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United States Environmental Protection Agency
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U.S. Department of Energy
Environmental Restoration Disposal Facility
Hanford Site – 200 Area
Benton County, Washington

Amended Record of Decision, Decision Summary and Responsiveness Summary

January 2002

DECLARATION OF THE RECORD OF DECISION

SITE NAME AND LOCATION

U.S. Department of Energy
Environmental Restoration Disposal Facility
Hanford Site - 200 Area
Benton County, Washington

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) Amendment has been developed in accordance with the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA), as amended by the *Superfund Amendments and Reauthorization Act of 1986* (SARA), 42 U.S.C. Section 9601; and to the extent practicable, the "National Oil and Hazardous Substances Pollution Contingency Plan" (NCP), 40 *Code of Federal Regulations* (CFR) 300. This ROD Amendment is based on the Administrative Record for the Environmental Restoration Disposal Facility (ERDF).

The State of Washington concurs with the ROD Amendment.

ASSESSMENT OF THE SITE

The response action selected in this Record of Decision is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment. Such a release, or threat of release may present an imminent and substantial endangerment to public health, welfare, or the environment.

BACKGROUND AND DESCRIPTION OF THE AMENDMENT TO THE REMEDY

On January 20, 1995, the U.S. Environmental Protection Agency, Washington State Department of Ecology, and U.S. Department of Energy (i.e., the Tri-Parties) signed the 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 of the facility and 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 investigation-derived waste, decontamination and decommissioning (D&D) waste, waste from *Resource Conservation and Recovery Act 1976* (RCRA) past-practice operable units and closure waste, and non-RCRA waste from inactive treatment, storage, and disposal facilities on a case-by-case basis, in accordance with a ROD or removal action memorandum issued under CERCLA and the NCP. The ESD also authorized the conditional use of ERDF leachate for dust suppression and waste compaction.

Two 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 allowed limited treatment of waste at ERDF by stabilization and/or encapsulation prior to disposal at ERDF. The second amendment was signed on March 23, 1999, to authorize the delisting of ERDF leachate.

ERDF Phase III Construction

The ERDF ROD specifies that expansion of the facility would be authorized as needed through the ROD amendment process. Based on estimated remediation waste volumes presented in the ERDF ROD, additional disposal cells were anticipated. This Amendment authorizes four additional ERDF cells to be constructed and operated for disposal of Hanford Site remediation waste. The Phase III construction shall be located entirely within the 4.1 square kilometer (1.6 square miles) area selected for ERDF, as defined in the ERDF ROD.

The approved design of ERDF is a single, 70-ft-deep trench consisting of pairs of side-by-side cells with final dimensions of 1,420-ft long by 720-ft wide at the top of the trench. The facility is equipped with a RCRA double-liner and leachate collection and recovery system. The same RCRA design selected for the existing ERDF disposal cells shall be used for the Phase III cells. The detailed design shall be submitted to the EPA for approval prior to construction of the ERDF expansion. The Phase III cells will be closed in the same manner as the existing ERDF cells.

Remediation Waste Staging at ERDF

The selected remedial alternative in existing 100 and 300 Area RODs is typically removal, treatment (if required), and disposal at ERDF. Treatment is required if the waste does not meet the ERDF waste acceptance criteria, including land disposal restriction standards found in Federal and state hazardous waste regulations. This ROD Amendment authorizes the option of conducting remediation waste staging at ERDF rather than at the operable unit prior to treatment and disposal.

This ROD Amendment allows the staging of remediation waste at ERDF while awaiting treatment. Treatment would be performed to satisfy the ERDF waste acceptance criteria and comply with land disposal restrictions. The decision whether to perform remediation waste treatment and the specific treatment needed will be documented as part of the remedy selection and remedial design process for the operable unit or waste site of origination.

The staging area at ERDF would be designed, constructed, operated, and closed in accordance with RCRA regulations for storage at corrective action management units, as amended by the final rule published in the federal register on January 22, 2002.

DECLARATION

Although this ROD Amendment changes components of the remedy selected in the original ROD, the remedy, as modified, continues to be protective of human health and the environment. The remedy, as amended, complies with Federal and state requirements that are legally applicable or relevant and appropriate and is cost effective. The remedy, as amended, utilizes permanent solutions to the maximum extent practicable for this site. Staging of waste at ERDF helps facilitate the statutory preference for remedies that employ treatment as a principal element for the waste stream.

Decisions on the treatment of remediation waste will continue to be made as part of the individual operable unit decisions. Consequently, the statutory preference for treatment as a principal element will be addressed in the current and future operable unit decision documents rather than in this ROD Amendment. Because hazardous substances will remain onsite above health-based levels in the ERDF disposal cells, a review will be conducted at least every five years after the commencement of remedial actions to ensure that the remedy continues to provide adequate protection of human health and the environment. One such review was previously completed for the ERDF.

Signature sheet for the Amendment to the Record of Decision for the USDOE Hanford Environmental Restoration Disposal Facility between the U.S. Department of Energy and the U.S. Environmental Protection Agency, with concurrence by the Washington State Department of Ecology.

3/11/02

Keith A. Klein
Manager, Richland Operations
U.S. Department of Energy

Date

Signature sheet for the Amendment to the Record of Decision for the USDOE Hanford Environmental Restoration Disposal Facility between the U.S. Department of Energy and the U.S. Environmental Protection Agency, with concurrence by the Washington State Department of Ecology.

Michael F. Gearheard, Director
Office of Environmental Cleanup
U.S. Environmental Protection Agency

1-31-02
Date

Signature sheet for the Amendment to the Record of Decision for the USDOE Hanford Environmental Restoration Disposal Facility between the U.S. Department of Energy and the U.S. Environmental Protection Agency, with concurrence by the Washington State Department of Ecology.

Michael Wilson
Program Manager, Nuclear Waste Program
Washington State Department of Ecology

1/29/02
Date

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DECISION SUMMARY

I. INTRODUCTION

This document presents an Amendment to the Record of Decision (ROD) for the Environmental Restoration Disposal Facility (ERDF) at the Hanford Site.

Site Name and Location

U.S. DOE Hanford Environmental Restoration Disposal Facility
Hanford Site - 200 Area
Benton County, Washington

Lead and Support Agencies

The lead regulatory agency for this action is the U.S. Environmental Protection Agency (EPA). The U.S. Department of Energy (DOE) and the Washington Department of Ecology (Ecology) both concur with the Phase III expansion of the ERDF disposal cells and the staging of wastes awaiting treatment prior to disposal. The three agencies participated jointly in the decision and preparation of this document.

Statutory Citation for a ROD Amendment

The ERDF ROD was signed by the EPA, Ecology, and DOE in January 1995. In 40 *Code of Federal Regulations* (CFR) 300.435(c)(2), the National Contingency Plan (NCP) provisions are specified for addressing and documenting changes to the selected remedy after issuance of a ROD. An Explanation of Significant Differences (ESD) was issued in August 1996. Two amendments to the ERDF ROD have been issued. The first amendment was signed on September 30, 1997, and the second amendment was signed on March 23, 1999. This third ROD Amendment documents fundamental changes to the remedy set forth in the 1995 ERDF ROD, as amended. Public participation and documentation procedures have been followed as specified in 40 CFR 300.435(c)(2)(ii).

