



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
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May 9, 2017

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

THRU: Gregory Suber, Chief */RA/*  
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FROM: Maurice Heath, Project Manager */RA/*  
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Office of Nuclear Material Safety  
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SUBJECT: ONSITE OBSERVATION GUIDANCE FOR JUNE 6, 2017,  
MONITORING VISIT TO THE IDAHO NATIONAL LABORATORY  
IDAHO NUCLEAR TECHNOLOGY AND ENGINEERING  
CENTER TANK FARM FACILITY (DOCKET NO. PROJ0735)

The U.S. Nuclear Regulatory Commission (NRC) staff is planning an onsite observation visit for June 6, 2017, to the U.S. Department of Energy Idaho National Laboratory Idaho Nuclear Technology and Engineering Center Tank Farm Facility to monitor activities related to the disposal of non-high-level waste, per the NRC responsibilities under the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005.

The enclosed guidance describes the areas of focus for the onsite observation visit. The detailed summary will be included in the onsite observation visit report.

Enclosures:

1. Onsite Observation Visit Guidance
2. Agenda

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SUBJECT: ONSITE OBSERVATION GUIDANCE FOR JUNE 6, 2017, MONITORING VISIT TO THE IDAHO NATIONAL LABORATORY IDAHO NUCLEAR TECHNOLOGY AND ENGINEERING CENTER TANK FARM FACILITY (DOCKET NO. PROJ0735) DATED MAY 9, 2017

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# ONSITE OBSERVATION GUIDANCE FOR THE JUNE 2017 INCIDENTAL WASTE MONITORING VISIT AT THE IDAHO NUCLEAR TECHNOLOGY AND ENGINEERING CENTER TANK FARM FACILITY

## **PURPOSE:**

The purpose of this document is to provide onsite observation guidance for a planned visit on June 6, 2017, to the U.S. Department of Energy (DOE) Idaho National Laboratory (INL) Idaho Nuclear Technology and Engineering Center (INTEC) Tank Farm Facility (TFF) to monitor activities related to the disposal of non-high-level waste, per the U.S. Nuclear Regulatory Commission (NRC) responsibilities under Section 3116(b) of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (NDAA).

## **OBJECTIVE:**

The objective of this onsite observation visit is to observe the waste disposal actions taken by DOE at the INTEC TFF for the purpose of assessing compliance with the performance objectives set out in 10 CFR Part 61, Subpart C.

## **BACKGROUND:**

The NDAA Section 3116(a) 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. The NDAA Section 3116(b) requires the NRC to monitor the DOE disposal actions to assess compliance with Title 10, *Code of Federal Regulations* (10 CFR), Part 61, Subpart C performance objectives for low-level waste. Those performance objectives are: (i) Protection of the general population from releases of radioactivity (§61.41); (ii) Protection of individuals against inadvertent intrusion (§61.42); (iii) Protection of individuals during operations (§61.43); and (iv) Stability of the disposal site after closure (§61.44).

On September 7, 2005, the DOE submitted a draft Waste Determination (WD), "Draft Section 3116 Determination Idaho Nuclear Technology and Engineering Center Tank Farm Facility" (ADAMS Accession No. ML12345A036) to the NRC for residual waste incidental to reprocessing, including sodium bearing waste, stored in the INTEC TFF. The purpose of the draft WD was to demonstrate compliance with the criteria in NDAA Section 3116(a), including compliance with the performance objectives in 10 CFR Part 61, Subpart C. Per the NRC's NDAA consultation role, the NRC staff reviewed the draft WD. In October 2006, the NRC staff documented the results of its review in a Technical Evaluation Report (TER)<sup>1</sup>, which included the NRC conclusion that there was reasonable assurance that the applicable NDAA criteria could be met for residual waste stored in the INTEC TFF based on the validity of certain assumptions listed in NRC staff's TER. The DOE issued the final WD<sup>2</sup> in November 2006, which took into consideration the assumptions, conclusions, and recommendations documented in the NRC TER. The NRC monitoring role at SDF began when the DOE final WD was issued in November 2006.

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<sup>1</sup> ADAMS Accession No. ML062490142.

<sup>2</sup> ADAMS Accession No. ML14317A056.

To fulfill its monitoring responsibilities under NDAA Section 3116(b), the NRC developed a monitoring plan for the INTEC TFF facility in April 2007 (Agency-Wide Documents Access and Management System (ADAMS) Accession No. ML070650066). As described in its TER and as reproduced in Appendix A of the monitoring plan, the NRC identified key attributes of the disposal facility, or key monitoring areas (KMAs), that are important to mitigating releases of radioactivity to the environment or that are otherwise important to the DOE's demonstration of compliance with the 10 CFR Part 61, Subpart C, performance objectives. The NRC performs three types of activities to fulfill its NDAA monitoring responsibilities, focusing on these KMAs: (i) technical reviews, (ii) onsite observations, and (iii) data reviews. Accordingly, and as indicated in the monitoring plan, the NRC performs onsite observations to ensure data collected for detailed technical reviews are of sufficient quality and to observe key disposal (or closure) activities taken by the DOE.

The NRC conducted two onsite observations in 2007 to observe tank grouting operations (7 of 11 large tanks and 4 smaller tanks) at the INTEC TFF. All follow-up actions and open issues identified in the first onsite observation, conducted in April 2007 (ADAMS Accession No. ML071300222), were resolved by the end of the August 2007 onsite observation (ADAMS Accession No. ML072570173). In August 2008, the NRC staff participated in a third onsite observation to observe pipe grouting operations, radiation protection controls, and the environmental sampling program (ADAMS Accession No. ML082050071). At the end of the 2007 and 2008 observations, there were no follow-up actions or open issues.

