January 29, 2014

Ms. Moira Maloney
West Valley Demonstration Project
U.S. Department of Energy
10282 Rock Springs Road
West Valley, NY 14171-9799

SUBJECT U.S. DEPARTMENT OF ENERGY WEST VALLEY DEMONSTRATION PROJECT TRANSMITTAL OF RADIOLOGICAL CHARACTERIZATION REPORT FOR THE HIGH LEVEL WASTE CANISTER INTERIM STORAGE AREA (TASK ORDER 4); AND RADIOLOGICAL CHARACTERIZATION REPORT FOR THE BALANCE OF SITE FACILITIES (TASK ORDER 5)

Dear Ms. Maloney:

In August 2013, the U.S. Department of Energy (DOE) West Valley Demonstration Project (WVDP) transmitted the subject reports to the U.S. Nuclear Regulatory Commission (NRC) for information purposes and to partially fulfill requirements of the Phase 1 Decommissioning Plan for the WVDP. NRC staff has reviewed these documents (Accession Number ML13239A227) and provides the enclosed comments for DOE's consideration.

NRC staff reviewed the radiological characterization reports (RCRs) to assess their consistency with the Phase 1 Characterization Sampling and Analysis Plan (CSAP) for the WVDP. The staff noted potential discrepancies from the CSAP, and these are discussed further in the comments attached to this letter. The staff also noted that, while there was some discussion of Final Status Surveys (FSSs) in the RCRs, the characterization survey methodologies and sampling frequencies did not appear to be intended for FSS purposes. Additional sampling and analyses would be required to meet the rigor of FSS.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of ADAMS. ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

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

Sincerely,

/RA/

Michael Norato, Ph.D. Chief
Materials Decommissioning Branch
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Enclosure:
NRC Comments on DOE RCRs

cc: Bryan Bower (DOE)
Paul Bembia (NYSERDA)

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U.S. Nuclear Regulatory Commission Staff Comments on U.S. Department of Energy/West Valley Demonstration Project Radiological Characterization Report for the High Level Waste Canister Interim Storage Area (Task Order 4); and Radiological Characterization Report for the Balance of Site Facilities (Task Order 5)

1. It appears that some biased soil samples from the Characterization Reports were taken only as single samples (to 1 m depth) as opposed to 2 samples (one sample to 15 cm and another from 15 cm to 1m). Section 6.5 (Determine Extent of Surface Soil Contamination) of the Characterization Sampling and Analysis Plan (CSAP) states that "In general (with the exception of sampling from wetlands in response to GWS inaccessibility), two samples will be collected from each location, one representative of a 0- to 15-cm depth, and one representative of a 15-cm to 1-m depth. The purpose of the 0-to 15-cm sample is to address the concern that elevated contamination levels may be limited to the immediate surface and exist at levels that would cause direct exposure dose issues, but that would be diluted by a 0- to 1-m depth sampling protocol. The purpose of the 15-cm to 1-m depth sample is to provide data that can be combined with data from the 0- to 15-cm interval to construct activity concentrations representative of, and comparable, to the surface soil CG_w definition."

2. From the Characterization Reports, it does not appear that a down-hole gamma scan was performed every time a soil core was taken. Of the down-hole core samples taken, some were taken in 6" increments, while others were taken in 12" increments. Section 6.6 (Identify the Presence/Absence of Subsurface Soil Contamination) of the CSAP states that "When soil cores are used for sample collection (either specifically for subsurface contamination characterization or as part of surface soil characterization work), a down-hole gamma scan will be conducted by using an appropriate NaI detector (e.g., a 1 in. × 1 in. NaI detector with shielding to control gamma flux through the top and bottom of the detector). Biased samples will be collected from specific subsurface soil intervals that exhibit the most elevated gross activity levels based on the down-hole gamma scan data."

3. It was not clear that the location, number, and depth of background borehole gamma logs were consistent with the CSAP. According to CSAP Section 8.2 (Background Soil Sample Reference Data Collection) "Four soil cores will be obtained from within the reference area to a depth of at least 1 m into the Lavery Till. The locations of the soil cores will be selected so that they are representative of four quadrants within the reference area. The soil cores will be retrieved in a manner that allows retrieval of intact cores and down-hole gamma scans by using a suitable detector. Down-hole gamma scans will be conducted by taking a 30-second static reading at 15-cm intervals down-hole. Data will be recorded in electronic spreadsheets in a fashion that clearly identifies the detector type and identifier, the location of the core, the depth of the reading, and gross counts in counts per minute. Soil cores will also be scanned ex situ with a suitable detector. As part of this work, the soil type will be recorded for the length of the soil core along with soil moisture estimates."

4. It was noted in the Phase 1 Final Status Survey Plan (FSSP) for the West Valley Demonstration Project that "…the CSAP has been developed so that data generated by the CSAP, when appropriate, meet the data quality objectives (DQOs) specified by

this FSSP," and that "the intent is that data associated with the CSAP, if collected consistent with FSSP protocols and data quality standards, can potentially be used for FSS purposes if contamination levels requiring remediation are not identified." The Task 4 and 5 Characterization Reports were reviewed in light of the potential to use results for FSS purposes. It appears that the goal of the characterization data provided was not to act as a FSS, but rather to primarily perform characterization or remedial action support surveys. The staff also noted that the Characterization Reports did not define survey units for FSS or determine a required number of systematic samples. Section 1.2 (Project Description) of Task Order 5 does indicate that "The SEC sampling team will perform the Remedial Action Surveys. After the completion of the Remedial Action Surveys, SEC may also be required to perform Phase I Final Status Surveys (FSSs) in accordance with the Final Status Survey Plan (FSSP)." Per commitments in the Phase 1 Decommissioning Plan the U.S. Department of Energy should notify the U.S. Nuclear Regulatory Commission prior to beginning Phase 1 Final Status Surveys.