

Treatment: Retrieved waste would be treated with the WTP capacity based on enhanced and/or modified performance of operating systems (e.g., modifications to melters to increase throughput). WTP capacity would be supplemented with additional waste treatment capacity to immobilize LAW using a non-vitrification technology. New non-vitrification supplemental treatment capacity would be developed external to the WTP to immobilize a portion of the tank waste that would be designated as LLW pursuant to DOE Order 435.1 and/or prepare a portion of the tank waste that would be designated as TRU waste for disposal. Waste treatment under this alternative would be completed in 2028 and all SST tank systems would be closed by 2028.

Disposal: ILAW immobilized via the WTP would be disposed of onsite or at offsite commercial (e.g., U.S. Ecology of Washington or Envirocare of Utah) or DOE facilities (Nevada Test Site). IHLW would be stored onsite pending disposal at a national geologic repository. LLW immobilized external to the WTP would be disposed of onsite or at offsite commercial or DOE facilities. TRU waste would be packaged and stored onsite in an existing or new facility pending disposal at the Waste Isolation Pilot Plant (WIPP).

Closure: As operations are completed, SST waste system, waste storage, treatment and disposal facilities at the Hanford Site would be closed as a RCRA landfill unit under Dangerous Waste Regulations under WAC 173–303 and DOE Order 435.1, as applicable, or decommissioned (waste treatment facilities under DOE Order 430.1A). The tanks would be filled with materials to immobilize the residual waste and prevent long-term degradation of the tanks and discourage intruder access. Tanks, ancillary equipment, and contaminated soils would be remediated and remain in place and the closed tank systems would be covered with an engineered barrier that exceeds RCRA landfill requirements and is the more protective of the landfill options being evaluated (i.e., Hanford barrier).

The main differences between this alternative and other alternatives involve: 1) Using a more robust barrier for closure of tank systems that would provide longer term protection from contaminant releases from closed tank systems and limit intrusion into the closed system compared to the barrier evaluated under Alternatives 5 and 6 (tanks would not be closed under Alternatives 1 and 2, thus no barriers would be used); and 2) Treatment and disposal of treated waste would be the same for Alternatives 3 through 5

allowing for a comparison of the impacts associated with deployment of systems to treat and dispose of transuranic waste (Alternatives 3 through 5) to treatment of waste via the WTP and subsequent management as ILAW and IHLW (Alternatives 2 and 6).

4.0 Clean Closure of Tank Farms/ Onsite and Offsite Waste Disposal

Storage: DOE would continue current waste management operations using existing storage facilities that would be modified, as needed, to support minimizing liquid losses from SSTs and accelerating SST waste retrieval into safer storage pending retrieval for treatment.

Retrieval: Waste would be retrieved using multiple waste retrieval campaigns using various retrieval technologies (e.g., confined sluicing, crawlers), to the extent needed to support clean closure requirements (i.e., 0.1% residual in the tanks or 99.9% waste retrieved from tanks) using liquid and non-liquid retrieval and enhanced in-tank and/or ex-tank leak detection systems.

Treatment: Retrieved waste would be treated with the WTP capacity based on enhanced and/or modified performance of operating systems (see Alternative 3). New alternative treatment capacity to immobilize LLW (e.g., bulk vitrification, containerized grout, steam reforming, sulfate removal) and/or prepare TRU waste for disposition would be developed external to the WTP. Waste treatment under this alternative would be completed in 2028 and all SST tank systems would be closed by 2028.

Disposal: LAW immobilized via the WTP would be disposed of onsite or at offsite commercial or DOE facilities (see Alternative 3). IHLW would be stored onsite pending disposal at a national geologic repository. LLW immobilized external to the WTP would be disposed of onsite or at offsite commercial or DOE facilities (See Alternative 3). TRU waste would be retrieved from tanks, packaged in a new facility, and stored onsite in existing or new storage facilities pending shipment to and disposal at the WIPP.

Closure: Clean closure reflects minimal residual waste in tanks and ancillary equipment, and contaminated soils remediated in place and/or removed from the tank system to be treated and disposed of in accordance with RCRA requirements. As operations are completed, all SST system storage, treatment, and disposal facilities at the Hanford Site would be closed. Waste storage and disposal facilities would be closed in a manner that supported

future use on an unrestricted basis and that did not require post-closure care.

The main differences between this alternative and the other alternatives are: 1) The greatest amount of waste is retrieved from tanks based on multiple technology deployments; and 2) tank systems would be closed to meet clean closure standards. Treatment and disposal of treated waste would be the same for Alternatives 3 through 5, allowing a comparison of the impacts associated with deployment of systems to treat and dispose of TRU waste (Alternatives 3 through 5) to treatment of TRU waste via the waste treatment plant (Alternatives 2 and 6).

5.0 Accelerated Landfill Closure/ Onsite and Offsite Waste Disposal

Storage: DOE would continue current waste management operations using existing storage facilities that would be modified or supplemented with new waste storage facilities, to support actions regarding near-term acceleration of tank waste retrieval and treatment. Under this alternative, some SSTs would be retrieved and closed by 2006, exceeding the existing TPA M–45 commitments.

Retrieval: Waste would be retrieved to the Tri-Party Agreement goal to the extent feasible using currently available liquid-based retrieval and leak detection systems (residual waste would correspond to 90–99% retrieval).

Treatment: Waste treatment would be completed no later than 2024 and SST systems would be closed by 2028. Retrieved waste would be treated with the WTP capacity based on enhanced and/or modified performance of operating systems, as described under Alternative 2. WTP capacity would be supplemented with new treatment capacity to immobilize LLW. New treatment capacity to immobilize LLW and/or prepare TRU waste for disposition would be developed external to the WTP.

Disposal: LAW immobilized via the WTP would be disposed of onsite or at offsite commercial or DOE facilities. IHLW would be stored onsite pending disposal at the proposed national geologic repository. LLW immobilized external to the WTP would be disposed of onsite or at offsite commercial or DOE facilities. Transuranic waste would be packaged and stored onsite pending disposal at the WIPP.

Closure: As operations are completed, SST tank waste system waste storage, treatment, and disposal facilities would be closed as a RCRA landfill unit under Dangerous Waste Regulations under WAC 173–303 and DOE Order 435.1, or decommissioned (waste treatment