Need for the ROD Amendment

This ROD Amendment is necessary to support ongoing remediation of the 100 and 300 Areas by providing additional waste disposal capacity. In addition, staging waste at ERDF is considered more protective of human health and the environment (i.e., located further from the Columbia River and groundwater) and provides a more efficient centralized staging location. The staging area is considered necessary at this time as remediation moves into the more heterogeneous waste forms contained in burial grounds. Highly heterogeneous waste forms are more likely to require treatment.

Public Involvement

A public notice was placed in the *Tri-City Herald* on October 28, 2001, announcing the availability of the proposed plan and the start of the public comment period. Approximately 1,100 copies of a factsheet describing the amendment proposal were sent out by mail. A public comment period was held from October 29, 2001, through November 28, 2001. No requests were received for a public meeting, therefore, no public meeting was held. The proposed amendment was discussed with the Hanford Advisory Board and the Hanford Advisory Board – River and Plateau Committee at meetings in October 2001. The decision to amend the ROD is based on the Administrative Record for the ERDF. The locations of the Administrative Record are listed below.

Administrative Record

Technical documentation for this amendment is further supported by applicable or relevant and appropriate requirements (ARARs) and alternative analyses, both of which can be found in the Administrative Record for the ERDF. This ROD Amendment is based on, and will become part of, the Administrative Record for the ERDF, as required by 40 CFR 300.825(a)(2), and will be available to the public at the following locations:

ADMINISTRATIVE RECORD (contains all project documents)

U.S. Department of Energy, Richland Operations Office
Administrative Record Center
2440 Stevens Center
Richland, Washington 99352

INFORMATION REPOSITORIES (contain limited documentation)

University of Washington
Suzzallo Library
Government Publications Room
Seattle, Washington 98195

Gonzaga University, Foley Center
E. 502 Boone
Spokane, Washington 99258

Portland State University
Branford Price Millar Library
SW Harrison and Park
Portland, Oregon 97207-1151

DOE Richland Public Reading Room
Washington State University, Tri-Cities
100 Sprout Road, Room 101L
Richland, Washington 99352

II. SITE HISTORY

In 1988, the Hanford Site was scored using the EPA's hazard ranking system. Based on the scoring, the Hanford Site was added to the National Priorities List (NPL) in July 1989 as four sites: 1100 Area, 100 Area, 200 Area, and 300 Area. Each of these areas was further divided into operable units (i.e., a grouping of individual waste units based primarily on geographic area and common waste sources). These operable units contain contamination in the form of hazardous waste, radioactive/hazardous mixed waste, and other CERCLA hazardous substances.

In anticipation of the NPL listing, DOE, EPA, and Ecology entered into the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) in May 1989. This agreement established a procedural framework and schedule for developing, implementing, and monitoring remedial response actions at Hanford. The Tri-Party Agreement also addresses *Resource Conservation and Recovery Act of 1976* (RCRA) compliance and permitting.

III. REMEDY SELECTED IN THE ROD

The major components of the selected remedy in the 1995 ERDF ROD include the following:

- Construction and operation of the first two disposal cells. These cells are expected to provide an approximate waste disposal capacity of 1 million yd^3. The cells are designed and constructed in accordance with RCRA minimum technological requirements (40 CFR 264, Subpart N). The decisions to expand the landfill in the future will be documented by amending the ERDF ROD or as part of the RODs for the Hanford operable units.

- The ERDF site will cover a maximum of 4.1 km^2 (1024 acres) on the Central Plateau, which is located southeast of the 200 West Area and southwest of the 200 East Area. The initial construction of the facility required 0.65 km^2 (165 acres) of this area.

- The ERDF will provide sufficient leachate storage capacity to ensure uninterrupted operations and will comply with the requirements of 40 CFR 264, Subpart N. Leachate collected at the landfill will be managed at the 200 Area Effluent Treatment Facility (located in the 200 East Area) or other approved facility.

- Surface water run-on/run-off will be controlled at the landfill and other areas of the facility that are potentially contaminated.

- Air monitoring will be accomplished at ERDF by the placement of real-time air monitors for radioactive contaminants and the placement of air samplers for hazardous and radioactive constituents to detect any offsite migration of contaminants.

- Groundwater monitoring will be performed in accordance with 40 CFR 264, Subpart F.

- Appropriate measures to protect facility workers and the public will continue to be employed during ERDF operations, including contamination control, dust mitigation, and protection of personnel from industrial hazards presented by ERDF operations. Protective measures shall comply with applicable requirements found in the *Occupational Safety and Health Act*, *Washington Industrial Safety and Health Act*, and other safety regulations or ERDF-specific safety requirements. DOE shall also comply with the requirements of 40 CFR 300.150.

- Waste acceptance criteria will be developed by DOE and approved by EPA in accordance with ARARs, risk/performance assessments, ERDF-specific safety documentation, and worker protection requirements. Operable unit-specific waste disposal and treatment decisions will continue to be made as part of the remedy selection and cleanup decision process for each operable unit.

- The ERDF landfill will be closed by placing a modified RCRA-compliant closure cover over the waste. Prior to cover construction, closure cover designs will be evaluated and the most appropriate closure cover design will be selected for construction. Construction of the cover will occur on an incremental basis as the trench is expanded. The design will, at a minimum, comply with applicable RCRA requirements found in 40 CFR 264, Subpart N.

- Institutional controls shall be imposed to restrict public access to the landfill.

- Equipment will be available to transport wastes and to operate the ERDF safely.

- Hanford Site infrastructure will be expanded as necessary to support the ERDF. Infrastructure improvements or extensions may include water, sewer, electric power, roads, operations facilities, and a chemical and fuel storage area.

- A decontamination facility will be constructed consisting of, at a minimum, an impervious pad with a sump, washwater storage, and secondary containment. Washwater used to decontaminate site equipment shall be managed in compliance with appropriate requirements.

- The detailed design will be submitted to EPA for approval (in consultation with Ecology) prior to construction at the ERDF. At a minimum, the design will be submitted as two packages to allow for construction in phases.

- An operations plan will be submitted to EPA for approval (in consultation with Ecology) prior to operation of the ERDF.

- Mitigation measures to reduce ecological impacts have been incorporated to satisfy the remedial action objectives identified in Sections 7(4)(i) through 7(4)(v) of the 1995 ERDF ROD. In addition, DOE commits to the development and implementation of a mitigation action plan in coordination with the Natural Resources Trustees for additional mitigation measures.

