PROJECT W-296
ENVIRONMENTAL RESTORATION DISPOSAL FACILITY
CONCEPTUAL DESIGN REPORT

RESOLUTION OF COMMENTS

U. S. ENVIRONMENTAL PROTECTION AGENCY

AND

WASHINGTON STATE DEPARTMENT OF ECOLOGY

GENERAL COMMENTS

1. Several inconsistencies exist between the information provided in the CDR and the engineering studies and functional design criteria (FDC). No rationale is provided for any deviations from the conclusions of engineering studies and final FDC. Some of these inconsistencies are discussed in the comments below.

   Comment Resolution: Many of the engineering studies were prepared early in the design process and some of the assumptions are no longer valid. The CDR integrates the latest ideas and requirements which will be reflected in the FDC revision prior to public comment. The definitive design will be based on the information contained in the CDR. Planned release dates for documents associated with the CDR are shown below.

   - Engineering study for the Source Inventory Development for the Environmental Restoration Disposal Facility, DOE/RL/12074--30 Rev. 0 (April 19, 1994)
   - Engineering study for the Load/Deformation for the Environmental Restoration Disposal Facility, DOE/RL/12074--31 Rev. 0 (April 25, 1994)
   - Surfactant pilot engineering study for the Environmental Restoration Disposal Facility, DOE/RL/12074--30 Rev. 0 (May 13, 1994)

2. Waste acceptance criteria for evaluating chemical and radiological compatibilities (resistance) of geosynthetic and natural liner materials with wastes and leachates are not stated.

   Comment Resolution: The Source Inventory Development Engineering Study for the Environmental Restoration Disposal Facility, DOE/RL/12074--29 Rev. 0, evaluates chemical and radiological compatibilities (resistance) of geosynthetic and natural liner materials with wastes and leachates.

3. Substantial differences are seen between the final FDC, the conclusions of engineering studies, and the assumptions used in the CDR in estimating the amount of waste containers, equipment, operating personnel, water requirements, and the design of decontamination

facility. No rationale is provided for any deviations from the FDC and engineering studies. Unless these deviations are clarified, the cost estimate presented in this CDR is probably overestimated.

Comment Resolution: See comment General Comment-1.

4. Waste acceptance criteria for waste containing free liquids are stated but do not include the optimum value or range of values for moisture content of the wastes to be accepted at the ERDF. This criteria should be provided to determine whether additional treatment such as blending with dry waste (or soil) is required at the ERDF. This information is also useful in estimating the leachate rate from the facility.

Comment Resolution: Testing is being performed to determine the optimum and range of moisture content values for the Hanford site soils. The waste acceptance criteria (WAC) is being prepared as a separate document. It will specify detailed waste acceptance requirements that the ERDF will be designed to accept. The requirement for meeting the WAC is the responsibility of each operable unit and will not be included in the CDR.

5. The CDR does not provide preliminary groundwater monitoring plan and does not identify environmental compliance items.

Comment Resolution: The groundwater monitoring plan is included in the Site Characterization Plan for the Environmental Restoration Disposal Facility, WHC-SD-EN-AP-128, Rev. 0. The environmental compliance items will be the responsibility of the environmental engineering group.

6. Several draft studies were referenced in the CDR; these studies are not currently released for public or regulator review. The reference to these studies to support the conclusions within the CDR should be deleted unless the reports are released prior to public comment. Instead, a statement supporting the conclusion should be made in lieu referencing the report. Concurrent review of these technical reports would aid the regulators in their review of the CDR.

Comment Resolution: The engineering studies referenced in the CDR are scheduled to be finalized prior to public comment. See Comment General Comment-1.

7. Under the CAMU rule, remediation waste is specifically defined. We are currently studying and evaluating types of remediation waste allowed to be disposed of in ERDF. If appropriate, the disposal of ERDF site facilities and sludge from treatment operations will be allowed.

Comment Resolution: The CDR is based on the assumption that ERDF site facilities and waste generated at the ERDF from treatment operations will be disposed of in the ERDF trench. This is currently being evaluated and provisions will be made in definitive design if disposal in ERDF is not allowed.

8. Backhaul of excavated soil to the remediation sites is not well defined. Presently, the ERDF CAMU makes clean soil available for backhaul, but does not provided further services. Requiring all operable units to gather resources and manage backhaul of soil from the ERDF

to the operable unit may not be cost efficient or wise. Since the stockpiles reside in ERDF and the resources can be made available, ERDF should provide backhaul loading, railcar transport, and offloading at a convenient transfer location.

Comment Resolution: A backhaul rail siding will be provided at the ERDF site. Container loading, backhaul loading and backhaul containers are not being provided until backhaul requirements are determined. When the ER sites specify needs, the equipment can be added without structural modifications to the facility.

9. Soil stockpiles are envisioned to be placed on closed portions of the trench in the future. Placing soil on the closed portions of the trench may damage the interim cover. Constructing the Hanford Barrier prior to closing the facility will obstruct the drainage facility circling the trench and may impact the access road.

Comment Resolution: Material that will be stockpiled on the interim cover will weigh less than the final cover (Hanford Barrier) and will be approximately 12 feet high. Therefore, no damage is anticipated to the waste fill, interim cover, or trench. Once the trench is filled, the Hanford Barrier will be installed. At this point, there will be no need for drainage or roads. If installation of the barrier is required prior to completed fill of the trench, modifications to the roads and drainage systems will be provided as part of that package. This issue will be further evaluated during definitive design.

