

[6450-01-P]

DEPARTMENT OF ENERGY

Amended Record of Decision for the Management of Cesium and Strontium Capsules at the Hanford Site, Richland, Washington

AGENCY: Department of Energy.

ACTION: Amended record of decision.

SUMMARY: This is an amendment to the U.S. Department of Energy's (DOE) Record of Decision for the *Final Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington* (DOE/EIS-0391, December 2012) (TC&WM EIS). From 1974 to 1985, cesium and strontium were recovered from high-level radioactive waste stored in underground tanks at the Hanford Site, packed in corrosion-resistant capsules, and placed in storage under water at Hanford's Waste Encapsulation and Storage Facility (WESF). The TC&WM EIS evaluated storage, treatment, and final disposition of these capsules and their contents. This amended Record of Decision (ROD) announces DOE's decision to move the capsules from wet storage at WESF to a new dry storage facility.

ADDRESSES: For copies of this amended ROD, the first ROD, the TC&WM EIS, or any related NEPA documents, please contact:

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This amended ROD, the first ROD, and the TC&WM EIS are also available on DOE's NEPA web site at www.energy.gov/nepa and on Hanford's web site at <http://www.hanford.gov/index.cfm?page=1117&>.

FOR FURTHER INFORMATION CONTACT:

For further information about the TC & WM EIS and the RODs, contact Ms. Burandt, as listed above.

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SUPPLEMENTARY INFORMATION:

Background

The cesium and strontium capsules were produced at Hanford during the 1970s and 1980s. Cesium and strontium isotopes were separated from other radioactive tank waste, converted to cesium chloride and strontium fluoride, and then encapsulated for long-term storage. There are 1,335 cesium capsules and 601 strontium capsules stored under water in a pool at WESF.

Synopsis of the TC&WM EIS and the First Record of Decision

The final TC&WM EIS was issued in December 2012. It analyzed a number of alternatives for retrieving waste from Hanford's single-shell tanks, treating that waste, and closing the tanks. It also analyzed alternatives for managing other types of wastes at Hanford, and for

decommissioning the Fast Flux Test Facility.¹ Three alternatives for managing the cesium and strontium capsules now stored in WESF were evaluated: (1) the no action alternative, which was continued storage in WESF; (2) shipment of the capsules from WESF to new facilities where the capsules would be opened and their contents made into a slurry for processing in the Waste Treatment Plant; and (3) transfer of the capsules from WESF to a new interim dry storage facility where they would remain until their contents were treated and sent to a geologic repository. The third alternative was included in the final EIS in response to comments from the state of Oregon and the Yakama Nation.

The first ROD, published on December 13, 2013 (78 FR 75913), contained no decisions regarding the interim storage, treatment, or final disposition of the capsules or their contents.² Accordingly, the capsules continue to be stored in WESF.

Events since Issuance of the First Record of Decision.

Since issuance of the ROD, completion of the Waste Treatment Project has been delayed and WESF is experiencing degradation of key structures and safety systems, including the concrete walls of the storage pool due to gamma radiation emitted by the capsules. The degradation of WESF has increased the risk that a beyond design basis natural event (e.g. an earthquake) could cause the walls to fail, resulting in loss of the water that provides shielding of the capsules. Due to this concern and the realization that the capsules would likely need to stay in WESF for a

¹ The alternatives analyzed in the TC&WM EIS are described in detail in Chapter 2 of the final EIS. Chapter 2 also identifies DOE's preferred alternatives for tank closure, decommissioning of the Fast Flux Test Facility, and waste management on pages 2-321 through 2-322. The final EIS also states that DOE would not make any decision regarding the final disposition of the capsules after treatment based on this EIS. (Final TC &WM EIS at page 1-15.)

² The first ROD noted that it "is the first in a series of RODs that DOE intends to issue pursuant to the *Final TC&WM EIS*." (78 FR 75918.) It also stated that DOE was "not deciding on treatment of the cesium and strontium capsules in this ROD." (*Id.*)

period longer than its design life, DOE has concluded that interim dry storage of the capsules in a new facility would significantly reduce the potential risk of onsite radiological exposures and airborne releases from a failure of WESF.

Preferred Alternative for Interim Storage of the Capsules

Because of the delays in completing the Waste Treatment Plant and the ongoing degradation of WESF, DOE has now concluded that its preferred alternative for interim storage of the capsules is in a new dry storage facility. This is also the environmentally preferred alternative for interim storage of the capsules as it would reduce the risks posed by a failure of WESF.

Decision

DOE evaluated the transfer of the cesium and strontium capsules from WESF to dry storage in Appendix E of the final TC&WM EIS (Section E 1.2.3.4.5.) in response to comments from the state of Oregon's Department of Energy and the Yakama Nation (Final TC&WM EIS at 3-29 to 3-30 and 3-437 to 3-440). This evaluation identified the potential impacts from construction and operation of a new dry storage facility in the 200-East Area of Hanford, which would be deactivated upon final disposition of the capsules. These impacts included those from the construction of an approximately 6,500-square-meter (70,000-square-foot) dry storage facility and disturbance of 13,000-square-meters (140,000-square-foot) of ground. They also included the operational impacts from retrieval of the capsules from WESF and their placement into containers; transfer of the containers to the new storage facility; and maintaining and monitoring of the facility for up to 145 years (the maximum storage time under all of the Tank Closure Alternatives analyzed in the TC & WM EIS). The potential impacts from deactivation of the dry

storage facility included those resulting from putting the facility into a stable configuration after removal of the capsules for treatment, disposition, or both.

The capsules would be transported and stored in casks similar to the casks analyzed in the TC&WM EIS; they would be passively ventilated to dissipate heat produced by radioactive decay within the capsules. The current design of the dry storage facility, which would be located approximately 400 meters (440 yards) from the existing WESF, calls for a storage pad of 753 square meters (8,100 square feet) within the facility on which the casks would be placed. The new facility would be a “dangerous waste management unit” under the Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit; it would be added to the permit through a modification issued by the state of Washington pursuant to its delegated RCRA authority.

The potential environmental impacts from interim dry storage of the capsules would be less than those identified in the TC&WM EIS for this alternative, primarily due to the decay of radioactivity in the capsules. In June 2017, DOE estimated that the radioactivity in the capsules had decayed to 46 million curies; the final TC&WM EIS assumed the capsules contained about 68 million curies.

DOE’s decision is to continue interim storage of the capsules, but in a new dry storage facility rather than in WESF. DOE is not making any decisions at this time on treatment or final disposition of the cesium and strontium capsules.

Mitigation Measures

Moving the capsules from WESF to a dry storage facility will mitigate potential impacts resulting from a potential failure of WESF. This decision will allow DOE to eliminate the potential for releases to groundwater and the atmosphere from a structural failure of WESF.

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