



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10 HANFORD PROJECT OFFICE  
712 SWIFT BOULEVARD, SUITE 5  
RICHLAND, WASHINGTON 99352

September 21, 1994



Owen Robertson  
Department of Energy  
Richland Operations Office  
P.O. Box 550, MS A5-19  
Richland, WA 99352

Re: Remedial Investigation and Feasibility Study Report and Proposed Plan for the Environmental Restoration Disposal Facility

Dear Mr. Robertson:

The U.S. Environmental Protection Agency (EPA) and the Washington State Department of Ecology (Ecology) have completed the review of the Remedial Investigation and Feasibility Study Report for the Environmental Restoration Disposal Facility, DOE/RL-93-99, Rev 1 and the Proposed Plan for the Environmental Restoration Disposal Facility, DOE/RL-94-47, Rev 1. Enclosed are the combined comments on the technical and regulatory content of this report.

Also enclosed is a copy of Ecology's comments, as the support agency, for inclusion into the Administrative Record. A separate response to these comments is not required.

A Word Perfect 5.1 diskette is enclosed for you convenience.

If you have any questions or concerns regarding these comments, please contact me at (509) 376-4919.

Sincerely,  
*Pamela S. Innis*  
Pamela S. Innis  
Unit Manager

Enclosure

- cc: Patrick W. Willison, DOE
- Steven H. Wisness, DOE
- Michael Collins, DOE
- Norm Hepner, Ecology
- Dan Duncan, EPA
- Dean Ingemansen/Andy Boyd, EPA
- Jeff Ross, PRC
- Bill Lum, USGS
- Vern Dronen, WHC
- Administrative Record, ERDF 200-DF-1

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## INTRODUCTION

The U.S. Environmental Protection Agency and the Washington State Department of Ecology, reviewed the revised Remedial Investigation and Feasibility Study Report for the Environmental Restoration Disposal Facility, DOE/RL-93-99, Rev 1 and the Proposed Plan for the Environmental Restoration Disposal Facility at Hanford, Richland, Washington, DOE/RL-94-47, Rev 1, dated September 1994. General and specific comments are provided below.

The RI/FS provides the substantive technical information and analysis to support a CERCLA ROD. Most of the NEPA elements are adequately addressed and referenced in an appendix for use by readers to easily guide them through the document. The basalt borrow site remains undefined and is not discussed throughout the report. This omission is readily noticeable and discussion during the public meetings should be anticipated and prepared for.

DOE has not adequately addressed Ecology's July 1994 comment and concern that the ERDF mitigation discussion is weak, vulnerable to significant public comment, and lacks the specificity needed to encourage productive interactions with the public in a formal setting. The DOE should be prepared to propose a more specific mitigation plan. To the extent possible, this proposal should be included in the proposed plan. Not proposing a more specific mitigation plan is unacceptable. It is recommended that, at a minimum, language be drafted in the regulatory package that is similar to that found in Appendix B of the EIS for Safe Interim Storage Of Hanford Tank Waste, DOE/EIS-0212.

The Proposed Plan's general format and content is acceptable. Revisions to the text are required to produce a more reader-friendly document. A majority of these changes should be discussed and resolved in an open forum. It is therefore

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recommended that EPA, Ecology and DOE representatives meet in the short term to "rewrite" the proposed plan. Additional recommended changes are presented under SPECIFIC COMMENTS.

Information contained in the Proposed Plan and RI/FS is contrary to the information currently being discussed in ER Refocusing. Specifically, volume projections have changed, the ERDF facility has been downsized requiring fewer facilities (railroad, grout plant, etc). These contradictions are easily explained but could diminish our credibility with the public. It may be advisable to modify the text (Proposed Plan) at this time to acknowledge recent changes.

**SPECIFIC COMMENTS on the PROPOSED PLAN:**

**Page 8, Potential Risks Associated with Source Operable Units, sent 1:** The first sentence discussing the 200 Area is of the least importance to the ERDF discussion. **Recommendation:** Modify paragraph by beginning the discussion with the second sentence "Risk assessments have been completed for some operable units in the 100 and 300 Areas." The first sentence discussing the 200 Area should be the last sentence.

