

December 30, 2015

MEMORANDUM TO: Andrew Persinko, Deputy Director
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

THRU: Shaun Anderson, Acting Chief */RA/*
Low-Level Waste Branch
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

FROM: James Shaffner, Project Manager */RA/*
Low-Level Waste Branch
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

SUBJECT: ON-SITE OBSERVATION GUIDANCE FOR February 2-3, 2016,
MONITORING VISIT TO THE SAVANNAH RIVER SITE F and H
AREA TANK FARMS

The U.S. Nuclear Regulatory Commission (NRC) staff is planning an on-site observation visit on February 2-3, 2016, to the U.S. Department of Energy's Savannah River Site, F and H Tank Farms to monitor activities related to the disposal of non-high-level-waste, per NRC's responsibilities under Section 3116 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005.

Enclosure: On-Site Observation Guidance

CONTACT: James Shaffner, DUWP/NMSS
(301) 415-5196

December 30, 2015

MEMORANDUM TO: Andrew Persinko, Deputy Director
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

THRU: Shaun Anderson, Acting Chief /RA/
Low-Level Waste Branch
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

FROM: James Shaffner, Project Manager /RA/
Low-Level Waste Branch
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

SUBJECT: ON-SITE OBSERVATION GUIDANCE FOR FEBRUARY 2-3, 2016,
MONITORING VISIT TO THE SAVANNAH RIVER SITE F and H
AREA TANK FARMS

The U.S. Nuclear Regulatory Commission (NRC) staff is planning an on-site observation visit on February 2-3, 2016, to the U.S. Department of Energy's Savannah River Site, F and H Tank Farms to monitor activities related to the disposal of non-high-level-waste, per NRC's responsibilities under Section 3116 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005.

Enclosure: On-Site Observation Guidance

CONTACT: James Shaffner, DUWP/NMSS
(301) 415-5196

DISTRIBUTION: C. Barr G. Alexander L. Parks C. Grossman CNWRA/SWRI

ADAMS Accession No.: ML15356A590

OFFICE	DUWP/LLWB/PM	DUWP/LLWB/LA	DUWP/PAB/BC	DUWP/LLWB/BC	DUWP/LLWB/PM
NAME	J. Shaffner	T. Moon	C. McKenney	S. Anderson (A)	J. Shaffner
DATE	12/23/15	12/23/15	12/23/15	12/30/15	12/30/15

OFFICIAL RECORD COPY

ON-SITE OBSERVATION GUIDANCE FOR FEBRUARY 2-3, 2016, MONITORING VISIT AT THE SAVANNAH RIVER SITE F AND H TANK FARMS

PURPOSE

To provide on-site observation guidance for a planned visit on February 2-3, 2016, to the U.S. Department of Energy's (DOE) Savannah River Site F and H Tank Farms to monitor activities related to the disposal of non-high-level waste, per the U.S. Nuclear Regulatory Commission's (NRC) responsibilities under Section 3116(b) of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (NDAA).

OBJECTIVES

1. Observation and technical review of activities and documentation related to recently completed or near-term closure activities (e.g. development of revised inventories, preparation of Special Analyses, and grouting of Tank 16H and Tank 12H); and,
2. Follow-on activities from previous on-site observation visits and clarifying technical teleconference calls.

BACKGROUND

Section 3116(a) of the NDAA authorizes the DOE, in consultation with the NRC, to determine whether certain radioactive waste related to the reprocessing of spent nuclear fuel is not high-level waste provided certain criteria are met. Section 3116(b) of the NDAA requires the NRC to monitor DOE disposal actions to assess compliance with Title 10 of the Code of Federal Regulations (10 CFR), Part 61, Subpart C, performance objectives for low-level waste.

On September 30, 2010, the DOE submitted to the NRC a draft waste determination titled, "Draft Basis for 3116 Determination for Closure of F Tank Farm (FTF) at the Savannah River Site" (DOE/SRS-WD-2010-001). The purpose of the draft waste determination was to demonstrate compliance with the criteria in Section 3116(a) of the NDAA, including compliance with the performance objectives in 10 CFR Part 61, Subpart C. In its consultation role, the NRC staff reviewed the draft waste determination and supporting performance assessment. In October 2011, the NRC staff documented the results of its review in a Technical Evaluation Report (TER) (ML112371751). In the TER, the NRC staff listed a number of recommendations for the DOE to provide information the NRC staff needs to assess compliance with the performance objectives. The DOE considered the NRC staff TER observations and recommendations in finalizing its FTF waste determination (WD-2012-001) and basis document (DOE/SRS-WD-2012-001, Rev. 0) in March 2012. (ML121140043 and ML121140051).

