DOE/RL-2006-48
Rev. 0

Proposed Plan for an Amendment to the Environmental Restoration Disposal Facility Record of Decision

United States
Department of Energy

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United States Department of Energy

P.O. Box 550, Richland, Washington 99352

PROPOSED PLAN FOR AN AMENDMENT TO THE ENVIRONMENTAL RESTORATION DISPOSAL FACILITY RECORD OF DECISION

Hanford Site, Richland, Washington

INTRODUCTION

The U.S. Environmental Protection Agency (EPA), the Washington State Department of Ecology (Ecology), and the U.S. Department of Energy (DOE) (hereinafter referred to as the Tri-Parties) are proposing an amendment to the **Environmental Restoration Disposal Facility Record of Decision** (ERDF ROD). The EPA and DOE are issuing this **Proposed Plan** as part of their public participation responsibilities under 40 CFR 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The location of the Hanford Site and the ERDF are shown in Figure 1, *Hanford Site Map*.

The EPA is the lead regulatory agency for the ERDF project. This Proposed Plan is intended to promote Hanford Site cleanup activities by identifying a process for the disposal of additional Hanford-only-generated remediation waste at the ERDF as follows:

- Authorize the ERDF disposal of specific waste in storage that originated at Hanford in support of ***Resource Conservation and Recovery Act 1976*** (RCRA) and/or ***Comprehensive Environmental Response, Compensation, and Liability Act of 1980*** (CERCLA) cleanup actions which is identified in Table 1, *Hanford Site Generated Cleanup Wastes In Storage Acceptable for Disposal in ERDF*, as well as treatment of that waste at the ERDF as necessary to satisfy applicable RCRA land disposal restrictions (LDRs) and the ERDF waste acceptance criteria (WAC).

- Identify a plug-in approach for the ERDF disposal and treatment, as necessary to meet LDRs and the ERDF WAC, of additional waste in storage generated at Hanford in support of RCRA and/or CERCLA cleanup actions, that is similar to the wastes identified in Table 1, and that contains contaminants at levels that pose a risk to human health or the environment.

On January 20, 1995 the Tri-Parties signed the CERCLA ERDF ROD to provide waste disposal capacity for cleanup of contaminated areas at the Hanford Site. The ERDF ROD provides the overall plan for construction and operation of the facility and provides for disposal of remediation waste originating only from the Hanford Site. A subsequent **explanation of significant difference** (ESD) to the ERDF ROD was issued on July 26, 1996 to allow for the disposal of Hanford investigation-derived waste; Hanford **decontamination and decommissioning** (D&D) waste; waste from RCRA past-practice **operable units** (OU) and closure waste at Hanford; and non-process waste from inactive treatment, storage, and disposal facilities on a case-by-case basis, in accordance with a ROD, removal action memorandum, or other decision document issued under the CERCLA and the NCP. The ESD also authorized the conditional use of ERDF leachate for dust suppression and waste compaction.

MARK YOUR CALENDAR

A public comment period will be held from August 28, 2006 to September 26, 2006. The public is invited to comment on the Proposed Plan. A public meeting will be held if a request is received by the EPA before September 6, 2006.

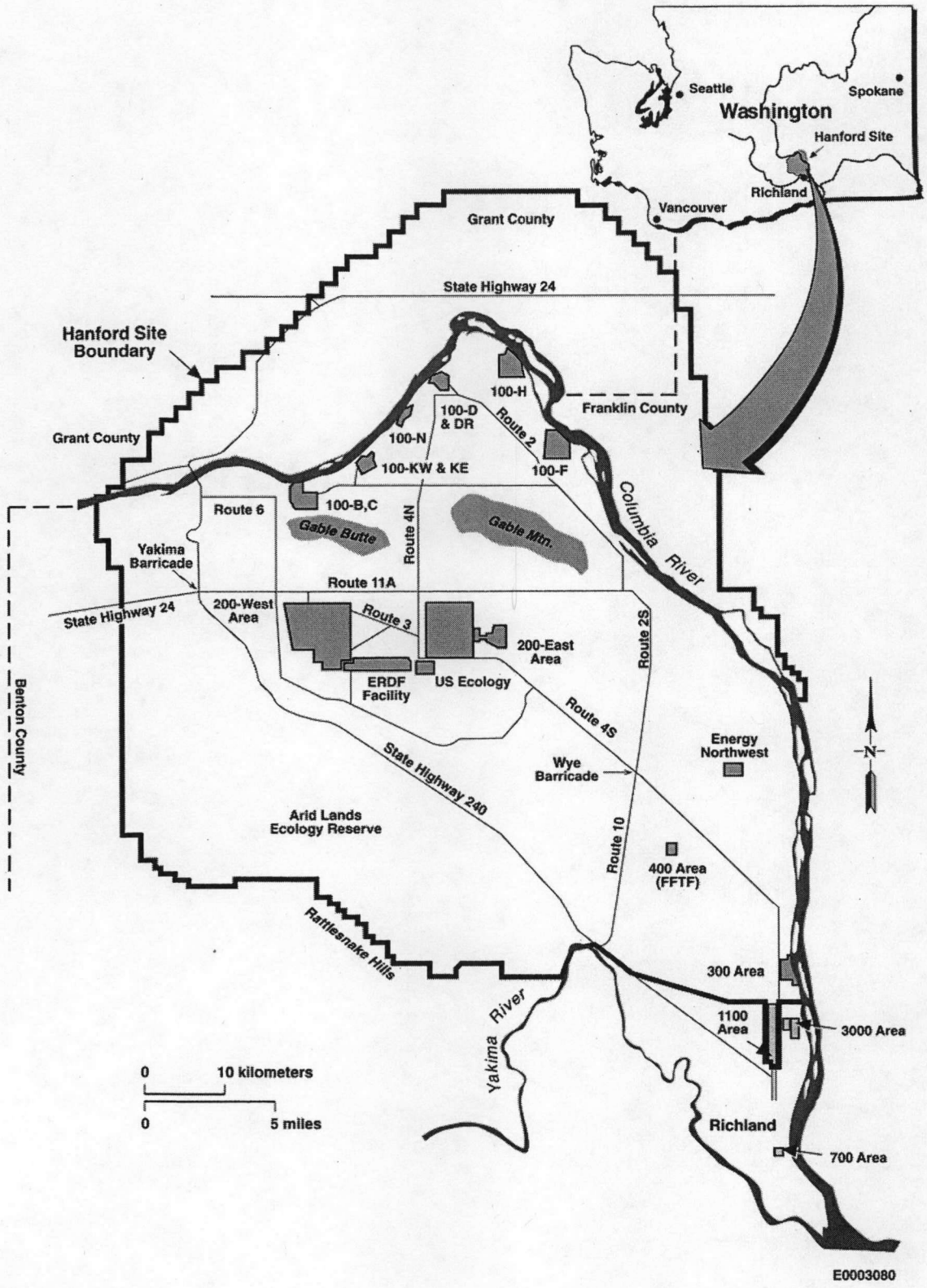
The EPA and DOE, in consultation with Ecology, may modify the preferred alternative presented in this plan, based on new information or public comments. Therefore, the public is encouraged to review and comment on all alternatives presented in this Proposed Plan. The decision reached will be announced to the public and will include a summary of responses to significant comments submitted by the public. All submitted written comments will be placed in the Administrative Record for the ERDF.

