[6450-01-P]
U.S. DEPARTMENT OF ENERGY

Amended Record of Decision: Idaho High-Level Waste and Facilities Disposition Final Environmental Impact Statement

AGENCY: Department of Energy

ACTION: Amended Record of Decision

SUMMARY: The U.S. Department of Energy (DOE) is amending its Record of Decision (ROD) published December 19, 2005 (70 *Federal Register* [FR] 75165), pursuant to the *Idaho High-Level Waste and Facilities Disposition Final Environmental Impact Statement* (Final EIS) (DOE/EIS-0287, September 2002). The Final EIS analyzed two sets of alternatives for accomplishing DOE's proposed actions regarding the Idaho Nuclear Technology and Engineering Center (INTEC): (1) waste processing alternatives and (2) facility disposition alternatives.

As described in this Amended ROD, DOE has decided to conduct performance-based closure of the INTEC Tank Farm Facility (TFF). Performance-based closure of the TFF and TFF system includes removing waste to the maximum extent practical from the eleven 300,000-gallon and four 30,000-gallon belowgrade stainless steel tanks, the associated piping, valve boxes, encasements, and vaults, and grouting and disposing of the stabilized residuals in place. Closure of the TFF will be carried out pursuant to closure plans approved by the State of Idaho under its Hazardous Waste Management Act (HWMA).

DOE's decision has been made following the Secretary of Energy's (Secretary's) Determination, in consultation with the U.S. Nuclear Regulatory Commission (NRC), that the stabilized residuals in the TFF and TFF system meet the criteria in Section 3116(a) of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (NDAA). Therefore, by operation of Section 3116(a), this material is not high-level radioactive waste (HLW) and may be disposed of in place. A Federal Register Notice of Availability of the Secretary's Section 3116 Determination is being provided separately and concurrently with this ROD.

In DOE's initial ROD, DOE decided, among other things, to pursue a phased decision-making process and stated its plan to issue an amended ROD in 2006 specifically addressing closure of the TFF, in coordination with the Secretary's Determination under Section 3116. As explained in the initial ROD, the State of Idaho, as a cooperating agency on the Draft and Final EIS, stated that it would continue to coordinate with DOE and the NRC, as appropriate, regarding Section 3116 activities.

This decision to conduct performance-based closure of the TFF does not affect decisions made in the initial ROD concerning: performance-based closure of other existing facilities directly related to the HLW Program; planned clean closure of newly constructed waste processing facilities needed to implement the initial ROD; steam reforming treatment of sodium-bearing waste

(SBW)[1] to allow disposal at the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico (DOE's preferred disposal path) or at a geologic repository for spent nuclear fuel (SNF) and HLW; management of newly generated liquid waste (NGLW); and DOE's strategy to retrieve HLW calcine for disposal outside the State of Idaho. Nor does this Amended ROD affect future decisions concerning the retrieval strategy for HLW calcine stored at INTEC, potential calcine treatment if necessary, and closure of the bin sets in which the calcine is stored.

ADDRESSES: Copies of this Amended ROD will be available on DOE's National Environmental Policy Act (NEPA) web site at: http://www.eh.doe.gov/nepa under DOE NEPA Documents. Copies of the Section 3116 Determination and associated documents are available on DOE's web site at http://apps.em.doe.gov/idwd.

FOR FURTHER INFORMATION CONTACT: For further information on this Amended ROD and the Idaho Cleanup Project, contact Scott Van Camp, Assistant Manager, Facility and Materials Disposition Project, U.S. DOE, Idaho Operations Office, 1955 Fremont Avenue, MS-1222, Idaho Falls, ID 83415, Telephone: (208) 526-6503.

For general information on DOE's NEPA process, please contact: Carol M. Borgstrom, Director, Office of NEPA Policy and Compliance (GC-20), U.S. DOE, 1000 Independence Avenue, S.W., Washington, DC 20585-0103, Telephone: (202) 586-4600 or leave a message at (800) 472-2756.

