October 16, 2009

MEMORANDUM TO: Rebecca Tadesse, Branch Chief
Decommissioning and Uranium Recovery
Licensing Directorate
Materials Decommissioning Branch
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

FROM: Chad Glenn, Senior Project Manager **/RA/**
Decommissioning and Uranium Recovery
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SUBJECT: PUBLIC MEETING SUMMARY

On September 2, 2009, representatives of the U.S. Nuclear Regulatory Commission (NRC), U.S. Department of Energy (DOE), and other interested parties met in Rockville, Maryland. The purpose of the meeting was to discuss two follow up items from a previous meeting related to NRC's request for additional information based on its review of the DOE West Valley Demonstration Project Phase 1 Decommissioning Plan. The meeting report is enclosed and is also available on the NRC website: http://www.nrc.gov/about-nrc/regulatory/decommissioning/public-involve.html.

Docket No.: P-32
Enclosure: Meeting Report

CONTACT: Chad Glenn, FSME/DWMEP
(301) 415-6722

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OFFICE	DWMEP	DWMEP	DWMEP	DWMEP
NAME	CGlenn	AWalkerSmith	JHayes for RTadesse	CGlenn
DATE	10/16/09	10/16/09	10/16/09	10/16/09

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Meeting Report

September 2, 2009 Department of Energy - Nuclear Regulatory Commission Meeting Proposed Approach for Responding to NRC Request for Additional Information on West Valley Demonstration Project Phase 1 Decommissioning Plan

Introduction:

On September 2, 2009, the U.S. Department of Energy (DOE) and U.S. Nuclear Regulatory Commission (NRC) met to discuss two follow up items from the June 15, 2009, meeting (ML092040038) concerning DOE's proposed approach for responding to NRC's request for additional information (RAI) on the West Valley Demonstration Project (WVDP) Phase 1 Decommissioning Plan (DP).

In addition to DOE and NRC staff, meeting attendees included representatives of the New York State Energy Research and Development Authority (NYSERDA), New York State Department of Environmental Conservation (NYSDEC), U.S. Environmental Protection Agency (EPA), West Valley Citizens Task Force (WVCTF) and Nuclear Information and Resource Service (NIRS). The meeting notice and agenda (ML092220412), presentation material for composite sampling and probabilistic uncertainty analysis (ML092400256 and ML092400251), and list of attendees (ML092470226) are available in NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

Discussion:

The technical discussion addressed two topics (1) DOE's proposed composite sampling approach for WVDP Phase 1 Final Status Survey (FSS) work, and (2) results of DOE's probabilistic uncertainty analysis to evaluate conservatism in input parameters used to develop deterministic surface soil, sub-surface soil, and streambed sediment Derived Concentration Guideline Levels (DCGLs).

Significant Discussion Points:

1. DOE's Proposed Composite Sampling Approach for WVDP Phase 1 FSS

   - DOE presented an overview of their composite sampling approach and noted that some WVDP radionuclides are not amenable to scanning technologies so soil sampling will be required to demonstrate compliance with cleanup criteria. In this overview, DOE explained that composite sampling is the collection of soils from physically separate locations and forming one homogenized sample that is submitted for analysis. This overview also compared composite sampling with discrete sampling and concluded that composite sampling out-performs discrete sampling, and composite sampling is generally more effective in identifying "hot spots".

NRC Questions/Comments

- Given that surface soil normally refers to soils between the ground surface and a depth of 15 centimeters (cm), NRC asked if composite samples for surface soil would be collected in the top 15 cm of soil. DOE responded that surface soil for the WVDP DP refers to soil between the surface and a depth of 1 meter (m). DOE added that composite sampling for surface soils would involve two rounds of sampling (first round would collect soils between 0-15 cm, and second round would collect soils between 0-1 m). DOE indicated that the purpose of the first round of sampling is to make sure contamination in the top 15 cm of soil is not missed, and the purpose of the second round of sampling is for comparison with the surface soil (0 -1 m) DCGL.

- NRC asked how DOE would decide on the area for evaluation of potential "hot spots". DOE responded that they would use historical information, if available (e.g., known area of contamination). If this information is not available, DOE would rely on Characterization Sampling and Analysis Plan (CSAP) information (systematic sampling coupled with biased sampling).

- NRC raised a concern on whether or not the DOE detection equipment had the necessary sensitivity to detect the specific radionuclides, especially the Hard-to-Detect radionuclides at required levels. Specifically, the NRC is concerned that composite sampling and handling, and lab processes will dilute hot spots and reduce the effectiveness of the measurements. NRC noted that the presentation information provided was conceptual and that the NRC would require a technical justification to validate DOE's view that composite sampling was not only adequate but an improved methodology.

