FINDING OF NO SIGNIFICANT IMPACT

FOR

SOLID WASTE RETRIEVAL COMPLEX, ENHANCED RADIOACTIVE AND MIXED WASTE STORAGE FACILITY, INFRASTRUCTURE UPGRADES, AND CENTRAL WASTE SUPPORT COMPLEX

U.S. DEPARTMENT OF ENERGY

RICHLAND, WASHINGTON

SEPTEMBER 1995

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-0981, to assess environmental impacts associated with the retrieval of stored transuranic (TRU) and suspect TRU waste from the Hanford Site's low level waste burial grounds, the construction and operation of facilities necessary to store these retrieved wastes as well as newly generated wastes, and from an infrastructure upgrade of utilities and roadways.

DOE will initiate retrieval and storage activities in preparation for eventual shipment to the Waste Isolation Pilot Project in Carlsbad, New Mexico. The infrastructure network in the 200 West Area will be improved to support the centralization of waste management operations and enhance operational efficiencies.

In addition to the No-Action Alternative, other alternatives to the Proposed Action were considered. Other alternatives included the use of other onsite storage facilities, and the use of other onsite office facilities.

Based on the analysis in the EA, and considering preapproval comments from the State of Washington, the Nez Perce Tribe, and the U.S. Fish and Wildlife Service, 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* (NEPA) *of 1969*. Therefore, the preparation of an Environmental Impact Statement (EIS) is not required.

ADDRESSES AND FURTHER INFORMATION:

Single copies of the EA and further project information about the proposed action are available from:

Mr. T. K. Teynor, Director
Waste Programs Division
U.S. Department of Energy
Richland Operations Office
Richland, Washington 99352
(509) 376-1366

For further information regarding the DOE NEPA process, contact:

Ms. Carol M. Borgstrom, Director
Office of NEPA Oversight
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20685
(202) 586-4600 or (800)-472-2756

PURPOSE AND NEED: DOE needs to take action to: retrieve transuranic (TRU) waste because interim storage waste containers have exceeded their 20-year design life and could fail causing a radioactive release to the environment; provide storage capacity for retrieved and newly generated TRU, Greater-than Category 3 (GTC3), and mixed waste before treatment and/or shipment to the Waste Isolation Pilot Project (WIPP); and upgrade the infrastructure network in the 200 West Area to enhance operational efficiencies and reduce the cost of operating the Solid Waste Operations Complex.

BACKGROUND: In the Record of Decision (ROD) (53 Federal Register (FR) 12449, 1988) for the *Final Environmental Impact Statement: Disposal of Hanford Defense High-Level, Transuranic and Tank Wastes, Hanford Site, Richland, Washington* (HDW-EIS) (DOE 1987), DOE determined it will retrieve and process all TRU and suspect TRU waste that has been retrievably stored at the Hanford Site since 1970. This action is a tier-down from the HDW-EIS ROD. The processing of the retrieved TRU and suspect TRU wastes will occur in the Waste Receiving and Processing (WRAP) Facility.

Since May 1970, solid waste classed as or suspected of being TRU waste has been designated as TRU waste. In 1973, the official level for segregation and storage became 10 nanocuries TRU per gram (Nci TRU/g) of waste. In 1984, the basis for classification as TRU waste was established as 100 Nci TRU/g and remains the designated level today. As a result of these administrative changes, not all retrievably stored waste will be designated as TRU by the current definition. Wastes under 100 Nci TRU/g is characterized as low-level waste (LLW). The retrieved waste will be assayed to determine whether the waste is TRU or LLW.

Retrieval of TRU waste from trenches will be accomplished in phases. Retrieval of TRU and suspect TRU waste containers will start from trench 4C-T04. This trench contains approximately 15 percent by volume of the total retrievably stored TRU waste on the Hanford Site. A future retrieval activity will remove the balance of the retrievably stored TRU waste.

The Solid Waste Operations Complex (SWOC) is a series of existing and planned treatment, storage, or disposal (TSD) units for solid waste operations in the 200 West Area. At present, administrative and operations personnel are scattered around the Hanford Site. Centralized administration and operation facilities will improve Solid Waste operational efficiencies and reduce costs by minimizing travel times.

