



U.S. DEPARTMENT OF
ENERGY



Final Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington (Final TC & WM EIS) (DOE/EIS-0391)

Frequently Asked Questions

What are the U.S. Department of Energy (DOE) proposed actions in the *Final TC & WM EIS*?

The *Final TC & WM EIS* (DOE/EIS-0391) evaluates three sets of proposed actions, as follows:

- Retrieve and treat the waste remaining in 177 underground storage tanks; store the high-level radioactive waste (HLW); dispose of the low-activity waste (LAW) at the Hanford Site (Hanford); and close the single-shell tank (SST) system, which consists of 149 underground tanks, ancillary equipment, and soils.
- Decommission Hanford's Fast Flux Test Facility (FFTF) and auxiliary facilities; manage the waste from the decommissioning process, including certain waste designated as remote-handled special components (RH-SCs); and manage the disposition of Hanford's inventory of radioactively contaminated bulk sodium from FFTF and other facilities on site.
- Manage the LAW, low-level radioactive waste (LLW), and mixed low-level radioactive waste (MLLW) resulting from tank closure and other Hanford activities, as well as limited volumes of LLW and MLLW received from other DOE sites; dispose of these wastes in lined trenches and a landfill (the Integrated Disposal Facility [IDF]); and close the trenches in accordance with all applicable regulations.

What does DOE need to do (purpose and need for action)?

DOE needs to determine how to proceed with (1) retrieval and management of the underground storage tank waste, including closure of the SST farm system; (2) decommissioning of FFTF and its auxiliary facilities; and (3) disposal of mixed waste, LLW, and LAW at Hanford.

Who prepared the *Final TC & WM EIS*?

DOE is the lead agency for preparation of the *Final TC & WM EIS*. The Washington State Department of Ecology (Ecology) is a cooperating agency on the *Final TC & WM EIS* to satisfy Washington's State Environmental Policy Act (SEPA). The U.S. Environmental Protection Agency, Region 10, joined as a cooperating agency between publication of the *Draft* and *Final TC & WM EIS*s.

What alternatives are analyzed in the *Final TC & WM EIS* and what Preferred Alternatives are identified?

TANK CLOSURE

No Action Alternative for Tank Closure: As required by Council on Environmental Quality and DOE National Environmental Policy Act (NEPA) implementing regulations, the *Final TC & WM EIS* analyzes No Action Alternatives for each of the three sets of proposed actions. For Tank Closure, the *Final TC & WM EIS* analyzes two No Action Alternatives. Under the first (Tank Closure Alternative 1), all

work would be stopped. That is, DOE would discontinue current operations. Under the second (Tank Closure Alternative 2A), current operations would continue consistent with the Preferred Alternative selected in the *Tank Waste Remediation System, Hanford Site, Richland, Washington, Final Environmental Impact Statement* (DOE/EIS-0189). This alternative includes no tank closure actions.

Action Alternatives for Tank Closure: The *Final TC & WM EIS* evaluates nine action alternatives for storage, retrieval, treatment, disposal, and closure activities at Hanford's underground tank farms. These alternatives represent the range of reasonable approaches to (1) removing waste from the tanks to the extent that it is technically and economically feasible (retrieval was analyzed at 90 percent, 99 percent, and 99.9 percent); (2) treating the waste by vitrifying it in the Waste Treatment Plant (WTP) and/or using one or more supplemental treatment processes; (3) packaging the waste for either offsite shipment and disposal or onsite disposal; and (4) closing the SST system, including landfill and clean closure, to permanently reduce the potential future risk to human health and the environment.

Preferred Alternatives for Tank Closure: For retrieval, DOE prefers Tank Closure alternatives that would retrieve at least 99 percent of the tank waste. For closure of the SSTs, DOE prefers landfill closure, which may require soil removal or treatment of the vadose zone. Decisions on the extent of soil removal or treatment, if needed, will be made on a tank farm or waste management area basis through the Resource Conservation and Recovery Act (RCRA) closure permitting process. DOE does not prefer alternatives that include removal of the tanks. DOE believes that removal of the tank structures is technically infeasible and, due to both the depth of the contamination and the technical issues associated with removal of the tank structures, that it presents significant uncertainty in terms of worker exposure risk and waste generation volume.