- NRC asked if DOE expects to submit the CSAP in December 2009 as previously indicated. DOE responded that the CSAP is a separate document, which is not part of the Phase 1 DP, and it is expected to be submitted in December 2009.

2. Results of DOE's Probabilistic Uncertainty Analysis

- DOE provided an update on additional dose modeling conducted to respond to NRC RAIs and to otherwise support development of DCGLs for proposed Phase 1 decommissioning. Additional modeling included probabilistic uncertainty analysis, evaluation of additional exposure scenarios, and additional groundwater modeling to verify RESRAD assumptions and/or to estimate risk to potential receptors from residual groundwater contamination at depth. In general, probabilistic peak-of-the-mean DCGLs are lower (more limiting) then deterministic DCGLs, the resident gardener scenario is more limiting then the resident farmer for some radionuclides (subsurface DCGLs only), and consideration of diffusion of residual subsurface contamination into the sand and gravel would lead to more restrictive DCGLs for certain radionuclides (details to be included in a future DOE submittal). DOE will modify its DCGLs to ensure the most limiting DCGL is selected for each radionuclide and media type based on the results of the updated modeling.

NRC Questions/Comments

- NRC asked for additional information on the technical details related to the onsite and offsite erosion scenarios including the assumed geometry of an onsite gully, erosion rates, and evaluation time**.** DOE also clarified the basis for the location of the offsite receptor on Cattaraugus Creek, which would lead to an approximate order of magnitude decrease in dose compared to a potential receptor located on Buttermilk Creek.[1] As long as the calculated DCGLs for an offsite receptor located on Cattaraugus Creek are at least one order of magnitude higher then they are for other scenarios, then a Buttermilk Creek receptor would likewise be less limiting.

- NRC asked for clarification on water balance assumptions (i.e., infiltration rate assumptions) for the purpose of back-calculating runoff and evapotranspiration coefficients for use in dose modeling.

- In response to NRC's inquiry, DOE indicated that it had attempted to develop radionuclide-specific shielding factors for those radionuclides whose risk is dominated by the external dose pathway.

- NRC inquired about treatment of daughter product Kd uncertainty in the probabilistic assessment. NRC recommends that site-specific information be used to develop parameter distributions for daughter products (in lieu of generic literature values), when available. Although screening analysis results indicate the low risk-significance of daughter products, the screening analysis may not have considered site-specific information or may not have considered uncertainty in transport parameters, thereby potentially underestimating the potential risk-significance of daughter products.

- NRC recommended that the most up-to-date information on bioaccumulation or transfer factors be considered as this information becomes available (update to IAEA's TRS-364) to provide the best estimates and/or constrain uncertainty in dose predictions in the probabilistic analysis.

- NRC inquired if detailed information on parameter distributions and assumed parameter correlations would be provided in the revised DP. DOE indicated that this information would be provided.

- NRC inquired about parameters included in Table 5C21-1 in the Group 1 RAI responses and asked DOE to check for discrepancies in calculated and specified parameters in the table. NRC also noted that transparency could be increased with respect to the approach used to fix the sub-model within the RESRAD non-dispersion model and associated dilution factors based on results of more sophisticated STOMP modeling performed in response to NRC comment.

[1] Buttermilk Creek is located on the WNYNSC property but off the DOE project premises. The intent of NRC's RAIs requesting evaluation of an "offsite" receptor was to provide support that potential surface water receptors located downgradient from West Valley source areas were afforded a similar (or greater) level of protection.

Action Items:

There were no follow-up actions identified in this meeting.

Observer Comments/Questions and Responses:

WVCTF

- If Phase 1 cleanup is later found to result in a higher than expected dose, how would this affect the dose for Phase 2? NRC stated that there is always some uncertainty so this outcome is possible. NRC added that DOE is aware of this possibility and potential risk/need for further remediation of Phase 1 areas, or some adjustment in the cleanup level for Phase 2 to meet the dose requirement for the NRC-licensed site.

NIRS

- How did the recent precipitation event and related flooding and erosion compare with DOE current site models and did it raise concerns that models need to be changed? DOE responded that this event would not trigger changes to models related to work on the North Plateau. DOE and NYSDERDA added that they will continue to monitor such events and consider potential changes to site models when appropriate.

- Will monitoring be limited to Phase 1 DP or broader? DOE responded that sampling and monitoring is broader and captures the entire site.

NYSERDA

- In the CSAP, has any thought been given to sampling at various depths to confirm or modify the current assumption regarding residual contamination being located at 0-15 cm and 0-1 m? For example, what kind of sampling will be performed relative to the H-pilings at the bottom of Waste Management Area 1 excavations- how will the presence of a preferential pathway be confirmed to exist or not?