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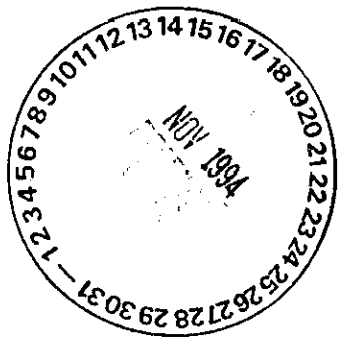

October 31, 1994

Nancy A. Werdel
U.S. Department of Energy
P.O. Box 550, A5-19
Richland, Washington 99352

Re: 100 Area Source Operable Unit Focused Feasibility Study Report Review

Dear Ms. Werdel:

The U.S. Environmental Protection Agency (EPA) and its contractors have completed the review of the 100 Area Source Operable Unit Focused Feasibility Report.

The EPA recommends that all three parties meet as soon as possible to discuss comments and make any necessary changes to the document. It is our intent to have a finalized document by the end of November.

These comments have been transmitted electronically for your convenience. If you have any questions, please call me at (509) 376-8631.

Sincerely,

Dennis A. Faulk
Operable Unit Manager

Enclosure

cc: Bob Henckel, WHC
Phil Staats, Ecology
Administrative Record (Generic File)

GENERAL COMMENTS

Overall, the 100 Area source operable unit focused feasibility study (FFS) report contains sufficient information for use as a process document for development of interim remedial measure (IRM) alternatives and site-specific evaluation of the alternatives in each 100 Area source operable unit. However, there are a few concerns that should be addressed.

- It should be clearly stated that this document is not intended to lead directly to remedy selection, but rather is a guidance for preparation of an operable unit-specific FFS. An operable unit-specific FFS should contain the details necessary for informed remedy selection, including a detailed analysis and evaluation of alternatives.

- In the evaluation and comparison of IRM alternatives, soil and solid wastes should be discussed separately; this will simplify preparation of the operable unit-specific FFS.

- For the retention basins group, the removal, treatment, and disposal alternative (SS-10) is said to be more effective than the removal and disposal alternative (SS-4) when evaluated against the criterion of overall protection of human health and the environment since any potential risk is eliminated by treatment (Table 6-1). The source, however, is not treated under alternative SS-10. Under both alternatives, SS-4 and SS-10, the source is removed, but SS-10 includes treatment of the removed source (soil) to reduce its volume (but not the contaminated mass). The smaller volume of treated soil with highly concentrated contaminants is then transferred to the disposal facility. Alternative SS-10 thus may be more effective in terms of reducing the area required for disposal because of the reduction in volume. With alternative SS-4, the source is removed and the site is filled with clean fill, which is equally effective in terms of protecting human health and the environment at the retention basins. The text and table should be revised according to the above discussions where appropriate throughout the document.

- A Hanford barrier is used in this FFS to determine the disposal costs at the W-025 Radioactive Mixed Waste Land Disposal Facility and the environmental restoration disposal facility (ERDF). According to the selection criteria for the Hanford barrier, however, this measure is not required at either of these disposal facilities. To be consistent with the recommendation for the ERDF, use of a standard Resource

Conservation and Recovery Act (RCRA) barrier should be considered and evaluated in the FFS.

- Overall, the tables listing applicable or relevant and appropriate requirements (ARARs) appear to be complete, but the potentially affected remedial alternatives are not identified. Further, neither the table nor the text identifies the chemical-, location- or action-specific ARARs that apply to each individual operable unit. For example, as listed on page 2T-5a, the Endangered Species Act of 1973 requires a detailed course of action if endangered or threatened wildlife are present. The absence or presence of such species in each unit is not specified in either the text or tables. A subset of these ARAR tables would be appropriate in the unit-specific focused feasibility study reports, but this is not the case with the 100-HR-1 Operable Unit Focused Feasibility Study Report (DOE/RL-94-63, Draft A). All ARARs that will be affected by alternatives at each operable unit should be identified in future revisions of the focused feasibility study.

This document should be carefully proofread before the next version is published to eliminate typographical errors that could confuse the reader. For example, in Section 2.0, page 2-1, in the fourth paragraph, the word "values" should be substituted for "valves"; in the first paragraph of Section 2.1, page 2-2, the word "constituents" should be substituted for "consistent."