SPECIFIC COMMENTS

10. Section 2.0, page 2, fourth paragraph. This paragraph lists the criteria and engineering studies used in the CDR for the ERDF facilities. The list, however, does not include the following engineering studies:

- Engineering study for the Source Inventory Development for the Environmental Restoration Disposal Facility, DOE/RL/12074--30 Rev. 0
- Engineering study for the Load/Deformation for the Environmental Restoration Disposal Facility, DOE/RL/12074--31 Rev. 0
- Surfactant pilot engineering study for the Environmental Restoration Disposal Facility, DOE/RL/12074--30 Rev. 0

The results of these studies should be incorporated into this CDR according to the draft CDR (DOE 1994) or a specific reason should be stated for not incorporating the results of these studies.

Most of the engineering studies and design analysis reports enumerated here contain out-of-date material. Examples include the Engineering study for the decontamination and wastewater treatment..., the Engineering study for the volume reduction system..., and the Engineering study for on-site transportation network... all state that the trench design is for multiple 33-foot deep cells (incorrect now) and use that as a basis for analysis and the Engineering study for the trench and engineered barrier... states that a low-permeability

interim cover is not cost effective and will not be used (incorrect now). Are these studies going to be updated? Are the new conclusions, cost estimates, and data going to be added to the CDR?

Comment Resolution: The CDR was produced with the engineering studies in mind. See comment General Comment-1. Engineering studies are not normally updated as concepts are refined during the DOE design process.

11. Section 4.0, page 5, fourth paragraph. The text states "The face of the waste placed in the trench will be coated with a dust suppressant." The type of dust suppressant and the estimated quantity of dust suppressant required, however, should also be documented in the report.

Comment Resolution: Details about dust suppressants are contained in the Surfactant Pilot Engineering Study for the Environmental Restoration Disposal Facility, DOE/RL/21074--30 Rev. 0. The scheduled release date for this document is listed in the attached schedule. This information will be utilized during definitive design.

12. Section 4.0, page 5, paragraph 5, sentence 2. It is stated that facilities to load containers with clean excavated soil for backhaul is proposed.

Recommendation: Elaborate that these facilities will include dedicated containers, loading equipment, and railroad access. Backhaul operations will be performed by ERDF personnel with offloading of the backhaul at a convenient transfer location. At this transfer point, the responsibility of backhaul transport to the remediation site is the responsibility of the operable unit.

Comment Resolution: See comment General Comment-8.

13. Section 4.0, page 5, fifth paragraph. Air and groundwater monitoring are proposed, but no ecological or physical monitoring is included. Short-term ecological and physical monitoring are necessary components of the performance assessment of the interim cover until the final cover is placed over the disposal cells. This monitoring may be done for experimental purposes or may be used to validate the design against the intended performance objectives. The CDR should include a section on short-term ecological and physical monitoring and the cost associated with the monitoring. At a minimum, the following interim cover monitoring elements should be included:

- Vegetation monitoring
- Soil monitoring such as
  - Burrow depths
  - Soil loss
  - Deformation--surface roughness change
- Moisture monitoring
  - Infiltration using lysimeters
  - Runoff quality

- Maintenance
  - Frequency
  - Man hours required
  - Water quantity

Comment Resolution: The interim cover is not specifically modeled in the risk assessment and performance assessment. No performance assessment for the interim cover is currently planned. Performance of the interim cover will be assessed by evaluating the leachate collection system. The facility inspection plan will provide for the inspection of the interim cover to identify and prevent damage to the interim cover due to vegetation and/or animal activity.

14. Section 4.0, page 5, sixth paragraph. This paragraph states "Site characterization activities are being conducted and monitoring wells are being installed to meet RCRA requirements. These actions are part of project W-296 but are not included in the facilities described in this CDR." If these activities are part of project W-296, a brief narrative describing these activities should be included in this CDR.

Comment Resolution: Site characterization activities and monitoring wells are discussed in detail in the Site Characterization Plan for the Environmental Restoration Disposal Facility, WHC-SD-EN-AP-128, Rev. 0, and the Corrective Action Management Unit (CAMU) permit application, Chapter 5. This information will be utilized in the definitive design.

A waste disposal trench surveillance groundwater monitoring plan meeting the corrective action management unit (CAMU) criteria for the ERDF facility should be included because of the following three reasons: (1) the function of a groundwater monitoring system is to obtain data about the physical and chemical state of the groundwater system at and in the vicinity of the disposal trench; (2) the system must function to detect and quantify any impact of the disposal cell on the groundwater; and (3) the system must, in addition, function to provide information about potential migration of contaminants (if any) from the site and assess the need for corrective or remedial action. The plan should contain or reference the CAMU application for information about the following topics:

- Monitoring well locations: upgradient, downgradient, and at the point of compliance
- Monitoring well design (i.e., open standpipe or pressure monitoring, or screened with filter pack)
- Depth and screened interval of the wells
- Strata into which the wells will be placed
- Monitoring well sampling frequency
- Water quality parameter measurements
- Water level measurements

- Groundwater model that will be used to analyze data and assess disposal trench performance -

Comment Resolution: See specific comment Section 4.0, page 5, sixth paragraph. Well installations and characterization will be performed as part of the solid waste burial ground which covers project W-296, but is not specific to Project W-296.