**Page 8, Results of Source Operable Unit Feasibility Studies, sent 1:** The first sentence discussing 200 Area feasibility studies is of the least importance to the ERDF discussion. **Recommendation:** Modify paragraph by beginning with second sentence. The first sentence should be placed at the end of the 100/300 area feasibility study discussion.

**Page 10, Summary of Alternatives, para 4:** This paragraph suggests and lists four barrier options, as in Section 8 of the RI/FS. In both the RI/FS Section 9 and NEPA appendix only three barrier options are discussed (the modified hanford barrier and the RCRA compliant barrier are discussed as a single option). **Recommendation:** Correct this inconsistency.

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**Page 21-22, Short-Term Effectiveness, para 3 & 4:** The discussion of the Hanford Site-wide mitigation plan lacks the specificity on the actions that will be taken to mitigate ecological damage at ERDF. Paragraph 4 discusses very specifically the habitat evaluation procedure. A general discussion of how information gathered will be used and what ERDF mitigation plan is likely to look like would be more beneficial to the general public. The lack of a specific mitigation discussion for ERDF is unacceptable. **Recommendation:** During July 1994, Ecology commented that a more specific mitigation discussion is required and cited the discussion included in the Safe Interim Storage Tank EIS as an example of what would be acceptable. The latest revisions show little change to the language contained in the July 1994 draft. A better description of potential mitigation strategies should be developed and included in the proposed plan prior to public comment.

**Page 23, State Acceptance, para 1:** At present, Ecology has not had their mitigation comments resolved (see previous comment). The State is in agreement with the preferred alternative conditional upon a tangible commitment by the DOE for appropriate mitigation of ecological resources. This commitment must include a specific discussion in the Proposed Plan of what some possible mitigation alternatives would be. At present, the mitigation discussion is deferred until development of the Sitewide Mitigation Plan. The current language under State Acceptance requires changing if agreement is not reached on specific mitigation language.

**Recommendation:** Ecology will begin preparing language for the State Acceptance section in the event agreement cannot be reached on an appropriate mitigation discussion for the Proposed Plan.

## RI/FS Specific Comments

**Section 3.3.1.2, page 3-16, second paragraph.** Most of the isotopes listed as being generated in the 300 Area are not fission products, as indicated in the text. The isotopes on the left side of the list are essentially activation products and thorium, uranium, and plutonium are related to fuels and transmuted fuels. The text should be corrected to reflect these changes.

**Section 6.2.2.1.1, page 6-24, first paragraph.** The last sentence of this paragraph should be deleted because it is irrelevant to the risk assessment.

**Section 8.5.6, page 8-11 and 8-12, second paragraph.** This paragraph describes the layers in a typical RCRA barrier. The description of the layers is not consistent with the minimum technology requirements (MTRs) specified in the EPA guidance (1989). For example, the text states that the low-permeability layer should have a permeability no greater than  $1 \times 10^{-9}$  centimeters per second (cm/s). However, EPA guidance (1989) recommends that the low-permeability layer should have a maximum in-place saturated hydraulic conductivity of  $1 \times 10^{-7}$  cm/sec. The text should be revised to state the MTRs for a standard RCRA barrier that are presented in the EPA guidance.

**Section 8.4.6, Page 8-13, Modified Hanford Barrier:** The text in the second bullet of this paragraph states, "The basalt has been eliminated and a general fill layer added to provide at least 4.5m (15 ft) thickness." But, only 3.0 meters (m) general fill is indicated in Figure 8-5. This discrepancy should be resolved and the text or figure should be revised accordingly. Also, the text states that capillary breaks will be provided at the top and

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bottom of the general fill layer. The method and materials used to provide the capillary breaks, however, are not indicated.

**Section 9.1, page 9-1:** The revised text does not reflect a significantly strengthened discussion of the no action alternative. In Section 9.0 of the report, no action is assumed to indicate that a centralized disposal area is not available and that limited alternatives would be available at the operable units. An expanded evaluation of the no action alternative would be useful and should be added to the text. A qualitative presentation of risks (long-term effectiveness) associated with leaving all wastes in place would also be useful. Demonstrating the risk reduction resulting from constructing a centralized disposal trench would demonstrate the need for such a facility to the public.

