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**Department of Energy**

Richland Operations Office  
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JAN 15 1997

Mr. Steve M. Alexander  
Perimeter Area Section Manager  
State of Washington  
Department of Ecology  
1314 West Fourth Avenue  
Kennewick, Washington 99336-6018



Mr. Douglas R. Sherwood  
Hanford Project Manager  
U.S. Environmental Protection Agency  
712 Swift Boulevard, Suite 5  
Richland, Washington 99352-0539

Dear Messrs. Alexander and Sherwood:

**TRANSMITTAL OF THE ENGINEERING EVALUATION/COST ANALYSIS FOR THE 233-S PLUTONIUM CONCENTRATION FACILITY**

The U.S. Department of Energy, Richland Operations Office (RL) is submitting the Revision 0 of DOE/RL-96-93, Engineering Evaluation/Cost Analysis (EE/CA) for the 233-S Plutonium Concentration Facility (Attachment I), for issuance to the public for review. The current revision fully incorporates comments from U.S. Environmental Protection Agency (EPA) and State of Washington Department of Ecology (Ecology).

Attachments II and III to this transmittal document official dispositions EPA and Ecology comments. Attachment III has been revised to reflect changes to responses to Ecology comment numbers 14, 15, 40, 41, 42, 43, 44, 66, and 74 as requested by EPA.

RL is providing nine (9) copies of the document and attachments to the administrative record file, five (5) copies to Ecology, and five (5) copies to the EPA. RL is providing the above copies at the request of EPA.

If you have any questions regarding this transmittal or the information provided in the attachments, please contact me on 376-7121.

Sincerely,

Jeffrey M. Bruggeman, Project Manager  
Decontamination and Decommissioning Project

DDP:JMB

Attachments: see page 2

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Messrs. Alexander and Sherwood

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Attachments:

1. DOE/RL-96-93, Engineering Evaluation/  
Cost Analysis (EE/CA) for the 233-S  
Plutonium Concentration Facility
2. Response to EPA Comments on the 233-S EE/CA
3. Response to Ecology's Comments Regarding  
Draft Engineering Evaluation/Cost  
Analysis for the 233-S Plutonium  
Concentration Facility (Document Number  
BHI-00870, August 1996)

cc w/attachs:

P. S. Innis, EPA  
J. W. Donnelly, Ecology  
D. N. Mackenzie, EM-442

cc w/o attachs:

J. E. Rugg, BHI  
S. D. Thoren, BHI

**RESPONSE TO EPA COMMENTS ON THE 233-S EE/CA****INTRODUCTION**

The U.S. Environmental Protection Agency (EPA) has completed the review of the document *Engineering Evaluation for the 233-S Facility* (DOE/RL-96-93, Draft A, November 1996). This document evaluates options for a removal action at the 233-S Plutonium Concentration Facility.

The following comments are based on a review of the subject draft considering the background information provided in referenced and the previous comments provided by the Washington State Department of Ecology (Ecology).

**GENERAL COMMENTS**

1. The document should be expanded to include additional discussions specific to previous waste removal actions taken at the 233-S Facility. Information should be provided concerning quantities of contaminants and wastes removed, waste handling information, waste treatment actions implemented, problems encountered during decommissioning activities including lessons learned, and waste disposition actions taken.

**RESPONSE:** A summary of past response actions for the 233-S Facility, based on WHC-SD-TI-028, Rev. 0, *Physical Status and Post Stabilization Activities Report for the 233-S Building*, May 23, 1988, will be provided in section 2.2.

2. A general project schedule should be included within the Engineering Evaluation/Cost Analysis (EE/CA) for the preferred alternative.

**RESPONSE:** A schedule in the format similar to the format submitted for the 100-B/C EE/CA will be provided in section 6.

3. It is unclear why the title of the document was changed from "EE/CA ..." to "Engineering Evaluation ...." The terminology used within 40 *Code of Federal Regulations* (CFR) Part 300.415 is EE/CA.

**RESPONSE:** The change in title was strictly a document preparation error. The title will be corrected to be "Engineering Evaluation/Cost Analysis for the 233-S Plutonium Concentration Facility."