Additionally, the text states "The costs are included in section 8 under "Other Project Costs." Costs for site characterization and monitoring well installation activities are not included in Section 8 or Appendix D, Work Breakdown Structure/Cost Estimate. Because the site characterization and monitoring well installation activities require a substantial amount of work, a detailed cost estimate should also be included for these activities.

Comment Resolution: The total budget for Project CF113 is $4,495,200, which includes $1,164,200 for drilling four groundwater monitoring wells and six vadose zone wells. This project also includes a groundwater monitoring plan, regulatory documentation, permitting, site characterization activities, environmental baseline, and site characterization support requirements.

15. Section 4.1.3, page 6, paragraph 2. As stated, areas that will not be repeatedly disturbed will be revegetated.

Recommendation: Add that these areas likely to be repeatedly disturbed will be managed to prevent erosion.

Comment Resolution: Those areas likely to be repeatedly disturbed will be managed to prevent erosion.

16. Section 4.5.1, page 10, first paragraph. This paragraph lists the special equipment needed for the ERDF project. The list does not identify and include equipment to handle (i) remote handled, low-level waste, and low-level mixed waste, and (ii) hazardous/dangerous wastes as listed in the FDC (WHC 1993) but should. Costs associated with these handling equipment should also be included in the detailed cost estimate analysis.

Comment Resolution: Remote handled waste can be handled by the crane. Based on the Source Inventory Development Engineering Study, there are no special handling requirements for the hazardous constituent concentrations expected to be encountered. If unexpected materials are encountered, the crane can be used for disposing of the materials in single use containers. This equipment is included in the detailed cost estimate in the CDR.

17. Section 5.1.2.1, page 14, second and third paragraphs. The text states that the stormwater runoff from clean areas of the site will be collected and routed through ditches to a detention storage pond. The location, the estimated flow to the pond, and the capacity of the pond are not stated. It is also not clear whether the costs for the excavation and construction of this pond are included in the Appendix D, Work Breakdown Structure/Cost Estimate. These omissions should be corrected.

Comment Resolution: The detention storage pond will be sized during definitive design. If flows are minimal or do not change significantly from existing flows, the pond may be eliminated in the definitive design process. Preliminary costs for the pond are included in the Appendix D, Work Breakdown Structure/Cost Estimate, page 4. The ponds are shown on ES-296-03.

18. Section 5.1.2.1, page 14, paragraph 4. Contaminated stormwater is to be collected, stored, sampled, and treated if necessary. Expeditious handling of the 25 year - 24 hour storm event is required to collect additional runoff from later storm events.

Recommendation: Since first flush storm runoff will likely contain greater quantities of pollutants and the tanks may not provide adequate detention time and treatment for the contaminants present, a diversion structure to bypass the filled tanks may be a good management practice to handle storms of greater magnitude.

Comment Resolution: A diversion structure to bypass the filled tanks will be provided during definitive design.

19. Section 5.1.2.1, page 14, paragraph 5. This paragraph addressed radioactive contamination only. Chemical contamination is also a potential concern.

Recommendation: The paragraph should address chemical contaminants potentially released to the environment from fuel and chemical dispensing facilities, parking lots, maintenance activities, etc. Drawing ES-296-03 should be changed appropriately.

Comment Resolution: On the fuel and chemical dispensing areas, there will be overflow protection and secondary containment. Clean parking lot drainage will be routed into the larger clean runoff storage area or released to natural drainage. Any requirements in the National Pollutant Discharge Elimination System (NPDES) will be addressed during definitive design. Permitting requirements will be addressed by WHC. Procedures for cleanup of all constituents anticipated will be established.

20. Section 5.2.2.2, pages 29 and 30. This section estimates that 886,000 gallons (correct value 860,000 gallons) of water will be needed per year as makeup water, based on 10 gallons per container. This is the total volume of makeup water for both rinses (DOE 1993). The text in this section states that the makeup water required for the second rinse cycle will come from either the proposed ERDF raw water supply system or from the wastewater treatment system. The source of makeup water required for the first rinse, however, should also be provided.

Comment Resolution: The sentence indicating 886,000 gallons is incorrect. The quantity used in the definitive design will be 860,000 gallons. The first rinse is coming from the recycling system as discussed in Section 5.2.2.3.

21. Section 5.3.5, page 40, paragraph 1. When discussing sanitary wastewater, there is not mention of sanitary wastewater generated from personnel decontamination or from dedicated facilities.

Recommendation: Personnel decontamination wastewater should be treated prior to disposal. A system is needed to convey and treat or store and sample this potentially contaminated wastewater. If other potentially contaminated wastewaters are generated within the dedicated maintenance facilities, this wastewater will also require treatment.

Comment Resolution: The personnel decontamination is proposed as a standalone unit with a compliant tank. The tank water will be pumped out and routed to either the wastewater treatment facility or the grout plant.

22. Section 5.3.6, page 40, paragraph 1, sentence 2. When discussing the use of raw water for decontamination make-up, batch plant, and other non-potable water uses, the treatment or conditioning of this water is not mentioned.

Recommendation: Does this water require corrosion inhibitors or other conditioning to prolong the life of the mechanical components in the decontamination bays, wastewater plant, etc? If needed, a system should be included for those units requiring conditioned water.

Comment Resolution: No treatment is required for the raw water.