**Section 9.2, page 9-4, first bullet.** The factor "Reduction of toxicity, mobility, or volume through treatment" is not relevant to the long-term effectiveness and permanence criteria (EPA 1988). This bulleted item should be deleted.

**Section 9.3.4, page 9-9, second paragraph.** The text proposes to use off-the-shelf reverse-osmosis (RO) to treat leachate and decontamination wastewater. Several potential technologies and process options are retained during the screening process for wastewater treatment (Table 8-1). The text does not justify for the selection of only RO process but should.

**Section 9.3.9, page 9-15, first paragraph:** Section 8.5 recommends that 4 barrier designs be carried forward, the low-infiltration soil barrier, the RCRA barrier, the Hanford barrier, and the modified Hanford barrier. This section, however, recommends only that three surface barriers are included, the low-infiltration soil barrier, the modified Hanford Barrier (RCRA compliant barrier), and the Hanford barrier. No justification is

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given for excluding the RCRA barrier as proposed in Section 8.5. Include justification for eliminating the RCRA barrier or include this barrier in the analysis.

**Page 9-6, Section 9.2, Evaluation Criteria, para 2, Comment:**

This wording may require changing in the event the State is unable to reach agreement on an appropriate discussion for mitigation. **Recommendation:** The State will prepare language for inclusion in the RI/FS in the event agreement on mitigation discussion is not reached.

**Table 9-6, page 9T-6.** According to Tables 8-4 and 8-5, material requirements for the barriers include an item "asphalt base course" for the modified Hanford barrier and Hanford barrier. This table should be revised to include the asphalt base course.

**Section 10.0, page 10-2, second paragraph:** The last sentence of this paragraph states, "For the contaminants that may exceed acceptable levels (metals and radionuclides) no treatment technology exists for reducing concentrations." Although no treatment technology exists for reducing concentrations, technology exists to immobilize the contaminants and to reduce the waste volume. For example, grouting the waste in a single use container will prevent exposure to soils containing concentrated contaminants. The text should be modified to indicate that soils exceeding the acceptable soil concentrations due to the 500-year drilling scenario should be treated at the operable units.

**Section 10.0, page 10-3, first paragraph.** This paragraph concludes that the low-infiltration soil and modified Hanford barrier should be just as protective as the Hanford barrier as long as institutional controls are maintained over the ERDF and if the long-term average precipitation does not increase

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significantly. Under these conditions, the standard RCRA barrier may also be as protective as the barriers evaluated in this report, while providing compliance with MTRs for RCRA landfill covers. Thus the standard RCRA barrier should also be evaluated along with the other barriers in this report.

**Page 10-3, Section 10, Comparative Analysis, last paragraph,**

**comment:** The last paragraph suggests that the Hanford Barrier is the preferred alternative if the objective is to protect human health and the environment for thousands of years with or without institutional controls. **Recommendation:** This paragraph should be deleted and replaced with "The barrier selection is not a time-critical decision with construction of the barrier not likely to occur before the year 2005. It is anticipated that further research and technological improvements in barrier development will allow for increased protectiveness for the environment and decreased need for onsite resources. At a minimum, a modified RCRA barrier will be required."

**APPENDIX C, GENERAL COMMENT**

The report did not calculate soil concentration limits for the wastes that are protective of groundwater because of the large uncertainties in waste release calculations. However, this approach will necessitate conducting extensive leachate tests on the bulk soils to determine if they will meet leachate limited waste acceptance criteria (WAC). Alternatively, the WAC could be based on total contaminant mass. Such an approach is typically used for WAC at low-level radioactive waste disposal facilities. This approach would be useful for soil-limited WAC above background levels. This approach would allow for easier evaluation of solid wastes and would allow for disposal of small volumes of wastes that previously would not have achieved concentration-based WAC. However, concentration-based soil WAC

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may still be needed to satisfy risk-based concentration limits derived from the year 500 drilling scenario.

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