DOE does not have a preferred alternative regarding supplemental treatment for LAW; DOE believes it is beneficial to study further the potential cost, safety, and environmental performance of supplemental treatment technologies. Nevertheless, DOE is committed to meeting its obligations under the Hanford Federal Facility Agreement and Consent Order (also known as the Tri-Party Agreement) regarding supplemental LAW treatment. When DOE is ready to identify its preferred alternative regarding supplemental treatment for LAW, this action will be subject to NEPA review as appropriate. DOE will provide a notice of its preferred alternative in the *Federal Register* at least 30 days before issuing a Record of Decision (ROD). For the actions related to tank waste retrieval, treatment, and closure, DOE prefers Tank Closure Alternative 2B, without removing technetium in the Pretreatment Facility.

Although DOE previously expressed its preference that no Hanford tank waste would be shipped to the Waste Isolation Pilot Plant (WIPP) (74 FR 67189), DOE now prefers to consider the option to retrieve, treat, and package waste that may be properly and legally designated as mixed transuranic (TRU) waste from specific tanks for disposal at WIPP, as analyzed in Tank Closure Alternatives 3A, 3B, 3C, 4, and 5. Initiating retrieval of tank waste identified as mixed TRU waste would be contingent on DOE's obtaining the applicable disposal and other necessary permits and ensuring that the WIPP Waste Acceptance Criteria and all other applicable regulatory requirements have been met. Retrieval of tank waste identified as mixed TRU waste would commence only after DOE had issued a *Federal Register* notice of its preferred alternative and a ROD.

FFTF DECOMMISSIONING

No Action Alternative for FFTF Decommissioning: The final decommissioning of FFTF would not occur. Only the deactivation activities for the FFTF complex and support buildings as described in the 2006 *Environmental Assessment, Sodium Residuals Reaction/Removal and Other Deactivation Work Activities, Fast Flux Test Facility (FFTF) Project, Hanford Site, Richland, Washington* (DOE/EA-1547) would be conducted.

Action Alternatives for FFTF Decommissioning: The *Final TC & WM EIS* evaluates two action alternatives for decommissioning of FFTF and associated support buildings, as well as managing existing waste and the RH-SCs and bulk sodium components. These alternatives represent the range of reasonable approaches to (1) dismantling and removing FFTF-related structures, equipment, and materials; (2) treating and disposing of these components and equipment as necessary, either in place or at other facilities; (3) treating RH-SCs, either in a new facility at Hanford or at Idaho National Laboratory (INL); and (4) converting Hanford bulk sodium to a caustic sodium hydroxide solution at Hanford or INL for reuse in the WTP and to permanently close the conversion facility.

Preferred Alternative for FFTF Decommissioning: DOE's Preferred Alternative for FFTF Decommissioning is Alternative 2: Entombment. Entombment would remove all above-grade structures, including the reactor building. Below-grade structures, the reactor vessel, piping, and other components would remain in place and be filled with grout to immobilize the remaining radioactive and hazardous constituents. Waste generated from these activities would be disposed of in an IDF, and an engineered modified RCRA Subtitle C barrier would be constructed over the filled area. The RH-SCs would be processed at INL and returned to Hanford. Bulk sodium inventories would be processed at Hanford for use in the WTP.

WASTE MANAGEMENT

No Action Alternative for Waste Management: LLW, MLLW, and TRU waste would continue to be stored on site until processed for disposal in the existing low-level radioactive waste burial grounds (LLBGs). Processing of waste prior to disposal would continue at existing facilities. No offsite waste would be received or disposed of at Hanford. Wastes generated at Hanford would be disposed of in the LLBGs through 2035. Construction of the 200-East Area IDF would be discontinued and the facility deactivated. Administrative controls would be implemented for the next 100 years.