To request a public meeting in your area, or to send written comments, contact:

David Einan
U.S. Environmental Protection Agency
309 Bradley Boulevard Suite 115
Richland, Washington 99352

Comments may also be provided via e-mail to einan.david@epa.gov, or by calling the Hanford Cleanup Toll-Free Line at 1-800-321-2008.

Figure 1. Hanford Site Map.



The ERDF was designed to be an engineered disposal facility for low-level and mixed waste produced during environmental remediation to CERCLA past-practice units at the Hanford Site. The ERDF site will cover a maximum of 4.1 km2 (1024 acres) on the Central Plateau, which is located southeast of the 200 West Area and southwest of the 200 East Area.

Three amendments to the ERDF ROD have previously been issued. The first amendment, signed on September 30, 1997, authorized the first ERDF expansion to disposal cells 3 and 4, and authorized treatment of waste by stabilization and encapsulation prior to disposal at the ERDF in accordance with requirements specified in OU or waste site CERCLA decision document. The second amendment was signed on March 23, 1999 allowing leachate from ERDF to be managed as non-hazardous waste if testing shows it is appropriate (delisting of ERDF leachate). The third amendment, signed on January 31, 2002, authorized the second ERDF expansion to disposal cells 5 through 8, and allowed the staging of remediation waste at the ERDF while awaiting treatment.

The development of this Proposed Plan was initiated by the Hanford Cleanup, Constraints, and Challenges Team (C3T) and the Hanford Interagency Management Integration Team (IAMIT). The C3T was an innovative project aimed at the identification, characterization, and resolution of constraints and barriers to the environmental cleanup at the Hanford Site. C3T was initiated to improve the working relationships among the agencies (i.e., the Tri-Parties) by providing an informal process where innovative ideas and concepts could be jointly discussed and considered. The IAMIT Sitewide Waste Management Strategy workgroup was developed as a transition from C3T, with representatives from the Tri-Parties, Hanford contractors, and the Hanford Advisory Board.

This Proposed Plan identifies preferred actions for a fourth ROD amendment to allow for the disposal, at the ERDF, of contaminants in storage that originate at the Hanford Site. The ERDF is currently identified in several Hanford RODs and a number of removal action memoranda as the location for disposal of waste resulting from actions in these areas. The existing RODs, supporting information, and associated public comments can be found in their respective **Administrative Record**, accessible at all locations listed on page 14.

BACKGROUND

Historical operations for the production and operation of nuclear research and development processes at the Hanford Site have resulted in the release of hazardous and radioactive substances to the environment. The Hanford Site has no future DOE production mission and ongoing work at Hanford supports on site cleanup conducted under RCRA and CERCLA. During the last 10 years, cleanup of these contaminants has focused on the remediation and removal actions of specific waste disposal sites and former production facilities.

Other Hanford activities, such as surveillance and maintenance of Hanford facilities, environmental research and development activities, sample analyses, liquid effluent waste treatment, waste storage and existing waste inventory, infrastructure support, and environmental monitoring programs, which all support Hanford's cleanup mission also generate waste. These wastes have and will continue to be generated in support of Hanford cleanup operations. These wastes are often not addressed by a CERCLA decision document (e.g., ROD or action memorandum). Instead, these wastes may be placed into storage, left within the facility, or have been disposed to the unlined trenches on the Hanford Site. Because of the similarity of these contaminants and types of wastes being disposed of at ERDF as part of Hanford waste site cleanup actions, disposal of these wastes in storage to ERDF could provide a more economical and environmentally protective option to waste storage. Table 1 provides a summary of Hanford-only-generated wastes in storage for which EPA proposes to allow ERDF disposal.

The wastes identified in Table 1 are contaminated with hazardous substances, including radionuclides and pose a risk to human health and the environment while in storage. Radionuclides are known carcinogens, and the nonradioactive contaminants present the potential for both carcinogenic and acute toxicity risks. Long-term storage may not fully reduce the risks to public health and welfare or to the environment posed by these wastes. In addition, long-term storage requires continued active management (e.g., weekly physical inspections to ensure container integrity and legible labeling). Until such stored waste is safely disposed it poses a substantial risk of a release into the environment and requires action to protect human health and the environment.