The ESD to the ERDF ROD, issued in July 1996, authorized the following changes:

- **Waste Origin Clarification.** Any Hanford environmental cleanup waste generated as a result of CERCLA or RCRA cleanup actions (e.g., investigation-derived waste [IDW], decontamination and decommissioning [D&D] wastes, and RCRA past-practice wastes) is eligible for disposal, provided that the waste meets ERDF waste acceptance criteria and provided that the appropriate CERCLA decision documents are in place. Additionally, non-process waste (e.g., contaminated soil and debris) generated from closure of inactive RCRA treatment, storage, and disposal units may be placed in ERDF, provided that the units (1) are within the boundaries of a CERCLA or RCRA past-practice operable unit, (2) the closure wastes are sufficiently similar to CERCLA or RCRA past-practice wastes placed in ERDF, (3) ERDF waste acceptance criteria are satisfied, and (4) appropriate CERCLA decision documents are in place. Revision of the RCRA Permit and closure plans may be required.

- **Use of Leachate.** The ERDF leachate may be collected and stored at the ERDF for use within the trench, as appropriate. Appropriate uses of the leachate are limited to dust suppression and waste compaction. The leachate must be sampled prior to use to ensure compliance with land disposal restrictions, ERDF waste acceptance criteria, and other health-based limits (whichever is more restrictive). Leachate in excess of the ERDF's recycling capacity or acceptable contaminant levels will be sent to the Effluent Treatment Facility or another approved facility for management.

Changes to the original ROD were addressed in a ROD Amendment issued in September 1997. These changes are explained below:

- **ERDF Expansion.** The ERDF ROD specifies that expansion of the facility would be authorized on an as-needed basis through the ROD amendment process. Based on the estimated remediation waste volumes presented in the ERDF ROD, additional disposal cells were anticipated. Two additional ERDF cells (Cells 3 and 4) are to be constructed for disposal of Hanford Site remediation waste. This first expansion of ERDF is also known as Phase II. Remediation volume estimates in final and planned cleanup decision documents, prepared since the issuance of the ERDF ROD, supported the need for additional disposal capacity. The Phase II construction would be located entirely within the 4.1-km^2 (1.6-mi^2) area selected for ERDF, as defined in the ERDF ROD. The same RCRA design selected for the original ERDF disposal cells would be used for the Phase II cells.

- **Treatment at ERDF.** The selected remedial alternative in existing 100 and 300 Area waste site remediation RODs is removal, treatment (if required), and disposal at ERDF. Treatment is required if the concentration of contaminants in the waste is above land disposal restriction standards found in the Federal and state hazardous waste regulations or above the ERDF waste

acceptance criteria. This ROD Amendment provides the option of conducting remediation waste treatment at ERDF rather than at the operable unit prior to disposal. This option does not preclude treatment at the operable units. Treatment at ERDF is limited to stabilization and encapsulation in containers. In addition, all substantive Federal and state requirements governing hazardous waste treatment in containers, such as secondary containment, must be met as part of treatment at ERDF. The decision whether to perform remediation waste treatment and a determination of the specific treatment needed must be documented as part of the remedy selection and remedial design process for the operable unit or the waste site of origination.

Changes to the original ROD were addressed in a second ROD Amendment (issued in March 1999) to authorize the delisting of ERDF leachate. These changes are explained below:

- **Leachate Delisting at ERDF.** In order to delist the ERDF leachate, it must be demonstrated that the concentrations of hazardous contaminants found in the leachate satisfy the requirement for an exclusion under 40 CFR 260.22 and do not exceed the criteria for characteristic wastes as defined under 40 CFR 261, Subpart C and *Washington Administrative Code* (WAC) 173-303-090. In order to confirm that the concentration of hazardous constituents in the leachate continue to be below delisting levels, a sampling and analysis plan supporting the delisting was written and attached to the ROD Amendment. The plan provided detailed information regarding sampling frequency and methodology and also specified analytical methods to be used. The sampling and analyses includes a comparison of leachate sample results with delisting levels. Delisting levels, in general, are based on the original docket values and health-based limits. Ongoing exclusion from management as a hazardous waste is conditioned based on compliance with specified management requirements and based on the leachate meeting the limits established in the ROD Amendment, as demonstrated through a verification sampling program.

IV. DESCRIPTION OF THE MODIFIED REMEDY

ERDF Phase III Construction

This ROD Amendment authorizes actions to allow continued removal (covered by other RODs) and disposal of contaminants from the Hanford Site. Removal of contaminants from these operable units and disposal in ERDF will be based on the respective RODs for remedial actions. The ERDF ROD specified that expansion of the facility would be authorized by ROD Amendment. Under this amendment, up to four additional ERDF cells will be constructed on an as-needed basis and operated for disposal of Hanford Site remediation waste. This Phase III construction would be located entirely within the 4.1-km^2 (1.6-mi^2) area selected for ERDF, as defined in the ERDF ROD. Additional disposal cells may be required in the future, and will be authorized though future ROD amendments or RODs.

The current design of ERDF is a single, 21.3-m (70-ft)-deep trench consisting of two side-by-side cells, with final dimensions of 432.8 m (1,420 ft) long by 219.5 m (720 ft) wide at the top of the trench. The facility is equipped with a double liner and a leachate collection and recovery system that meets the requirements for hazardous waste landfills under RCRA. The same RCRA

design selected for the existing ERDF disposal cells would be used for the Phase III cells. The detailed design shall be submitted to the EPA for approval prior to construction of the ERDF expansion. The Phase III cells will be closed in the same manner as the existing ERDF cells.

Disposal of contaminated material at ERDF has been chosen as the preferred remedy for waste excavated from numerous Hanford waste sites. The current estimate is that approximately 10 million tons of waste from 100 and 300 Areas remediation will be disposed at ERDF. Volume estimates for waste that may originate from remediation of the 200 Areas or from most CERCLA D&D projects remain unknown at this time.

The approximate amount of waste received at ERDF through June 2001 is 3 million tons, or an average 600,000 tons annually. With the waste capacity of the four disposal cells presently in operation being a maximum of 5.2 million tons, the current capacity will be exhausted by January 2005. The timeframe necessary for design and construction of two new disposal cells at ERDF is approximately 20 months. The four additional cells will bring the total capacity at ERDF to 12.8 million tons.

Remediation Waste Staging at ERDF

The selected remedial alternative in existing 100 and 300 Area RODs is typically removal, treatment (if required), and disposal at ERDF. Treatment is required if waste does not meet the ERDF waste acceptance criteria, including land disposal restriction standards found in Federal and state hazardous waste regulations. This ROD Amendment allows for conducting remediation waste staging at ERDF rather than at the operable unit prior to treatment and disposal.

Experience has indicated that a limited amount of waste will require treatment. The waste found thus far that required treatment included contaminated debris such as lead bricks, other metal-contaminated material, and contaminated soil. It is likely that other types of contaminated debris, as well as some soils and sludges, will also require treatment. In the past, material requiring treatment has been held at the remediation site prior to being transported to ERDF.

This ROD Amendment allows the staging of remediation waste at ERDF while awaiting treatment at ERDF or other approved facility. Treatment would be performed to satisfy ERDF waste acceptance criteria, including land disposal restrictions. The decision whether to perform remediation waste treatment and the specific treatment needed will be documented as part of the remedy selection and remedial design process for the operable unit or waste site of origination. As remediation moves toward cleanup of the more heterogeneous waste forms contained in burial grounds, more treatment will likely be necessary.

