February 7, 2011

NOTE TO: File PROJ0734

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

SUBJECT: SUMMARY OF TELECONFERENCE BETWEEN U.S. NUCLEAR REGULATORY COMMISSION STAFF AND 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 January 20, 2011, the U.S. Nuclear Regulatory Commission (NRC) staff convened a meeting between NRC and 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 first of a series of such meetings to occur on successive Thursdays through February 24, 2011.

Meeting Participants are included in Enclosure 1; summary of discussion is included in Enclosure 2.

Docket No.: PROJ0734

Enclosures:
1. Meeting Participants
2. Summary

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DATE	2/1/11	1/25/11	2/2/11	2/7/11

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

January 20, 2011

Participant	Affiliation
Sherri Ross	DOE Savannah River (DOE-SR),
Linda Suttora	DOE Headquarters (DOE-HQ),
Martin Letourneau	DOE-HQ
John Greeves	DOE-HQ Consultant
Ginger Dickert	Savannah River Remediation (SRR)
Steven Thomas	SRR
Larry Romanowski	SRR
Rana O'Bryant	SRR
Mark Layton	SRR
Greg Flach	Savannah River National Laboratory
Cynthia Barr	U.S. Nuclear Regulatory Commission (NRC)
Christopher Grossman	NRC
Leah Spradley	NRC
Gregory Suber	NRC
James Shaffner	NRC
Lane Howard	Center for Nuclear Waste Regulatory Analysis (CNWRA)
Roberto Pabalan	CNWRA
Cynthia Dinwiddie	CNWRA
David Pickett	CNWRA
Xihua He	CNWRA
Biswajit Dasgupta	CNWRA
Martha Berry	U.S. Environmental Protection Agency (EPA)
Dave Waters	U.S. Army Corps of Engineers - EPA Consultant;
Mary Varga	South Carolina Department of Health and Environmental Conservation (SCDHEC)
Scott Simons	SCDHEC

Meeting Summary

Public Technical Exchange Between Nuclear Regulatory Commission and U.S. Department of Energy Staff

January 20, 2011
1-5 p.m.

After introduction of participants, both U.S. Nuclear Regulatory Commission (NRC) and U.S. Department of Energy (DOE) staff offered brief opening remarks affirming the purpose and desired outcome of the technical exchanges. Technical topic areas for this meeting include requests for additional information (RAIs) and Clarifying Comments (CCs) related to removal of highly radioactive radionuclides to the maximum extent practicable (MEP), waste classification (WC), waste determination (WD), inventory (IN), site stability (SS), and near field (NF) considerations.

MEP

Mr. Romanowski discussed five new documents that address various aspects of MEP that are being developed in part to address NRC RAI/comments on the Draft Basis document. The documents were not yet available upon release of the basis document. They include: (i) a technology baseline document, (ii) an MEP process document, (iii) a Tank 18 and 19 MEP report, (iv) a Tank 5 history report, and (v) a tank 6 history report. DOE had several clarifying questions regarding the RAIs and CCs related to MEP. With a few exceptions, NRC and DOE think that many of the RAIs will be addressed by contents of the five documents. NRC indicated that although the information at a high-level seems responsive to NRC RAIs/comments, due to the large amount of material being developed to support the Basis document, NRC staff may have some follow-up questions.

Specific discussions ensued regarding the specific intent of the RAIs and CC and how the issues would be addressed within the new documents or by supplemental information

Status: No further clarification regarding MEP RAIs is required.

WC

DOE had several questions regarding NRC clarifying comments. DOE clarified that it was not intending to provide waste classification information for all tanks and auxiliary components at this time. DOE anticipates meeting Class C criteria but will not know for certain until final characterization is completed for each of the waste tanks and ancillary structures. Regardless, it is DOE's intent, as part of the consultation process on the Draft F Tank Farm (FTF) Basis document, to consult with NRC under National Defense Authorization Act Section 3116(a)(3)(B)(iii) whether or not tanks/components are ultimately determined to be greater or less than Class C,

Status: No further clarification regarding WC CCs is required.

WD

DOE will be providing additional information related to its as low as reasonably achievable demonstration and other information on grouting of in-tank components that may represent fast flow pathways (pipes, voids, etc.) in response to NRC CCs.

Status: No further clarification regarding WD CCs is required.

IN

RAI IN 1 - Regarding Thorium waste inconsistencies between FTF and Saltstone Performance Assessments (PAs). DOE inquired whether NRC was assuming that FTF and H-Tank Farm (HTF) waste streams would be similar. NRC clarified that no such assumption had been made and that the basis for the comment was the fact that it appeared that neither FTF nor the HTF inventory documentation indicated the presence of Th-derived waste and since Saltstone waste is derived from the tank farm waste, NRC staff was requesting information on the genesis of the Th waste in the Saltstone facility to ensure that no risk-significant radionuclide inventories were omitted from the analysis. DOE had previously indicated that Th campaigns had occurred in the HTF and would be reflected in the HTF inventory.

