March 15, 2011

NOTE TO: File

FROM: James Shaffner, Project Manager **/RA/**
Low-Level Waste Branch
Environmental Protection
and Performance Assessment Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Program

SUBJECT: SUMMARY OF TELECONFERENCE BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION STAFF AND THE U.S. DEPARTMENT OF ENERGY REPRESENTATIVES CONCERNING REQUESTS FOR ADDITIONAL INFORMATION PERTAINING TO THE DRAFT WASTE DETERMINATION AND RELATED PERFORMANCE ASSESSMENT RELATED TO THE CLOSURE OF THE F AREA TANK FARM AT THE SAVANNAH RIVER SITE

On February 17, 2011, the U.S. Nuclear Regulatory Commission (NRC) staff convened a meeting between the U.S. Department of Energy (DOE) technical staff and contractors to afford DOE an opportunity to better understand the bases for NRC requests for additional information related to the draft basis document and related performance assessment in support of the closure of F Area Tank Farm at the Savannah River Site. This was the fifth of a series of such meetings scheduled on successive Thursdays through February 24, 2011.

Meeting Participants are included in Enclosure 1; Summary of discussion is included in Enclosure 2. Enclosure 3 is a draft Users Manual for FTF Open Items Database prepared by NRC staff to facilitate discussions related to DOE reply to RAIs.

Enclosures: As stated

Project No.: PROJ0734

cc: D. Watters, USECOE
M.Varga, SCDHEC

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List of Participants
Teleconference with the U.S. Department of Energy Staff
Re: Savannah River Site, F Area Tank Farm

February 17, 2011

Participant	Affiliation
Sherri Ross	DOE Savannah River (DOE-SR)
Ginger Dickert	Savannah River Remediation (SRR)
Steven Thomas	SRR
Larry Romanowski	SRR
Rana O'Bryant	SRR
Mark Layton	SRR
Cynthia Barr	NRC
Christopher Grossman	NRC
Leah Spradley	NRC
James Shaffner	NRC
George Alexander	NRC
Gregory Suber	NRC
Lane Howard	Center for Nuclear Waste Regulatory Analysis (CNWRA)
Roberto Pabalan	CNWRA
Mary Varga	South Carolina Department of Health and Environmental Conservation (SCDHEC)
Dave Watters	U.S. Army Corps of Engineers - EPA Consultant

Meeting Summary

Public Technical Exchange between the U.S. Nuclear Regulatory Commission and The U.S. Department of Energy

February 17, 2011
1-2 p.m.

After introduction of participants, both U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE) staff offered brief opening remarks affirming the purpose and desired outcome of the technical exchanges.

Discussion centered around the contents of a User's Manual for FTF Open Items Database (Manual) prepared by NRC staff to identify areas where the basecase and probabilistic models could be further supported and to facilitate discussions related to DOE responses to the requests for additional information (RAIs) (Enclosure 3).

Sherri Ross reiterated DOE's intention to provide written responses to all NRC RAIs. She stated that DOE is not anticipating the need to rerun the basecase. Ms. Ross stated that the basecase does not include uncertainty and variability; the base case is DOE's best estimate regarding the nominal performance of the overall system. The probabilistic GoldSim model accounts for uncertainty and variability in the basecase estimate. Similar to the executive summary NRC developed for the RAI package, DOE stated that it intends to discuss its modeling approach (use of deterministic and probabilistic models as part of the compliance demonstration) in an executive summary to be included with the RAI responses.

Ginger Dickert indicated that DOE had some questions regarding the prioritization of issues. NRC stated that the issue priority is not based on chronological priority but based on risk-significance as defined in the priority table in the user's manual. Ms. Dickert questioned the large number of high priority issues for which NRC suggested that responses based on experiment and analysis were appropriate. In response, Cynthia Barr noted that several key technical issues were repeated for more than one radionuclide, so that, in some cases, a single analysis strategy may be able to be used to address multiple issues. For example, experiments might be grouped in four key areas as defined on the last page of the Manual and address many of NRC's higher priority issues. NRC also indicated that some issues might be closed with just one approach while several potential recommendations may have been provided. In other cases, for more risk-significant issues NRC staff indicated that multiple lines of evidence or support regarding key modeling assumptions may be needed to resolve key technical issues.