**SPECIFIC COMMENTS****Section 1.0, page 1-1, first paragraph, last sentence:**

1. The reference to the footnote specific to removal actions should be included in this sentence.

**RESPONSE:** Footnote will be added as requested.

**Section 1.0, page 1-1, second paragraph:**

2. Delete the reference to Ecology in the first sentence and provide a short description of the single regulator concept. Any further Ecology comments on the EE/CA will be evaluated during the public comment period.

**RESPONSE:** Comment will be incorporated as described above.

3. Provide a description of the purpose of the EE/CA. For example, the EE/CA provides the framework for the evaluation and selection of a technology from a set of alternatives for a removal action.

**RESPONSE:** A description of the purpose of the EE/CA will be provided at the end of section 1.0.

4. Provide a discussion of the pilot demonstration project for this removal in the introduction section. This is a fairly significant effort and it is appropriate to inform the public within this document.

**RESPONSE:** A summary of the purpose and objectives of the pilot project will be provided in the introduction.

**Section 2.1, page 2-1:**

5. The appropriate reference for future land use at this time would be the report entitled *The Future For Hanford: Uses and Cleanup* which describes the consolidated efforts of the Future Site Working Group. The HRA-EIS is in draft form and out for comment at this time and may be an inappropriate reference.

**RESPONSE:** HRA-EIS reference will be replaced as suggested above.

**Figures 2-2 and 2-3, pages 2-3 and 2-4:**

6. Increase the clarity of the lettering in these figures.

**RESPONSE:** Clarity of lettering for figures 2-2 and 2-3 will be provided. There is no lettering for figure 2-4. Figure 2-4 is as clear as possible for a black and white 3-dimensional layout of the process system.

**Section 2.2.2, page 2-9:**

7. In the last sentence, specify the type of contaminate (Pu?) that recontaminated the load-out hood.

**RESPONSE:** Plutonium nitrate recontaminated the load-out hood. This will be identified in the last sentence.

8. This section should be updated to include any additional work that has been completed to stabilize the integrity of the facility (i.e., roof work done this year).

**RESPONSE:** No recent work has been performed to stabilize the structural integrity of the facility. There are plans to foam the roof as soon as the weather allows this work to be performed. However, section 2.2.2 of the document will be revised

9. A description should be provided of ongoing decontamination activities required in the 233-S Facility in relation to alpha contamination.

**RESPONSE:** Description will be provided as suggested above.

**Section 2.3, page 2-11, second paragraph:**

10. The intent of the first sentence is unclear. Some background information on this statement may clarify the intent. Additionally, provide a definition of a "minor stack."

**RESPONSE:** The first sentence will be modified to reflect the fact that "smearable" contamination is less than 4 g. Definition of a minor stack will be provided as a footnote, with NESHAPs as the source.

**Section 2.3, page 2-12:**

11. This section should describe contaminant information gathered during previous investigations. The summary of the document entitled *233-S Facility Potential Chemical Hazards* lists several constituents and substances historically used at the facility. The discrepancy between the previously mentioned report and the list provided in the EE/CA should be resolved.

**RESPONSE:** Explanation of discrepancies will be provided for section 2.3.

2. Additionally, this section notes that the facility has been grouped into six areas for hazard evaluation; however, Table 2-2 provides a seventh category. A description of the purpose of the building wide grouping should be included, as many of the hazardous substances appear duplicative of the specific areas.

**RESPONSE:** The facility is only grouped into six areas. The addition of the row in the table entitled "building-wide," is intended to inform readers that the corresponding hazardous substances may be encountered throughout the building. A discussion will be provided in the text reflecting the statement above.

**Section 3.0, page 3-1:**

13. Specify the type of hazard posed to workers by the 233-S Facility (i.e., radiological, chemical, physical). The scope of this statement may be increased to specify that the intent is to reduce/prevent long term exposure potential to radiological and hazardous constituents as well as physical hazards. Additionally, the RAOs should also include attaining ARAR to the extent practicable.

**RESPONSE:** Bullet 2 of the RAOs will be revised to read "Protect workers from physical, chemical, and radiological hazards posed by the facility." An additional RAO will be provided stating "Attain ARARs to the fullest extent practicable."

**Section 4.0, General Comment:**

14. The cost tables and descriptions should be moved from this section to Section 5.7 to facilitate a complete comparison within the "cost" criterion.

**RESPONSE:** Total cost from each table will be provided in section 5.7 for comparison purposes. The tables provide pertinent information used in the alternative descriptions and should not be moved.