23. Section 5.3.7, page 43, fifth paragraph. Eight evaporation tanks occupying an area of 133,100 ft^2 (approximately 3.1 acres) are proposed to evaporate the treated wastewater from the package wastewater treatment plant (PWTP). However, the PWTP with reverse osmosis is supposed to produce an effluent meeting the regulatory requirements for discharge into natural drainage channels or for reuse in the ERDF operations. The text should explain why evaporation tanks are required for the treated wastewater.

Comment Resolution: This design was based on conservative assumptions as to what we could achieve for wastewater treatment. Based on information contained in the Source Inventory Development Engineering Study for the Environmental Restoration Disposal Facility, DOE/RL/12074--29 Rev. 0, the need for evaporation tanks will be evaluated during definitive design.

24. Section 5.4.3.1, page 45, paragraph 3, sentence 4. The document states that stockpiles of soil will be established over the closed portions of the trench. How will this be accomplished without damaging the interim cover (asphalt or HDPE)? Or, are portions of the trench to be closed with placement of modified Hanford Barrier while trench is still active? Need clarification.

Recommendation: Stockpiling should continue at the shown location if portions of trench are not covered with modified Hanford Barrier. Backhaul of material and placement of soil for Hanford Barrier will provide the additional required space needed to store excavated soil in the existing location.

Comment Resolution: See comment General Comment-9.

25. Section 5.4.3.3, page 47, first paragraph. The expected leachate generation is estimated as 800,000 gallons. Sample calculations or reference sources should be provided for the estimated value.

Comment Resolution: All calculations are included in the project files. The leachate generation rates were calculated by multiplying the areas (ft^2) by the rainfall (1.56 inch x 1 ft/12 in. x 7.48 gal/ft^3). The amount of contact water depends on the filling sequence, but it is conservatively estimated as 1/2 of one corner cell plus 1/2 of one corner cell plus 1 entire side cell. These calculations were presented to EPA and the Washington Department of Ecology in the December 14, 1993 meeting. This estimate will be refined during the definitive design process.

26. Section 5.4.3.3, page 47, second paragraph. The text stated "The tanks will be the same type as used for the decontamination wastewater (see Section 5.3.7)." The type of tanks used for the decontamination wastewater, however, is not described in Section 5.3.7 and should be.

Comment Resolution: The tanks are described in the fifth paragraph in Section 5.3.7.

27. Section 5.4.3.3, page 47, paragraph 2, sentence 4. Tank 3 is ineffective as a spare for cleaning Tanks 1 and 2 if valving is not provided to bypass Tank 2.

Recommendation: Provide additional valving so tank combinations of Tank 1 and 2, 2 and 3, or 1 and 3 can be used to store leachate. These combinations will ensure cleaning of any tank can take place.

Comment Resolution: The additional bypass will be included and the exact configuration of the tanks will be determined during definitive design.

28. Section 5.4.3.3, page 47, paragraph 3. Pumping leachate from the storage tanks caused by a 25 year storm event over 60 days may not provide needed capacity if secondary storms of lesser magnitude are experienced within this 60 day timeframe. The extra tank does provide excess storage capacity and may provide the needed storage capacity to supplement the low pumping and treatment rates.

Recommendation: Determine the magnitude of storms experienced within 60 days following the 25 year storm event and the typical wettest 60 day period. The pumping system or storage capacity should be sized to accommodate anticipated volumes.

Comment Resolution: Use of the wettest 60 day period plus the 25-year, 24-hour storm will be evaluated during definitive design.

29. Section 5.4.3.4, page 47, paragraph 1, sentence 4. The Trench Operations Sequence Engineering Study is referenced in the text, however, this document is not listed as a reference on page 2. Is this document draft or final?

Recommendation: Change text appropriately. If draft document, delete reference to document and change last sentence to, "A more detailed description of the proposed waste placement sequence is being developed." If final, add reference to page 2 list.

Comment Resolution: This document is now final.

30. Section 5.4.3.6, page 48, paragraph 1, sentence 4. It is stated that the daily operational cover will control vectors and minimize infiltration. The daily operational cover does not provide vector control or minimize infiltration for that portion of the trench which is not covered with soil.

Recommendation: Delete sentence referencing vector control. Replace this sentence by stating that exposed waste on the trench face will be sprayed with a fixative in lieu of daily cover. This will save landfill space. Based on the waste expected, vector control will not be necessary.

Comment Resolution: It is already anticipated that the exposed waste on the trench face will be sprayed with a fixative in lieu of daily cover. The daily cover is the operational two foot thick layer at the 35 foot level and the top of the trench. This cover will be maintained and expanded daily.

31. Section 5.4.3.6 and 5.4.3.7, page 48. The use of the term "low permeability layer" is confusing. In the last sentence of Section 5.4.3.6, the daily operational cover includes a low permeability layer in completed portions of the trench prior to installation of interim cover. Then in the second sentence of Section 5.4.3.7, the low permeability layer is defined as a layer of asphalt.

Recommendation: Differentiate between the low permeability layers by changing the low permeability soil layer to the daily operational cover with greater silt content to limit infiltration. The low permeability layer remains as the asphalt layer within the interim cover.

Comment Resolution: The daily cover is only the two foot thick operations layer consisting of compacted natural soils from excavations. The low permeability layer is the asphalt (or as determined in definitive design).

32. Section 5.4.3.7, page 48. The text states "The daily operational cover will include a low-permeability layer to limit leachate production in the completed portions of the trench." The hydraulic conductivity and the thickness for the proposed low-permeability layer, however, are not identified and should be.