Table 1. Hanford Site Generated Cleanup Wastes In Storage Acceptable for Disposal in ERDF

Process	Source of Hazardous Substances
General Processes (non-facility specific) Used lead acid and cadmium batteries and batteries used in emergency lights and other equipment that are not acceptable for recycling.	Batteries containing hazardous substances (e.g., lead, mercury, cadmium,etc). Primarily Pu isotopes and Am-241.
The waste consists of hazardous debris containing primarily organic and inorganic debris material (e.g., paper, plastic, rubber, wood, cloth, tumbleweeds, rubble, metals, asbestos, etc.) that is contaminated with hazardous substances. Non-transuranic (TRU) designated waste containers from the Transuranic mixed (TRUM) Waste Retrieval Project. In addition, plywood, tarps, PPE, and soil contaminated with hazardous substances from breached containers being retrieved from the covered TRUM retrieval project.	Waste is debris contaminated with hazardous substances such as F, P, and U listed constituents, RCRA metals, corrosives, etc. The waste is from many onsite locations. Hazardous substances could have entered the waste as chemicals used during analytical processes and operating activities. Primarily Pu and U isotopes, Cs-137, Sr-90 and various RCRA and State Only hazardous/dangerous waste.
Radiologically contaminated waste (debris) from operations, surveillance and maintenance activities.	Incidental contamination from contact with residual contamination within the facilities (e.g., ETF, 209-E, 224-B, 224-T, 340, B-Plant, Tank Farms, K-Basins, PUREX, REDOX). Primarily Am isotopes, C-14, Cs-137, I-129 and Sr-90.
Contaminated Electrical Power Lines and Telecommunication Lines	Some power transmission lines have accumulated contamination from past airborne releases. Primarily Pu and U isotopes, Cs-137 and Sr-90.
200 Effluent Treatment Facility (ETF) Secondary waste (dry powder) from the treatment of wastewater through the ETF. The contaminants are destroyed or removed from the wastewater and dried to powder.	Contaminated wastewaters from various generators on the Hanford Site, for example, 242-A Evaporator process condensate, LLBG mixed waste trench leachate, WSCF laboratory wastewater, etc. Primarily Pu and U isotopes, Cs-137, C-14, Tc-99 and various RCRA and State Only hazardous/dangerous waste.
Acid waste, caustic waste and process contact debris from spill clean-up and debris from maintenance activities.	Hanford Site RCRA contaminated wastewaters that are treated through the ETF and used oils/greases from LERF/ETF equipment. Primarily Pu isotopes, Cm-244, Cs-137, Tc-99 and various RCRA and State Only hazardous/dangerous waste.
Waste Encapsulation and Storage Facility (WESF) Contaminated wastes from routine operations and maintenance activities as well as deactivation of the facility's hot cells.	Incidental contamination from past Cs and Sr encapsulation activities. Primarily Am isotopes, C-14, Cs-137, I-129 and Sr-90.
222-S Contaminated waste from general maintenance, analytical procedure operations, hot cell operations and 219-S Waste Handling Facility (WHF) operations.	Hazardous substances in samples from Hanford generating locations (e.g. Tank Farms, K-Basins, N-Reactor Fuel, PFP). Unused samples, unused or expired standards and/or reagents containing hazardous substances. Primarily Pu and U isotopes.
Contaminated liquid and/or solid unused or expired standards and reagents.	Hazardous substances in the samples received from Hanford Site generating locations or added during sample analysis, or within unused/expired standards and reagents. Primarily Pu and U isotopes, Cs-137, C-14, Tc-99 and various RCRA and State Only hazardous/dangerous waste.

Table 1. Hanford Site Generated Cleanup Wastes In Storage Acceptable for Disposal in ERDF

Process	Source of Hazardous Substances
Contaminated radioactive lead solids subcategory waste from general laboratory operations (e.g. hot cell, analytical procedures, and 219-S WHF operations). Lead solids are bricks, shot, and manipulators that are elemental lead and not debris.	Waste is from laboratory operations (e.g. dangerous mixed waste storage area (DMWSA), hot cell, analytical hoods, and 219-S WHF operations). Normally the lead is used as shielding from radiation during Laboratory activities in high radiological contaminated areas. The source of hazardous substances is contaminated waste and samples from Hanford generating facilities (e.g. Tank Farms, K-Basins, PFP, ETF, ERDF, etc.). Primarily Pu isotopes and Cs-137.
Contaminated debris waste from laboratory operations (e.g., analytical procedures, hot cell, maintenance, etc.). This waste is from operations including analytical procedures, hot cell, 219-S WHF, etc.	Laboratory standards, reagents and unused sample debris. The 222-S Laboratory receives mostly Tank Farms samples resulting in waste designating as F001-F005. Samples containing hazardous substances may come from any Hanford generating facility (e.g., ETF, ERDF, K-Basins, etc.). Primarily Pu isotopes, Cm-244, Cs-137 and various RCRA and State Only hazardous/dangerous waste.
Central Waste Complex (CWC) Contaminated waste consisting of many different inorganic solids including particulates, absorbed liquids, sludges, labpacks, paint waste, salt waste, etc. This waste does not include hazardous debris other than incidental debris material commingled with the non-debris.	Waste from various operation activities at the 200 East and 200 West double shell tank (DST) and single shell tank (SST) Systems. Other portion of subject waste was put into CWC storage in boxes and drums. Waste incidentally contaminated with tank waste. Equipment from operations and maintenance of DST/SST systems. Primarily Pu and U isotopes, Cs-137, C-14, Tc-99 and various RCRA and State Only hazardous/dangerous waste.
Contaminated elemental lead solids (bricks, shot, gloves, shielding, etc.). The lead may be commingled with heterogeneous debris or the lead may be a component of a debris article.	The lead itself is a hazardous substance it may also be radioactively contaminated. Primarily Pu isotopes and Cs-137.
Contaminated heterogeneous debris from the SST/DST Systems operations. Waste is shielded to meet contact handled dose limits for CWC.	Waste from various operation activities at the 200 East and 200 West double shell tank (DST) and single shell tank (SST) Systems. Waste placed into CWC storage in boxes and drums. Waste incidentally contaminated with tank waste. Primarily Pu isotopes, Cm-244, Cs-137 and various RCRA and State Only hazardous/dangerous waste.
Low Level Burial Grounds (LLBG) Contaminated Liquid Effluent Facility (LEF) powder drums, tank farm heel jet pump and large T Plant box.	LEF Powders contain the hazardous substances removed during treatment. Primarily Pu and U isotopes.
Contaminated debris waste from routine radiological zone entries, bulk waste (dunnage, trailers, soil/gravels) from LLBG operations.	The waste is radiologically contaminated during routine LLBG operations. Primarily Am isotopes, C-14, Cs-137, I-129 and Sr-90.
Plutonium Finishing Plant (PFP) Spent or expired lab chemicals/reagents containing hazardous substances.	Lab chemicals and reagents are hazardous; they can also be radioactively contaminated. Primarily Pu and U isotopes, Cs-137, C-14, Tc-99 and various RCRA and State Only hazardous/dangerous waste.
Contaminated waste from routine facility operations and D&D activities.	Materials/debris is contaminated with hazardous substances from operations, construction and D&D activities. Primarily Pu isotopes, Cm-244, Cs-137, Tc-99 and various RCRA and State Only hazardous/dangerous waste.

