

FINDING OF NO SIGNIFICANT IMPACT

TRANSURANIC WASTE RETRIEVAL FROM THE 218-W-4B AND
218-W-4C LOW-LEVEL BURIAL GROUNDS

HANFORD SITE, RICHLAND, WASHINGTON

U.S. DEPARTMENT OF ENERGY

March 2002

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AGENCY: U.S. Department of Energy

ACTION: Finding of No Significant Impact

SUMMARY: The U.S. Department of Energy (DOE) has prepared an Environmental Assessment (EA), DOE/EA-1405, for retrieval of transuranic waste from the 218-W-4B and 218-W-4C low-level burial grounds located in the 200 West Area of the Hanford Site, Richland, Washington. Based on the analysis in the EA, and considering public comments, DOE has determined that the proposed action is not a major federal action significantly affecting the quality of the human environment within the meaning of the *National Environmental Policy Act of 1969* (NEPA). Therefore, the preparation of an Environmental Impact Statement (EIS) is not required.

ADDRESSES AND FURTHER INFORMATION:

A single copy of the EA and further information about the proposed action is available from:

Todd A. Shrader
Waste Management Division
U.S. Department of Energy
Richland Operations Office
P. O. Box 550 A6-38
Richland, Washington 99352
(509) 376-2725

For further information regarding the DOE NEPA Process, contact:

Carol M. Borgstrom, Director
Office of NEPA Oversight
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585
Phone: (202) 586-4600 or (800) 472-2756
E-mail: Carol.Borgstrom@hq.doe.gov

PURPOSE AND NEED: The U.S. Department of Energy needs to improve management of post-1970, contact-handled suspect transuranic (TRU) waste containers (primarily drums) that are stacked in modules and covered with soil in the Low-Level Burial Grounds (LLBG) in the 200 West Area on the Hanford Site.

BACKGROUND: In 1970, the U.S. Atomic Energy Commission (AEC) defined TRU waste as a separate waste category and declared that TRU waste must be retrievably stored. In 1973, the AEC determined that waste containing plutonium might be associated with increased hazards and should be disposed of in facilities that provide a greater level of containment than the type of shallow land burial typically used for LLW. Since then, suspect-TRU waste (identified at that time as waste likely to contain greater than 10 nanocuries per gram of transuranic radionuclides) was separated from other LLW and retrievably stored in designated areas in the 200 Areas LLBG. The definition of TRU waste was changed in 1984 to specify only waste containing greater than 100 nanocuries per gram of transuranics; therefore,

some of the suspect TRU waste initially placed in storage would now be LLW. The proposed action would occur on the Hanford Site in the 218-W-4B and 218-W-4C LLBG.

The 218-W-4B LLBG in the 200 West Area became active in 1967, and was last used in 1990. The 218-W-4C LLBG, also in the 200 West Area, first received waste in March 1978, and is still active.

A small amount of uncovered drums remain in the 218-W-4C LLBG. Some of these drums have been assayed and designated as TRU or LLW, while some have not been assayed. Plans are to assay and designate the remaining uncovered drums and transfer the remaining TRU waste designated drums to the Central Waste Complex (CWC) in the 200 West Area or another TSD unit for storage by the end of summer 2002.

PROPOSED ACTION: The proposed action would retrieve up to 15,200 buried 208-liter (55-gallon) drums of post-1970, suspect CH-TRU waste from the 218-W-4B and 218-W-4C LLBG, over about a five year period. Retrieval might include a small quantity of containers other than 208-liter (55-gallon) drums, such as 38-liter (10-gallon) drums, 416-liter (110-gallon) overpack drums, and wood or fiberglass-reinforced boxes. The drums would be designated in the LLBG as containing TRU waste or LLW. Any drums that are determined to be LLW, estimated to be about half the drum total, would remain disposed of in the LLBG. Any unvented CH-TRU waste drums would be vented before leaving the LLBG. Those 208-liter (55-gallon) drums determined to be CH-TRU waste, and some of the other TRU waste containers would be transferred to CWC or another permitted TSD unit for storage, in accordance with the TSD unit waste acceptance criteria. All other TRU waste containers (e.g., boxes, RH-TRU) would be staged within the LLBG for later disposition.