On February 6, 2013, the DOE submitted to the NRC a draft waste determination titled, "Draft Basis for Section 3116 Determination for Closure of H Tank Farm (HTF) at the Savannah River Site." (DOE/SRS-WD-2013-001, Rev. 0). The purpose of the draft waste determination was to demonstrate compliance with the criteria in Section 3116(a) of the NDAA, including compliance with the performance objectives in 10 CFR Part 61, Subpart C. In its consultation role, the NRC

staff reviewed the draft waste determination and supporting performance assessment. In June 2014, the NRC staff documented the results of its review in a TER (ML14094A496). Similar to the process for FTF, the NRC staff listed a number of recommendations in its HTF TER for the DOE to provide information that the NRC staff needs to assess compliance with the performance objectives. Many of the recommendations listed in the HTF TER are similar to those made in the FTF TER. The DOE considered the NRC staff TER observations and recommendations in finalizing its HTF waste determination (DOE-WD-2014-001) and basis document (DOE/SRS-WD-2014-001, Rev. 0) in December 2014.

To assist with fulfillment of its monitoring responsibilities under the NDAA, the NRC staff updated its FTF Monitoring Plan (ML12212A192) to include information on HTF monitoring activities. The combined monitoring plan, "*U.S. Nuclear Regulatory Commission Plan for Monitoring Disposal Actions Taken by the U.S. Department of Energy at the Savannah River Site F-Area and H-Area Tank Farm Facilities in Accordance With the National Defense Authorization Act for Fiscal Year 2005*," October 6, 2015 (ML15238A761) incorporates and consolidates recommendations from both TERs and cross-walks those recommendations to monitoring areas and factors, which constitute the NRC staff's framework for monitoring under the NDAA. This on-site observation guidance has been developed in accordance and consistent with the contents of the combined monitoring plan.

ON-SITE OBSERVATION REQUIREMENTS

The NRC's on-site observation of the disposal actions taken by the DOE focuses on the performance objectives set out in 10 CFR Part 61, Subpart C. These performance objectives are: (1) protection of the general population from releases of radioactivity (10 CFR 61.41); (2) protection of individuals against inadvertent intrusion (10 CFR 61.42); (3) protection of individuals during operations (10 CFR 61.43); and (4) stability of the disposal site after closure (10 CFR 61.44). Ensuring protection of the general population and potential inadvertent intruders predicates heavily on the performance of closed tanks and ancillary facilities within the period of compliance. Protection of individuals during operations depends, in part, on proper implementation of work activities associated with sampling of tank waste and emplacement of grout. Evaluation of site stability considers site characteristics and the service environment in which the waste is placed in assessing the interaction of the engineered systems with the natural environment. The staff will observe features important to impeding migration of or access to residual tank waste and will use the following guidance to direct the observation while visiting the SRS facility.

Observation and Technical Review of Activities Related to Near-Term Closure Activities

The NRC plans to conduct the following activities during this on-site observation visit (and next to each activity is the associated Monitoring Factor [MF] from the October 2015 monitoring plan):

1. Discuss the status of the high-level waste tank residual solids sample leaching experiments and the NRC comments on SRNL-STI-2015-00446 (MFs 2.1, "Solubility-Limiting Phases/Limits and Validation", and 2.2, "Chemical Transitions Times").

2. Discuss other on-going DOE research or analyses relevant to MFs listed in the NRC staff's combined monitoring plan.
3. Discuss Technical Reviews of Tank 16 Final Inventory Documentation (ML15301A830), Tank 16 Special Analysis (ML15301A710), and Tank 12 Closure Module and Special Analysis (MFs 1.1, "Final Inventory and Risk Estimates"; 1.2, "Residual Waste Sampling"; 1.3, "Residual Waste Volume"; 3.1, "Hydraulic Performance of Concrete Vault and Annulus (As It Relates to Steel Liner Corrosion and Waste Release)", 3.5 "Vault and Annulus Sorption"; and 4.1, "Natural Attenuation of Key Radionuclides").
4. Discuss Tank 16 and Tank 12 Grouting Operations (MF 3.2 "Groundwater Conditioning", MF 3.3 "Shrinkage and Cracking," MF 3.4 "Grout Performance", and MF 3.6, "Use of Stabilizing Grout (As It Pertains to ALARA)").
5. Discuss the DOE response to follow-up action 12 from July 2015 OOV (SRR-CWDA-2015-00117), related to assignment of pore water chemistry in the CZ (MF 6.2 "Model and Parameter Support").