Table 1. Hanford Site Generated Cleanup Wastes In Storage Acceptable for Disposal in ERDF

Process	Source of Hazardous Substances
Contaminated elemental lead previously used for shielding.	The lead itself is a hazardous substance; it can also be radioactively contaminated. Primarily Pu isotopes and Cs-137.
T Plant Expired/excess chemicals from 221-T canyon cleanout containing hazardous substances, contaminated materials from routine maintenance and operations, and contaminated soil. Federal and state LDR compliant waste that does not require additional treatment.	This waste is a result of cleanout activities from the 221-T Canyon and from routine maintenance and operations involving materials contaminated with hazardous substances. Primarily Pu and U isotopes.
Mixed waste solids, contaminated sorbed liquids and soils, and other solids (non-thermal treatment). This waste does not include hazardous debris other than incidental debris material commingled with the non-debris.	The waste is from many onsite locations. The waste is either contaminated with a chemical hazardous substance or is radioactively contaminated. Primarily Pu and U isotopes, Cs-137, C-14, Tc-99 and various RCRA and State Only hazardous/dangerous waste.
Contaminated organic and inorganic debris from 221-T Canyon cleanout (e.g., plastic, rubber, wood, paper, cloth, metals, asbestos, etc.), maintenance, and operational activities.	Operations activities at the T Plant Complex involving hazardous substances (e.g., repackaging waste). In addition, contaminated waste from various onsite generators in which their waste is sent to the T Plant Complex for waste verification/storage/treatment. Primarily Pu isotopes, Cm-244, Cs-137, Tc-99 and various RCRA and State Only hazardous/dangerous waste.
Radioactive lead solids, from light bulbs.	The lead in the removed light-bulb tips is a hazardous substance. It is also radioactively contaminated. Primarily Pu isotopes and Cs-137.
Savannah River tank farm sample returns.	Waste originally came from Tank Farms and is contaminated with radioactive and chemical hazardous substances. Primarily Pu isotopes, Cm-244, Cs-137 and various RCRA and State Only hazardous/dangerous waste.
Waste Receiving And Processing (WRAP) Soils, debris, particulates, etc. contaminated with hazardous substances or waste that does not include hazardous debris other than incidental debris material commingled with the non-debris.	This waste is radioactively contaminated from routine Hanford Operations and is from many onsite locations. Primarily Pu and U isotopes.
Contaminated secondary waste from characterization, processing, verification, and certification of Hanford's newly generated and retrieved waste.	This waste is radioactively contaminated from routine Hanford Operations and is from many onsite locations. Primarily Am isotopes, C-14, Cs-137, I-129 and Sr-90.
324 Discarded/unused chemical products or waste containing hazardous substances. Chemical products were used for maintenance or clean-up activities.	The chemical products are themselves, hazardous substances and have been radioactively contaminated during operations. Primarily Pu and U isotopes, Cs-137, C-14, Tc-99 and various RCRA and State Only hazardous/dangerous waste.
Contaminated waste from decontamination activities using organic solvent.	Some organic solvents are hazardous substances. These solvents are also radioactively contaminated. Primarily Pu isotopes, Cm-244, Cs-137, Tc-99 and various RCRA and State Only hazardous/dangerous waste.

Table 1. Hanford Site Generated Cleanup Wastes In Storage Acceptable for Disposal in ERDF

