the NRC staff attended a pre-construction meeting regarding the construction of the NDA cap. At that meeting, the staff was made aware of some of the construction specifications and quality assurance (QA) and quality control (QC) procedures that would be implemented during construction of the cover. During the morning of April 24, 2008, the staff also participated in a site visit to the NDA cap area to evaluate current conditions in that area.

Based on the site visit to the NDA cap area and review of the current construction documents, the staff considers that some improvements can be made to the construction specifications and the construction of the erosion protection layers. Although the staff considers that there are no imminent risks or hazards posed by the current design, there are several prudent measures than can be taken to enhance the performance of the facility. These measures and suggestions for improvement were discussed with DOE in a brief meeting following the pre-construction meeting. Those suggestions included the following:

1. Rock Quality. The current specifications for rock quality appear to require only that the rock have specific gravity of 2.5 or greater. In general, this may not assure that the rock is acceptable, because some rocks of poor quality can have a specific gravity of 2.5 or greater. The construction specifications should include some other minimum requirements. For example, additional tests such as L.A. Abrasion, absorption, and the Schmidt Hammer could be included in a suite of tests to evaluate rock quality. The NRC staff has developed such a suite of tests to assess rock quality, and the recommended testing program can be found in Appendix D of NUREG-1623, "Design of Erosion Protection for Long-Term Stabilization." Although DOE is under no obligation to follow this procedure, the staff considers that it would significantly improve the currently-proposed single specific gravity test.

2. Rock Placement. It is our understanding that rock placement will be done in accordance with a standard specification (NYSDOT Section 620). Although such specifications can produce excellent results, the NRC staff noted during the NDA cap site visit on April 24, 2008, that the current placement of the rock in the drainage channels is relatively poor. Although it is not clear if Section 620 specifications were used to place the existing rock, the rock appeared to be placed in a manner where proper thickness and gradation were not achieved. Since it is our understanding that the new riprap will be tied into the old channel riprap, the staff concludes that additional measures should be taken to assure that the new rocks are placed properly, and that the older rocks are re-evaluated to determine the thickness and gradation of the layers.

   DOE has considerable experience with the placement of riprap and has used the guidance in Appendix F of NUREG-1623 on many occasions to develop QA/QC programs for rock placement. The NRC staff suggests that DOE adopt similar detailed guidance to develop construction specifications for execution and verification of rock placement.

3. Rock Gradations and Gradation Testing. It appears that construction specifications for the gradations of the 12-inch and 18-inch rock have not yet been developed. The staff suggests that this be done and that the gradation bands reflect that the 12-inch and 18-inch sizes are the minimum D_{50}s of the gradation. Guidance for typical gradations may be found in NUREG-1623.

4. Suggestions for Flood Protection. During the site visit on April 24, 2008, the staff noted the close proximity of Erdman Brook to the area where new rock will be placed. Based on those observations and review of the construction drawings, it appears that the rock layers will terminate on a relatively steep slope and that the slope may be subject to scour and under-mining by floods in Erdman Brook. The staff suggests that the rock size at the end of the channel/slope be checked to determine its adequacy for floods in Erdman Brook. Further, it may be useful to terminate the rock slope with an apron or toe which could be extended onto more level ground. Guidance for design of aprons and toes may be found in NUREG-1623.

If you have any questions, please contact me at (301) 415-7295, or Mr. Chad Glenn of my staff at (301) 415-6722 or via email at chad.glenn@nrc.gov.

Sincerely,

/***RA, by RTadesse for/***

Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

cc: G. Baker, NYSDOH
P. Bembia, NYSERDA
P. Giardina, USEPA
M. John, Seneca Nation of Indians
T. Rice, NYSDEC

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