PROPOSED ACTION: This proposed action will construct and operate the Retrieval Complex, the Enhanced Radioactive Mixed Waste Storage Facility (Storage Facility), the Central Waste Support Complex (CWSC), and associated infrastructure upgrades (i.e., utilities, roads) in the 200 West Area to support the SWOC. In addition, the proposed action includes a mitigation strategy which has been developed to address lost priority shrub-steppe habitat. The estimated cost of the proposed action is $66 million.

This proposed action will initiate the retrieval activities from Trench 4C-T04 in the 200 West Area including the construction of support facilities necessary to carry out the retrieval operations. In addition, the proposed action includes the construction and operation of a facility (Enhanced Radioactive Mixed Waste Storage Facility) in the 200 West Area to store newly generated and the retrieved waste while it awaits shipment to a final disposal site. Also, Infrastructure Upgrades and a Central Waste Support Complex will be constructed and operated to support the Hanford Site's centralized waste management area in the 200 West Area.

The proposed retrieval action includes the retrieval of post-1970 solid waste suspected of containing TRU radionuclides and the construction, operation, and maintenance of a complex of facilities to be used for the retrieval. The proposed retrieval activity will retrieve approximately 2,260 cubic meters (80,000 cubic feet) in about 10,000 drums, of suspect TRU waste from the 200 West Area low-level burial Trench 4C-T04.

The proposed Storage Facility will provide a RCRA permitted storage facility for retrieved TRU and newly generated TRU, mixed, and GTC3 waste awaiting processing in the WRAP facility and for processed waste awaiting shipment to the permanent disposal site. The Storage Facility will provide storage capacity for approximately 5,621 cubic meters (199,500 cubic feet) of waste. This design capacity assumes the WRAP facility is operational and retrieved waste is only stored temporarily pending processing.

The Storage Facility project will consist of the construction and operation of about ten buildings. Proposed new facilities will include three long-term drum storage buildings, an administration building, a shipping and receiving building, a transfer corridor building, an automated drum storage building, a gas sampling building, an ignitable waste storage building, and a box storage building. Only the three long term drum storage buildings will

be built in the first phase of construction and will hold approximately 13,300 Drum Equivalents or 2770 cubic meters (97,800 cubic feet) of waste. All or some of the additional buildings may be constructed during a future construction stage as the need to complete the full proposed Storage Facility arises.

The infrastructure for development of the SWOC will include access roads, electrical power, water supply (sanitary and raw water), fire protection, sanitary sewers, storm runoff systems, and telecommunications systems.

The proposed CWSC will include two pre-engineered metal solid waste management support buildings. Each building will be a single-story structure having individual heat pumps for heating and cooling. Fire protection lines will be installed. Telecommunication features will be extended to these buildings. Sidewalks, parking lots, landscaping, and traffic access routes will be provided as part of the proposed action.

The proposed action will require clearing shrub-steppe habitat to construct new facilities. Relatively undisturbed areas of mature shrub-steppe vegetation that is high quality habitat for many plants and animals have been designated as "priority habitat" by the State of Washington. A Hanford Sitewide Mitigation Strategy is being developed by DOE-RL, the Washington Department of Fish and Wildlife, the USFWS, and the indian tribes.

DOE will compensate for priority habitat loss in accordance with the Sitewide Mitigation Strategy when it is approved. If a sitewide mitigation program is not adopted in a timely fashion (by no later than July 1996), the Solid Waste Operations Complex (SWOC) will then develop a stand-alone program for mitigating the loss of mature sagebrush habitat. The concepts will apply the key elements of the draft site-wide mitigation strategy.

Mitigation will be through restoration of the shrubs in a selected area west of the 200 West Area where the shrub habitat has been damaged by fire. Compensation for lost habitat value for the SWOC Project will be done at a ratio of 3 to 1. The first phase of the proposed action will remove an estimated 11.3 hectares (28 acres) of mature habitat. At the ratio of 3:1, 33.9 hectares (84 acres) will be remediated as compensation. Under a potential future phase of Project W-112, 3.2 hectares (8 acres) of habitat may be destroyed and 9.6 hectares (24 acres) would be remediated in the appropriate area.

RETRIEVAL ALTERNATIVES CONSIDERED:

No-Action Alternative: Under the No-Action Alternative, the existing TRU waste inventory in Trench 4C-T04 would continue to be stored in a retrievable configuration. Current waste management practices of monitoring, surveillance, and maintenance of the retrieval trench would continue until a decision is made to retrieve.