**Section 4.0, page 4-1:**

15. Spell out Surveillance and Maintenance in the alternative listing for clarity.

**RESPONSE:** Comment will be incorporated as suggested above.

**Section 4.0, page 4-6:**

16. Table 4-1 of the EE/CA implies that upgrades will be necessary in addition to S&M, yet no discussion of upgrades is given in the S&M description. Information concerning the upgrades should be identified as part of alternative.

**RESPONSE:** S&M upgrade assumes cost for a new roof that will last for at least 20 years. Cost of roof includes decontamination and disposal of contaminated roof material as well as construction of a new roof. S&M upgrades do not include costs associated with potential structural modifications, ventilation upgrades, or installation of remote monitoring systems. This description will be provided as a footnote "c" to the table.

**Section 4.3, pages 4-4 to 4-5:**

17. It is assumed that the continued S&M option would include limited decontamination or application of a fixative to control spread of radiological constituents. A short discussion of this action should be provided in this alternative.

**RESPONSE:** A discussion of measures taken to control spread of contamination will be provided in the first paragraph of section 4.3.

18. It is unclear, from the provided description, what is meant by the notation in the cost tables entitled "upgrades." A general description of the expected upgrades should be provided.

**RESPONSE:** Please refer to comment response number 17 above regarding S&M upgrades.

19. Subsurface monitoring is included in the decontamination w/reduced S&M alternative, but is not included in the S&M alternative. Assuming that the S&M alternative, if implemented, would be long term, inclusion of subsurface monitoring would be expected. Include a description of subsurface monitoring in this alternative and adjust cost table appropriately.

**RESPONSE:** Groundwater monitoring systems exist within the vicinity of the 233-S Facility and are monitored and evaluated as part of the Hanford Site operational groundwater monitoring program. There is no direct cost to the 233-S project for implementation of this program. A discussion will be provided in section 4.3 reflecting the statements provided in this response.

**Section 4.4, pages 4-7 & 4-8:**

20. It is unclear, from the description, if subsurface monitoring costs are included within the annual S&M activities. Also, it is unclear if vadose zone monitoring is under consideration for long term monitoring, as the description discusses adequacy of groundwater monitoring.

**RESPONSE:** Please see comment response number 19 regarding groundwater monitoring cost. There is no technical justification for performing vadose zone monitoring, due to both the low potential for groundwater contamination posed by the 233-S facility and the existing groundwater monitoring network located in the vicinity of 233-S.

**Table 4-2, page 4-8:**

21. Costs specified under waste disposal should be broken down specific to waste type for clarity. It is also unclear if the mixed waste specified is TRU or non-TRU and if it is non-TRU, why storage cost for CWC costs are specified rather than ERDF disposal costs. Also, assuming the provided cost assumptions per cubic yard, the total cost for disposal does not calculate out to coincide with the figures provided. In addition, transportation costs for TRU material should be a line item within the table.

**RESPONSE:** Costs will be identified for the two mixed waste streams (LLW and TRU). Specific line item costs will be identified for each individual waste stream. Transportation costs will be negligible for TRU material. The bulk cost for the ROM estimates is provided in the disposal cost.

22. Additionally, the up-front costs of installation of subsurface monitoring equipment should be a line item cost in the table. Also, it is unclear if the costs associated with sampling for worker safety and necessary design information, including field surveys, are included within the waste characterization costs specified. Finally, it is unclear where verification sampling for wastes left in place is included.

**RESPONSE:** Please refer to comment response number 19 above regarding the existing sitewide groundwater monitoring network located in the vicinity of the 233-S facility.

**Section 4.5, page 4-10:**

23. Provide justification for not including soils in this removal action. If a limited amount of contaminated soil remains after demolition of the facility, it may be prudent to remove the material during the action. Criteria should be established during the design phase for determining whether soils will be removed as part of the action.

**RESPONSE:** The purpose of this removal action is effectively described by the RAOs. The main purpose for initiating the removal action is to eliminate the potential for contaminants to be released from 233-S to the environment. There is no immediate threat posed by the surrounding soils. Contaminated soils will only be removed to accommodate removal of the 233-S structure.

**Table 4-3, page 4-11:**

24. The mobilization costs specified in Table 4-2 are increased by a factor of 100 in Table 4-3. Correct the error or provide justification for the increased cost.