Comment Resolution: See specific comment Section 5.4.3.6, page 48, paragraph 1, Sentence 4 for thickness. The hydraulic conductivity will be the conductivity that exists in the native soils.

33. Section 5.5.11, page 53, paragraph 4. It is mentioned that a specified dust suppressant material may be used. There is no further mention of this specified dust suppressant.

Comment Resolution: See specific comment Section 4.0, page 5, fourth paragraph.

34. Section 5.5.23, page 55, paragraph 1. It is stated that containers will be provided as part of the ER project and generally specifies and describes them. To ensure facility testing and personnel training before active operations, some containers will be required. Additional containers will be necessary to meet cycle times and prevent delaying ER site remediation or requiring excessive resources at individual operable units.

Recommendation: Provide a minimum number of containers to test facility operations and train operating personnel. The number of containers provided should be adequate to fulfill cycle time requirements without delaying operable unit tractor/trailers or railcars from returning to the Site.

Comment Resolution: Containers will be borrowed from ER for startup and training requirements. ER has been notified that they are responsible for supplying a sufficient number of containers.

35. Section 6.4, page 61. This section lists the tasks of the off-site contractor for construction work. The list does not include construction of ditches and detention storage ponds for stormwater runoff from clean areas and RCRA compliant tanks for stormwater runoff from potentially contaminated areas. This discrepancy should be clarified.

Comment Resolution: This listing is not meant to be all inclusive; it is intended to be a general guide. The items listed will be accounted for in definitive design.

36. Section 6.4, page 62, fifth bullet. Construction of the decontamination facility and wastewater treatment building is included in the third bid package tasks. It is not clear whether this task includes supplying equipment necessary for the decontamination and wastewater treatment plant operations (for example, the conveyor system for containers, dryers, and the automatic radiation monitoring system in the decontamination building; the package wastewater treatment plant in the wastewater treatment building).

Comment Resolution: The decontamination facility and wastewater treatment building includes all associated equipment necessary for plant operations.

37. Section 7.3.2, page 67, paragraph 1, sentence 2. Disposal of ERDF site facilities at the end of their useful life may or may not be allowed in the ERDF CAMU.

Recommendation: Change text appropriately.

Comment Resolution: See comment General Comment-7.

38. Section 7.5.1.4, page 68. Single-use containers are used for disposing certain wastes. The construction materials for these containers should be specified.

Comment Resolution: Single use containers will be designed and supplied by ER. The containers will meet all WAC requirements and will be suitable for the waste types they contain.

39. Section 7.5.2.2.6, page 72, paragraph 3, sentence 5. The Source Inventory Development Engineering Study is referenced. This document is in draft form and has not been reviewed.

Recommendation: Delete reference and change sentence to, "Wastes that will be handled through bulk operations will be controlled and will not have any adverse effects on worker health or safety."

Comment Resolution: See comment General Comment-1.

40. Section 7.5.2.2.8, page 73. This section addresses transport and placement of daily operational cover including materials, equipment, and personnel required. The materials, equipment, and personnel required for the low-permeability cover in the completed portions of the trench, however, should also be included.

Comment Resolution: The low permeability cover will be installed by off site general contractors as discussed in Section 7.5.2.2.11, Interim Cover, and is not part of Project W-296.

41. Section 7.5.2.2.14, page 75. If back-haul will accompany waste placement in the ERDF then provisions for equipment to do the tasks necessary for back-haul should be taken now. Lists of required equipment, performance requirements, and costs should be developed as a part of this CDR.

Comment Resolution: See comment General Comment-8.

42. Section 7.5.2.2.14, page 75, paragraph 1. It is stated that a rail siding will be installed but that no other equipment for backhaul operations is to be provided. How are backhaul operations to be performed? Who is the responsible entity?

Recommendation: The ERDF Facility should be equipped and staffed to provide for backhaul operations. All equipment (railcars and loaders) should be provided. Offloading of backhaul may be provided by the operable unit.

Comment Resolution: See comment General Comment-8.

43. Section 7.8.1, page 78, paragraph 1. Is the strategy to acquire permits to be included as part of CDR or is it to be provided in a different document? Clarify or add text.

Comment Resolution: The strategy to acquire permits will be attached to the CDR.

44. Appendix A, page A-1, fifth bullet. The text states that "no waste containing decomposable material in concentrations greater than 10 percent of the waste volume will be accepted." The basis for this 10 percent criteria should be provided, as well as a definition for decomposable material.

Comment Resolution: Decomposable material refers primarily to organic materials such as wood, paper, cloth, some types of plastics, etc. The 10 percent limit is consistent with the Land Disposal Restrictions (LDRs) which limit the total organic content of hazardous waste to a maximum of 10 percent, and with other facility WACs. The decomposable material must be limited to control settlement and avoid damage to the final barrier.

45. Appendix D, Detail page 13. The railroad yard switcher engine is rated for 100 cars at 100 tons each. This is oversized based on Appendix E, Outline Specification, Section 14760, page E-21. Review engine size needs and change specification or cost estimate accordingly.

Comment Resolution: The engine size will be verified during definitive design.

46. Appendix D2. This appendix includes cost estimates provided by the Westinghouse Hanford Company for work breakdown structure items CF 111 through CF 114. The cost estimate for these four items totals $24,975,535. However, no other information is provided to support these one-line cost estimates. Additional information including assumptions and cost details should be provided. This comment also applies to Appendix D3 for CF 121 title 3, Appendix D5 for the CF 123 conceptual design, and Appendix D6 for the CF 124 definitive design.