This alternative will maintain the waste containers in a retrievably stored condition well beyond the intended design life of the waste containers, which could mean an increasing potential for loss of structural integrity. As a result of container deterioration, potential releases of TRU waste to the environment could occur.

This alternative does not meet the agency need to initiate retrieval of TRU waste.

STORAGE FACILITY ALTERNATIVES CONSIDERED:

No-Action Alternative: Under the No-Action Alternative, the Storage Facility would not be built. Without the Storage Facility, waste retrieval and treatment for final processing within the WRAP Facility would be inefficient and there would be insufficient RCRA compliant storage for retrieved TRU and newly generated TRU, GTC3, mixed waste, and for the processed waste awaiting shipment to the permanent disposal site.

This alternative does not support the need for additional RCRA permitted storage areas.

Use of an Existing Onsite Storage Facility: Under this alternative, an existing facility on the Hanford Site would be used for storage of waste and the Storage Facility would not be built. Retrievably stored and newly generated TRU, mixed, and GTC3 waste would be moved to this facility for storage awaiting processing and/or disposal.

Existing facilities on the Hanford Site were evaluated that could be utilized for storage of solid waste with sufficient capacity to support WRAP Facility processing and storage of processed waste awaiting disposal. No other suitable storage facilities were identified.

This alternative does not meet the purpose and need.

Alternate Construction Site of Storage Facility within SWOC: Under this alternative, the Storage Facility would be located within SWOC but sited in an area that has been previously disturbed by prior solid waste activities. Based on the results of a biological review of the siting area, other sites within the SWOC will disturb a larger area of habitat (Appendix B).

This alternative does not meet the purpose and need.

INFRASTRUCTURE UPGRADES ALTERNATIVES CONSIDERED:

No-Action Alternative: The infrastructure upgrades would not be provided as part of the proposed action. Existing utilities would continue to be used and no upgrades would be made to support the planned retrieval activity and WRAP Facility processing. Access to the planned SWOC to support future transport and shipment of TRU waste would be restricted to existing roadways.

The No-Action Alternative would not provide the site upgrades at the SWOC to effectively implement the retrieval activities, Storage Facility activities, and eventual WRAP Facility processing and does not support the purpose and need.

This alternative does not meet the agency need.

CENTRAL WASTE SUPPORT COMPLEX ALTERNATIVES CONSIDERED:

No-Action Alternative: Under this alternative, a centralized waste support complex consisting of an administrative building and one operation and maintenance facility would not be built. Solid Waste administrative and operational personnel would continue to be scattered around the Hanford Site at various locations and would continue to travel between these scattered offices to work on assigned tasks.

The No-Action Alternative does not support the purpose and need.

Use of Available Onsite Administration and Maintenance Facilities: Under this alternative, existing facilities on the Hanford Site would be used to house the CWSC administrative and maintenance personnel versus construction of new pre-engineered buildings.

This alternative would not provide for centralized solid waste management operation in the 200 West Area. Without this centralized operation, the estimated 400 solid waste management, maintenance, and engineering personnel would continue to be spread throughout the Hanford Site and would not provide for the desired operational efficiency of the support functions.

Because of other ongoing activities in the 200 Area (e.g., actions necessary for the safe interim storage of Hanford tank wastes; spent nuclear fuel management; Hanford cleanup actions; and actions related to tank waste remediation) and the projected growth in the 200 Area population, administrative and maintenance facilities are not currently available to fully support waste management needs. If practical, a sharing of facilities will be undertaken to accommodate office space needs.

This alternative would neither provide the needed administrative and maintenance office area, nor support the operational efficiency of waste management operations.

This alternative does not support the purpose and need.

ENVIRONMENTAL IMPACTS:

Construction Activities: There is a potential for an airborne emission if a radiation area is unexpectedly disturbed during construction of the proposed action. However, the likelihood of any potential release is minimal because of the radiation administrative controls in place during the construction activities.

No liquid discharges to the environment are expected. There will be small quantities of nonradioactive and nonhazardous construction scrap generated by the proposed action. About 18.6 hectares (46 acres) of land will be impacted and noise levels during construction will increase temporarily.

Any work in radiation controlled areas will be performed in compliance with ALARA principles, applicable state and federal regulations, and DOE Orders and guidelines. The

potential radiation received by workers during the performance of the action will be administratively controlled below an annual EDE of 500 millirem per year and will assure that workers will not be exposed to radiation levels approaching the DOE limit of 5 rem.