**RESPONSE:** The error in the table will be corrected.

25. Costs specified under waste disposal should be broken down specific to waste type for clarity. It is also unclear if the mixed waste specified is TRU or non-TRU and if it is non-TRU, why storage cost for CWC costs are specified rather than ERDF disposal costs. Also, assuming the provided cost assumptions per cubic yard, the total cost for disposal does not calculate out to coincide with the figures provided. In addition, transportation costs for TRU and clean material should be a line item within the table.

**RESPONSE:** Please see comment response number 21 above. Transportation costs for clean material are negligible and do not provide pertinent input to an ROM estimate.

26. It is unclear where costs associated with verification sampling of soils prior to capping are included. Also, it is unclear if the costs associated with sampling for worker safety and necessary design information, including field surveys, are included within the waste characterization costs specified.

**RESPONSE:** Costs for verification sampling will be provided in the new line item for sampling and characterization. Although verification sampling is not broken out individually, for information purposes the total for verification is \$40 K.

**Section 5.1, page 5-1:**

27. The first paragraph should also specify the overall protection criterion draws on the assessment of the other evaluation criteria.

**RESPONSE:** The first sentence of the first paragraph in section 5.1 will be revised to read "This criterion evaluates whether the alternative achieves adequate overall elimination, reduction, or control of risks to human health and the environment posed by the likely exposure pathway and draws on the assessment of the other evaluation criteria identified above."

28. Section 5.1 was not revised as per Ecology comment 48 and the response provided. At a minimum, this section should discuss the deficiency of information concerning inventory and the associated implications when determining risks.

**RESPONSE:** Section 5.1 will identify that this criterion was evaluated based on qualitative analysis and assumptions regarding the inventory of radionuclides.

29. This section does not differentiate between alternative three and four. Provide some discussion on the differences between these two alternatives concerning overall protection of human health and the environment.

**RESPONSE:** There is no significant difference in overall protection to human health and the environment when comparing alternatives three and four. The only significant advantage to alternative four is the life cycle project cost effectiveness.

**Section 5.2, page 5-2:**

30. ARAR for removal action should be met to the extent practicable considering the urgency of the situation and the scope of the removal.

**RESPONSE:** The first sentence of the first paragraph will be revised to read "ARARs are standards, requirement, criteria, or limitations promulgated under federal or state environmental laws that must be met or waived to the extent practicable for actions conducted under CERCLA."

**Section 5.2.1, page 5-2 & 5-3:**

31. Waste management standards for plutonium wastes should address 40 CFR 191 (Environmental Radiation Protection Standard for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes).

**RESPONSE:** 40 CFR 191 contain requirements solely for the disposal facility accepting spent nuclear fuel, high-level and transuranic wastes. None of the alternatives in the EE/CA encompass disposal of transuranic waste within the 233-S facility, therefore 40 CFR 191 is not ARAR.

32. It should be noted that offsite transportation of waste shall comply with the appropriate DOT standards.

**RESPONSE:** It will be noted in the ARARs section that offsite transportation will be in accordance with appropriate DOT standards.

33. The sentence that begins with "Treatment requirements..." is confusing. It is recommended that the sentence end after "Waste Acceptance Criteria." Additionally, the state did not approve the ERDF Waste Acceptance Criteria.

**RESPONSE:** Section will be revised to reflect the comment provided above.

**Section 5.2.2, page 5-3:**

34. The fourth paragraph in Section 5.10 really belongs in this section to address NESHAPs requirements.

**RESPONSE:** The fourth paragraph in section 10 will be moved to the appropriate ARARs discussion as requested.

35. 40 CFR 61 also requires monitoring point sources to determine compliance. The type of monitoring required depends on the potential radiation doses to the public. While it is likely that "periodic confirmatory" measurements will meet this requirement, monitoring requirements should be specifically evaluated for 233-S operations, consistent with 40 CFR 61 and this section should state that those requirements will be met.

**RESPONSE:** A "Radioactive Air Emissions Program Notice of Construction for the Decommissioning of the 233-S Plutonium Concentration Facility Complex," DOE/RL-94-107, Rev. 1, October 1994 has been issued for the decommissioning of the 233-S Facility prior to a decision to proceed under a CERCLA removal action. Monitoring requirements for the 233-S Facility have been evaluated and established in the NOC. Section 5.2.2 of the EE/CA will be revised to reflect conditions in the permit. Further information will be provided in the removal action design report.