SPECIFIC COMMENTS

1.Section ES-1,
The first bullet notes that this evaluation was done according to a recreational scenario. This is an incorrect assumption and this document should also evaluate alternatives based on the unrestricted scenario (residential).

2.Section 1.0, page 1-1 3rd paragraph

This section references the HRA- EIS. This information should be reviewed for accuracy. All the dates listed are incorrect. Also it would be beneficial to point out that this is being conducted by DOE without regulator involvement. Also point out how the FFS and HRA-EIS compliment each other.

3.Section 1.1, page 1-2, 1st paragraph

this section discusses the river sediments. It is not correct to assume that any sediment work will occur during final remediation. It would be more appropriate to site that this work is being conducted as part of Milestone M-80.

4.Section 2.3, page 2-3, last paragraph

The text states that a native American future use option is compatible with a recreational land use scenario. This is incorrect. The final report of the Hanford Future Site Uses Working Group, "The Future For Hanford: Uses and Cleanup," states that native American uses are equivalent to unrestricted status, which includes cleanup of groundwater for beneficial use. This FFS should include a sensitivity analysis that considers unrestricted use of the 100 Area. This will require additional analysis in Section 2.4 and 2.5 of receptors, pathways of exposure, and remedial action objectives. Further, the list of refined contaminants of potential concern (COPC) is likely to be expanded; however, it may be appropriate to consider COPCs on a site-specific basis in the operable unit-specific FFSs.

5.Section 2.4.1, page 2-4, and Appendix A

These discussions of the development of preliminary remediation goals (PRGs) are based on the criterion of protection of human health and ecological receptors. It is unclear exactly how the conclusions of the qualitative risk assessment (QRA) were incorporated into this document, particularly those regarding ecological risk assessment.

Both Section 2.4.1, and Appendix A state that two terrestrial receptors were used in this development of PRGs: the Great Basin pocket mouse and a single generic plant. The Great Basin pocket mouse was evaluated in the QRA, but not terrestrial plants, according to Section 2.4.1. The text then states that there is no published method for derivation of ecological PRGs, and that PRGs protective of human health were adopted "when applicable." Since only two terrestrial biota were used, and since PRGs were apparently not developed based on either one, it appears that the only PRGs developed are those that are protective of human health.

However, Figure A-1, which shows the 100 Area Source Operable Unit FFS conceptual exposure pathway model, depicts whether a given exposure pathway is considered to be major or minor for a given receptor. Both terrestrial receptors are combined in this figure, with the inhalation and external exposure routes shown as minor for terrestrial biota, but major for human exposure.

The PRGs based on risk to terrestrial biota should differ from those based on human health risk evaluation. The text should clearly show the distinction between these two PRGs. If, however, these PRGs are equivalent, as indicated in the text, the equivalency should be clearly explained in the text.

6.Table 2-8, page 2T-8a, Clean Air Act

It is unclear why alternative SS-8 is included with the incineration alternatives. The in situ treatment alternatives

(SS-8A and SS-8B) include vitrification and void grouting, respectively, neither of which involve incineration. Perhaps the term thermal treatment would be more accurate. This comment is applicable to all other references in this report to Alternative SS-8 as incineration (for example, page 2T-8E, incineration).

7.Section 3.1, pages 3-1 through 3-9

This section describes the site groups identified for this FFS. The sites within each group and the corresponding operable units should be identified for each group for clarity.

8.Section 3.1.7, page 3-4, first paragraph

The text states that most of the contaminated buildings and facilities were demolished and buried in place; these areas are considered to be similar to burial grounds. The buried buildings should be identified, and these building sites should be addressed under the solid waste burial grounds groups.

9.Sections 3.1.7, page 3-4, and Section 3.2.10, page 3-9

Section 3.1.7 discusses decontaminated and decommissioned (D&D) facilities. Most of these buildings have been demolished and were either (1) buried in place; (2) disposed of in clearwells at the associated water treatment facility (clean material only); or (3) taken to the 200 areas for burial. Further discussion in Section 3.1.7 indicates that since residual contamination was below allowable residual contamination levels, these facilities were released to unrestricted status. Next, Section 3.2.10 states that D&D facilities are assumed to pose no threat warranting an interim action, based on the discussion in Section 3.1.7. Further, Tables ES-2 and 6-9 show no evaluation of alternatives for D&D facilities; Table 5-2 states that D&D facilities have been effectively addressed in the past.