The ERDF staging area will be used to hold waste with low-level radionuclide, dangerous waste, and PCB contaminants. Staging of these wastes will require compliance with the substantive requirements of: PCB storage requirements of 40 CFR 761.65 and corrective action management unit (CAMU) standards for hazardous waste storage. Low-level radioactive waste management standards, including DOE Order 435.1, will be addressed as to-be-considered (TBC) provisions for staging of radioactive waste.

PCB Storage Requirements. The PCB storage requirements of 40 CFR 761.65(b) are pertinent to this action identify the following storage facility specifications:

- Provide an adequate roof and walls to prevent rain water from reaching the stored PCBs,
- Provide an adequate floor which has continuous curbing with a minimum six inch high curb,
- Contain no drain valves, floor drains, expansion joints, sewer lines, or other openings that would permit liquids to flow from the curbed area,
- Floors and curbing constructed with a continuous, smooth, non-porous surface, to minimize penetration of PCBs; and
- Not located at a site that is below the 100-year flood water elevation.

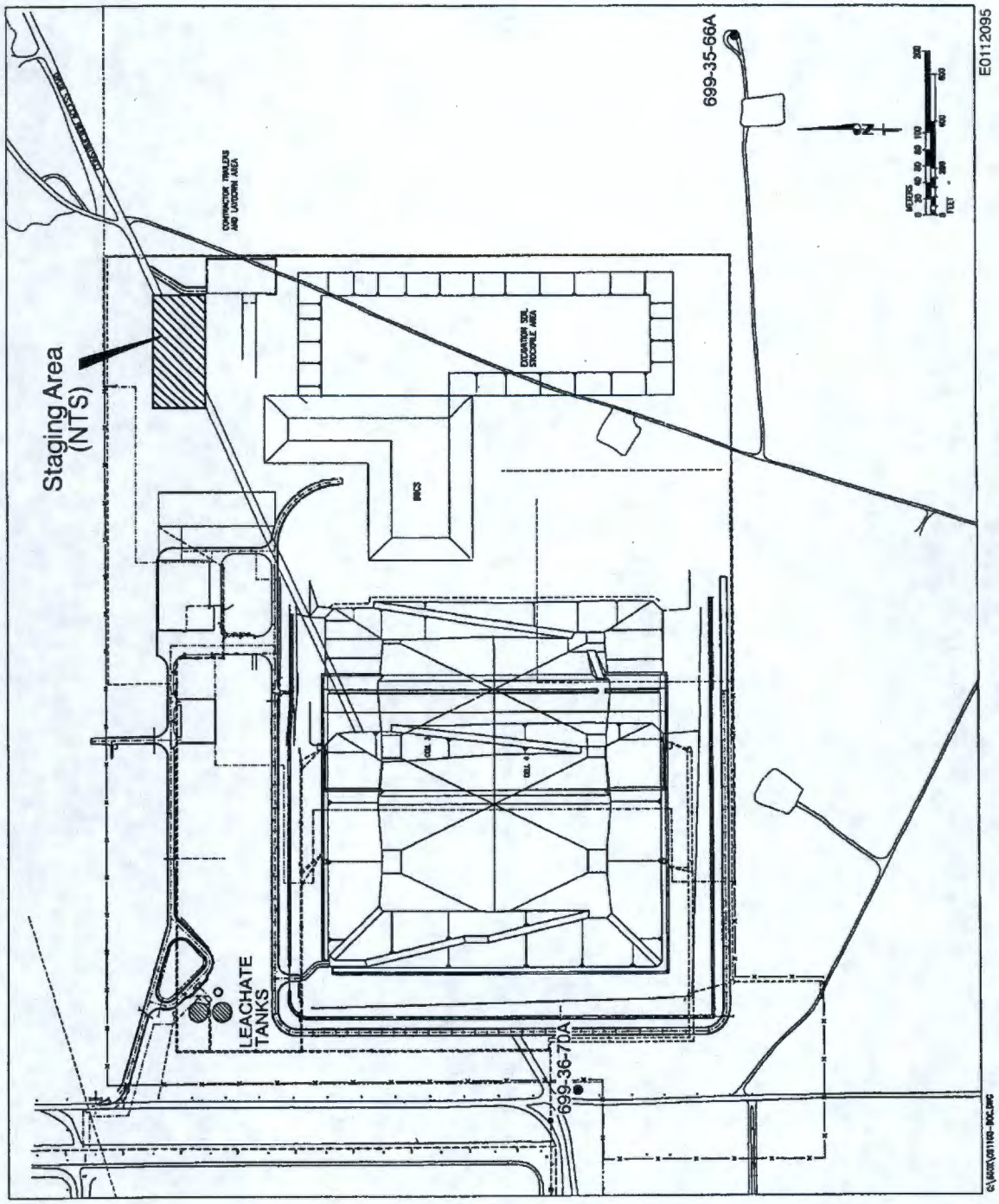
Staging of waste at the ERDF site would be done in a manner that satisfies all these provisions. During the staging period, any containers holding PCBs will be kept within larger outer containers (e.g., "overpack" containers or ERDF containers). Although these containers may not represent the typical concept of a "facility," they will satisfy the substantive requirements for providing the roof, walls, and non-porous floor required for PCB storage facilities. The overpacked containers would hold the entire volume of the inner containers in the event of a leak or spill, with no drain valves, expansion joints, etc. The ERDF site is above the 100-year floodplain of the Columbia River.

PCB regulations generally prohibit storage of PCB-contaminated wastes for longer than one year. However, as part of regulatory revisions finalized in 1998, the one year storage was eliminated for radioactive PCB wastes provided that efforts to secure disposal continue and the wastes are stored in accordance with applicable Federal, state, and local laws and regulations for the management of radioactive waste. These provisions will be met for staging of PCB waste at ERDF. The storage time will be limited to that necessary for appropriate treatment facilities to become operational and capable of processing the waste staged at ERDF.

RCRA Waste Storage Requirements. Staging of RCRA dangerous waste at ERDF will comply with existing general CAMU regulations and will also address the more stringent and more definitive provisions of the corrective action management unit (CAMU) rule revisions published on January 22, 2002 (67 FR 2962). The effective date of the revised rule is April 22, 2002. The provisions in the rule revisions are more stringent than existing regulations and will become effective in Washington State upon promulgation. The design, construction, operation, and closure of the ERDF staging area must comply with the CAMU rules, including the revisions published on January 22, 2002. These requirements include the following:

- The areal configuration of a CAMU must be specified. Figure 1 shows the size and location of the staging area.

- CAMUs used for storage must meet (1) the staging pile performance requirements of 40 CFR 264.554(d)(i) and (ii) and (d)(2), (2) the staging pile standards for management of ignitable, reactive, or incompatible wastes at 40 CFR 264.554(e) and (f), and (3) the staging pile closure standards of 40 CFR 264.554(j) through (k).



ERDF Staging Area Location

Figure 1. Layout of ERDF showing the staging area location.