36. Note that estimates of emissions for all types (point, fugitive, diffuse) will be needed to demonstrate compliance with the 10 mrem/year NESHAP standard.

**RESPONSE:** This has been demonstrated previously to the EPA and the State of Washington Department of Health. Attachment I provides all the approved documentation.

37. It is not clear whether "standard construction techniques" include radiological controls such as HEPA filters.

**RESPONSE:** Radiological controls will be more specifically discussed in section 5.2.2.

38. BARCT determinations are ordinarily made on a case-by-case basis by the State. It is not clear in this case whether "standard construction techniques" would constitute BARCT. Analogies with BARCT criteria used on other similar operations at Hanford may be helpful. In any event a more clear description of the BARCT process is needed.

**RESPONSE:** Appendix A of the approved NOC for 233-S addressed BARCT. Attachment I contains approval letters from EPA and the Washington State Department of Health.

**Section 5.2.4, page 5-4:**

39. The discussion of implementation of the 10 CFR 835 ARAR should specifically address the Hanford Radiation Control Manual and should specify applicable ALARA program/procedures.

**RESPONSE:** Additional information regarding 10 CFR 835 will be provided in the remedial action design report.

40. Worker radiation protection criteria should include EPA Radiation Protection Guidance to Federal Agencies for Occupational Exposure (Federal Register, January 27, 1987).

**RESPONSE:** The ARAR for radiation protection is 10 CFR 835. Specifics regarding how 10 CFR 835 substantive requirements are met will be provided by the remedial action design report.

**Section 5.2.7, pages 5-6:**

41. Requirements in DOE Orders are "to be considered", not "relevant and appropriate" as specified in the text.

**RESPONSE:** Agreed, DOE Orders will be discussed as TBC.

**Section 5.5, page 5-8:**

42. This section should compare radiation exposure to workers (person-rem) estimates for the alternatives.

**RESPONSE:** Person rem estimates do not aid in defining risk for exposure to Plutonium. The contaminant of concern (Pu) is alpha as an inhalation hazard. Estimates of the beta/gamma exposures for continued S&M would be based on process knowledge. While both the decon and the D&D alternatives would be approximately equal. The primary contribution will be in the Process Hood, Process Pipe Trench and Column Laydown Trench. Because these areas lack specific beta/gamma surveys and because the detailed work plans are not yet developed, person rem estimates are not recommended. A relative comparison is more appropriate

43. The reason for evaluating the RAOs under the short-term effectiveness criterion is unclear. It would seem more appropriate to discuss RAOs in Section 5.1. Additionally, no discussion of the RAOs with respect to alternatives three and four is given. Also, it is unclear what is meant in the last sentence of the second paragraph. The second alternative does not meet all of the RAOs (i.e., reduce threat, achieve life cycle cost effectiveness) and a discussion should be provided concerning this.

**RESPONSE:** The discussion regarding evaluation of RAOs will be addressed in section 5.1. RAO evaluation for alternatives three and four will be provided. Discussion will also be provided to clearly identify why RAOs are not met for alternative two.

**Section 5.8, page 5-10:**

44. The state acceptance criterion also evaluates the position of the state concerning the preferred alternative (i.e., concur, oppose or no comment). This criterion will be addressed during the public comment period.

**RESPONSE:** Sentence will be revised as recommended above.

**Section 5.10, page 5-11:**

45. Cumulative impacts is defined as "an impact which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions". Cumulative impacts should include impacts on available resources, including manpower and transportation needs, and impacts on actions in adjacent areas with respect to the different options. A further discussion of cumulative impacts should be completed.

**RESPONSE:** The term "cumulative impacts" will be defined as a footnote. The existing discussion on cumulative impacts will be expanded to more clearly identify impacts to other areas to the extent practicable.

**Section 6.0, page 6-1:**

46. This section should begin with "Based on the comparative analysis for each evaluation criterion, the recommended...".

**RESPONSE:** Recommended change will be made.

**Appendix A, Section 2.2.2, page A-8, first paragraph**

47. Contamination levels in the non-process areas subsequent to recent decontamination should be summarized, rather than "assumed to be negligible".

**RESPONSE:** The sentence will be revised to read "... is negligible, not required special respiratory protection at this time."