Action Alternatives for Waste Management: The *Final TC & WM EIS* evaluates two action alternatives for the storage, processing, and disposal of solid waste at Hanford, as well as subsequent closure of associated disposal facilities. The Waste Management alternatives address the range of reasonable approaches to (1) continued storage of LLW, MLLW, and TRU waste at Hanford; (2) onsite waste processing using two expansions of the existing Waste Receiving and Processing Facility; (3) onsite disposal of Hanford-generated LLW and MLLW in trenches, including waste generated from FFTF decommissioning; (4) waste generated from tank waste retrieval and treatment; (5) disposal of offsite LLW and MLLW in new onsite facilities; and (6) closure of disposal facilities to reduce water infiltration and potential for intrusion.

Preferred Alternative for Waste Management: DOE's Preferred Alternative for waste management is Alternative 2, disposal of onsite LLW and MLLW streams in a single IDF in the 200-East Area (IDF-East). Disposal of SST closure waste that is not highly contaminated, such as rubble, soils, and ancillary equipment, in the proposed River Protection Project Disposal Facility (RPPDF) is also included under this alternative. After completion of disposal activities, IDF-East and the proposed RPPDF would be landfill-closed under an engineered modified RCRA Subtitle C barrier. The final environmental impact statement (EIS) analyses show that, even when mitigation is applied to certain offsite waste streams (e.g., removal of most of the iodine-129), some environmental impacts of small quantities of iodine-129 would still occur and, therefore, limitations on that constituent should apply regardless of the alternative selected.

DOE will continue to defer the importation of offsite waste at Hanford, at least until the WTP is operational, subject to appropriate NEPA review and consistent with its previous Preferred Alternative for waste management (74 FR 67189). The limitations and exemptions defined in DOE's January 6, 2006, Settlement Agreement with the State of Washington (as amended on June 5, 2008) regarding *State of Washington v. Bodman* (Civil No. 2:03-cv-05018-AAM), signed by DOE, Ecology, the Washington State Attorney General's Office, and the U.S. Department of Justice, will remain in place.

What's a Record of Decision?

A ROD is a concise document that presents and explains DOE's decision(s) concerning a proposed action. It identifies the alternatives considered; the decision(s) made; the environmentally preferable alternative(s); the factors balanced by the agency in making the decision; and whether all practicable means to avoid or minimize environmental harm were adopted and, if not, why.

How will the public know what DOE has decided?

DOE will announce decisions regarding the *Final TC & WM EIS* in a ROD, to be published in the *Federal Register* no sooner than 30 days after the publication of the Environmental Protection Agency's Notice of Availability of the final EIS. When DOE is ready to identify its preferred alternative for supplemental LAW treatment or for TRU tank waste, DOE will provide a notice of the alternative in the *Federal Register* at least 30 days before issuing a ROD.

How will we know what the Washington State Department of Ecology is deciding with the EIS?

Ecology's Memorandum of Understanding for the *TC & WM EIS* includes involvement in the preparation of the ROD(s). Now that the *TC & WM EIS* has been finalized, Ecology will proceed with approving regulatory actions required to complete the Hanford cleanup. These include actions under the Tri-Party Agreement and actions that require state permits or modifications to existing permits, such as the Hanford Site-Wide Permit. This permit regulates hazardous waste treatment, storage, and disposal activity at Hanford, including actions such as tank closure and supplemental treatment for tank waste. Ecology must comply with SEPA when undertaking permitting actions. It is Ecology's hope that the *Final TC & WM EIS* will be suitable for adoption in whole or in part to satisfy SEPA.

How would DOE and Ecology decide if additional NEPA or SEPA analysis is needed?

If the Preferred Alternatives are not selected in the ROD, DOE, in consultation with Ecology, would determine whether additional SEPA analysis is needed. Ecology also would assess the results of site-specific studies and other information to determine the need for additional SEPA documentation.

Were any preferred alternatives considered in the final EIS that are different than those in the draft EIS?

Although DOE previously expressed its preference that no Hanford tank waste would be shipped to WIPP (74 FR 67189), DOE now prefers to consider the option to retrieve, treat, and package waste that may be properly and legally designated as mixed TRU waste from specific tanks for disposal at WIPP, as analyzed in Tank Closure Alternatives 3A, 3B, 3C, 4, and 5. Initiating retrieval of tank waste identified as mixed TRU waste would be contingent on DOE's obtaining the applicable disposal and other necessary permits and ensuring that the WIPP Waste Acceptance Criteria and all other applicable regulatory requirements have been met. Retrieval of tank waste identified as mixed TRU waste would commence only after DOE had issued a *Federal Register* notice of its preferred alternative and a ROD.