Status: No further clarification is required.

CC IN 1 - Regarding break-out of sampling and measurement uncertainty and the adequacy of inventory uncertainty for Type IV tanks, DOE plans to provide clarifying information regarding what information will be provided in the waste characterization reports. According to DOE, the waste characterization reports will account for the uncertainties associated with sampling, volume, and measurement in inventory development. PA Revision 1 inventories and uncertainties are generally more conservative. Final inventories will eventually replace predictions. NRC suggested that DOE replace or compare Tank 18 and 19 estimates with actual data this is now available in responding to this CC.

Status: No further clarification is required.

CC IN 2 - Regarding Type III tank inventory uncertainties. DOE clarified that the factor 10 increase in the inventory was not applied for these tanks similar to what was done for other tank types as cooling coil configurations allow better access for cleaning. DOE indicated that uncertainties were factored into probabilistic model.

Status: No further clarification is required.

SS

RAI SS 1 - Regarding grout property variation. This was discussed in the context of 61.44. DOE questioned its relevance to the PA. NRC indicated that this issue is a site stability (61.44) issue and not necessarily tied to a PA assumption, although 61.44 considerations are relevant to the 61.41 evaluation (e.g., slumping could lead to enhanced infiltration). DOE agreed to develop an approach to resolve this RAI from a site stability (61.44) standpoint.

Status: No further clarification is required.

RAI SS 2 - Regarding loss of integrity due to seismic event. DOE questioned whether a 1E-06 probability seismic event would need to be considered in the basecase rather in the probabilistic analysis. NRC indicated that lower probability events did not necessarily have to be considered in the basecase provided that there was adequate justification regarding likelihood. NRC indicated that this question was directed at the site stability (61.44) aspects of the seismic analysis, although again 61.41 and 61.44 are related.

Status: DOE understands the concerns in the RAI are from a site stability (61.44) standpoint and would develop an approach to resolve this RAI. This subject of addressing seismic events as part of the base case will be discussed further in the features of events and processes (RAI-PA-2) discussion.

RAI SS 3 - Regarding the impacts of large scale voids on long-term stability. DOE questioned NRC's use of the term "void" and indicated that the soft zones were not voids and contained material that was displaced during grouting. NRC clarified that the term "void" was used in DOE reports and was not an NRC-generated term. DOE questioned whether concerns derived from DOE provided or external reports. NRC indicated that only DOE-generated reports were reviewed and that the basis of the RAIs were indicated in the RAI. NRC indicated that they would provide the document titles for any reports that were relevant that weren't already listed in the RAI. After the meeting, NRC confirmed that the only two DOE-generated reports used to develop RAIs on the calcareous zones were already listed in the RAIs (see for example references associated wjth RAI-FF-1). NRC indicated that the terminology used to describe the zones was not as relevant as the characteristics of the zones and whether these characteristics are adequately represented in the PA modeling (e.g., presence of carbonate, low solids to pore water ratios, high conductivity/porosity).

Status: The void issue will be tabled for Far Field discussion.

NF

DOE and contractors chose to reorder discussion of NF RAIs and CCs in order to "front load' ones where the most questions arose.

RAI NF 6 - Regarding impacts of rebar in modeling in the Type IV waste tanks. DOE asked if the statement on page 180 was the basis for question, since the referenced text on page 180 refers to the Type IV tank grout only, not the tank top/walls. DOE stated that the impact of reinforcing steel on cementitious material degradation and steel liner corrosion was included in the modeling NRC indicated the page 180 text was the basis for the question and indicated that DOE clarifying what was discussed would address this comment.

Status: DOE understands the concern and will clarify ambiguity in the PA in the response.

RAI NF 9 - Regarding release of radionuclides due to transitioning in iron phases. DOE pointed out that the PA has a barrier analysis looking at effect of change in oxidation timing and probabilistic analysis that considers alternative controlling phases. NRC indicated that there appears to be insufficient support for PA modeling assumptions regarding iron co precipitation

of key constituents in the FTF waste and acknowledged DOE's plans to do additional work in this area as indicated in the PA. NRC recommended that NRC and DOE meet again to discuss the types of activities that could be conducted to obtain additional support including waste characterization and leaching tests.

Status: Resolution may require additional characterization and analysis based on consultation among geochemists.