Process	Source of Hazardous Substances
Contaminated waste from routine operations and maintenance activities as well as deactivation of the facility's hot cells, pipe trench, vaults, and laboratories.	Incidental contamination from contact with residual contamination remaining after shutdown of the facility which supported research operations on radioisotopes. Primarily Am isotopes, C-14, Cs-137, I-129 and Sr-90.
Contaminated lead blocks, lead bricks, lead blankets, lead sheets, and lead shot.	The lead itself is a hazardous substance; it can also be radioactively contaminated. Lead items were used for shielding or counter balances in equipment found in the 324 facility. Primarily Pu isotopes and Cs-137.
325 Contaminated waste from routine operations at Pacific Northwest National Laboratories (PNNL). Including laboratory analysis (physical and chemical) and other testing conducted on SST/DST waste and other high dose-rate substances and wastes.	This waste consists of liquid waste and debris contaminated with radionuclides and inorganic and organic regulated dangerous waste constituents. Primarily Pu isotopes, Cm-244, Cs-137 and various RCRA and State Only hazardous/dangerous waste.
Contaminated solidified liquids and debris waste.	This waste consists of liquid waste and debris contaminated with radionuclides. These wastes are from research laboratories (325, RTR, etc.) located in the 300 Area. Primarily Am isotopes, C-14, Cs-137, I-129 and Sr-90.
Tank Farms Unused sample portions returned from the analytical laboratories derived from secondary waste associated with tank farm activities, including rain water, soil sample, etc.	The samples are contaminated with hazardous and radioactive substances due to association with tank farm activities. Primarily Pu and U isotopes, Cs-137, C-14, Tc-99 and various RCRA and State Only hazardous/dangerous waste.
Organic and inorganic debris containing hazardous substances (paints and paint related products) and/or organic debris which has contacted tank waste and contains hazardous substances. This waste consists of plastic (sheeting, containment tents, and glove bags), rubber, cloth (rags and PPE), filters, paper, wood, concrete, metals, asbestos, etc. The containers may also include shielding material such as rubber or lead when necessary.	The debris is from tank farms. Debris may be hazardous due to regulated chemical products, and is radioactively contaminated. Primarily Pu isotopes, Cm-244, Cs-137, Tc-99 and various RCRA and State Only hazardous/dangerous waste.
Contaminated lead waste including raw lead, lead shots, lead bricks, lead sheets and lead wool which are used in a variety of applications to shield and reduce radiation exposure dose rates.	The lead itself is hazardous; it can also be contaminated with radioactive tank waste. Primarily Pu isotopes, Cs-137.
Contaminated equipment removed from the DST System and SST System, which can include jumpers, pumps, instrument trees, sluicers, and water or air lances.	Equipment removed from the tank system that has contacted tank waste. Contact with the tank waste has lead to the hazardous and radioactive contamination of this waste. The source of hazardous substances is tank waste. Primarily Pu isotopes, Cm-244, Cs-137 and various RCRA and State Only hazardous/dangerous waste.
Waste Sampling and Characterization Facility (WSCF) The contaminated inorganic non-debris waste, sodium sulfate, and silver zeolite from analytical processes in the laboratory.	The hazardous substances are from sample contribution and/or the addition of reagents and lab standards during the analytical process. The reagents and standards may contribute hazardous substances. Primarily Pu and U isotopes, Cs-137, C-14, Tc-99 and various RCRA and State Only hazardous/dangerous waste.

Table 1. Hanford Site Generated Cleanup Wastes In Storage Acceptable for Disposal in ERDF

Process	Source of Hazardous Substances
Contaminated solidified radioactive liquid, packaged dirt/soil samples, and miscellaneous LLW from routine operations and maintenance activities.	Radioactively contaminated environmental media (groundwater and soil samples from onsite locations) and industrial hygiene samples. Primarily Am isotopes, C-14, Cs-137, I-129 and Sr-90.
Contaminated TEVA resins and hazardous waste debris (listed as F001-F005) from discarded lab materials and analytical processes in the lab. This waste consists of debris (e.g., PPE, paper towels, and plastic pipettes).	The hazardous substances are from sample contribution and or the addition of reagents and standards containing hazardous substances during the analytical process. Primarily Pu isotopes, Cm-244, Cs-137, Tc-99 and various RCRA and State Only hazardous/dangerous waste.
Fast Flux Test Facility (FFTF) Contaminated waste (e.g., PPE, bulk waste, ion exchange filters, debris) from routine radiological zone entries associated with ongoing surveillance and maintenance activities and sodium removal.	Incidental radioactive contamination from past reactor operations Primarily Am isotopes, C-14, Cs-137, I-129 and Sr-90.
202-S Contaminated grease and oils used in maintenance activities on the canyon crane way	Hazardous substances resulting from equipment maintenance. Primarily Pu isotopes, Cm-244, Cs-137, Tc-99 and various RCRA and State Only hazardous/dangerous waste.
242-A Evaporator Contaminated process contacted debris from operation, maintenance and clean-up activities. Waste from the operation and maintenance activities at the 242-A Evaporator.	Waste chemically and radioactively contaminated from processing DST Waste. Primarily Pu isotopes, Cm-244, Cs-137, Tc-99 and various RCRA and State Only hazardous/dangerous waste.
2724WB Waste Storage Facility Contaminated cleanup waste stored in this facility, including miscellaneous equipment containing lead solder and lead debris.	The lead in the equipment is a hazardous substance. The equipment is also radioactively contaminated. Primarily Pu isotopes, Cm-244, Cs-137, Tc-99.

DESCRIPTION OF ALTERNATIVES

The ERDF ROD specifies that the ERDF is anticipated to serve as the receiving and disposal facility for most waste generated from response actions where disposal on the Central Plateau is the selected remedy for Hanford Site OUs. The purpose of this proposed plan is to allow the disposal at ERDF of the stored wastes listed in Table 1. These wastes are contaminated with hazardous substances, including in some instances radionuclides. Radionuclides are known carcinogens, and the nonradioactive contaminants present the potential for both carcinogenic and acute toxicity risks. The stored waste presents a substantial threat of release of hazardous substances to the environment that requires action to protect human health and the environment. The Proposal described herein would authorize the disposal of these wastes at the ERDF, as well as treatment at ERDF as necessary to meet the ERDF WAC and LDRs, if applicable.

Alternative 1 (no action), would continue the practice of onsite storage of the waste identified in Table 1 prior to treatment and/or disposal. Because of the limited amount of onsite storage capacity, some wastes might remain outdoors (e.g., low-level waste debris) or left in storage, in place until subsequent waste management decisions are made based on future Hanford Site work prioritizations. Waste generated from Hanford cleanup actions would continue to be eligible for ERDF disposal as provided in ERDF and other CERCLA decision documents.

Alternative 2 would authorize Hanford-generated waste in storage listed in Table 1, to be eligible for ERDF disposal, as appropriate. This alternative does not dictate that wastes listed in Table 1, must be disposed of in the ERDF if they can be otherwise treated and/or disposed of, but it does provide an approved disposal option for the wastes.

Additional wastes that originate at Hanford and are placed in storage, that are not listed in Table 1, but which present a substantial threat of a release to the environment and are similar and contain hazardous substances at levels that pose a risk to human health or the environment, could become eligible for ERDF disposal under this proposal. This plug-in process would allow such other wastes in storage to be authorized for ERDF disposal without an ESD or ROD, upon written EPA approval. Under this approach, EPA would be asked to consider approving ERDF disposal for such wastes in storage where appropriate.