- The stipulated staging pile performance requirements include the following provisions:

  - The staging pile must facilitate a reliable, effective and protective remedy
  - The staging pile must be designed so as to prevent or minimize releases of hazardous waste and hazardous waste constituents into the environment, and minimize or adequately control cross-media transfer, as necessary to protect human health and the environment
  - Standards and design criteria must consider the length of time the staging pile will be in operation, volumes of waste to be stored, physical and chemical characteristics of the stored wastes, potential releases from the unit, hydrogeological and other relevant environmental conditions that may influence migration of potential releases, and potential for human and environmental exposure to potential releases

- Staging of waste within the storage CAMU at ERDF will be done in a manner to satisfy the following ignitable, reactive, and incompatible waste requirements:

  - The waste must be managed to protect it from exposure to any material or condition that may cause it to ignite or react.
  - Incompatible wastes must be managed in a manner that prevents fire or other violent reactions, release of airborne toxic constituents, production of flammable gases or fumes, damage to structural integrity of facilities, or any other means that threatens human health or the environment.
  - Wastes within a staging pile must be kept separate from any potentially incompatible wastes or protected from each other by use of a dike, berm, wall, or other device.
  - Wastes may not be placed on the same base where incompatible materials were previously held unless the base has been adequately decontaminated.

- Closure standards of the revised rule require that all waste, contaminated containment system components, contaminated structures and equipment, and any contaminated subsoil be removed, generally within 180 days after the operating term of the storage unit. These requirements will be met at the ERDF storage CAMU. In the event that removal of waste or waste constituents cannot be completed within 180 days, DOE must request and obtain an extension to the closure timeframe from EPA.

In addition to meeting the specified staging pile requirements delineated above, storage CAMU regulations prohibit placement of waste with free liquids except where such placement facilitates the remedy selected for the waste. The initial waste staged at ERDF will consist of drums of depleted uranium chips and fines from the 618-4 Burial Ground. In the specific case of this waste, maintaining an oil cover on the uranium chips and fines is necessary to prevent a potential pyrophoric reaction. As a consequence, the oil cover is a necessary part of the selected remedy, and this waste stream is therefore not subject to the general prohibition on placement of liquid-bearing wastes in a CAMU. For any future waste staged at ERDF that may contain liquids, a similar demonstration must be approved by EPA.

Per 40 CFR 264.552(f)(3) of the revised rules, storage CAMUs operating in excess of 2 ½years are subject to the groundwater monitoring, corrective action, and liner requirements associated with

CAMUs used for disposal of waste. If the staging area will be in use for longer than 2 ½years, the ERDF groundwater monitoring program will be modified as appropriate to ensure adequate groundwater monitoring coverage. Any releases of waste stored in the CAMU observed during periodic inspections of the staging area will be immediately cleaned up and reported to EPA.

With regards to the liner requirements, 40 CFR 264.552(e)(3)(ii)(A) of the revised rule allows use of alternative methods if alternative design and operating practices, together with location characteristics, will prevent the migration of hazardous constituents into the groundwater at least as effectively as the liner and leachate collection system otherwise required. The following design and operating practices will be instituted when staging waste at ERDF and are as effective as a liner and leachate collection system:

- Any waste package containing free liquids will be kept within larger outer containers (e.g., "overpack" containers or ERDF containers) while staged at ERDF. The outer containers will be kept closed at all times (except when adding waste or inspecting the inner containers) to prevent precipitation from contacting the inner containers.
- An inspection of the outer containers will be conducted on a weekly basis looking for any signs of leakage or deterioration. In the event that any leaking or deteriorating outer containers is observed, the waste shall be repackaged to regain integrity of both the inner and outer containers.
- On an annual basis, 10% of the outer containers shall be open and inspected for any signs of leakage from the inner containers. If any leakage is found, 100% of the containers in the storage CAMU will be open, inspected, and (if necessary) repackaged to regain integrity of the inner container.
- EPA will be notified in the event that inspections discover leakage from either the outer or inner containers. EPA will determine whether trends are developing that would require actions beyond merely repackaging of the containers.

Inspection requirements for non-liquid-containing waste streams staged within the ERDF CAMU will be developed on a case-by-case basis and presented to EPA for review and approval.

Finally, 40 CFR 264.552(f)(4) of the revised rules requires that CAMUs operating in excess of 2 ½years be limited to no longer than is necessary to achieve a timely remedy for the associated waste. Wastes will be staged only for the extent of time necessary for appropriate treatment facilities to become operational. The staging area will be closed as soon as there is no longer any need for it.

Radioactive Waste Storage Requirements. The original ERDF ROD imposes a variety of standards pertaining to radioactive waste management. For example, 10 CFR 20 and state standards at WAC 246-221 establish dose limits for protection from occupational exposure or discharges to air or water. These regulations also establish dose limits to members of the public. These standards will be relevant and appropriate to staging of radioactive waste at ERDF, consistent with the evaluation presented in the original ERDF ROD.

As described in the original ERDF ROD, standards for airborne emissions of radionuclides are promulgated in Federal regulations at 40 CFR 61 and in corresponding state regulations at WAC 173-480. WAC 246-247 establishes additional radionuclide air emission provisions. The planned staging activities must be evaluated for the potential to emit radionuclides. Prior to staging radioactive waste at ERDF, the ERDF Air Monitoring Plan will be revised, as necessary, to ensure the staging activities comply with air emission requirements.

The original ERDF ROD also identified DOE Order 5820.2A as a To-Be-Considered provision for disposal (but not storage) of radioactive waste. This Order has since been replaced by DOE Order 435.1. The new Order and associated Manual 435.1-1 contain several To-Be-Considered provisions specific to storage and disposal of low-level or mixed waste.

V. EVALUATION OF ALTERNATIVES

The NCP establishes nine criteria for evaluating remedial action alternatives. These criteria are divided into three categories of weighted importance, which include threshold, balancing, and modifying criteria. All remedies must meet the threshold criteria to be considered. The seven balancing and modifying criteria help describe relative differences between the alternatives. A discussion of the original remedy and the modified remedy relative to the nine criteria evaluation is required by CERCLA.

Summary of Alternatives

The key elements of each alternative are described and briefly discussed below.

Expansion Alternatives

- **Alternative 1E – No Action.** The no-action alternative consists of not constructing the Phase III expansion of the ERDF trench to accommodate additional waste from remediation or the staging area.

- **Alternative 2E – ERDF Phase III Construction.** Four additional cells would be constructed at ERDF to provide additional capacity for ongoing remediation of the 100 and 300 Areas. Disposal cells would be constructed, two at a time, using a phased approach.

  The ERDF Phase III construction would use the same design used for construction of the first four disposal cells. Therefore, the previous evaluation of the threshold and balancing criteria in the 1995 ERDF ROD remains applicable, as supplemented by the discussion below.

Staging Alternatives

- **Alternative 1S – Staging at the Operable Unit.** Staging of wastes awaiting treatment would continue to be performed only at the operable unit.