Ms. Dickert asked if, based on discussions at last week's technical exchange NRC had changed NRC's preliminary review results. NRC staff indicated that it does not think that its review would have changed significantly based on this information. NRC staff reviewed all of the information in the Performance Assessment (PA), and that while more emphasis may have been placed on the probabilistic modeling, that high-level comments regarding the probabilistic model were included in NRC's RAIs. NRC staff thinks that additional information needs to be provided by DOE regarding why the basecase is the best estimate and most likely scenario. Without this information it is difficult to determine the likelihood of alternative scenarios in the probabilistic

modeling. NRC observed that 6 configurations were evaluated. NRC stated that it was important for DOE to evaluate the highest risk configurations and that the consequences and likelihood of these scenarios was clearly documented to support the compliance demonstration. NRC communicated this high-level comment on the probabilistic modeling in its RAIs, stating that transparent and traceable documentation for the weights or probabilities assigned to individual configurations and key parameters (chemical transition times and solubility limiting phases) was needed. NRC staff also expressed the sentiment that known variability in tank performance or tank characteristics should be captured in the basecase rather than in alternative configurations. NRC cited known groundwater in-leakage of certain Type IV tanks in the zone of water table fluctuation as a simple example of where existing conditions were apparently not captured in the basecase.

NRC indicated that as communicated in the cover letter to the RAIs, that it was not its expectation that DOE would have sufficient time to fully address all of NRC's concerns prior to completion of NRC's TER. It is anticipated that NRC's TER will recognize data gaps and indicate areas where additional support is needed for key modeling assumptions, as well as information (recommendations) regarding how NRC thinks DOE should go about getting the additional support. NRC continues to indicate its intent to assessing compliance during the monitoring period using a graded approach. NRC believes that sufficient time is available to obtain additional support for key modeling assumptions given that we are still in the early stages of FTF closure.

For its part, DOE is still strategizing internally regarding the best way (additional modeling, experiments) to respond to RAI comments. Staff and contractors are still trying to reconcile NRC concerns with assumed base case sensitivities.

Ms. Ross indicated that DOE would provide additional support for its base case and considered the Manual as a useful tool for identifying specific areas where additional support was needed.

She also suggested a "best practice" of providing and agreeing on a table of key assumptions and bases for those assumptions. NRC supports this approach and plans to do the same to ensure that it has not overlooked any information that may address NRC staff's concerns and close out technical issues.

NRC staff expressed concern about the timing of peak doses from Technicium-99 (Tc-99) and Plutonium. If assumptions pertaining to the longevity of engineered barrier are optimistic, then the timing of peak doses could occur earlier than predicted.

DOE continues to believe that both its best estimates analyses of radionuclide inventory and failure mechanisms are supported by the PA, with some of the best estimates potentially being overly conservative. DOE indicated, for example, that the Tc-99 inventory was significantly over-estimated in the basecase based on new information from cleaning the Type I tanks. Further, its assumptions regarding Tc-99 release were overly conservative. NRC staff calculations and independedent modeling indicated that even if one tank were assumed to fail that the doses would still be significantly over the performance objective of 25 mrem/yr. NRC staff stated that additional information regarding the Tc-99 inventory would be helpful, but that NRC still had questions about DOE assumptions regarding whether Tc-99 was bound in the

waste or not. NRC believes that the basecase modeling assumption regarding the ability of the waste form to retain Tc-99 would still need to be supported with additional information.

Ms. Barr stated that relative ease of removing Tc-99 from the tanks suggests that a significant fraction of Tc-99 is not strongly retained by iron co-precipitation. More readily leachable Tc-99 is beneficial from a waste retrieval standpoint; however, it could be offset by a risk to human health due to the high mobility of remaining Tc-99. NRC also stated that any information that DOE could provide to support its statements regarding the conservative nature of Tc-99 waste release would be beneficial. For example, NRC staff developed an RAI regarding consideration of early, partial failures that might provide a more realistic waste release scenario. DOE reiterated that the basecase Tc-99 waste release assumptions contain conservatism and stated that it would provide additional information to clarify why the large doses after year 20,000 reported in the basecase are unlikely to occur.

NRC staff is in the process of preparing graphics regarding relationships of various barriers based on its understanding of DOE's PA, although the information is incomplete as some data gaps communicated in NRC's clarifying comments still exist. DOE requested that NRC provide this information by close of business next Tuesday (02/22/2011) to facilitate discussions of key issues at the next technical exchange. NRC indicated that it would provide what information it could by COB on Tuesday but that it may need to revise the material prior to the meeting. DOE recognized the informal nature of the information and indicated that NRC need not perfect the materials prior to transmittal to DOE.

There was general agreement that additional public technical exchanges may be necessary upon DOE written responses to RAI comments. However, it is premature to schedule a specific date at this time.