**Appendix A, Section 3.2.2, page A-8 & A-9:**

48. The second and fourth sentences of the second paragraph are repetitive. Delete the fourth sentence.

**RESPONSE:** Recommended change will be made.

49. The third paragraph discusses air emissions. DOE 1994 only addresses emissions risks due to fire. Additional information should be provided concerning other emission sources.

**RESPONSE:** Please refer to the disposition to comment number 42.

50. Cracking failure of portions of the roof are part of the justification for action. The effectiveness of existing HEPA systems should be addressed considering possible loss of airflow boundary integrity.

**RESPONSE:** The exhaust system maintains air flow and prescribed pressure differentials that ensure capture of hazardous particles in the building even with the increased infiltration. Catastrophic failure would be required to lose confinement qualities of the exhaust air system. These failures would likely be beyond design basis therefore difficult to predict with any degree of accuracy.

51. There is no discussion of physical hazards related to deteriorating building conditions, including hazards from potential roof or wall failure or spalling of interior wall and ceiling material.

**RESPONSE:** "Struck by" hazards are not significant in the S&M mode now. It is not assumed that they will be in the future under any S&M mode for maintenance activity will be ensured deterioration is mitigated

**Appendix A, Section 3.3.2:**

52. The high external radiation levels in the process hood (see Section 2.3.1) should be addressed in the hazard evaluation.

**RESPONSE:** ALARA management to ensure worker exposures are less than 500 mrem/yr will be maintained.

53. The sentence in the third paragraph beginning with "Other areas of lesser contamination..." should be clarified.

**RESPONSE:** Sentence will be revised.

54. Provide a description of the "technical and administrative controls" needed for the exhaust system described in the third paragraph.

**RESPONSE:** The technical and administrative controls will specify the conditions (air flow and pressure drops) and any special features (fire protection, etc.) and maintenance requirements to ensure protection to workers and the environment. No major modifications to the existing system is anticipated. However, contingencies will likely be provided such as green houses air locks, shut down periods, etc. These will be determined during the detailed design

**Appendix A, Section 3.4.2:**

55. It is unclear why the level of hazard evaluation provided for the D&D alternative is not as significant as that for Decon w/S&M. Provide additional detail for this alternative or reference the appropriate paragraphs in the Decon alternative.

**RESPONSE:** The scope of work for the D&D alternative and the Decon w/S&M are equal except that the D&D option dismantles the decontaminated/stabilized building where the Decon w/S&M surveils the decontaminated/stabilized building. The section is written to describe only the difference between the two alternative. The industrial hazards are the only hazards that are significantly different in the two options. The opportunity for death and severe injury is greater because of the potential for "struck by" hazards. Radiological hazards with the underground structures and contamination require ALARA management but are relatively lower than for the work in the process hood.

56. The high external radiation levels in the process hood (see Section 2.3.1, page 2-14) should be addressed in the hazard evaluation.

**RESPONSE:** Direct exposures due to beta/gamma are anticipate to be approximately equal for the D&D alternative and the Decon w/S&M. Direct exposure to building demolition would be negligible except in the drains or column laydown trench. These areas represent lesser exposures than the process hood work. However, ALARA management to ensure that exposures are less than established criteria will be implemented.

**Response to Ecology's Comments Regarding  
Draft Engineering Evaluation/Cost Analysis for the 233-S Plutonium Concentration  
Facility (Document Number BHI-00870, August 1996)**

- 1     Section 1.0, Page 1 The second paragraph states 'the Engineering Evaluation/Cost Analysis (EE/CA) has been prepared in cooperation with the Washington State Department of Ecology.' It should be noted Ecology has, to date, been involved with the preparation of the EE/CA. It should also be noted, our involvement does not mean Ecology believes USDOE is in compliance with Section 8.0 of the TPA.

Response:     Comment noted.

- 2     Section 1.0, Page 1 In the second paragraph it states 'the EE/CA has been prepared in cooperation with the Washington State Department of Ecology.' In the event it is decided Ecology is not the lead regulatory agency (prior to the completion and/or issuance of the EE/CA), it is requested the sentence be modified to correctly identify the lead regulatory agency's involvement/cooperation.

Response:     Since the issuance of the above comment, EPA has been designated lead agency for 233-S. Therefore the sentence has been modified to reflect this.