- **Alternative 2S – Staging at ERDF.** Waste from remedial actions and CERCLA D&D activities could be staged at ERDF. Staging and treatment determinations would still be documented as part of the CERCLA remedy selection process for the operable unit or D&D activity. This option does not preclude staging at the operable units.

Discussion of Alternatives

1) Overall protection of human health and the environment

The no-action alternative does not satisfy the criterion of overall protection of human health and the environment. When the current ERDF capacity is reached and new disposal cells have not been constructed, the pace of remediation efforts in the 100 and 300 Areas will be dramatically slowed because of the lack of a readily-available disposal alternative. The result of this slowdown will be to leave contaminated soil at remediation sites for a longer period of time, thus causing increased risk to human health and the environment. For this reason, the no-action alternative is not evaluated further.

The construction of the Phase III expansion would satisfy overall protection of human health and the environment.

The same general approach to staging would be implemented whether staging was conducted at ERDF or at the operable unit where the waste originated. In many instances, staging waste at ERDF would be more protective of human health and the environment (i.e., located further from the Columbia River and groundwater), would be effective in the short-term and long-term, and would be implementable.

2) Compliance with ARARs

The most significant ARARs for construction and operation of a disposal facility receiving hazardous/dangerous waste include Federal and state landfill requirements. The Phase III expansion would comply with the ARARs specified in the original ERDF ROD.

Staging waste at the ERDF site or at the operable unit would comply with substantive Federal and state requirements, which include WAC 173-303-646(4). In addition, staging must comply with the new CAMU rule revisions (published January 22, 2002), which are newly identified in this ROD amendment, including 40 CFR 264.552[f] for storage of dangerous waste within a CAMU and 40 CFR 761.65(b) for storage of PCB waste.

To-be-considered provisions for radioactive waste management will be addressed. The original ERDF ROD provides a discussion of most of these latter provisions (with the exception of DOE O 435.1, which establishes a variety of provisions for storage of low-level waste). DOE O 435.1 establishes provisions pertaining to low-level waste storage, including requirements for waste characterization, packaging, provision of confinement systems, container inspections and maintenance, and hazard mitigation. Storage of waste in the ERDF staging area will be conducted in a manner that ensures that these provisions are met.

Section 40 CFR 264.552(f) of the revised CAMU rules establishes standards for storage of hazardous waste in CAMUs. Staging of waste at ERDF will comply with these new standards, which are more stringent than current requirements for CAMUs. Although the new standards generally prohibit storage of wastes containing free liquids in CAMUs, such storage is allowed when the liquid is a necessary part of the selected remedy. In the case of pyrophoric uranium wastes, liquids are necessary in the waste containers to prevent spontaneous combustion.

In addition, the revised storage CAMU regulations generally require provision of a composite liner/leachate collection system if waste is staged for a period exceeding that normally allowed in staging piles, unless alternative design and operating practices are instituted that prevent migration of waste into the groundwater. Overpacking of the waste containers and establishment of a routine waste container inspection program will serve as alternative design and operating practices in lieu of a liner/leachate collection system.

The duration of staging under the revised CAMU rules will be 2.5 years, with possible extensions granted by the EPA upon appropriate demonstration of protectiveness and need. Such extensions, if needed, will include provisions for groundwater monitoring consistent with the ERDF groundwater monitoring network.

3) Long-term effectiveness and permanence

Expansion of the ERDF would provide long-term isolation of waste resulting from remedial actions at the Hanford Site.

Staging, by definition, is not long-term. However, the staging of waste will support long-term effectiveness by facilitating treatment.

4) Reduction of toxicity, mobility, or volume through treatment

Treatment of waste prior to disposal at ERDF reduces the toxicity, mobility, or volume. Waste treatment will generally be considered in the feasibility studies, proposed plans, RODs, and design documents for the individual operable units.

The addition of the staging area does not require treatment, although any wastes staged there are awaiting treatment. The staging will facilitate treatment.

5) Short-term effectiveness

Expansion would require additional construction activity and, therefore, would increase short-term risk to workers.

Risks posed to the public, workers, or the environment as a result of the staging location would be negligible. However, the additional handling steps required for staging may increase the overall risks to workers. Environmental risk would be lower at ERDF because of the location away from the Columbia River and the distance to groundwater.

6) Implementability

Similarly to Phases I and II, the Phase III expansion would use a double liner, therefore increasing the complexity of the task.

Staging the waste is considered implementable, regardless of the location. A single, centralized staging location is generally considered more efficient and, therefore, less difficult to implement than providing separate staging areas at each remedial action site.

7) Cost

It is estimated the construction of the four Phase III disposal cells would cost approximately $40 million (from design through the start of operation).

Costs for construction and conducting staging activities at ERDF are generally considered to be less than the costs for conducting staging at each operable unit under remediation. A centralized staging area would also reduce the need for multiple areas and associated contracts and operating expenses.

8) State acceptance

Ecology supports the ERDF Phase III construction. Ecology also supports the proposal to allow waste staging at ERDF.

9) Community acceptance

Public acceptability was evaluated after the close of the public comment period for the Proposed Plan. No modifications to the proposed actions are made based on public comments. Comments were received from two citizens, one tribal nation, and two state agencies as a result of the public comment period. The comments were generally supportive, with some comments requesting specific design features. The comments and responses are detailed in the attached responsiveness summary.

VI. SELECTED AMENDED REMEDY FOR THE ERDF

DOE shall implement the amended remedy as described below and in Section IV, above.

The selected remedy modification for the ERDF is to authorize expansion, on an as-needed basis, for up to four additional waste disposal cells to be constructed on an as-needed basis and operated for disposal of Hanford Site remediation waste. This Phase III construction would be located entirely within the 4.1-km^2 (1.6-mi^2) area selected for ERDF, as defined in the ERDF ROD.

The current design of ERDF is a single, 21.3-m (70-ft)-deep trench consisting of two side-by-side cells, with final dimensions of 432.8 m (1,420 ft) long by 219.5 m (720 ft) wide at the top of the trench. The facility is equipped with a double liner and a leachate collection and recovery system that meets the requirements for hazardous waste landfills under RCRA. The same RCRA design selected for the existing ERDF disposal cells would be used for the Phase III cells. The detailed design shall be submitted to the EPA for approval prior to construction of the ERDF expansion. The Phase III cells will be closed in the same manner as the existing ERDF cells.

The ARARs for this amended remedy are unchanged from those specified in the 1995 ERDF ROD. The 1995 ROD also identified DOE Order 5820.2A as a to-be-considered (TBC) standard. DOE O 435.1 has since superseded DOE Order 5820.2A. Like DOE Order 5820.2A, DOE O 435.1 requires that low-level waste management practices limit external exposure to radioactive material released to the environment to levels that will not result in an effective dose equivalent to any member of the public in excess of 25 mrem/year and that any air releases (excluding radon) not result in an effective dose equivalent to the public in excess of 10 mrem/yr. DOE O 435.1 also specifies that radiation exposure be limited to ALARA. Performance objectives for low-level waste disposal practices and systems include limiting the effective dose equivalent received by inadvertent intruders, after institutional controls cease, to not more than 100 mrem/year or 500 mrem for a single acute exposure.