Comment Resolution: Backup information for cost estimates is provided in the Independent Cost Estimate (ICE) submittal to DOE headquarters.

47. Appendix D3, Assumptions. The cost assumptions incorrectly refer to drawing number ES-296-05 for the excavation locations of the first 10 cells. The reference should be to drawing number ES-296-07.

Comment Resolution: This letter was written based on an earlier version of drawings, and no change will be made to the CDR.

48. Appendix D7, Project Time and Cost. This appendix includes descriptions of the three construction contracts planned for ERDF. Contract 3 includes roads and is scheduled to start 6 months after contract 1, site preparation, as shown on Figure 2 in Section 8.2. However, the access roads should be considered in the scope of contract 1 to support site preparation and excavation activities.

Comment Resolution: Contract 1 includes rough grading for the roads. We do not recommend paving roads for construction work because construction activities will significantly damage the roads. The contract scheme will be finalized during definitive design.

49. Appendix E, page E-17 thru E-23. The equipping of vehicles with HEPA filters needs to be reviewed. HEPA filters should be placed on vehicles that will encounter contaminated fugitive dust emissions.

Recommendation: Review vehicle HEPA filter requirements. Recommend that Section 14355, 14368, and 14770 incorporate HEPA filter in the specification. Section 14370, 14700, 14710, 14730, 14730, 14780, 14800, and 14820 should delete HEPA filter in their specifications. The above recommendation is based on whether the vehicle operates within a contaminated area. Operations and Safety and Health personnel should review vehicle uses to ensure each is properly equipped.

Comment Resolution: Requirements for HEPA filters will be evaluated during definitive design. For cost purposes, the most conservative case was assumed.

50. Appendix E, page E-26, Section 15500.B.1. The dedicated shop air supply system has a return air system specified. The return air system could circulate contaminated air throughout the dedicated maintenance facilities.

Recommendation: If a return air system is used within the dedicated shop supply air handling system, it should be equipped with a HEPA filter system to remove contaminants. A return air system in this environment should be further evaluated for its applicability. Exhaust fan for this system should also be equipped with HEPA filter system or the stack exhaust located away from the air intakes of other uncontaminated facilities.

Comment Resolution: The return air system will be deleted from the specification during definitive design.

51. Appendix G, page ES-296-02 and ES-296-04. All major facilities are not identified, (e.g., wastewater treatment and stormwater storage). Also, new facilities not previously mentioned in CDR are presented, (e.g. waste soil and gravel stockpiles).

Recommendation: This drawing is effective at displaying layout of all facilities. Topography should be lightened to make more readable. The waste soil and gravel stockpiles should be discussed in the CDR. Waste soil has the connotation of a storage site to unload contaminated soil. What is it? What need is there for a large gravel stockpile?

Comment Resolution: The stormwater drainage and storage is shown on ES-296-03. Addition of this information to ES-296-02 will make it too confusing. The wastewater treatment building will be added to ES-296-02 during definitive design. The topography will be lightened to make it more readable during definitive design. The term "Waste Soil" will be changed to "Unusable Top Soil". The gravel shown on the drawing may be reused as part of the Hanford Barrier.

52. Appendix G, page ES-296-07. As shown, the ten cell trench terminates with an endslope of 1.5H:1V and a future trench expansion area is shown. The diagram does not clearly show an evolving trench. The diagram should be altered by removing the endslope and continuing the trench in lighter print.

Comment Resolution: The future trench expansion is shown in ES-296-07. Since the drawing shows current planned construction under this project, it is recommended that the drawing remain as shown.

53. Appendix G, page ES-296-08. The cross-section of the area fill shows that material placed above the upper interim cover will obstruct the drainage facilities and may impact the access road. Previously, stockpiling of soil on the closed portions of the trench was discussed. Based on this cross-section, any cover placed above the upper interim cover to protect it or by building the Hanford Barrier would impact these drainage and road facilities. A discussion of soil stockpiling and options available need to be reviewed.

Comment Resolution: See comment General Comment-9.

54. Appendix G, page ES-296-10 and ES-296-11. Future expansion areas are shown on this diagram. It is unclear what these areas are. Clarify future expansion areas and need.

Comment Resolution: In the event that requirements and/or operations change, future expansion areas have been shown to provide flexibility of the design and accommodate future needs. Currently, no future needs have been identified.

55. Appendix G, page ES-296-14. The tractor/trailer flow path is confusing.

Recommendation: Drawing ES-296-12 from the 100% DRAFT CDR includes additional schematic that clarifies confusion. Please modify.

Comment Resolution: These drawings will be made more clear during definitive design.

56. Appendix G, page ES-296-17. It is stated that brine from reverse osmosis will be transferred to a 2000 gallon tanker and placed in a trench. The brine will have to be solid waste and will not be accepted if liquid. It has not been determined if the resulting brine will be classified as remediation waste.

Recommendation: Drawing should be clarified and a facility to dewater the brine included as stated in Section 5.3.7. A tanker is not the appropriate vessel to transfer and dispose of solids (dewatered brine) in the ERDF. Show that dewatered brine may be accepted at the ERDF.

Comment Resolution: We agree with your comment. When we do wastewater treatment evaluation as part of definitive design, this comment will be included in the evaluation.