Could there be changes to the Preferred Alternatives between publication of the final EIS and the ROD?

Yes, DOE could decide to make changes to its Preferred Alternative(s) identified in the *Final TC & WM EIS*, which would be explained in the ROD. Any such changes would be based on, or supported by, the scope of the analysis in the *TC & WM EIS*.

We have heard in news reports that the double-shell tanks could be leaking; what does that mean?

In the *TC & WM EIS*, additional tank space was analyzed for all Tank Closure alternatives except the No Action Alternative. The options evaluated in the *Final TC & WM EIS* include construction of either new double-shell tanks (DSTs) or waste receiver facilities, which are smaller than DSTs. DOE is currently evaluating the DST situation with tank AY-102. If a decision is made related to tank space, NEPA evaluation will support that decision.

If the DSTs might be leaking, what does that mean for SSTs, which are even older?

DOE is currently retrieving waste from the SSTs. Requirements in the 2010 Consent Decree identify timeframes for retrievals to occur.

We have heard there are changes to the WTP; how will this affect the EIS?

DOE initiated an effort to re-baseline the WTP project in February 2012, which involves reconsideration of work that has been in the DOE planning process. During the third quarter of fiscal year 2012, several technical and management issues at the Pretreatment and HLW Vitrification Facilities were identified that caused DOE to review the approach of the re-baseline effort, allowing time to resolve technical and management issues before proceeding with full construction of the two facilities. Upon resolution of these facility technical and management issues, a new baseline for the project will be developed. Work on the LAW Vitrification Facility, Analytical Laboratory, and support facilities (“balance of facilities”) continues as was previously planned. The temporary reduction in construction work at the Pretreatment and HLW Vitrification Facilities does not affect the decisions to be made pursuant to this EIS and would not significantly change or affect the analysis results based on the operational periods evaluated in this EIS.

Will reference documents/materials be available?

Referenced documents and materials will be available upon request from the project technical library. These materials will be procedurally controlled to meet copyright protection and Official Use Only requirements.

How can the public have confidence in the *Final TC & WM EIS* analyses when there is so much uncertainty?

DOE recognizes and acknowledges the uncertainty in the *Final TC & WM EIS* estimates of impacts; information is presented in the various chapters and appendices to put the analyses in context. The NEPA evaluation process is conducted early in agency planning, when details of the proposed project may not yet be well defined, and those uncertainties are discussed in the EIS. Some *TC & WM EIS* decisions have been delayed or deferred until certain information is known or until other activities occur. In those cases, the process in which NEPA evaluation would occur prior to making a decision is discussed in the EIS as well.

If waste is designated for disposal off site, where would it go?

The action decision on where the waste will go will be made after the *Final TC & WM EIS* results are documented in the ROD and Findings Statement.

The disposal options and expectations are as follows:

- LLW – LLW for which DOE is responsible could be disposed of in an IDF or the RPPDF, both located at Hanford.
- MLLW – It is expected that all of this waste would be disposed of in an IDF located at Hanford.
- Hazardous waste – It is expected that hazardous waste would be disposed of at existing regional disposal facilities.
- Tank-derived TRU waste – Depending on waste acceptance criteria, this waste could be processed on site for disposal at WIPP.
- HLW – HLW will be stored on site until future disposition decisions are made.

What will happen to the HLW at Hanford based on the Blue Ribbon Commission report?

The analysis in the *Final TC & WM EIS* is not affected by DOE plans to study alternatives for the disposition of the Nation's spent nuclear fuel and HLW. The *Final TC & WM EIS* analyzes alternatives in which all the HLW canisters are stored at Hanford. This allows for safely storing waste at Hanford until future disposition decisions are made and implemented.

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To view EIS-related documents, visit
<http://www.hanford.gov/page.cfm/EnvironmentalImpactStatements>.