



U.S. DEPARTMENT OF
ENERGY



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

Frequently Asked Questions

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

The *Draft TC & WM EIS* (DOE/EIS-0391-D) 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 *Draft TC & WM EIS*?

DOE is the lead agency for preparation of the *Draft TC & WM EIS*. The Washington State Department of Ecology (Ecology) is a cooperating agency on the *Draft TC & WM EIS* to satisfy Washington's State Environmental Policy Act (SEPA).

What does the potentially affected environment include?

The description of the affected environment includes areas that would be impacted by implementing the alternatives, including impacts on land use and visual resources, site infrastructure, geology and soils, water resources, air quality and noise, ecological resources, cultural resources, human health and safety, socioeconomics, environmental justice, and waste management.

What decisions will be made?

The information, analyses (e.g. construction, operation, decommissioning) and impacts in the *Draft TC & WM EIS* will assist the DOE in addressing issues such as the following:

- Storage of Tank Waste – Tank farm waste storage would be required under each of the alternatives evaluated in the *Draft TC & WM EIS*; however, different lengths of time are considered depending on the alternative. The *Draft TC & WM EIS* evaluates the construction and operation of the waste transfer infrastructure, including new waste receiver facilities (which are below-grade lag storage and minimal-waste-treatment facilities); waste transfer line upgrades; and additional or replacement double-shell tanks. The *Draft TC & WM EIS* also evaluates various waste storage facilities to manage the treated tank waste and waste associated with closure activities. This includes construction and operation of additional immobilized HLW storage vaults, melter pads, transuranic (TRU) waste storage facilities, and immobilized LAW storage facilities to store treated tank waste.
- Retrieval of Tank Waste – The *Draft TC & WM EIS* evaluates various retrieval technologies and retrieval benchmarks, in addition to no tank waste retrieval. The four waste retrieval benchmarks analyzed are 0 percent, 90 percent, 99 percent, and 99.9 percent.
- Treatment of Tank Waste – Additional waste treatment capability can be achieved by building new treatment facilities that are part of, or separate from, the Waste Treatment Plant (WTP). The two primary options that would be compliant with DOE commitments are to treat all waste in an expanded WTP or provide supplemental treatment to be used in conjunction with, but separate from, the WTP. Supplemental treatment technologies analyzed include bulk vitrification, cast stone, and steam reforming.
- Disposal of Treated Tank Waste – *The Draft TC & WM EIS* addresses on- and offsite disposal, depending on the waste type. Onsite disposal includes disposal of treated tank waste and waste generated from closure activities that meets onsite disposal criteria. The decision to be made involves the onsite location of disposal facilities, specifically, the IDF to manage treated tank waste and the River Protection Project Disposal Facility (RPPDF) to manage closure activity waste. Offsite disposal of TRU waste is assumed to be at the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico.
- Closure of the SST System – The *Draft TC & WM EIS* addresses closure of the SST system for all but two of the Tank Closure alternatives. Several types of closure scenarios are also evaluated: clean closure, selective clean closure/landfill closure, and landfill closure with or without contaminated soil removal. Additionally, different landfill barriers are considered: an engineered, modified Resource Conservation and Recovery Act (RCRA) Subtitle C barrier and a Hanford barrier, to determine the effectiveness of the natural and engineered defense-in-depth barriers.
- Disposal of both Hanford and DOE Offsite LLW and MLLW – The decision to be made concerns the onsite location of disposal facilities for Hanford’s waste and other DOE sites’ LLW and MLLW. DOE committed in the Record of Decision (ROD) for the *Final Hanford Site Solid (Radioactive and Hazardous) Waste Program Environmental Impact Statement, Richland, Washington* (DOE/EIS-0286F) that henceforth LLW would be disposed of in lined trenches. Thus, the decision would determine whether to dispose of the waste at the current IDF location in the 200-East Area or at a new IDF location in the 200-West Area.

- Final Decommissioning of FFTF – The decision would identify the final end state for the aboveground, belowground, and ancillary support structures of FFTF.

How will the public know what DOE’s 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 U.S. Environmental Protection Agency’s Notice of Availability of a final environmental impact statement (EIS).

What’s a Record of Decision?

A ROD is a concise public 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 we know what the Washington State Department of Ecology is deciding with the EIS?

After the *TC & WM EIS* is finalized, Ecology will proceed with approving regulatory actions required to complete the Hanford cleanup. These include actions under the Hanford Federal Facility Agreement and Consent Order (HFFACO, or 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.

What’s a Findings Statement?

The Findings Statement is a written statement that considers the relevant environmental impacts presented in an EIS; weighs and balances them with social, economic, and other essential considerations; provides a rationale for decisions; and certifies that SEPA requirements have been met.

What alternatives are analyzed in the *Draft TC & WM EIS*?

No Action Alternative for Tank Closure: As required by Council on Environmental Quality and DOE National Environmental Policy Act (NEPA) implementing regulations, the *Draft TC & WM EIS* analyzes No Action Alternatives for each of the three sets of proposed actions. For Tank Closure, the *Draft 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 (TWRS EIS)* (DOE/EIS-0189). This alternative includes no tank closure actions.

Action Alternatives for Tank Closure: The *Draft 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 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.

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 *Draft TC & WM EIS* evaluates two action alternatives for storing, 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.

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 *Draft 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; and (4) converting Hanford bulk sodium to a caustic sodium hydroxide solution at Hanford or Idaho National Laboratory for reuse in the WTP and to permanently close the conversion facility.

