Summary Notes from 13-15 February 2007 Savannah River Site F-Area Tank Farm Performance Assessment Input Meeting

Attendees: Representatives from Department of Energy-Savannah River (DOE-SR), DOE-Headquarters (DOE-HQ), the U.S. Nuclear Regulatory Commission (NRC), the South Carolina Department of Health and Environmental Control (SCDHEC) and the U.S. Environmental Protection Agency, Region IV (EPA-IV) met at the SCDHEC offices in Columbia, South Carolina from 13-15 February 2007.

Discussion: DOE is pursuing final closure on the F-Area Tank Farm (FTF) located at Savannah River Site (SRS). At some point in the future, DOE and NRC will consult on waste determinations for these tank closures; additionally these tanks will be closed in coordination with EPA and SCDHEC in accordance with the Federal Facility Agreement for the Savannah River Site and the State-approved closure plans pursuant to the State Industrial Wastewater permit. The DOE, NRC, EPA, and SCDHEC met for the first in a series of technical exchanges on the proposed inputs for a revision to the FTF Performance Assessment (PA). The technical exchanges are intended to capitalize on early interactions between the agencies with a goal of improving DOE's FTF PA. Technical discussion allowed for the clarification of general modeling parameter values and identifying other specific questions. Future meetings for additional input parameter topics were discussed with the next meeting planned for 19-20 March 2007.

Topics: The following four specific topical areas were discussed during the meeting:

1. Exposure pathways – The various pathways of potential exposure to a member of the public or potential intruder for DOE's proposed exposure scenarios (e.g., residential farmer, etc.).
2. Closure cap approach – DOE's proposed approach for developing the conceptual design for the FTF closure cap is to utilize an update of the conceptual design for the Z-Area Saltstone Disposal Facility. Once the reasonableness of the proposed modeling approach is assessed, the detailed closure cap design and modeling for infiltration rates and other parameters will be completed.
3. Radiological screening approach – DOE's proposal to use National Council on Radiological Protection (NCRP) Report 123 methodology for radiological screening calculations, and to include these as part of the PA documentation.

4. Bioaccumulation factors and consumption rates – DOE's proposal is to use results of a new SRS technical report which provide updated factors and rates to be used in radiological dose calculations for comparison to 10 CFR 61 performance objectives (Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) evaluations for EPA and SCDHEC closure will be done using existing methodologies).

Summary: The following summarizes the discussion during the meeting, by topical area.

General comments applicable to all input packages

- DOE plans to clearly document how parameter values are chosen, to provide sufficient transparency, and ensure all values selected are traceable for the FTF PA.

Exposure pathways

- In analyzing public exposure scenarios, DOE plans to assume recreational use of the stream for the residential public exposure scenario for the FTF PA.
- DOE plans to identify applicable exposure pathways to analyze for each proposed receptor type and justification will be provided for any pathways that are excluded from the FTF PA.
- In the intruder scenario for the FTF PA, DOE plans to consider the peak annual dose over the compliance period from 100 years to 10,000 years after closure. The period prior to 100 years will be considered the institutional control period. DOE will address both acute and chronic exposures, and a well drilling scenario through the tank waste, in addition to process lines, at various times post-closure to address the uncertainty in how long the concrete vaults would provide barrier against intrusion.
- DOE plans to consider external dose pathways for the hypothetical intruder for the FTF PA (note: this pathway was significant in the performance assessment performed for the Idaho National Laboratory Tank Farm Facility).

Closure cap approach

- DOE plans to discuss the differences between the closure cap concepts of the Z-Area Saltstone Disposal Facility and the FTF for the FTF PA. A final decision regarding a closure cap is expected to be addressed in a future

CERCLA record of decision.

- DOE plans to assume for the FTF PA that existing ancillary equipment that is above grade will be removed to approximately tank top elevation and ancillary equipment that is currently below grade will remain in place.
- DOE plans to document the technical basis for the effectiveness and longevity of the geosynthetic clay liner (GCL) and high-density polyethylene (HDPE) geomembrane for the FTF PA.
- In revising the Closure Cap Input Package for the FTF PA with the preliminary design information, DOE plans to include: a plan view of slopes and basins, cross sections, initial infiltration rates and an initial water balance.
- DOE plans to address the durability of rock chosen for the cap design and include a literature review regarding criteria for selection and physical data for the FTF PA.
- DOE plans to develop a conceptual model for the FTF PA of the water balance and circulation in and off the engineered cover.
- DOE plans to discuss the effect of droughts, including reduced foliage and desiccation cracks on performance of cap, and will discuss the effect of desiccation cracks combined with large precipitation events on infiltration rates and preferred pathways for the FTF PA.
- DOE plans to discuss the dynamics of the vegetative succession during the compliance period for the FTF PA.

Radiological screening approach

- DOE plans to provide information regarding any dose that is eliminated from the FTF PA based on the pathway screening values for individual radionuclides. The sum of the screened doses will be used to show if a significant total dose is screened for a case with many radionuclides with small individual doses.
- DOE plans to use a screening level of $1/100^{th}$ of Preliminary Remediation Goals (PRGs) or 1 mrem in the absence of PRGs for the FTF PA.
- DOE plans to use a screening level of one one-hundredth (0.01) of 10 mrem for the air pathway.
- DOE plans to document and clarify any departures from NCRP-123

methodology for the FTF PA.

Bioaccumulation factors and consumption rates

- DOE and NRC Staff agreed that it is acceptable to use two sets of input parameters (one for closing the tanks in accordance with the State-approved closure plan pursuant to the wastewater permit, and one for closing them under CERCLA pursuant to the Federal Facility Agreement) for the FTF PA. DOE plans to clearly and transparently explain any differences between the two. DOE's CERCLA modeling and risk evaluations will rely on maximum contaminant levels (MCLs).
- Bioaccumulation factors and consumption rates will be scheduled for further discussion, to allow additional thoughts to be shared.

DOE acknowledged that there may be remaining uncertainties for each of the above topics that DOE plans to address, as appropriate, in preparing the FTF PA.