No tank farm closure activities occurred in calendar year 2009; therefore, the NRC staff elected to forego an onsite observation. In August 2010, the NRC staff participated in an onsite observation focused on radiation protection and environmental monitoring. The NRC staff had no open issues as a result of this observation. However the NRC staff had two recommendations for DOE to consider in its decision to update the Performance Assessment (PA)(ADAMS Accession No. ML111220310), as indicated in the onsite observation report (ADAMS Accession No. ML102770022). One recommendation was for the DOE to incorporate supplemental information, provided in response to NRC staff requests for additional information, in its next update to the PA. The supplemental information provided by DOE investigated the cause and evaluated the performance impact of the significant lateral spread of the contaminant plume(s) released from the tanks, which was observed in the PA modeling but was not corroborated by field data. The other recommendation was that the DOE consider data collected under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) program, which appears to be inconsistent with the DOE PA modeling results, in determining whether to update the PA.<sup>3</sup>

NRC staff did not conduct any onsite observation visits to INTEC TFF in 2011 as there were no significant disposal actions taking place. However, in June 2012, the NRC conducted an onsite observation to obtain additional information and observe disposal actions related to closure of the remaining 4 large tanks. During the visit, the NRC staff obtained updates on closure activities and schedules, and collected routine information related to several key monitoring areas listed in the NRC's monitoring plan for the INTEC TFF (ADAMS Accession No. ML070650066), such as the radiation protection and environmental monitoring programs. No OOVs were conducted in 2013 since there were no significant disposal actions taking place at

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<sup>3</sup> It is important to note that the technical review and subsequent close-out of KMA-3 in 2014 (see ML14113A278 and ML14149A337) at least partially address these recommendations and/or make the recommendations moot.

the site due to delays in the schedule for closure of the final four large tanks (including one spare tank) related to issues with the startup of the Integrated Waste Treatment Unit (IWTU).<sup>4</sup> During 2012 and 2013, the NRC staff's monitoring of the TFF resulted in no findings of noncompliance.

In June 2014, the NRC conducted another onsite observation to obtain additional information and observe, as appropriate, disposal actions related to closure activities. During this onsite observation visit, the NRC staff discussed results of technical reviews related to hydrological uncertainties, radiation protection and environmental monitoring. The NRC staff indicated in its onsite observation visit report (ADAMS Accession No. ML14265A092) that it had no findings of noncompliance as a result of this observation and also determined that sufficient information had been provided by the DOE to close out KMA 3, "Hydrological Uncertainty" as documented in a technical review report and related letter (ADAMS Accession Nos. ML14113A278 and ML14149A337).

### **OBSERVATION REQUIREMENTS:**

During the June 2017 onsite observation of the disposal actions taken by DOE at INL, the NRC staff will evaluate DOE's compliance with the performance objectives in 10 CFR Part 61, Subpart C with regards to its radiation protection measures and environmental sampling program related to DOE Idaho's INTEC TFF tank closure operations. The onsite observation will be primarily focused on the protection of individuals during operations (10 CFR 61.43).

The NRC plans to conduct the following activities during this onsite observation visit to the INTEC TFF, which are organized within their respective areas and with their associated KMAs from the monitoring plan.

#### **Radiation Protection Program (KMA 4 – Monitoring During Operations)**

The NRC staff will observe aspects of DOE's radiation protection program. Onsite observation activities may include the following:

- Review DOE's radiation protection program in order to validate various reports and records related to protection of individuals during its waste disposal operations.
- Interview DOE's site radiation protection personnel and discuss its onsite implementation of the radiation protection program.
- Verify that personnel who are involved in the waste disposal operations are provided with personal dosimetry and/or other adequate personal monitoring devices.
- Tour the site to verify DOE's access-control program is in place.
- Verify the programs and policies presented in the DOE's INTEC TFF waste determination are in effect during the operational period.
- Discuss with DOE and/or DOE contractor personnel the effectiveness of DOE's radiation protection program governing its waste disposal operations.

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<sup>4</sup> As noted in NUREG-1911, Rev.5, the IWTU, which is a steam reforming processing unit for processing the remaining sodium-bearing waste (SBW) to be removed from the High Level Waste (HLW) tanks, was damaged during an over-pressurization event in 2012 and had to be redesigned, resulting in the delay of waste removal for the remaining four large tanks, WM-187 to -190.

**Environmental Sampling Program (KMA 4 – Monitoring During Operations)**

The NRC staff will observe aspects of DOE's environmental sampling program. Onsite observation activities may include the following:

- Observe environmental monitoring activities that occur during the time that the NRC staff is onsite (if applicable).
- Obtain data and reports and discuss results of monitoring activities at the site.
- Review environmental monitoring plans and quality assurance procedures for environmental sampling.

Completion of observations or technical review of activities and documentation is dependent on either the DOE performing the activity and/or the availability of the documentation during the onsite observation visit.

**ONSITE OBSERVATION GUIDANCE FOR JUNE 6, 2017  
INCIDENTAL WASTE MONITORING VISIT AT THE IDAHO  
NATIONAL LABORATORY**

**Agenda**

Arrival to Idaho National Laboratory	0930
Site Entrance Meeting	1000
Site Tour	1100
Lunch	1200
NRC Discussion on INL Activities	1330
Question and Answer Period	1430
Adjourn	1600