RAI NF 12 - Regarding the use of 40 year old concrete characteristics to extrapolate properties of much older concrete. DOE asked if the RAI concern was with the testing on the concrete or with the applicability of the sample. DOE indicated that the intent was to supplement literature data with site specific data. DOE indicated that aging was accounted for as part of testing. NRC staff indicated that the 40 year concrete would not be representative of older age material. Specifically, the solid phase mineralogy and sorption characteristics of that material would likely be different from that of older concrete.

Status: DOE staff indicated that they would develop an approach to resolve this RAI.

RAI NF 13 - Related to support for longevity of liners. This has implications related to high doses and timing of same. DOE stated the belief that the last paragraph of the basis discussion for this RAI is a misinterpretation of the results. NRC agreed with DOE that other factors contribute to the magnitude of the peak dose. NRC indicated that the paragraph was simply providing risk context (e.g., pointing to cases in DOE's sensitivity analysis where peak doses within certain time periods were clearly correlated to steel liner failure time) and that the paragraph was not the point of the RAI. A lengthy discussion was held regarding steel liner degradation, the work done in the PA to address this issue, and the importance of the liner to the PA results.

Status: Further discussion regarding implications of liner failure and basis for liner longevity was tabled.

RAI NF 14 - Regarding status of basemat bypass. This RAI is related to consideration of basemat bypass in the compliance case. DOE indicated that it could provide additional support for assumptions that the waste tank contaminant zone does not communicate with the soil outside the tank walls (e.g., grouting of channels in Type IV tanks). NRC indicated that this type of information would be helpful in resolving this issue.

Status: No additional clarification is required.

RAI NF 15 - Regarding Condition 2 waste release scenario or configuration D. DOE questioned the necessity of running the scenario as similar runs were performed in barrier analysis. NRC indicated that this scenario was negotiated in scoping, was intended to be executed in the Revision 0 PA, but was changed in the Revision 1 PA to a scenario with lesser impact. Since the new Configuration D is inconsistent with the conceptual model for by-passing pathways embodied in the configuration and given the potential likelihood for this scenario, NRC indicated that the scenario should be re-run and presented as intended. DOE indicated that this scenario as discussed appears unreasonably bounding, which is why it was not included in the Revision 1 PA.

Status: There is a need for follow-up discussions.

RAI NF 16 - Regarding impacts of early release. DOE questioned the benefit of running this scenario given the fact that earlier, partial release will lead to lower doses and given the complexity associated with implementation of the scenario. NRC agreed that the peak dose would be smaller but that the peak dose would occur within the compliance period which is not currently possible for all Type I and III/IIIA tanks, since they are assumed to fail beyond the compliance period. Given the fact that the peak dose from Tc at 27000 years is 600 mrem/yr and from Pu at around 40,000 years is 300 mrem/yr, only a small early, unconditioned release fraction may be needed to exceed the compliance standard.

Status: Discussion was tabled for subsequent calls.

CC NF 6 - Regarding basis for kd values.

Status: Closed out with reference provided.

CC NF 9 - Regarding moisture characteristic curves. DOE indicated that they would perform a sensitivity analysis using the latest data to study the impact of the curves on the results. NRC indicated that the curves were similar in the Saltstone review and found to be unsupported; therefore, they should be replaced with more defensible data in the future.

Status: No further clarification is required.

CC NF 10 - Regarding “fast flow’ case. DOE understands concern and will clarify description of how the case was addressed in modeling.

CC NF 12 - Regarding PORFLOW near-field modeling results. DOE considers the questions raised in the comment straight forward and will address. NRC indicated that its reviewer was not currently available but that NRC may have less significant questions regarding the PORFLOW modeling files that it would like to discuss off-line at a mutually convenient time in the next couple of weeks.

Status: Clarify need for meeting re: PORFLOW.

RAI NF 1 - Regarding the technical basis for assumed Eh values for reducing Regions II and III. DOE understands NRC’s request for a more robust defense and basis for Eh values.

Status: DOE indicated that additional information will be provided based on a suggested path forward.

RAI NF 2 - Regarding linear steel failure versus localized corrosion as a failure mechanism. DOE anticipates addressing the RAI concern through a liner degradation report revision.

Status: No further clarification is required.

RAI NF 3 - Regarding failure mechanisms and timing for concrete and steel failure. DOE anticipates addressing the RAI concern through a liner degradation report revision. There are residual questions regarding the realism or conservatism of steel liner failure.

Status: This discussion will be tabled to consider whether or not the best representation of the system is included in the base case.

RAI NF 4 - Regarding consistency of equations to evaluate carbon steel tank liner failure in base case. DOE anticipates addressing the RAI concern through a liner degradation report revision.

Status: No further clarification is required.

RAI NF 5 - Regarding stainless steel transfer line failure through pitting. DOE anticipates addressing the RAI concern through a liner degradation report revision.

Status: No further clarification is required.