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June 26, 2015

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

THRU: Gregory Suber, Chief */RA Maurice Heath for/*
Low-Level Waste Branch
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
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FROM: James Shaffner, Project Manager */RA/*
Low-Level Waste Branch
Division of Decommissioning, Uranium Recovery,
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Office of Nuclear Material Safety
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SUBJECT: ONSITE OBSERVATION GUIDANCE FOR JULY 28-29, 2015,
MONITORING VISIT TO THE SAVANNAH RIVER SITE, F and H
AREA TANK FARMS

The U.S. Nuclear Regulatory Commission (NRC) staff is planning an onsite observation visit on July 28-29, 2015, 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: Onsite Observation Guidance

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

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(301) 415-5196

DISTRIBUTION: CBarr GAlexander LParks CGrossman CNWRA/SWRI

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|------|-----------|---------|-----------|----------------------|-----------|
| NAME | JShaffner | TMoon | CMcKenney | MHeath for GSuber | JShaffner |
| DATE | 6/12/15 | 6/16/15 | 6/19/15 | 6/26/15 | 6/26/15 |

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ONSITE OBSERVATION GUIDANCE FOR JULY 28-29, 2015, MONITORING VISIT AT THE SAVANNAH RIVER SITE F AND H TANK FARMS

PURPOSE

To provide onsite observation guidance for a planned visit on July 28-29, 2015, 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. completion Tank 5F and 6F grouting operations; grouting of Tank 16H, Tank 16H and 12H inventory and T16H Special Analysis); and
2. Follow-on activities from previous onsite observation visits and clarifying technical teleconference calls.

BACKGROUND

Section 3116(a) of the NDAA authorizes 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, DOE submitted to the NRC a draft waste determination titled, "Draft Basis for 3116 Determination for Closure of F Tank Farm 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, NRC staff documented the results of its review in a Technical Evaluation Report (TER) (ML112371751). In the TER, NRC staff listed a number of recommendations for DOE to provide information NRC staff needs to assess compliance with the performance objectives. 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, DOE submitted to the NRC a draft waste determination titled, "Draft Basis for Section 3116 Determination for Closure of H- Tank Farm 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, NRC staff documented the results of its review in a TER. (ML14094A496). Similar to the

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process for FTF, NRC staff listed a number of recommendations in its HTF TER for DOE to provide information that 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. 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 is in the process of updating its FTF Monitoring Plan (ML12212A192) to include information on HTF monitoring activities. The combined monitoring plan will incorporate and consolidate recommendations from both TERs and cross-walk those recommendations to monitoring areas and factors that serve as constitute NRC staff's framework for monitoring under the NDAA. This onsite observation guidance has been developed in advance of the availability of the final monitoring plan that is expected to be issued later in Fiscal Year 2015.

ONSITE OBSERVATION REQUIREMENTS

NRC's onsite observation of the disposal actions taken by DOE focuses on the performance objectives set out in 10 CFR Part 61, Subpart C. These performance objectives are: (i) protection of the general population from releases of radioactivity (10 CFR 61.41); (ii) protection of individuals against inadvertent intrusion (10 CFR 61.42); (iii) protection of individuals during operations (10 CFR 61.43); and (iv) stability of the disposal site after closure (10 CFR 61.44). Ensuring protection of the general population and disposal site stability 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 emplacement of grout. 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

NRC plans to conduct the following activities during this onsite observation visit (and next to each activity is the associated Monitoring Factor [MF] from the January 2013 FTF monitoring plan (ML12212A192):

1. Discuss documentation for closing FTF Tanks 5/6 (MFs 3.2, "Groundwater Conditioning"; 3.3, "Shrinkage and Cracking"; 3.4, "Grout Performance"; and 3.6, "Use of Stabilizing Grout (As it Pertains to ALARA)¹") including NRC staff's Technical Review of Grout Documentation for FTF Tanks 5/6. (ML14342A784);
2. Observe implementation of DOE's radiation protection program, including ALARA, air monitoring, and final radiological data for Tanks 5/6 grouting, and Tank 12 and 16 sampling and grout preparations. (MFs 7.1, "Protection of Workers During Operations"; 7.2, "Air Monitoring"; and 7.3, "ALARA");

¹ ALARA: As Low As Reasonably Achievable

3. Discuss the status of the high-level waste tank residual solids sample leaching experiments. (MFs 2.1, "Solubility-Limiting Phases/Limits and Validation", and 2.2, "Chemical Transitions Times");
4. Discuss other ongoing (DOE) research or analyses relevant to MFs listed in NRC staff's FTF monitoring plan (ML12212A192);
5. Discuss Technical Review of Environmental Monitoring and Distribution Coefficient Reports. (ML12272A124) (MFs 4.1, "Natural Attenuation of Pu", and 4.3, "Environmental Monitoring");
6. Discuss Technical Review of Tank 16 (and, as applicable, Tank 12) Closure Documentation. (***In preparation***) (MFs 1.1, "Final Inventory and Risk Estimates"; 1.2, "Residual Waste Volume"; 1.3, "Residual Waste Volume"; and 1.5, "Waste Removal (As it Impacts ALARA)");
7. Discuss questions related to site stability (MF 8.1, "Settlement"). Note: This subject can be discussed at a separate teleconference.

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

This is the first onsite observation visit covering both F and H Tank Farms. There were five previous NRC FTF onsite observation visits (see list below) and nine technical review reports. With the exception of the three items listed in Table 1 below, there are no open follow-up action items from the publicly available reports. Two of the follow-up actions items were related to scheduling follow-up teleconferences on specific technical subjects and can be discussed at the onsite observation visit scheduled for July or can be discussed separately.

1. Report for FTF Observation 2012-01 (June 12, 2012) (ML12191A210) with Guidance issued on June 4, 2012, (ML12135A666): **All Action Items completed.**
2. Report for FTF Observation 2012-02 (September 26-27, 2012) (ML12299A190) with Guidance issued on August 23, 2012, (ML12228A631): **All Action Items completed.**
3. Report for FTF Observation 2013-01 (March 27-28, 2013) (ML13113A322) with Guidance issued on February 25, 2013, (ML13046A374): **All Action Items completed.**
4. Report for FTF Observation 2013-02 (August 27-28, 2013) (ML13267A452) with Guidance issued on July 29, 2013, (ML13196A134): **All Action Items completed.**
5. Report for FTF Observation 2014-01 (March 26-27, 2014) (ML14106A573) with Guidance issued on February 26, 2014, (ML14045A215): **All Action Items completed with the exception of 2 items listed above.**

Table 1 List of Follow-up Action Items from Previous Onsite Observation Visits and Teleconference Calls That Are Not Yet Completed

| | | |
|-------------------------------------|--|------------------|
| 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 |
| 03/2014 Onsite Observation Visit | NRC arrange teleconference call with DOE regarding on-going residual waste testing. | Not yet arranged |
| 03/2014 Onsite Observation Visit | NRC arrange teleconference call with DOE regarding on-going NRC waste tank structural analysis calculations. | Not yet arranged |