SUPPLEMENTARY INFORMATION:

I. Background

From 1952 to 1991, DOE and its predecessor agencies reprocessed SNF at INTEC, known prior to 1998 as the Idaho Chemical Processing Plant, on the Idaho National Laboratory (INL) Site. Reprocessing operations used solvent extraction systems to remove mostly uranium-235 from SNF. The waste product from the first extraction cycle of the reprocessing operation was liquid HLW mixed with hazardous materials, which was stored in belowgrade stainless steel tanks at the INTEC TFF. Subsequent extraction cycles, treatment processes, and follow-on decontamination activities generated additional liquids that were combined to form liquid SBW, which is generally much less radioactive than HLW generated from the first extraction cycle. After SNF reprocessing was curtailed in 1991, the first cycle reprocessing wastes were removed from the tanks in the TFF and the tanks were reused to store liquid SBW. The liquid SBW was stored in ten of the eleven 300,000-gallon belowgrade storage tanks in the TFF. The eleventh tank was maintained as a spare (but was contaminated with a small quantity of waste). The TFF also includes four 30,000-gallon belowgrade tanks that were used in reprocessing operations. The last campaign of SNF reprocessing at INTEC was in 1991, and HLW is no longer generated at INTEC. From 1963 to 1998, DOE processed HLW and some SBW through calcination that converted the liquid waste into a dry powder calcine. Additional SBW was processed by calcination from 1998 to 2000. At present, approximately 4,400 cubic meters of HLW calcine remains stored in six bin sets (a series of reinforced concrete vaults, each containing three to seven stainless steel storage bins). Over the past several years, TFF operations have included

1. The Final EIS refers to SBW as mixed transuranic waste/SBW. However, a determination that SBW is transuranic waste has not been made.

removing SBW from the tanks, consolidating the remaining approximately 900,000 gallons of SBW into three 300,000-gallon belowgrade tanks, and cleaning the emptied tanks. Tank cleaning to remove the tank heels in the emptied tanks (the amount of liquid remaining in each tank after lowering the tank contents to the greatest extent possible by use of the existing transfer equipment) began in late 2002. Seven of the 300,000-gallon tanks, the four 30,000-gallon inactive tanks, and associated ancillary equipment have been cleaned, and DOE plans to clean and complete closure of the remaining tanks, piping, valve boxes, encasements, and vaults by December 31, 2012.

The Final EIS, issued in October 2002, analyzed two sets of alternatives for accomplishing the proposed action: (1) *waste processing alternatives* for treating, storing, and disposing of liquid SBW and NGLW stored in belowgrade tanks and solid HLW calcine stored in bin sets at the INTEC on the INL Site; and (2) *facility disposition alternatives* for final disposition of facilities directly related to the HLW Program after its missions are complete, including any new facilities necessary to implement the waste processing alternatives. This Amended ROD addresses only disposition of the TFF and not waste processing or other facilities addressed in the initial ROD.

On October 28, 2004, the NDAA was enacted. Among other provisions of the Act, Section 3116 provides that certain wastes from reprocessing SNF are not HLW if the Secretary, in consultation with the NRC, determines that the criteria in Section 3116(a) have been met.

In DOE's initial ROD, published December 19, 2005 (70 FR 75165), DOE decided, among other things, to pursue a phased decision-making process and stated its plan to issue an Amended ROD in 2006 specifically addressing closure of the TFF, in coordination with the Secretary's Determination under Section 3116. As explained in the initial ROD, the State of Idaho, as a cooperating agency on the Draft and Final EIS, stated that it would continue to coordinate with DOE and NRC, as appropriate, regarding Section 3116 activities.

DOE submitted a Draft Section 3116 Determination concerning the TFF to the NRC on September 7, 2005, and consulted with the NRC pursuant to Section 3116(a) of the NDAA. Although not required by Section 3116, DOE issued a Notice of Availability of the Draft Section 3116 Determination in the Federal Register on September 14, 2005 (70 FR 54374), for public review, concurrent with DOE's consultation with the NRC.

The NRC consultation process has been completed. On October 20, 2006, the NRC issued its Technical Evaluation Report (TER) (NRC ADAMS # ML062490108) of the DOE Draft Section 3116 Determination. The TER presents the results of NRC's consultation with respect to whether DOE meets the applicable provisions of Section 3116(a) of the NDAA for the Secretary to determine that the stabilized residuals are not HLW. As noted in its executive summary, "Based on the information provided by DOE, NRC staff has concluded in this TER that there is reasonable assurance that the applicable criteria of the NDAA can be met for residual waste associated with the TFF."

DOE considered the NRC's TER, as well as comments received from the State of Idaho and the INL Site Environmental Management Citizens Advisory Board (no additional public comments were received) on the Draft Section 3116 Determination, before issuing the Section 3116

Determination. In the Section 3116 Determination for the TFF, the Secretary concluded that, for reasons set forth in the *Basis for Section 3116 Determination for the Idaho Nuclear Technology and Engineering Center Tank Farm Facility* (Basis Document), and based on DOE's consultation with the NRC, the criteria of Section 3116(a) have been met, and therefore the stabilized residuals may be disposed of in place. Disposal of the grouted TFF waste in place will meet the performance objectives set forth in 10 *Code of Federal Regulations* (CFR) Part 61, Subpart C. DOE estimates that this action will result in an annual maximum exposure risk (total effective dose) to members of the public from all pathways of well below 25 mrem. A Federal Register Notice of Availability of the Secretary's Section 3116 Determination is being provided separately and concurrently with this ROD.