- 3     Section 1.0, Page 1 Reviews to consider radiological air emissions and radiological worker safety and health conditions have not been performed by the State of Washington. In addition, reviews to consider industrial hazards associated with worker safety and health conditions have not been performed. Given this degree of review, it is appropriate to indicate in the second paragraph that the CERCLA actions discussed in this EE/CA, of which Ecology has cooperated in preparation, address only environmental actions taken or that may be necessary to prevent, minimize, or mitigate damage to public health, welfare, or to the environment. It is also appropriate to indicate, in the second paragraph, that the CERCLA actions discussed in this EE/CA, of which Ecology has cooperated in preparation, are in no way intended to ensure USDOE's or USDOE contractor's compliance with USDOE Orders. Similarly, it is appropriate to indicate, in the second paragraph, that the CERCLA actions of which Ecology has cooperated in preparation, have not addressed worker safety and health conditions.

Response:     The Washington State Department of Health (DOH) and EPA have reviewed and issued permits for the NESHAPS/DOH Notice of Construction (DOE/RL-94-107). Industrial hazards have been reviewed via a safety analysis document (BHI-000892). Risks, in general will be evaluated for each alternative in the removal action design report.

- 4     Section 1.0, Page 1 The second paragraph indicates an Action Memorandum will be prepared and signed by Ecology and USDOE-RL. It should be noted, Ecology may not retain the lead regulatory agency status. In the event Ecology does not retain the lead

regulatory agency status (prior to the completion and/or issuance of the EE/CA), the sentence should be modified to correctly identify the lead regulatory agency. In addition, it is appropriate to identify that an Action Memorandum would also be signed by EPA.

Response: See response to comment one above.

- 5 Section 1.0, Page 1 The second paragraph indicates an Action Memorandum will be prepared and signed by Ecology and USDOE. This indication implies an agreement. Delete the sentence and include the identification that the Tri-Party Agreement (TPA) must be modified to identify the process whereby such decommissioning activities under the CERCLA authority could occur.

Response: The action memorandum will be signed by EPA and DOE. Ecology will not be included in the signing of the EE/CA based on the recent change to EPA as the lead agency.

- 6 Section 1.0, Page 1 An implied distinction between USDOE-HQ and USDOE-RL is noted in the second paragraph. If the distinction is important to the implementation of the process (the conductance of Decontamination and Decommissioning [D&D] under the CERCLA authority), we recommend the delegation of authority from USDOE-HQ to USDOE-RL be described, explained, and/or referenced somewhere in the EE/CA. During a workshop held August 20-22, 1996, an approval by USDOE-HQ of the process (by which worker safety issues associated with D&D under the CERCLA authority would be addressed) was being sought. If such approval is obtained prior to the issuance of the EE/CA, it is appropriate to describe, explain, and/or reference it in the EE/CA.

Response: A separate document is under development describing the internal agreements within DOE. The document will summarize the Environmental Restoration Initiative and in particular the 233-S pilot project.

- 7 Section 1.0, Page 1 Ecology recommends an identification of the scope of the EE/CA be included in the introduction. The description of scope would be appropriate to address the intent to protect human health and the environment. It would also be appropriate to identify the boundaries of the EE/CA scope. For example, for purposes of this application, the intent of the EE/CA is to equally evaluate all human health risks (including workers), environmental risks, and costs associated with the various alternatives to enable the decision makers and the public to select an alternative.

Response: The scope of the EE/CA is adequately described consistent with the same level of detail provided in approved EE/CAs produced at the Hanford Site.

- 8 Section 2.1, Page 2 The second paragraph states 'Public access to the Hanford Site...is currently restricted.' Revise the statement to read: 'Public access to the Hanford Site beyond the Wye Barricade...is currently restricted.'

Response: Comment will be incorporated as suggested.

- 9 Section 2.1, Page 5 It is appropriate to include a reference to the formal memorandum of agreement (MOA) between the State of Washington Historic Preservation Office, USDOE, and the Advisory Council on Historic Preservation.

Response: Comment will be incorporated as suggested.