If approved by EPA, the waste would be subject to the ERDF waste acceptance and disposal processes, as are the wastes identified in Table 1 of this Proposed Plan.

EPA must approve each Hanford-generated waste, not already identified in Table 1, before it can be disposed of in the ERDF. The scope of this proposed action does not apply until waste is stored. The generation, treatment, and other management prior to and during storage would be governed by otherwise applicable requirements (e.g., RCRA). EPA will consider risk to both workers and the environment and appropriateness of disposal at ERDF.

For a Hanford-generated waste in storage to be eligible for the plug-in approach, it must, at a minimum, meet the following criteria:

- Meet the existing ERDF WAC (or be capable of meeting WAC with treatment)
- Comply with land disposal restriction (LDR) requirements, as applicable
- Be generated at Hanford or be directly derived from a Hanford-generated waste in support of RCRA and/or CERCLA cleanup actions. Be compatible for disposal at the ERDF
- Not already addressed by a CERCLA decision document
- EPA approval has been granted for each individual waste

The lead regulatory agency for the ERDF (EPA) would be informed when DOE identifies a Hanford-generated waste in storage that qualifies for ERDF disposal under the plug-in approach. EPA must approve each waste before it can be disposed of in the ERDF. The public would be notified through the issuance of an annual fact sheet on Hanford-generated stored waste identified by DOE and authorized by the EPA for disposal at the ERDF under the plug-in approach.

Waste treatment, if needed to meet the ERDF WAC or LDR standards, would be performed at the onsite generator location, or at an approved offsite facility, in accordance with the applicable regulatory framework and requirements (e.g., RCRA, *Atomic Energy Act of 1954*, etc.). When appropriate, treatment could be performed at ERDF (stabilization/encapsulation) in accordance with ERDF ROD, as amended, and a treatment plan approved by the EPA.

Disposal of contaminated material at the ERDF has been chosen as the preferred remedy for much of the waste excavated from numerous Hanford **waste sites**. The current estimate is that approximately 10 million tons of waste from 100 and 300 Area remediation will be disposed at the ERDF. The ERDF has disposed of approximately 6 million tons of Hanford cleanup waste since the facility started operations in 1996 (an average of 625,000 tons per year). The approximate amount of additional waste to be disposed at the ERDF, if Alternative 2 is selected, is estimated to range from 1,800 to 4,500 tons per year for the next 20 years. The estimated volume for this waste is not a significant volume, as compared to the annual disposal of existing remedial action wastes, and thus would not require an expansion of the ERDF.

EVALUATION OF ENVIRONMENTAL IMPACTS

Alternative 1 (no action) would continue the practice of onsite storage pending future treatment and disposal. The impacts of storage of waste include the potential for future releases and increased exposure to workers due to continued operations.

Alternative 2 would allow disposal of certain stored waste within the ERDF. The actions identified for Alternative 2 would be protective of human health and the environment. The wastes would be disposed of within a lined landfill that meets RCRA minimum technology requirements (40 CFR 264, Subpart N). The ERDF also meets the design criteria of a TSCA landfill. These stored wastes are similar and consistent with waste generated from existing waste cleanup actions at Hanford and currently disposed at the ERDF. The proposal would reduce storage and provide an economical disposal option, accelerate the Hanford mission to decrease footprint, and be protective of groundwater. Ecological impacts would be minimized, since the proposed action does not require new construction activities (e.g., additional expansion to accommodate these wastes, new roadways, etc.) and would utilize existing processes and systems to manage these wastes.

CERCLA EVALUATION CRITERIA

These criteria fall into nine categories: the first two (overall protection of human health and the environment and compliance with **applicable or relevant and appropriate requirements** [ARARs]) are considered to be threshold criteria and must be met (ARARs may be waived under certain circumstances). The next five items are considered to be balancing criteria and are used to compare the technical and cost aspects of alternatives. The final two criteria (state and community acceptance) are considered to be modifying criteria. Modifications to decisions may be made based on state and public comments. The criteria are summarized in the box below.

SUMMARY OF ALTERNATIVES

Numerous previous CERCLA disposal decisions have concluded that the ERDF disposal is cost effective and protective compared to alternative disposal options for wastes that meet the ERDF waste acceptance criteria. Based on this information, two alternatives have been identified:

Alternatives

- **Alternative 1 – No action.** This alternative does not provide for ERDF disposal of the stored waste. The waste would remain in storage until eventual treatment and/or disposal at an approved disposal facility, other than the ERDF (e.g., Integrated Disposal Facility, off-site disposal facility).

- **Alternative 2 – Approval of Hanford-Generated Wastes in Storage to be Disposed of in the ERDF.** The Hanford-generated wastes in storage identifed in Table 1, would be authorized for disposal at the ERDF. Additionally, a plug-in approach would be approved to authorize ERDF disposal of other similar Hanford-generated wastes in storage if the waste can meet the criteria identified above, which includes the following; the waste meets the ERDF WAC or is capable of meeting the WAC with treatment, it is a waste from Hanford cleanup operations, and EPA approval has been granted for each individual waste. This is the preferred alternative. This preferred alternative does not dictate that wastes, listed in Table 1, must be disposed of in the ERDF, it only provides an approved disposal option for the wastes.

EVALUATION OF ALTERNATIVES

1. **Overall Protection of Human Health and the Environment:** Alternative 1 (no action) can satisfy the criterion of overall protection of human health and the environment provided waste is properly stored and disposed of. However, continued onsite storage may pose additional risk to workers due to

the potential of ruptured or leaking containers while waste being stored, allow for some waste to be left exposed to the environment, and potentially lead to the construction of additional storage facilities on site. Alternative 2, the preferred alternative, would be protective, and would be implementable given ERDF's design and operational requirements, the location away from the Columbia River, and the ERDF's distance to the groundwater.