II. Comments on the Final EIS

DOE received five letters and two emails on the Final EIS and responded to those comments in the initial ROD. However, because DOE deferred its decision regarding the TFF, it is appropriate to address one additional comment made by the Environmental Protection Agency (EPA) (letter on the Final EIS of November 18, 2002) in this Amended ROD. That is, the EPA noted that "the Final EIS did not define, in the case of tank closures, the degree of retrieval and/or decontamination necessary to provide a defensible basis for reclassifying residuals". The Basis Document addresses this comment.

III. Facility Disposition Alternatives Analyzed

The Final EIS analyzed six facility disposition alternatives: No Action, Clean Closure, Performance-Based Closure, Closure to Landfill Standards, Performance-Based Closure with Class A Grout Disposal, and Performance-Based Closure with Class C Grout Disposal.[2] Under the No Action Alternative, the transuranic/SBW waste would remain in the Tank Farm, and eventually over thousands of years, this waste would migrate into the environment. Under the Clean Closure Alternative, facilities would have the hazardous and radiological contaminants, including contaminated equipment, removed from the site or treated so that these contaminants would be indistinguishable from background concentrations. Under the Performance-Based Closure Alternative, contamination would remain that is below the levels that would impact human health and the environment as established by regulations. Under the Closure to Landfill Standards Alternative, wastes would be removed to the extent practicable; however, quantities remaining would not meet clean closure or performance-based action levels. Under the Performance-Based Closure with Class A Grout Disposal and Performance-Based Closure with Class C Grout Disposal Alternatives, SBW and calcine would have been separated into high and low activity fractions, and the low-level waste fraction would be grouted to meet either Class A or Class C levels and disposed of in the tanks or bin sets. These six alternatives reflect different ways to address the risk associated with disposition of residuals remaining in facilities and closing facilities directly related to the HLW Program at INTEC after its missions are complete.

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2. The names of the alternatives in the Final EIS use terminology that is similar to terminology used in the context of closure of hazardous waste management units under HWMA/RCRA. However, the terminology used in the names of the EIS alternatives and the HWMA/RCRA is not synonymous in all cases. For example, the Clean Closure Alternative included removal of the tanks, whereas clean closure of the tanks under HWMA/RCRA means cleaning the tanks to action levels established in the state approved closure plan. The INL TFF is subject to closure under HWMA/RCRA pursuant to closure plans approved by the State of Idaho.

These alternatives differ in the degree to which facilities are cleaned up and in the type of use that could be made of the land as a result.

Preferred Facility Disposition Alternative

In the Final EIS, DOE and the State of Idaho, as a cooperating agency, identified three of the six facility disposition alternatives as preferred: Performance-Based Closure, Clean Closure, and Closure to Landfill Standards. DOE and the State of Idaho weighed several factors in identifying the Preferred Alternatives for facility disposition, including size and complexity of facilities, volume of waste generated during facility disposition, residual waste/contaminant risk reduction, technical and economic feasibility, and protection of workers, the public, and the environment.

Under the Performance-Based Closure Alternative evaluated in the EIS, radioactive contamination would remain below levels that would impact human health and the environment as established by regulations. These levels, referred to as action levels, are either risk-based (e.g., residual contaminant levels) or performance-based (e.g., corrosivity). Once these action levels and the action levels set forth in the HWMA/RCRA Closure Plan approved by the State of Idaho are achieved, the unit/facility is deemed closed according to the HWMA/RCRA and DOE requirements. Other activities may then occur at the unit/facility such as decontamination and decommissioning or future operations (where nonhazardous waste can enter the unit/facility). Most abovegrade units/facilities would be demolished and most belowgrade facilities/units (tanks, vaults, and transfer piping) would be stabilized and left in place. The residual contaminants would no longer pose any unacceptable exposure (or risk) to workers, the public, and the environment. Pursuant to HWMA/RCRA regulations, if the action levels cannot be achieved, then the TFF and TFF system may need to be closed in accordance with closure and post-closure regulations that apply to landfills.[3]

IV. Environmentally Preferable Alternative

The initial ROD, in identifying the environmentally preferred alternative, considered: potential risk to the public (e.g., latent cancer fatalities); potential environmental risks in the short- and long-term, including environmental risks after loss of institutional control; and potential short-term risk to workers. The initial ROD identified the facility disposition alternatives that actively closed the TFF facilities under environmentally-based standards as preferable to the No Action Alternative. Based on the analyses in the Final EIS, the Clean Closure Alternative is the environmentally preferred alternative over the long-term. However, the Performance-Based Closure Alternative would be protective of the public and environment in the short- and long-term while minimizing short-term risks to workers.