A second selected remedy is to authorize the creation of a staging area within the ERDF site. The staging area would provide a centralized and protective location to manage waste awaiting treatment and disposal. The staging area at ERDF would be designed, constructed, operated, and closed in accordance with relevant substantive Federal and state requirements. Significant ARARs include WAC 173-303-646(4). DOE shall satisfy requirements of the CAMU rule revisions published on January 22, 2002 for storage of hazardous waste and 40 CFR 761.65(b) for storage of PCB waste.

During the staging period, any containers holding PCBs will be kept within larger outer containers (e.g., "overpack" containers or ERDF containers). Although these containers may not represent the typical concept of a "facility," they will satisfy the substantive requirements for providing the roof, walls, and non-porous floor required for PCB storage facilities. The overpacked containers would hold the entire volume of the inner containers in the event of a leak or spill, with no drain valves, expansion joints, etc.

Staging of RCRA dangerous waste at ERDF will comply with existing general CAMU regulations and will also comply with the more stringent and more definitive provisions of the corrective action management unit (CAMU) rule revisions published on January 22, 2002 (67 FR 2962).

The staging area will be closed by removing all waste, contaminated containment system components, contaminated structures and equipment, and any contaminated subsoil, generally within 180 days after the operating term area.

The amended CAMU regulations prohibit placement of waste with free liquids except where such placement facilitates the remedy selected for the waste. The initial waste staged at ERDF will include drums of depleted uranium chips and fines from the 618-4 Burial Ground. In the specific case of this waste, maintaining an oil cover on the uranium chips and fines is necessary to prevent a potential pyrophoric reaction. As a consequence, the oil cover is a necessary part of the selected remedy, and this waste stream is therefore not subject to the general prohibition on placement of liquid-bearing wastes in a CAMU. For any future waste staged at ERDF that may contain liquids, a similar demonstration must be approved by EPA.

If the staging area will be in use for longer than 2 ½years, the ERDF groundwater monitoring program will be modified as appropriate to ensure adequate groundwater monitoring coverage and compliance with requirements for hazardous waste storage CAMUs. Any releases of waste stored in the CAMU observed during periodic inspections of the staging area will be immediately cleaned up and reported to EPA.

The following design and operating practices shall be instituted for staging in the CAMU as an alternative to providing a liner and leachate collection system:

- Any waste package containing free liquids will be kept within larger outer containers (e.g., "overpack" containers or ERDF containers) while staged at ERDF. The outer containers will be kept closed at all times (except when adding waste or inspecting the inner containers) to prevent precipitation from contacting the inner containers.
- An inspection of the outer containers will be conducted on a weekly basis looking for any signs of leakage or deterioration. In the event that any leaking or deteriorating outer containers is observed, the waste shall be repackaged to regain integrity of both the inner and outer containers.
- On an annual basis, 10% of the outer containers shall be open and inspected for any signs of leakage from the inner containers. If any leakage is found, 100% of the containers in the storage CAMU will be opened, inspected, and (if necessary) repackaged to regain integrity of the inner container.
- EPA will be notified in the event that inspections discover leakage from either the outer or inner containers.

VII. STATUTORY DETERMINATIONS

The staging of waste is based on the regulations established in WAC 173-303-646(4), new rule 40 CFR 264.552(f), and 40 CFR 761.65(b).

EPA and Ecology agree that this ROD Amendment remains protective of human health and the environment, complies with Federal and state ARARs for this action, and is cost-effective. This remedy utilizes permanent solutions to the maximum extent practicable for the ERDF site. Because hazardous substances will remain onsite above health-based levels in the ERDF disposal cells, a review will be conducted at least every 5 years after the commencement of remedial actions to

ensure that the remedy continues to provide adequate protection of human health and the environment. One such review was previously completed for the ERDF.

Treatment of remediation wastes will continue to be addressed as part of the operable unit decisions. Consequently, the statutory preference for treatment as a principal element will be addressed in the respective current and future documents rather than in this ROD Amendment.

VIII. DOCUMENTATION OF SIGNIFICANT CHANGES

DOE and EPA reviewed all written and verbal comments submitted during the public comment period. Upon review of these comments, it was determined that no significant changes to the amended remedy, as originally identified in the Proposed Plan, were necessary.

IX. RESPONSIVENESS SUMMARY

U.S. Department of Energy
Environmental Restoration Disposal Facility
Hanford Site
Benton County, Washington
Amended Record of Decision

Introduction

This responsiveness summary was prepared in accordance with the requirements of Section 117 of CERCLA, as amended. The purpose of this responsiveness summary is to summarize and respond to public comments on the proposed amendment for the January 1995 ERDF ROD. The Proposed Plan for the Amendment, issued on October 29, 2001, identified proposed changes to components of the remedy set forth in the January 1995 ERDF ROD.

The Tri-Parties announced the issuance of the Proposed Plan in the community newspaper, the *Tri-City Herald*. A 30-day comment period was provided for the public to read the Proposed Plan, review documents in the Administrative Record, and submit written comments. No requests were made for public meetings, therefore, no meetings were held. The Proposed Plan discussed the ERDF expansion and staging of waste at the ERDF.

Community Involvement

A newspaper notice placed in the *Tri-City Herald* on October 28, 2001 announced the availability of the proposed amendment and the start of the public comment period. Approximately 1,100 copies of a factsheet describing the proposed ROD Amendment were sent by mail. A public comment period was held from October 29, 2001, through November 28, 2001. No requests were received for a public meeting, therefore, no public meeting was held. The proposed amendment was presented to the Hanford Advisory Board and the Hanford Advisory Board – River and Plateau Committee in October 2001.

Comments and Responses

The EPA received written comments from two citizens, one tribal government, and two state agencies during the public comment period. The citizens supported the proposed actions. The comments, along with responses, are summarized below.

A.1. Just a quick note to say that I support the development of more cells within the footprint of ERDF for acceptance of removed contaminants from around the Hanford Site.

The EPA appreciates your comment.

B.1. I submit my personal comments on the Proposed Plan for an Amendment to the Environmental Restoration Disposal Facility Record of Decision (DOE/RL-2001-44, Rev. 0). While I have no formal authority to speak for the Tri-Cities and vicinity public, I do believe that a large majority of those who have knowledge or interest in the Hanford Cleanup program would agree with me that the Proposed Plan represents an acceptable course of action to provide capacity for the estimated waste disposal needs for continued cleanup in the 100 and 300 Areas. It satisfies all applicable legal and administrative requirements.

B.2. I also support the proposed staging area at the ERDF for wastes awaiting treatment. In particular, it offers an excellent alternative for storage of wastes such as the uranium metal in oil filled drums now at the 618-4 site while waiting for availability of an acceptable treatment facility. Removing such wastes to a more protective location farther from the river is very desirable; and also permits closing of such sites once all the wastes are removed to the staging area.

The EPA appreciates your comments.