The containers in all the trenches except Section V7 in Trench 7 of the 218-W-4B LLBG are stored in modules. A module is normally 3 or 4 layers of horizontally stacked drums. The number of containers in a module could vary, as some modules contain boxes in place of drums. Drums in V7 are placed on their side in a different configuration.

The retrieval of buried post-1970, suspect CH-TRU waste is proposed to begin in 2002, and will retrieve approximately 1,200 drums in the first year of operation. The peak retrieval would be up to 5,000 drums in a 12-month period. After records review is complete, TRU retrieval equipment would be mobilized in the LLBG. Various methods for excavating the covered drums and boxes might be employed. Exposed drums would be inspected for integrity, marked, labeled, and vented, if needed. Drums would be removed from the module and staged within the LLBG. Drums requiring nondestructive analysis (NDA) would be sent through a TRU waste drum assay mobile trailer, or similar assay equipment. TRU waste drums without vents would be placed in an area in the LLBG designated for venting drums with an appropriate venting device. Drums with suspect integrity would be overpacked. TRU waste drums would be bar code labeled and transferred to CWC or another TSD unit for storage. LLW would remain disposed of in the LLBG.

Potential LLBG modifications might include a temporary utility drop from a power pole or use of a portable generator(s). Other examples include drum storage shelters, office and change facility trailers, equipment laydown yards within the LLBG in portions of unused trenches, connex boxes or vans for storage, fencing, and temporary lighting.

ALTERNATIVES CONSIDERED: No-Action: The No Action Alternative to the proposed action would not retrieve any buried TRU waste at this time. This alternative would leave all buried TRU waste containers in place in the current configuration. The LLBG would not be modified and CWC or any other TSD unit would not receive and store the currently buried TRU waste drums.

Alternative to Retrieve All Post-1970 TRU Waste from LLBG 218-W-4B and 218-W-4C: This alternative would retrieve all post-1970 TRU waste from LLBG 218-W-4B AND 218-W-4C, including the boxes, casks, and other large containers and the remote handled (RH) containers that are not included for retrieval in the proposed action. These large and RH containers would be shipped to a storage facility where they would await processing in a RH and large container TRU waste processing facility that would be constructed or modified as part of future activities.

ENVIRONMENTAL IMPACTS: It is expected that there would be no adverse effects on cultural resources from the proposed action. In addition, no Federal or State-listed, proposed, candidate, threatened, or endangered species are expected to be affected.

Small quantities of gaseous and particulate discharges might occur from typical excavation activities in the LLBG. Sources could include the disturbance of contaminated soil, releases from the unearthing of contaminated or breached containers, installation of HEPA filtered venting devices, and very minor releases from the vented containers through the HEPA filtered devices. Under the proposed action, all air effluents would be diffuse and fugitive. Monitoring for diffuse and fugitive emissions is conducted through the Near-Facility Environmental Monitoring Program. Only very minor radiological and hazardous substance releases are expected during excavation, venting operations, and from the vented containers. Any unexpected releases would come from breached drums. The number of breached drums is expected to be very low. Other than some vehicle or crane exhausts, thermal discharges would not be expected. No substantial increases in overall emissions are envisioned from the proposed action.

Safety Impacts: No significant impacts are expected. Any retrieval work in the LLBG would be performed in compliance with ALARA principles, applicable federal and state regulations, and DOE Orders and guidelines. The LLBG are monitored routinely for radiation levels, and radiation work permits would specify the radiological condition and any entry requirements. Personnel would be required to have appropriate training, wear appropriate personal protective equipment, adhere to ALARA principles, and follow established administrative controls. Localized areas of potential radionuclide contamination would be cleaned up, packaged, and disposed of, however the proposed action would not remediate large areas of the LLBG. Radionuclide contamination releases, if any, are expected to be extremely small.

Personnel radiation protection during both LLBG modifications and retrieval activities would be provided through the use of procedural controls and engineering controls as appropriate. Potential radiological exposure received by personnel during the proposed action would be similar to exposures that occur during current routine LLBG operation activities. Radiation exposures would be controlled administratively below DOE limits established in 10 CFR 835, "Occupational Radiation Protection" and the *Project Hanford Radiological Control Manual*.

Accident consequences were considered for the proposed action.