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3. Although not part of this Amended ROD, DOE also has proposed to cap the surface of the TFF to meet the remedial action objectives agreed to by DOE, the State of Idaho, and the EPA pursuant to the 1991 Federal Facility Agreement and Consent Order under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). DOE's *Proposed Plan for Tank Farm Soil and INTEC Groundwater, Operable Unit 3-14* (RPT-223, 2004), which includes capping the surface of the TFF, has been issued for public comment. The CERCLA decision is planned for 2007. Capping would reduce water infiltration and provide worker protection where appropriate.

V. Decision

DOE has decided to conduct performance-based closure of the TFF as set forth in the Final EIS. DOE has decided to close the TFF in phases to support continued INTEC operations, with final closure of the TFF planned by December 2012. DOE is making the decision in this Amended ROD following the Secretary's Determination, in consultation with the NRC, that the grouted residuals at disposal are not HLW because they meet the criteria in Section 3116(a) of the NDAA. By law, material covered by such a determination is not HLW.

Performance-based closure of the TFF and TFF system pursuant to this Amended ROD includes removing waste to the maximum extent practical from the eleven 300,000-gallon tanks, the four 30,000-gallon tanks, associated piping, valve boxes, encasements, and vaults, and grouting and disposing of stabilized residuals in place.[4] Closure of the TFF will be undertaken pursuant to closure plans approved by the State of Idaho under the HWMA. DOE intends for the TFF closure activities to remove or decontaminate waste residues to meet State of Idaho-approved action levels for hazardous constituents. If these action levels cannot be achieved, then the TFF may be closed in accordance with closure and post-closure regulations that apply to landfills. The closure of the TFF will also be in accordance with applicable DOE requirements, regulations, and Orders, which ensure that this action will result in an annual maximum exposure risk (total effective dose) to members of the public from all pathways of well below 25 mrem.

The State of Idaho has commented and coordinated with DOE and NRC, as appropriate, concerning Section 3116 of the NDAA. The State has concurred with the performance-based closure of the TFF, subject to the State's separate approval of individual closure plans under the HWMA/RCRA.

This decision to conduct performance-based closure of the TFF does not affect the decisions made in the initial ROD concerning: performance-based closure for other existing facilities directly related to the HLW Program; planned clean closure of newly constructed waste processing facilities needed to implement the initial ROD; steam reforming treatment of SBW to allow disposal at the WIPP near Carlsbad, New Mexico (DOE's preferred disposal path) or at a geologic repository for SNF and HLW; management of NGLW; and DOE's strategy to retrieve HLW calcine for disposal outside the State of Idaho. Nor does this Amended ROD affect future decisions concerning the retrieval strategy for HLW calcine stored at the INTEC, potential calcine treatment if necessary, and the closure of the bin sets in which the calcine is stored.

No impact resulting from operations under this decision would require specifically designed mitigation measures. DOE will, however, use all practicable means to avoid or minimize environmental harm when implementing the actions described in this Amended ROD. Those measures include employing engineering design features to meet regulatory requirements, maintaining a rigorous health and safety program to protect workers from radiological and chemical contaminants, monitoring worker and environmental risk, and continuing efforts to reduce the generation of wastes. DOE will implement the comprehensive list of standards and

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4. Under closure pursuant to this decision, a small amount (approximately 3/8 inch) of residual radioactive (non-HWMA/RCRA) waste that cannot be removed would remain after completing tank cleaning operations.

requirements to protect workers, the public, and the environment specified in Chapter 6 of the Final EIS, as appropriate.

VI. Basis for Decision

DOE's decision to implement performance-based closure methods for disposition of the TFF is based on the analysis of the potential environmental impacts identified in the Final EIS. The Performance-Based Closure Alternative would minimize short-term risk to workers as compared to the Clean Closure Alternative, while also being protective of health and the environment in the long term. In addition, this Amended ROD is based on consideration of regulatory requirements such as the HWMA/RCRA, applicable DOE Orders, and cost. As part of its basis for decision, DOE also emphasizes that, on balance, performance-based closure would be protective of the public and environment in the short- and long-term, while limiting the risk to workers. This decision also takes into account the Secretary's Determination pursuant to Section 3116(a) of the NDAA.

Issued in Washington, D.C., on November 19, 2006.

James A. Rispoli,
Assistant Secretary for
Environmental Management