Follow-On Activities from Previous On-site Observation Visits and Clarifying Technical Teleconference Calls

This is the second on-site observation visit covering both F and H Tank Farms. The previous NRC combined tank farm on-site observation visit took place on July 28-29, 2015 (Report for SRS Tank Farm On-site Observation Visit (October 5, 2015) (ML15239A628) with guidance issued on June 26, 2015 (ML15148A388)). A complete list of previous F Tank Farm OOVs can be found in the June 26th guidance memo. The NRC staff has also completed 11 technical review reports (see Table 2). With the exception of the three items listed in Table 1 below, there are no open follow-up action items remaining from previous on-site observation visits and teleconference calls.

Table 1
List of Remaining Follow-up Action Items from Previous On-site Observation Visits and Teleconference Calls

7/2015 OOV	DOE to provide information on lessons learned/procedure changes relative to the rejected Tank 6 grout truck.	Not yet received
7/2015 OOV	NRC to set up a teleconference call to discuss on-going NRC grout testing relative to Tank Farm grout.	Not yet set up by NRC.
05/2013 Teleconference	DOE to provide response in writing or another teleconference call to NRC main points about water segregation and previously provided observations.	Not yet received

Table 2
List of Technical Review Reports

1	March 2013	TECHNICAL REVIEW UPDATED COST-BENEFIT ANALYSIS FOR REMOVAL OF ADDITIONAL HIGHLY RADIOACTIVE RADIONUCLIDES FROM TANK 18	ML13080A401
2	October 2012	TECHNICAL REVIEW OF "TANK 18 AND 19 SPECIAL ANALYSIS FOR THE PERFORMANCE ASSESSMENT FOR THE F-TANK FARM AT THE SAVANNAH RIVER SITE", SRR-CWDA-2010-00124, REV. 0, FEBRUARY 2012 (DOCKET NO. PROJ0734)	ML12240a179
3	May 2013	TECHNICAL REVIEW: WASTE RELEASE AND SOLUBILITY RELATED DOCUMENTS PREPARED BY UNITED STATES DEPARTMENT OF ENERGY TO SUPPORT FINAL BASIS FOR SECTION 3116 DETERMINATION FOR THE F-AREA TANK FARM FACILITY AT SAVANNAH RIVER SITE. PROJECT NO. PROJ0734	ML12272A082
4	September 2013	TECHNICAL REVIEW OF FINAL INVENTORY DOCUMENTATION FOR TANKS 5 AND 6 AT F-TANK FARM, SAVANNAH RIVER SITE, (PROJECT NO. PROJ0734)	ML13085A291
5	October 2013	TECHNICAL REVIEW OF TANKS 5 AND 6 SPECIAL ANALYSIS AT F-TANK FARM FACILITY, SAVANNAH RIVER SITE (PROJECT NO. PROJ0734)	ML13273A299
6	October 2013	TECHNICAL REVIEW: U.S. DEPARTMENT OF ENERGY DOCUMENTATION RELATED TO TANKS 18F AND 19F FINAL CONFIGURATIONS WITH AN EMPHASIS ON GROUTING FROM RECOMMENDATIONS AND TESTING TO FINAL SPECIFICATIONS AND PROCEDURES (PROJECT NO. PROJ0734)	ML13269A365
7	April 2014	TECHNICAL REVIEW: U.S. DEPARTMENT OF ENERGY DOCUMENTATION RELATED TO FEATURES, EVENTS, AND PROCESSES IN THE F-AREA TANK FARM PERFORMANCE ASSESSMENT	ML13277A063
8	December 2014	TECHNICAL REVIEW: U.S. DEPARTMENT OF ENERGY DOCUMENTATION RELATED TO TANKS 5F AND 6F FINAL CONFIGURATIONS WITH AN EMPHASIS ON GROUTING FROM RECOMMENDATIONS AND TESTING TO FINAL SPECIFICATIONS AND PROCEDURES (PROJECT NO. PROJ0734)	ML14342A784
9	March 2015	TECHNICAL REVIEW OF ENVIRONMENTAL MONITORING AND SITE-SPECIFIC DISTRIBUTION COEFFICIENT REPORTS	ML12272A124
10	November	TECHNICAL REVIEW OF "TANK 16H SPECIAL	ML15301A710

	2015	ANALYSIS FOR THE PERFORMANCE ASSESSMENT FOR THE H-TANK FARM AT THE SAVANNAH RIVER SITE", SRR-CWDA-2014-00106, REV. 1, FEBRUARY 2015 (DOCKET NO. PROJ0734)	
11	November 2015	TECHNICAL REVIEW OF FINAL INVENTORY DOCUMENTATION FOR TANK 16H at SAVANNAH RIVER SITE (DOCKET NO. PROJ0734)	ML15301A830