2. **Compliance with ARARs:** The most significant ARARs for disposal of hazardous/dangerous waste include federal and state landfill requirements and LDRs for hazardous waste. The ERDF complies with the landfill ARARs specified in the original ERDF ROD. In addition to the ARARs listed in the original ERDF ROD, this proposal would also incorporate the Toxic Substance Control Act (TSCA) regulations, which were revised in June 1998. Waste management, including storage, at the generator or storage facility would not be addressed by the ROD amendment and would be required to comply with applicable regulatory requirements (substantive and procedural) for that location (e.g., RCRA). Waste managed at the ERDF would comply with substantive federal and state requirements, in the ERDF ROD as amended. The ERDF also meets the design criteria of a TSCA landfill.

3. **Long-Term Effectiveness and Permanence:** Alternative 1 (no action) does not address disposal of waste in storage and therefore does not provide a long term and permanent remedy. Under Alternative 2, the near-term disposal of Hanford wastes in storage at the ERDF would provide long-term isolation of the waste in a landfill that provides a safe, environmentally sound disposal area for radioactive, hazardous/dangerous, and mixed wastes. Final disposition at ERDF would provide long term effectiveness and permanence, due to the ERDF's design and operational requirements, the location away from the Columbia River, and the ERDF's distance to groundwater. Final disposition also reduces the opportunity for release to the environment that may occur during storage of waste.

4. **Reduction of Toxicity, Mobility, or Volume Through Treatment:** Alternative 1 (no action) does not require or otherwise address treatment. Alternative 2 would provide for treatment of some wastes, as required to meet LDRs or ERDF WAC, prior to disposal, which would reduce the toxicity, mobility, or volume.

5. **Short-Term Effectiveness:** Under Alternative 1 (no action), there is a substantial risk of release posed to the public, the workers, or the environment as a result of storage prior to disposal. Alternative 2 would minimize these risks associated with continued storage by providing final disposal of these wastes in the short term. Final disposition at the ERDF would be effective and protective in the short term due to the ERDF's design and operational requirements, the location away from the Columbia River, and the ERDF's distance to groundwater. Final disposition also reduces the opportunity for release to the environment that may occur during storage of waste.

6. **Implementability:** Alternative 1 (no action), requires no new actions to be taken. Management and eventual disposal of the waste in storage would be otherwise addressed. Under alternative 2, the disposal of stored waste as well as any necessary treatment to meet ERDF WAC and applicable LDRs, would be similar to existing waste-treatment/disposal processes on the Hanford Site and readily implementable.

7. **Cost:** Under Alternative 1 (no action), the stored wastes would be treated and/or disposed other than at ERDF (unless otherwise authorized by a CERCLA decision document). Costs for disposal of wastes, off the Hanford Site, have been evaluated but were identified to be too significant for final consideration. For example, estimated costs for storage and/or disposal/treatment of mixed low-level waste debris are approximately: $166/ton for ERDF disposal; $965/ton for disposal off the Hanford Site; and $3,890/ton for onsite long-term storage. Previous evaluations in other Hanford RODs and action memoranda have indicated that the ERDF is a **cost-effective** disposal alternative compared to long term storage and other on-site and off-site disposal facilities.

EXPLANATION OF CERCLA EVALUATION CRITERIA

1. ***Overall Protection of Human Health and the Environment:*** An assessment is made to determine whether the alternatives can adequately protect human health and the environment, both in the short-term and long-term, by eliminating, reducing, or controlling exposure. Overall protection of human health and the environment draws on the assessments of other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs.
2. ***Compliance ARARs:*** This criterion addresses whether a remedy alternative will meet all of the ARARs of other (non-CERCLA) federal and state environmental laws, and/or provides justification for waivers (if necessary).
3. ***Long-Term Effectiveness and Permanence:*** Alternatives are assessed for the long-term effectiveness and permanence that they provide following implementation, as well as the degree of certainty that the alternative will prove to be successful.
4. ***Reduction of Toxicity, Mobility, or Volume Through Treatment:*** Evaluates an alternative's use of recycling or treatment that reduces toxicity, mobility or volume, of hazardous substances, pollutants and contaminants, including how treatment is used to address the principal threats posed by the site.
5. ***Short-Term Effectiveness:*** The short-term impacts of alternatives shall be assessed, considering the risks that might be posed to the public during implementation of an alternative, potential impacts on workers during remedial actions, and the amount of time until protection is achieved.
6. ***Implementability:*** The ease or difficulty of implementing the alternatives is assessed by considering technical difficulties and unknown factors associated with the construction and operation of a technology, availability of services and materials, and administrative feasibility.
7. ***Cost:*** Costs that should be considered include capital costs, operation and maintenance costs, and the *net present value* of capital and operation/maintenance costs. Net present value is the total cost of an alternative over time in terms of today's dollars.
8. ***State Acceptance:*** Based on the state's review of the final remedial investigation/feasibility study and the Proposed Plan, this criterion is assessed based on whether the state concurs with, opposes, or has no comment on the preferred alternative.
9. ***Community Acceptance:*** This criterion is an assessment of whether the community agrees with EPA's analysis and preferred alternative and is assessed after a review of the public comments received on the Proposed Plan.

8. **State Acceptance:** The State of Washington supports the preferred alternative.

9. **Community Acceptance:** Public acceptability will be evaluated after the close of the public comment period for this Proposed Plan. Modifications to the proposed actions may be initiated, based on public comments.