A total of approximately 17,600 cubic meters (23,000 cubic yards) of concrete and 299,000 kilograms (330 tons) of steel will be used in construction of the Retrieval and Storage Facility actions, and approximately 250,000 liters (66,000 gallons) of petroleum products will be consumed.

Construction activities will destroy priority shrub-steppe habitat in the area of the proposed buildings, access roads, and parking lots. Of the approximate 18.6 hectares (46 acres) disturbed, an estimated 14.4 hectares (36 acres) will be priority shrub-steppe habitat. This loss of habitat will impact the loggerhead shrike, sage sparrow, and the northern sagebrush lizard that rely on the sagebrush habitat. No other species listed (or candidate for listing) as threatened or endangered will be impacted by the proposed action. Project construction schedules will be adjusted to minimize impact on these species by avoiding site clearing and preparation activities during the nesting season (March through July).

The project has been reduced in scope in response to budget reductions and habitat concerns. This allowed impacts to the habitat to be avoided and reduced. DOE will compensate for priority habitat loss in accordance with the Sitewide Mitigation Strategy.

Mitigation will be through restoration of the shrubs in a selected area of habitat. Compensation for lost habitat value for the SWOC Project will be done at a ratio of 3 to 1. The first phase of the proposed action will remove an estimated 11.3 hectares (28 acres) of mature habitat. At the ratio of 3:1, 33.9 hectares (84 acres) will be remediated as compensation. Under a potential future phase of Project W-112, 3.2 hectares (8 acres) of habitat may be destroyed and 9.6 hectares (24 acres) would be remediated in the appropriate area.

Operational Impacts: Retrieval workers will be exposed to a direct radiation source during retrieval operations. It is estimated that the average annual dose to a worker is about 0.3 rem. Over an estimated three year retrieval activity, a group of 14 retrieval workers could receive a dose consequence of 12.6 person-rem. The health effect to this directly involved worker group is 0.005 LCF.

Twelve storage workers could also be exposed to a direct radiation source and each receive a dose of 0.3 rem. Over a three year storage activity, the worker group could receive a dose consequence of 11.0 person-rem resulting in an estimated 0.004 LCF.

Potential radiological risks to workers will be minimized by job safety planning and adherence to established ALARA principles and industrial health and safety procedures. Potential exposure to chemical hazards is low.

Impacts From A Potential Retrieval Accident: A postulated accident was analyzed whereby an explosion occurred as a result of a hydrogen buildup before installing vents on the drums. The explosion ignites the waste material and contamination is released by fire. This postulated accident has an annual probability occurrence of 2.3×10^{-6} (about two times every one million years) and is considered an extremely unlikely event.

Five directly involved workers are assumed to be involved in the postulated accident and could each receive a dose of 540 rem EDE which could be a potentially lethal dose. These retrieval workers will be wearing proper personnel protective equipment when working in a radiation area and work practices will adhere to ALARA principles. Additional engineered controls will be in place to provide protective shielding to minimize worker exposure. The likelihood of a worker receiving a dose consequence of 540 rem EDE is very remote.

The onsite maximum exposed individual (MEI) (located 100 meters (330 feet) from the release point) could receive a dose of 18 rem which could result in a calculated 0.0072 LCFs. The offsite MEI (located at the Hanford Site boundary) could receive a dose of 0.077 rem resulting in 0.0000385 LCFs. These onsite and offsite MEI doses represent the upperbounding dose consequence and is greater than any dose consequence received by any member of the population. No LCFs would be expected to either the onsite or offsite MEI.

The onsite exposed population of 3,488 is assumed to extend from a minimum of 100 meters (328 feet) from the release point. This population is not directly involved in the proposed drum retrieval activity, but could receive the largest dose consequence of 14,900 person-rem in the event of a postulated accident. The health effect to this onsite population group is calculated to be 6.0 LCF.

The offsite population of 102,538 could receive a dose consequence of 152 person-rem resulting in 0.076 LCFs. It is not expected that a LCF would occur as a result of this unlikely postulated accident.

Impacts From A Potential Storage Accident: A postulated accident for storage operations was analyzed in which waste drums fall, rupture, and ignite in the event of an earthquake. Under this accident scenario, a fire consumes the combustible waste and an airborne release could occur. The annual probability of occurrence of the accident is 1×10^{-3} (once every one thousand years).

