

June 30, 2015

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

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION COMMENTS ON U.S.
DEPARTMENT OF ENERGY WEST VALLEY DEMONSTRATION PROJECT
RADIOLOGICAL SOIL CHARACTERIZATION REPORTS FOR PORTIONS OF
THE WEST VALLEY DEMONSTRATION PROJECT

Dear Mr. Bower:

The U.S. Nuclear Regulatory Commission (NRC) is responding to the U.S. Department of Energy's (DOE) February 3, 2015, transmittal of four final reports documenting radiological soil characterization in portions of the West Valley Demonstration Project (ADAMS Accession No. ML15042A500). The NRC reviewed these reports and offers the enclosed comments and questions for DOE's consideration.

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 NRC's ADAMS. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

If you have any questions or need any additional information regarding our comments, please contact Ms. Amy Snyder at 301-415-6822.

Sincerely,
R/A

Michael A. Norato, Ph.D., Chief
Materials Decommissioning Branch
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Materials Safety
and Safeguards

Enclosure:
NRC Questions/Comments
cc:
P. J. Bembia, NYSERDA

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**U.S. Nuclear Regulatory Commission's Comments on the U.S. Department of Energy's
West Valley Demonstration Project Radiological Characterization Report for the High
Level Waste Canister Interim Storage Area, Rev. 1, Dated April 4, 2014**

1. Page 2-13, the report states that "... thorium-232 results were inferred from the gamma spectroscopy results for radium-228 and therefore, these two radionuclides are the same." To make such an inference, were any other analyses or evaluations performed to determine that secular equilibrium applies to these disturbed soils or establish that such a relationship is appropriate? We understand that the purpose of the characterization that the U.S. Department of Energy-West Valley (DOE-WV) is conducting now is to support remedial action surveys and final status surveys. However, it is important to understand that for final status surveys, the NRC expects that such a justification is either included or referenced in the final status survey report for the survey unit.
2. In the Executive Summary of the report it states that "... the area was considered a Multi-Agency Radiological Site Survey and Investigation Manual (MARSSIM) (EPA2000) Class I Area, or impacted area." In Section 2.1 page 2-1, the report states that "SEC [Safety and Ecology Corporation] performed a GWS [gamma walkover survey] of 100% of the accessible area of ground surface formed after excavation in the HLW Canister Interim Storage Area was completed with a FIDLER detector. The entire survey unit is 4,485 square meters (m²) and 3,234 m² were surveyed" [clarifying text added]. Please explain why the entire 4,485 m² storage area was considered as a single class 1 survey unit instead of two survey units since the maximum area recommended for land areas in Section 4.6 of MARSSIM is 2000 m²? What are the impacts, if any, with regard to the data evaluation?
3. The report states that Field Instrument for the Detection of Low-Energy Radiation (FIDLER) detectors were used for the gamma walkover surveys. On page 3-5, the report states that each detector was calibrated in accordance with the manufacturer's specification and SEC's Instrument Quality Assurance Plan, using National Institute of Standards and Technology (NIST)-traceable standards." Also, on page 4-1 of the Field Sampling Plan, it states in Section 4.1 that the gamma walk over surveys "will be used to determine areas that are not consistent with background conditions." What energy range or specific radionuclide source(s) was used to calibrate the FIDLER detectors? Were these detectors calibrated in an appropriate energy range so that the instrument could be used to guide the biased soil sampling? When using the FIDLER to detect areas not consistent with background, what Scan Minimum Detectable Concentration (MDC) was used to determine a need for collection of a soil sample and why?
4. In Section 2.2.1 of the report it states that "When systematic sampling is performed, one sample per 200 m² area will be collected to a depth of 15 cm and submitted for analysis in accordance with the CSAP". What is the basis for the sampling frequency sample per 200 m² and how will the sample results contribute to meeting the objective of the characterization as stated in the Section 1.2 of the report? How will the data from such samples be used with regard to remediation and final status survey? Does DOE plan on performing further characterization in this area?

Enclosure

5. In the Executive Summary of the report it states that radioactive contamination was found approximately 7ft below the original ground surface in the HLW Canister Interim Storage and was removed as practical using gamma radiation measurement to guide the excavation. Also, the report states that "Some of the contamination was spread to the spoils pile before it could be detected during the gamma walkover survey on the spoil pile. The contamination on the spoils pile was removed using the gamma walk over survey data as a guide. Contamination detectable by surveying for gamma radiation was removed. No soil samples were collected. It is reasonable to suspect that some contamination above background remains." Further on page 2-3, the report states that "No soil sampling was performed to verify that the contaminated material was removed because laboratory results could not be obtained immediately and further excavation and deposition on the spoils pile could not cease due to work scheduling needs." What are DOE's plans regarding further characterization of the spoils and what controls are in place to prevent spread of contamination due from potentially contaminated spoils?
6. DOE stated in response to NRC comment # 14 on DOE's "Technical Evaluation Report for Phase I Decommissioning Plan for the West Valley Demonstration Project," dated June 3, 2010, that "The Phase 1 DP has provisions for performing a final dose assessment for the residual radioactivity remaining in WMA 1 and WMA 2 excavations using final status survey data." Since no gamma scans or soil samples were performed on its side walls of the excavation where the HLW Canister Interim Storage Pad is now located, and no subsurface soil Derived Concentration Guidelines Levels (DCGLs) have been developed, what are DOE's plans with regard to any further characterization to support a final status survey or performance of a final status survey for any residual radioactivity remaining under the HLW Canister Interim storage pad and sides of the excavation?

U.S. Nuclear Regulatory Commission's Comments on the U.S. Department of Energy's West Valley Demonstration Project Radiological Characterization Report for the Balance of Site Facilities (BOSF), Rev. 3, Dated July 2014

1. Although we understand that the Balance of Site Facilities (BOSF) Radiological Characterization Report is a living document that will be updated periodically to document the remedial action surveys that are performed as BOSFs are removed from the West Valley Demonstration Project, it is unclear why the report does not identify MARSSIM classifications for the survey units in locations where samples were collected as does the Radiological Characterization Report for the High Level Waste Canister Interim Storage Area.
2. In the Executive Summary of the report, it states that "This report is a living document because the BOSF will be removed at various times during the life of this project. Attachments will be added to this report when characterization is completed on a specific BOSF." Does "complete" mean that no additional characterization will be conducted in the specific BOSF that has been added to the attachment to this report? What are DOE's plans to perform remediation, if applicable? In cases where remediation is necessary, usually remedial action surveys are conducted to determine the effectiveness

of the remediation. We recommend that such data should also be included in the appropriate attachment of this report. In cases where DOE believes that characterization is complete and no remediation or no further remediation is necessary, what are DOE's plans for final status surveys in such BOSFs? For those BOSFs with characterization data that show for each survey unit that the individual data points are below the DCGL, what controls does DOE have in place to ensure that such BOSFs will not be cross contaminated while other parts of the site are in active decommissioning?