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

If the Preferred Alternative is selected in a ROD, DOE and Ecology would assess the results of site-specific studies as they become available, along with other emerging information such as applicable technology development. In consultation with Ecology, DOE would determine whether the new information warrants a supplemental EIS. Ecology also would assess the results of site-specific studies and other information to determine the need for additional SEPA documentation.

Has consideration been given to a hybrid of the alternatives in the Draft TC & WM EIS?

At this time, DOE does not anticipate a hybrid alternative being selected; however, DOE recognizes that, after consideration of public comments, some combination of alternatives analyzed in the *Draft TC & WM EIS* may be suggested as the best way to meet agency goals and protect human health and safety and the environment. If that occurs, then that hybrid case would have to be evaluated and presented in the *Final TC & WM EIS*.

Were any preferred alternatives considered in the draft?

Preferred Alternatives: The *Draft TC & WM EIS* analyzes a total of 17 alternatives for the three sets of proposed actions. Of the 11 alternatives analyzed for tank closure, DOE prefers the Tank Closure alternatives that would retrieve at least 99 percent of the tank waste. For treatment, DOE prefers the alternatives that would allow for separation and segregation of the tank waste for management and disposition as LLW, TRU waste, and HLW. DOE does not prefer the alternatives that would treat all the tank waste as HLW. DOE prefers landfill closure of the SST system.

For FFTF decommissioning, DOE prefers the Entombment Alternative, which would remove all above-grade structures, including the Reactor Containment Building. Below-grade structures, the reactor vessel, piping, and other components would remain in place and be filled with grout to immobilize the remaining radiological and hazardous constituents. Waste generated from these activities would be disposed of in an IDF, and a modified RCRA Subtitle C barrier would be constructed over the filled area. The RH-SCs would be processed at Idaho National Laboratory, but the bulk sodium inventories would be processed at Hanford.

For waste management, DOE prefers disposal of all LLW and MLLW in the 200-East Area IDF. Disposal of contaminated waste from SST closure activities in a new RPPDF would also be included. After completion of the disposal activities, both facilities would be landfill closed under an engineered, modified RCRA Subtitle C barrier. The preferred alternative also includes maintaining existing limitations and exemptions on off-site waste importation at Hanford until at least the Waste Treatment Plant is operational, as those limitations and exemptions are defined in DOE's January 6, 2006 Settlement Agreement with the State (as amended on June 5, 2008) regarding Washington v. Bodman, No. 2:03-cv-05018-AAM.

How long is a public comment period?

The minimum public comment period for an EIS is 45 days. The public comment period for the *Draft TC & WM EIS* is 140 days.

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 be confident in the Draft TC & WM EIS analyses when there is so much uncertainty?

DOE recognizes and acknowledges the uncertainty in the *Draft TC & WM EIS* estimates of impacts; information is presented in the various chapters and appendices to put the analysis in context. When a ROD is reached, the Assistant Manager for Environmental Management recognizes the uncertainty of long-term impacts under all alternatives. The decisionmakers have to determine if they can make and defend a decision based on existing information or whether they need additional information.

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

The action decision on where the waste would go will be made after the *Final TC & WM EIS* is complete and the 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.

- MLLW – It is expected that all of this waste would be disposed of in an IDF.
- 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.

What is the basis for the duration of the various alternatives?

The limiting factor in determining the duration of the longest alternatives (Tank Closure) was based on the rate at which tank waste treatment can be accomplished through the WTP with or without supplemental waste treatment. The longest-duration alternative assumes all of the waste would be vitrified as HLW.

Putting a reservoir near Hanford was being considered. What is the status of those activities?

The U.S. Bureau of Reclamation issued its *Final Planning Report/Environmental Impact Statement for the Yakima River Basin Water Storage Feasibility Study* (INT-FES-08-65) in December 2008 with Ecology as a cooperating agency. The U.S. Bureau of Reclamation identified the No Action Alternative, which includes activities currently planned or under construction, as the Preferred Alternative. Thus, at the current time, no reservoir near Hanford is being pursued. The U.S. Bureau of Reclamation has informed Ecology that a formal ROD is not required and will not be prepared.

The *Draft TC & WM EIS* contains an appendix that discusses the site-specific impacts the reservoir could have had on Hanford.

What happens if Yucca Mountain does not open?

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

How is the *Draft TC & WM EIS* impacted by the American Recovery and Reinvestment Act funding?

Under the American Recovery and Reinvestment Act, DOE will conduct projects to accelerate existing cleanup at Hanford. Some of these activities are included in the cumulative impact portion of the *Draft TC & WM EIS* analysis, e.g., demolition of nuclear facilities and support facilities and retrieval of solid waste from LLBGs.

Some activities are analyzed in the *Draft TC & WM EIS*. These include items such as infrastructure upgrades, system transfer capabilities, design of HLW storage facilities, and upgrades of treatment facilities. Some projects were covered under the *TWRS EIS* and the *Final Environmental Impact Statement, Safe Interim Storage of Hanford Tanks Wastes, Hanford Site, Richland, Washington* (DOE/EIS-0212). Additional NEPA reviews such as environmental assessments have been conducted as interim actions while the *Draft TC & WM EIS* was being developed.

The consent decree is out for public comment and the dates in that document do not match the EIS dates exactly, why not?

That is true and it is OK. The EIS looks at broad timeframes for activities. The dates in the EIS provide the reader an indication of the potential schedule for multiple activities that DOE expects could be

accomplished over a particular period of time (e.g. over the next five year, in the next decade, in fifty years). The consent decree is a legally enforceable document which defines specific activities and dates by which they need to be completed.

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