A group of four directly involved storage workers is assumed to be near the release point and could receive a dose consequence of 256 person-rem which would result in 0.102 LCF.

The onsite MEI could receive a dose of 2.13 rem which would result in a calculated 0.00085 LCFs. The offsite MEI could receive a dose of 0.26 rem resulting in a calculated 0.00013 LCF. These onsite and offsite MEI doses represent the upperbounding dose consequence and is greater than any dose consequence received by any member of the population. No LCFs would be expected to either the onsite or offsite MEI.

The onsite population group of 3,861 is assumed to extend from a minimum of 100 meters (328 feet) from the release point to the Hanford Site boundary and could receive the largest dose consequence of 1,520 person-rem. The calculated LCFs for this group is 0.6 LCF.

The offsite population of 102,538 could receive a dose consequence of 654 person-rem resulting in 0.33 LCFs. It is not expected that a LCF would occur to a member of the offsite population group.

Socioeconomic Impacts: Work activities on the Hanford Site plays an important role in the socioeconomics of the Tri-Cities. There will be a small, temporary increase of about 100 construction workers from local labor halls. No substantial change is expected in the number of Hanford Site employees and no discernable impact to employment levels within neighboring Benton and Franklin counties.

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. DOE is in the process of developing official guidance on the implementation of the Executive Order. The analysis in this EA indicates that there will be minimal impacts to both the offsite population and potential workforce by implementing the proposed action under both routine and accident conditions. Because the entire proposed action will occur on the Hanford Site and the offsite environmental impacts from the proposed action analyzed in this EA are expected to be minimal, it is not expected that there will be any disproportionate impacts to any minority or low-income portion of the community.

Cumulative Impacts: The existing and planned projects nearby the proposed action were reviewed to determine cumulative impacts that could result from initiating the proposed waste retrieval, waste storage activities, the infrastructure upgrades, and the CWSC.

The offsite population received about 0.3 person-rem via air and water pathways from 200 Area operations in 1993. The calculated radiation exposure to workers involved in the proposed action under normal conditions is very small. The average annual dose rate for 1993 in the 200 Areas was 130 millirem per year and well below the natural background radiation of about 300 millirem per year. The proposed action is not expected to alter calculated radiological air doses.

The proposed action will not discharge any radioactive liquid effluent to the ground and, therefore, not incrementally add to Hanford Site radioactive liquid effluent discharges to the ground.

Nonradioactive liquid effluents will be discharged to the ground because of the planned septic sewer systems. There is a relatively small discharge rate in comparison to the overall Hanford Site discharges. Due to the lateral spreading and relatively small discharge rates, little, if any, discernable mounding, is expected at the water table. The hydraulic impact to local groundwater flow direction is likely minimal and movement of any underground

contaminated plumes is not expected. The proposed septic system will not be expected to impact the groundwater.

Because the proposed Storage Facility will be partly sited on undisturbed land, there will be an incremental loss of shrub-steppe habitat for the loggerhead shrike, sage sparrow and northern sagebrush lizard. An estimated 14.5 hectares (36 acres) of priority shrub-steppe habitat will be lost. Other projects completed, under way, or planned for the future on the Hanford Site involve loss of priority habitat (including the Environmental Restoration Disposal Facility, 240 Access Road, Cross Site Transfer System, and the 200 Area Sanitary Sewer System). Cumulative loss of priority habitat on the Hanford Site could exceed 405 hectares (1,000 acres). An overall Hanford Site Strategy for mitigation for lost priority habitat is currently being developed. Mitigation of habitat loss will be coordinated using that strategy.

Although the retrieval and storage activities will contribute slightly to the Hanford Site employment growth, the increase of about 100 in construction workers will be temporary and the assigned administrative and operations personnel will be re-located from other onsite offices. No cumulative impact is expected to the local economy from undertaking the proposed action.

DETERMINATION: Based on the analysis in the EA, and after considering the preapproval review comments of the State of Washington, the Nez Perce Tribe, and the U.S. Fish and Wildlife Service, I conclude that the proposed action to initiate the proposed waste retrieval, the waste storage activities, the infrastructure upgrades, and the construction and operation of the CWSC does not constitute a major federal action significantly affecting the quality of the human environment within the meaning of NEPA. Therefore, an EIS for the proposed action is not required.

Issued at Richland, Washington, this 28th day of September 1995.

John D. Wagoner
Manager
Richland Operations Office