The discussion in Section 3.1.7 does not sufficiently show that all D&D facilities warrant no interim action, or that they have been effectively addressed in the past. This argument should be discussed in greater detail with additional supporting evidence, or D&D facilities should be included in this FFS for evaluation of appropriate alternatives.

10.Section 3.2, page 3-5, first paragraph

The text states, "the group profile consists of . . . a determination of exceedance of allowable soil concentrations under a reduced infiltration scenario." Because the group profile also consists of a determination of exceedance of allowable soil concentrations with the PRG as discussed in Sections 3.2.5 and 3.2.7, the text should be revised to read "the group profile consists of . . . a determination of exceedance of allowable soil concentrations and the potential PRG under a reduced infiltration scenario."

11.Section 3.2.1 , page 3-7

Each of the generic waste sites should include the size and volume estimates.

12.Section 3.2.7, page 3-8
This section states that none of the seal pits exceed the PRG. This statement may change given a more restrictive clean up standard.

13.Section 4.1.2, page 4-3 last paragraph

A statement should be added to this section stating that the effluent pipes may require grouting to fill the void space.

14.Section 4.1.3.1.1, page 4-10, 2nd bullet
Use of barrow material from the Hanford site may be a trustee concern and should be noted as such.

15.Section 4.1.5.2, page 4-22, 3rd paragraph

EPA does not agree that further studies are needed on the cement solidification technology. Recommend removal of the statement that recommends more tests.

16.Section 4.1.5.3.2, page 4-26, 2nd paragraph

This paragraph discusses PRG's for the soil washing test. EPA and Ecology did not agree with the PRG so a compromise was made. The paragraph should explain the range of PRG's that were agreed to by all parties.

17.Section 4.2.6.2, page 4-41, middle page, 4th bullet

The word compatible should be changed to compactable.

18.Appendix A, Section 3.1.2, page A-9

This section states that only ingestion of soils was included in the PRG calculation because there is no inhalation reference dose for most metals, and no dermal exposure pathways were considered in the QRA. However, EPA (1992) has stated that risk-based concentrations calculated based on the soil ingestion pathway may not be appropriate for chromium, cadmium, and elemental mercury because the inhalation risk of these metals may be of more concern. All of these compounds are listed in Table 2-1, which identifies contaminants of potential concern. Inhalation should be included in the PRG calculation.

19.Appendix A, Section 3.4, pages A-11 to A-14

In this section, which discusses an analytical method for determining the soil concentrations that will be protective of groundwater, the allowable concentration in groundwater is back

calculated first to an allowable concentration in leachate and then to an allowable concentration in soils. Equation (9) describes the allowable leachate concentration calculation for the method used. The text does not note that the concentration of a given contaminant in leachate will be limited by the solubility of that contaminant. If solubility does limit a contaminant's concentration in leachate, then the back calculation to the allowable soil concentration may result in an underestimate of the allowable soil concentration; in fact, the allowable soil concentration may be unlimited (based on groundwater ingestion).

In addition, the parameters used in this method are not discussed in sufficient detail. Although all of the parameters are referenced, many of these values are likely presented in the reference as a range rather than a single value. The process used to select a single value from this range should be explained. The K_d values used for radionuclides are of particular concern because K_d values are not entirely contaminant-specific; they also depend on factors such as soil pH. These values should be shown in tabular format, in addition to the discussion of the selection of a single value for this model.

20.Appendix B

This appendix shows the evaluation of costs for this FFS, and states that on-site disposal costs were assumed to equal $70/cubic yard (cy) for the base case. Since on-site disposal refers to disposal at the ERDF, this value should be referenced to the most recent document evaluating costs for ERDF disposal.

In addition, it is unclear how costs shown in this appendix were generated. For example, Table 3-1 lists a generic volume for retention basins of 260,414 cubic meters or 340,476 cy. When multiplied by the assumed disposal cost of $70/cy, the resulting cost is $23,833,320. However, in Table B-1, under alternative SS-4 (disposal without treatment), a cost of $42,082,870 is listed, which apparently does not include excavation. This is only one example; in general, this FFS should be more detailed. Any site-specific changes that affect overall costs should be further documented in the operable unit-specific FFS.

REFERENCE

EPA 1992. Memorandum from Carol Sweeney, EPA Region 10 Health and Environmental Assessment Section. U.S. Environmental Protection Agency. Seattle, Washington. October 30.