ADMINISTRATIVE COMMENTS

57. Section 5.3.7, page 43, paragraph 4, sentence 1. It is stated that the reverse osmosis process will be used. Throughout the rest of the text and engineering drawings, reverse osmosis is only to be used if necessary. This sentence should be changed.

Comment Resolution: There are two reverse osmosis systems proposed for the ERDF. One will be located in the wastewater treatment facility as stated in this sentence. The second will be provided in the decontamination facility, if necessary.

58. Section 5.4.3.5, page 48, paragraph 1, sentence 3. Text states that the first four cells will be lined. This sentence suggests that the next six will not be. Clarify text by stating that the other six will be lined later prior to accepting waste.

Comment Resolution: All cells will be lined before waste is placed in them. This will be clarified during definitive design and in the operations plan.

59. Section 5.5.1, page 50, paragraph 3, sentence 2. In discussing the benefits of adding fly ash to grout, reduced strength is mentioned as a benefit. Should state "increased" strength.

Comment Resolution: The advantages of using fly ash are better workability with less total water, cost reduction through cement savings, and reduction in heat of hydration.

60. Section 7.5.1.9, page 69, paragraph 1. Definition of "Interim Cover" does not match that given on page 74, Section 7.5.2.2.11.

Comment Resolution: All containers will be radiologically monitored, and they will be washed only when needed. Hazardous constituents in high concentrations are not expected to be encountered as discussed in the Source Inventory Development Engineering Study for the Environmental Restoration Disposal Facility, DOE/RL/12074--29 Rev. 0.

66. Page 32, Section 5.2.2.7. The proposed HVAC system does not address organic constituents. Recommend the addition of a carbon bank to the HVAC system to address this potential emission source.

Comment Resolution: There are limited quantities of organic constituents anticipated in the 100 and 300 Areas, and the quantities that would remain on the containers would be even smaller. For this reason, the HVAC system will not be designed to control organic constituents.

67. Section 5.2.3. It is likely that the trench leachate will be a much more concentrated stream than the decontamination wastewater, with respect to radiation and other contaminates, and consequently more difficult to treat. It is also likely that decontamination wastewater will be a larger volume stream. An evaluation of whether separate treatment options for these streams would make more sense needs to be evaluated addressing both the radioactive and hazardous constituent components of the streams.

Comment Resolution: As paragraph 4 of Section 5.3.7 indicates, the final selection and sizes of equipment will be determined during definitive design. The evaluation of requirements for separate treatment systems for leachate and the decontamination facility wastewater will be performed at that time.

68. Page 44, Section 5.4. Will debris be treated in accordance with the August 18, 1992, debris rule prior to delivery to the ERDF for disposal?

Comment Resolution: Debris will be treated in accordance with the August 18, 1992, debris rule prior to delivery to the ERDF for disposal or the wastes will be exempted from these requirements.

69. Page 45, Section 5.4.1. Recommend the addition of the following project requirement:

Minimize the impact of adverse weather events such as heavy winds and flash flood events.

Comment Resolution: The ERDF site is outside of the flash flood zone as discussed in Section 4.1.2. Winds have been considered in operations discussions.

70. Page 45, Section 4.2. Amend to include Sec. 264.19 and Sec. 264.301 updated to include amendments promulgated on January 29, 1992, pursuant to HSWA (effective July 29, 1992) that have yet to be adopted by Washington Department of Ecology. These requirements are currently effective in the State of Washington.

Comment Resolution: The ERDF conceptual design has been prepared in accordance with these amendments. They will also be incorporated in the final design.

71. Section 5.4.3. Need to clarify that a less steep slope than 3:1 will be used if dictated by slope failure analysis, incorporating actual foundation soil strength properties and inclusion of adequate safety factors.

Comment Resolution: Both static and dynamic slope stability analyses will be performed as part of definitive design, using soil strength values derived from laboratory tests. Based on similar analyses completed for the W-025 Landfill, 3H:1V slopes are expected to provide adequate factors of safety. In the event that calculated factors of safety are not sufficiently high, flatter slopes are one option that will be considered.

72. Section 5.4.3.2. Need to specify to a minimum transmissivity of 3×10^{-5} m^2/sec. for the geonet, a minimum permeability of 1×10^{-2} cm/sec. for the gravel layers, and a minimum constructed bottom slope of one percent.

Comment Resolution: The definitive design will include these and other regulatory requirements.

73. Page 45, Section 5.4.3.3. The sizing of the leachate collection system must also be specified for meeting the requirements under Sec. 264.301(c) (2) and (3).

Comment Resolution: The leachate collection system will be designed in accordance with these and other regulatory requirements.

74. Page 47, Section 5.4.3.4. The inclusion of debris which may have sharp edges should be avoided in the first lift and along the side slopes of the trench to minimize potential damage to the liner system.

Comment Resolution: The intent of the operations layer is to prevent this type of damage. It is unlikely that any debris will be so large as to penetrate three feet of soil. Operations personnel will place the initial layers of waste carefully to avoid damage to the liner.

75. Page 47, Section 5.4.3.4, and Page 68, Section 7.5.1.4. Dust suppressants to be utilized in the trench need to be reviewed and accepted by the regulatory agencies. These dust suppressants need to be documented to be compatible with the wastes and waste containers placed in the trench, treatable in the wastewater treatment system, and in application rate consistent with the goal of minimizing introduction of liquids into the trench.