Modifications Phase. Reasonably foreseeable accidents during the minor LLBG modifications would be typical construction accidents. Nonradiological risks to personnel from occupational illness or injury were based on statistics for DOE and DOE contractor experience. The lost work-day rate is 63 per 200,000 hours of construction work. The fatality rate is close to zero per 200,000 hours of work. About 1 lost work day and no fatalities would be expected during the LLBG modifications. All LLBG modification personnel would follow approved LLBG safety procedures for modification activities. There have been no lost workdays in the LLBG over the last 2 years. Public health and safety would not be affected because the area is closed to the general public. Typical construction hazards would exist during the LLBG modifications, however, the risk of severe accidents would be small.

Retrieval Phase. Preliminary hazard evaluation for the retrieval of TRU from the LLBG has been performed. A fire and explosion involving retrieved containers was postulated as the bounding accident scenario. This was judged to be in the extremely unlikely ($<10^{-4}$ $>10^{-6}$) event frequency category.

The scenario for the bounding accident not only involved a drum that exploded, but also postulated that 29 other containers could be involved in the accident. It was postulated that the fire resulting from the exploded drum ignited the exposed material from the other containers. The source term for the drums involved in an explosion accident would involve a drum containing 494 grams TRU, and the subsequent rupture and burning release of the contents of 29 containers with 200 grams of TRU each. The dropping of a container resulting in an explosion in one drum and a fire in other drums could occur because of either a mechanical failure or an operator error. The doses estimated were below the emergency preparedness action guide of 1 rem offsite (conservatively taken to be the river boundary). Maximally exposed individuals, if they actually received conservative dose estimates evaluated in the EA, would have an estimated 3.4 % increase in probability of radiation-induced cancer for a worker at the nearest facility not involved in the accident, an estimated 0.026% increase in probability of radiation-induced cancer for a member of the public located on the nearest river shore, or an estimated 0.021% increase in probability of radiation-induced cancer for a member of the public located at the site boundary. It is most likely that there would be no incidents of fatal cancer attributable to projected accident exposures.

An accident sequences would have the potential to release toxic material as well as radioactive material. The toxic consequences of a release from a drum in a fire were compared to the temporary emergency exposure limits (TEELs) as established by the U.S. Department of Energy, Subcommittee on Consequence Assessment and Protective Actions. Under worst-case inventories for potential hazardous materials in drums under the bounding accident scenario, TEEL limits would not be exceeded.

Nonradiological risks to workers from occupational illness or injury are based on statistics for DOE and DOE contractor experience. The lost work day rate is 63 per 200,000 hours of construction work. The fatality rate is close to zero per 200,000 hours of work. About one lost work day and no fatalities would be expected during the retrieval phase. Public health and safety will not be affected because the area is closed to the general public. Typical construction hazards would exist; however, the risk of severe accidents would be small.

Socioeconomic Impacts: Temporary construction (for LLBG modifications) and existing Hanford Site and operations personnel would be used during modifications and operations, therefore no socioeconomic impacts are expected from the proposed action.

Environmental Justice: Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs and activities on minority and low-income populations. Minority and low income population groups are present near the Hanford Site. The analysis of the impacts in this EA indicates that there will

be minimal impacts to both the offsite population and potential workforce by implementing the proposed action, because the proposed action will occur predominately on the Hanford Site and the offsite environmental impacts from the proposed action in this EA are expected to be minimal. Therefore, it is not expected that there will be any disproportionately high and adverse impacts to any minority or

low-income portion of the community.

Cumulative Impacts: Cumulative environmental impacts were considered but no significant cumulative impacts are expected from implementation of the proposed action.

DETERMINATION: Based on the analysis contained in the EA, and considering the pre-approval comments of the Nez Perce Tribe and the State of Washington Department of Ecology, I conclude that the proposed action to improve management of post-1970, contact-handled suspect transuranic waste containers (primarily drums) that are stacked in modules and covered with soil in the Low-Level Burial Grounds does not constitute a "major federal action significantly affecting the quality of the human environment" within the meaning of NEPA. Therefore, an EIS is not required.

Issued at Richland, Washington, this 22 day of March, 2002.


Keith A. Klein
Manager
Richland Operations Office

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