SUMMARY

The preferred alternative would not modify the existing ERDF ROD requirements, WAC, nor would it authorize acceptance of non-Hanford waste generated off the Hanford Site. The preferred alternative would incorporate the TSCA regulations. This Proposed Plan is being issued by the Tri-Parties and the preferred alternative includes two elements intended to promote Hanford Site cleanup activities by broadening utilization and operation of the ERDF:

1. Authorize the disposal of specific Hanford-only waste in storage for disposal at the ERDF.
2. Identify an ERDF plug-in approach for the disposal of Hanford-only-generated waste in storage that is not identified in Table 1 or in other existing Hanford CERCLA decision documents, but is similar to the wastes identified in Table 1. Eligible wastes must meet the following criteria:

   - Meet the existing ERDF WAC (or be capable of meeting WAC with treatment)
   - Will comply with LDR requirements, as applicable
   - Be generated at Hanford or be directly derived from a Hanford-generated waste in support of RCRA and CERCLA cleanup actions. Be compatible for disposal at the ERDF
   - Not already addressed by a CERCLA decision document
   - EPA approval has been granted for each individual waste

The lead regulatory agency for the ERDF (EPA) would be informed when DOE determines that a Hanford

waste in storage, generated in support of RCRA and/or CERCLA cleanup actions qualifies for ERDF disposal under the plug-in approach. An annual fact sheet would be issued to notify the public of any Hanford-generated wastes, in addition to those in Table 1, approved by the EPA for disposal at the ERDF through the plug-in approach.

The preamble to the NCP states that when noncontiguous facilities are reasonably close to one another and the wastes at these sites are compatible for a selected treatment or disposal approach, CERCLA Section 104(d)(4) allows the lead agency to treat these related facilities as one site for response purposes, and therefore, allows the lead agency to manage waste transferred between such noncontiguous facilities without obtaining a permit. The Hanford-only-generated wastes in storage on the Hanford NPL sites, listed in Table 1, or approved through the plug in approach, are reasonably close to the ERDF, and are compatible for treatment and/or disposal at the ERDF and therefore the Tri Parties propose that waste transferred from these waste storage locations may be transferred to the ERDF where it may be managed without obtaining a permit.

Based on the information available at this time, the Tri-Parties believe that the preferred alternative would be protective of public health and the environment, would comply with ARARs, would be cost effective, and would utilize permanent solutions and alternative treatment technologies to the maximum extent practicable. The statutory preference for treatment as a principal element will be accomplished when these wastes require treatment at ERDF to meet the ERDF WAC and LDRs.

The public is invited to comment on the proposed modifications to the ERDF ROD.

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ADMINISTRATIVE RECORD

The public is encouraged to review the documents and all information related to prior decisions at the ERDF. The Administrative Record file, which contains the information used to develop the proposed ERDF ROD amendment alternatives, is available at the following locations:

U.S. Department of Energy
Richland Operations Office
Administrative Record Center
2440 Stevens Center Place
Richland, Washington 99354

U.S. Environmental Protection Agency
Region 10
Superfund Record Center
1200 Sixth Avenue
Park Place Building, 7th Floor
Mail Stop: HW-074
Seattle, Washington 98101

Washington Department of Ecology
Administrative Record
719 Sleater-Kinney Road SE
Capital Financial Center Building, Suite 200
Lacey, Washington 98503-1138

PUBLIC INFORMATION REPOSITORIES

Limited documents related to this proposed change are available for review at the Hanford Tri-Party Agreement Public Information Repositories:

University of Washington
Suzzallo Library
Government Publications
Box 3529000
Seattle, Washington 98195
(206) 543-4664

Gonzaga University
Foley Center
East 502 Boone
Spokane, Washington 99258
(509) 328-4220, ext. 3125

Portland State University
Branford Price Millar Library
Science and Engineering Floor
934 SW Harrison
Portland, Oregon 97207-1151
(503) 724-4729

Washington State University, Tri-Cities
U.S. DOE Reading Room, Room 101L
100 Sprout Road
Richland, Washington 99352
(509) 372-7443

GLOSSARY

The first usage of technical terms and other specialized text in this Proposed Plan is shown in bold in this document, and the terms are defined below.

Administrative Record – The files containing all of the documents used to select a response action at a *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* remedial action site. Locations where the Administrative Record for this site is maintained is provided in this Proposed Plan.

Applicable or relevant and appropriate requirements (ARARs) – Cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address and are therefore applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) site. ARARs also include other promulgated federal and state environmental substantive requirements, criteria, or limitations that while not applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited (i.e., relevant and appropriate) to the particular site.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 **(CERCLA)** – A federal law that, among other things, establishes a program to respond to releases of hazardous substances, pollutants, and contaminants. CERCLA is also known as "Superfund."

Cost effective – In accordance with the Superfund National Contingency Plan, 40 CFR 300.430(f)(l)(ii)(D), a cost-effective remedy is one with costs that are proportional to its overall effectiveness. The "overall effectiveness" of a remedial alternative is determined by evaluating (1) long-term effectiveness and permanence; (2) reduction in toxicity, mobility, and volume through treatment; and (3) short-term effectiveness.

Deactivation, Decontamination, Decommissioning and Demolition (D4) – Stabilization and maintenance or removal of inactive surplus facilities to reduce potential environmental, human health, and safety hazards.

Environmental Restoration Disposal Facility (ERDF) – The Hanford Site's disposal facility for most waste and contaminated environmental media (contingent upon meeting the ERDF waste acceptance criteria) from CERCLA actions in the Hanford National Priorities List sites.

Explanation of significant difference (ESD) – Documentation of information obtained after the record of decision (ROD) is signed that the U.S. Environmental Protection Agency determines results in a significant change in a component of the remedy chosen in the ROD.

Operable unit (OU) – A group of waste sites placed together for the purpose of investigation and subsequent cleanup actions.

Proposed Plan – A document that briefly describes for public review and comment the remedial alternatives analyzed by the lead agency, proposes a preferred remedial alternative, and summarizes the information relied upon to select the preferred remedy.

Record of Decision (ROD) – The formal document in which a regulatory agency sets forth the selected remedial measure and the reasons for its selection.

Remedial alternative – General or specific actions that are evaluated to determine the extent to which they can eliminate or minimize threats posed by contaminants to human health and the environment.

***Resource Conservation and Recovery Act of 1976* (RCRA)** – A federal law that, among other things, establishes the requirements for the storage, treatment, and disposal of hazardous waste.

Waste sites – Sites that are contaminated, or are potentially contaminated due to past operations. Contamination may be contained in environmental media (e.g., soil or groundwater) or in man-made structures or waste (e.g., debris).

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