Comment Resolution: A separate study is being performed to evaluate dust suppressants. Refer to DOE/RL/12074–30 Rev. 0, Dust Suppressant Engineering Study for the Environmental Restoration Disposal Facility. Compatibility of dust suppressants with the wastewater treatment process will be addressed in definitive design.

76. Page 48, Section 5.4.3.7. Interim cover material selection should also take into consideration its effects on leachate quality (e.g., introduction of petroleum products) and its treatability in the waste water treatment system. This section should also reflect that the definitive design would also evaluate installation of a mobile cover structure over the trench. This issue may become even a more critical element of any final scenario which does not incorporate a trench liner in the design.

Comment Resolution: The interim cover material will be determined during definitive design. Effects on leachate quality will be considered. The mobile cover that is referred to was originally proposed as part of the 100 foot wide trenches. It is not applicable to the area fill type trench as currently proposed for ERDF.

77. Pages 48 and 49, Section 5.4.3.8. This section needs to be revised to reflect that cover system described has yet to be accepted as RCRA compliant by the regulatory agencies. The RCRA equivalency demonstration has yet to be completed. For example, the equivalency testing and development of adequate CQA procedures for the proposed cover, as described in Sec. 4.2.13 of document 8 has yet to be completed.

Comment Resolution: The barrier is not part of this project; however, the first sentence of this Section states that the trench will be covered with a RCRA compliant barrier. The cover discussed in this section is introduced as a worst case design load to ensure that the waste is sufficiently compacted to minimize differential settlement. The terminology used in the current CDR was agreed upon with the regulators during the disposition of comments for the January 4, 1994 draft of the CDR.

78. Sections 5.5 and 6.4. Equipment described in these sections do not include that needed to construct the trench or the trench cover (e.g., liner welding equipment, low permeability layer compaction equipment, etc.).

Comment Resolution: The equipment needed to construct the trench will be provided by outside contractors as part of the lump sum contract. The equipment to construct the cover will also be provided by outside contractors.

79. Page 50, Section 5.5.2. Using the information on page 30 on the containers dimensions, empty weight of 10,000 pounds and the information on this package that the loaded container will weigh 100,000 pounds, the weight of the waste in the container is limited to 75 pounds/cubic foot. This is on the low end of soils which could range from about 80 pounds/cubic foot (e.g., minimum dry weight of inorganic silts) to 146 pounds/cubic foot (e.g., maximum dry weight of silty sand and gravel). How does the waste weight of 75 pounds/cubic foot correlate with the wastes expected for the site? What procedures will be put into place to assure that the containers are not overloaded. The expected radiation leakage rate of the container when filled, as compared to the maximum acceptable for transport, should also be addressed somewhere in the plan.

Comment Resolution: Using interior container dimensions instead of exterior dimensions, the weight of fill is calculated to be 105 psf. Containers will not be filled to capacity. The ER sites will have the responsibility to load containers to maximum capacity or less. It is assumed that the maximum radiation levels will be what is acceptable for transport. The containers are being provided with removable lids to minimize leakage. A density of 95 psf is reasonable when the swell factor is considered.

80. Page 65, Section 7.2.2. Under measures to prevent uncontrolled release of radioactive/hazardous constituents during and after trench operation should include ceasing operations during severe adverse weather conditions such as heavy winds, storm events exceeding storm water system design event, flash flooding, etc.

Comment Resolution: See comment Catherine Massimino Comment-8. Adverse weather conditions will be addressed in the operations plan.

81. Page 76, Section 7.6.1. Should also reference, "Technical Guidance Document Quality Assurance and Quality Control for Waste Containment Facilities", EPA/600/R-93/182 and "Design, Construction, and Evaluation of Clay Liners for Waste Management Facilities, EPA/530/SW-86/007F.

Comment Resolution: A construction quality assurance plan will be prepared during definitive design in accordance with the EPA guidance documents cited by the reviewer. The ERDF Contractor Quality Assurance (CQA) plan will be similar to the plan and used for the Project W-025 Landfill, which was approved by Ecology.

82. Appendix A. Should address the following:

a. whether F020, F021, F022, F023, F026, F027 wastes will be allowed in the trench and if so the requirements under Sec. 264.317 need to be addressed in the plan.

b. whether ignitable, reactive, or incompatible wastes will be allowed in the trench and if so the requirements under Sec. 264.312-313.

c. LDR

Comment Resolution: The WAC is being prepared as a separate document. See comment General Comment-4.

83. Appendix D4. CF122, January 27, 1994, letter from Golder, the parameters and testing frequencies evaluated for the trench construction activities should be reassessed and amended utilizing the QA/QC guidance referred to in comment 20 above, when the detailed QA/QC plan is prepared.

Comment Resolution: Golder prepared the Quality Assurance/Quality Control (QA/QC) letter based on guidance including those referenced in Comment 20. The QA/QC will be again reviewed to ensure that these documents are addressed when the final QA/QC plan is prepared.

84. Appendix D6. CF124, the design package must include the engineering calculations to support the adequacy of the design (e.g,. slope failure analysis, loading and stress calculations, etc.,) and to support material selections (e.g). These calculations for the trench need to address construction, operation, and closure.

Comment Resolution: These calculations will be prepared as part of definitive design.

85. Appendix F. Need to include the field permeability testing of the low-permeability bentonite soil mixture in accordance with Sec. 264.19 and the guidance referred to in comment 20 above.

Comment Resolution: This testing will be performed as part of the QA requirements.