C.1. The ERWM is very interested in commenting on any Hanford document that involves projects that may impact natural and cultural resources at Hanford. With this document we had to ask DOE to send us a copy because it does not appear that any of the tribes were included on the original distribution. In the future please put the ERWM on distribution so that we may receive documents in a timely manner and have time to comment if we choose to do so.

It is appropriate and important that, as part of the government-to-government relationship, the tribes should be included on the distribution. EPA will work with DOE to improve this process.

C.2. As you are aware, DOE recently finalized the BRMAP that contains guidance and language on mitigation at Hanford. We support your position to work with the Hanford Natural Resource Trustee Council to determine what degree of mitigation will be appropriate. We encourage EPA to write a specific mitigation plan for the proposed ERDF expansion that provides specific details on how this work will be accomplished.

Rather than create a new document, DOE will modify the existing ERDF mitigation plan to address the expansion as appropriate. DOE performs mitigation separate and apart from this ROD.

C.3 Has the ERDF expansion project budgeted mitigation costs as part of the overall project? This is something the ERWM has been encouraging DOE and its contractors to do over the past several years and would like to know if adequate budgeting for mitigation was planned for.

DOE has indicated that mitigation costs will be budgeted as part of the ERDF expansion project. However, the expansion has not yet been included in the Hanford budget.

The Oregon Office of Energy appreciates the opportunity to comment on this document. Protecting the Columbia River from Hanford's chemical and radiological wastes is of the utmost importance to the State of Oregon.

D.1. The Environmental Restoration Disposal Facility (ERDF) is key to many cleanup activities at Hanford and we support the expansion of ERDF. However, we believe a new analysis is warranted of both the potential risks from wastes disposed as well as the adequacy of the liners and barriers. Recent work related to clastic dikes and horizontal transport raise questions as to whether the risk assessment performed in siting ERDF is still valid.

Modeling was done without considering liners as a barrier to migration of leachate through the vadose zone. In addition, there is every indication that the double liner system employed at the ERDF is functioning properly. Analysis of leachate to date indicates a very low contaminant load (a potential leak would not adversely impact the environment). The current performance of the ERDF falls well within the bounds of the original risk assessment. The horizontal nature of the plane-laminated sands and the complex internal/cross cutting structures within the clastic dikes may locally influence unsaturated flow in the vadose zone. However, on a large scale, flow and transport is still dominated by the horizontal sedimentary fabric. The current performance assessment has adequately considered a factor for horizontal dispersion to account for this horizontal fabric at ERDF.

We commend your concern for minimizing habitat impacts and your coordination with the Natural Resources Trustees during this project.

Our concerns lie with the proposal to stage various forms of waste at ERDF while it awaits either treatment or disposal. We have long advocated that waste be removed from the areas along the river and we continue to advocate that cleanup move forward with all due haste. Getting waste out of the ground and keeping it out of the groundwater in the 100 and 300 areas is certainly consistent with our goal of protecting human health and the environment.

D.2. We agree that centralized staging of some wastes may make sense. However, the proposed plan does not provide enough information for us to conclude that ERDF is necessarily the best location for a staging location.

The proposed plan is only a summary of the information. Additional information is located in the administrative record, including an analysis of other potential locations. Several options were evaluated to determine the optimal location for the staging area. The

following locations were among those considered: deactivated warehouse buildings in the 300 Area, the Central Waste Complex in the 200 Area, the U Plant Storage pad, and ERDF. Factors used in the evaluation included cost, schedule, and operational considerations.

Although ERDF ranked high in all areas, it was selected as the most viable option based on the following operational considerations: (1) it has ample room for expansion, if necessary; (2) it is in the best location to support remediation activities; (3) it requires no additional staff to operate; and (4) it is the most easily integrated with waste disposal operations.

D.3. Staging the waste at ERDF means that some waste will have to be moved twice or perhaps three times depending on the constituents and where the waste must be treated. In the proposed plan for an amendment, it is not possible to tell whether the cost and risks of multiple moves were considered. We are also concerned about adding to the traffic in the vicinity of ERDF and the potential that waste destined for a staging area at ERDF could instead be erroneously disposed. We would like to see an analysis of the tradeoffs involved with using ERDF for staging waste as opposed to using other potential areas.

Additional information is located in the administrative record, including an analysis of other potential locations. Several options were evaluated to determine the optimal location for the staging area. The following locations were among those considered: deactivated warehouse buildings in the 300 Area, the Central Waste Complex in the 200 Area, the U Plant Storage pad, and ERDF. Factors used in the evaluation included cost, schedule, and operational considerations.

Although ERDF ranked high in all areas, it was selected as the most viable option based on the following operational considerations: (1) it has ample room for expansion, if necessary; (2) it is in the best location to support remediation activities; (3) it requires no additional staff to operate; and (4) it is the most easily integrated with waste disposal operations.

To prevent erroneous disposal of wastes, the staging area will be physically located away from the wastes "ready" for disposal.

D.4. If the decision is made to stage waste at ERDF, then language must be added to the ROD to monitor the vadose zone and groundwater under the staging areas. The Amendment appears to call for monitoring only if the time limit exceeds 2.5 years. Even though individual waste packages may rotate through the staging area for less than 2.5 years, the staging facility itself would appear to have waste for more than 2.5 years. We believe vadose zone and groundwater monitoring should be established from the beginning.

Staged waste is easily monitored for any breach in containment, especially with overpacks. In the unlikely event an impact to the environment occurs it will be immediately controlled. Should the staging area be in place for 2.5 years, groundwater monitoring will be performed as required by ARARs.

D.5. Also, the language about conditions under which the Environmental Protection Agency can extend the 2.5-year time limit for staging waste is vague. It feeds our concern that circumstances could cause this temporary staging of waste to become de facto permanent storage. We would like to see this section expanded to discuss exactly what those "appropriate demonstrations of protectiveness and need" might be.

It is impossible to specify what might constitute an appropriate demonstration in advance. However, any request for an extension would have to demonstrate that continued staging would be protective of the environment as well as why it is needed. The staging area is not intended to be a permanent solution. Because of the limited area dedicated to staging there is a strong bias to expedite treatment and disposal of this waste.

E.1. The State of Washington Dept. of Ecology, Oregon Office of Energy, National Academy of Sciences, and the members of the Ground Water Vadose Zone Expert Panel agree that USDOE must pursue installation of vadose zone monitoring devices at facilities like ERDF. Ecology believes that:

A. Access tubes should be installed beneath the lowest liner for access to various geophysical (and other technique) methods for monitoring the vadose zone (or at a minimum, the detection of a leak of the secondary liner). It is my understanding that access tubes are not present beneath the existing cells at ERDF and if possible, we would like to see this situation corrected. The cost and schedule delay during construction are minimal relative to the cost of installation after construction. The potential protection for the future is enormous.

B. Other Vadose zone monitoring alternative should be looked at as apart of the innovative testing of new technologies to be applied at other similar TSD units at the Hanford Site.

Separate from this ROD, DOE will study vadose zone monitoring at the Hanford Site. The study will be completed in sufficient time that, if appropriate, vadose zone monitoring could be incorporated into ERDF Phase III.