- 10 Section 2.2, Page 5 The 233-S Plutonium Concentration Facility is stated to be comprised of 'the original 233-S process building,...and interconnected piping, trenches, and ducting.' The scope description related to the subsurface structures is included in Section 3.0 on Page 16. This scope description should be moved to Section 2.2. It is noted Figures 3 and 4 do not provide a schematic of the interconnected piping, trenches, and ducting. Revise the existing figures to show which piping and subsurface structures are within the scope of this EE/CA. It is also noted, as was described in Ecology's July 29, 1996, letter (regulatory status related to 202-S and 233-S buildings), which was in response to a letter dated May 1, 1995, from Mr. Dan Silver (Ecology), that USDOE identified "REDOX" as a potential non-permitted TSD unit and is pending resolution. In the same letter, it was identified that Ecology has been informed of the following: 1) the existence of a secondary waste stream recirculation line (L-16 to E-3) which was omitted from the deactivation activities conducted in the late 1960's, 2) these same lines were designed to direct secondary waste stream material from the 202-S Building to the 233-S Building via waste tunnels, processed, then eventually discharged back into D Cell located in the 202-S Building, and 3) whatever inventory, though unknown at this time, was previously in the referenced lines may still exist in the lines and/or in D Cell. For regulatory decision making purposes, identification of inclusive scope, and for clarification purposes, a detailed identification of the interconnected piping, trenches, and ducting between 202-S and 233-S Buildings is required to be either included in the EE/CA or a reference cited by which a definitive scope determination may be made. In addition, an identification of ownership of these lines is required to be identified (i.e., exactly where along the lines the separation of 202-S and 233-S Buildings occurs). For clarification purposes, a detailed identification of the abandoned filter box located between 233-S and 233-SA Buildings is also being required to be either included in the EE/CA or a reference cited by which a definitive scope determination may be made.

Response: The scope description will be moved to section 4.5 and figure 3 will be modified to show the connection to REDOX. Definitive scope of design will be included in the removal design report after an alternative is selected and documented in the action memorandum after the public review process.

- 11 Section 2.2, Page 7 It is Ecology's understanding that the roof is radiologically (alpha) contaminated, Therefore, the roof should be described in Section 2.2.

Response: A brief description of the roof will be provided.

- 12 Section 2.2, Page 7 The Process Pipe Trench paragraph should include specification of the pipe trench, specifically, which pipes (including lengths), are considered to be within the scope of this EE/CA.

Response: Section 2.2 will be revised to clarify what portion of the pipe trench is covered under the scope of this EE/CA.

- 13 Section 2.2.2, Page 9 An identification of the building's Surveillance and Maintenance (S&M) status should be included. In addition, an identification of all S&M plans should be included by reference. Ecology's understanding is the building is currently being addressed by USDOE's Environmental Restoration (ER) Program.

Response: Surveillance and maintenance activities are adequately described in section 4.3. If this alternative is selected after the public review process, the removal action design report will detail the plan for conducting surveillance and maintenance.

- 14 Section 2.2.2, Page 9 The documentation of the demonstration project should be referenced in the second paragraph of the section.

Response: A summary of the demonstration project is adequately described within the text of section 2.2.2.

- 15 Section 2.2.2, Page 9 The documentation of stabilization activities should be referenced in the third paragraph of the section.

Response: A summary of the activities are adequately described in section 2.2.2. The reference does not add any pertinent information, and confuses the issue since it is dated information.

- 16 Section 2.2.2, Page 9 An additional paragraph describing the condition of the roof should be included. Although there is a sentence in the fourth paragraph of the section that describes other work accomplished in 1990, it is appropriate to include a description of the roof as a facility condition. The description should include detail about roof assessment(s), as well as, roof repairs (foam and tar additions). The section should also include all applicable references of documentation.

Response: A discussion regarding the roof assessment and its current condition will be added to the end of section 2.2.2.

- 17 Section 2.2.2, Page 9 An additional paragraph describing the condition of the stairwell should be included. The description should include detail about construction specifications and structural considerations related to differential settling in relation to the original building structure. The section should also include all applicable references of documentation.

Response: A discussion of the stairwell will be added to section 2.2.2.

- 18 Section 2.2.2, Page 10 An identification of the effectiveness of the facility utilities (heat in particular) should be added to the sixth paragraph. The ineffectiveness, in terms of preventing further deterioration (in the form of concrete crack elongation), appears to be the intent of the final sentence of the sixth paragraph. It would be appropriate to identify if the routine maintenance conducted thus far and addressed by the current S&M activities, is believed to be adequate to prevent further deterioration. During a meeting held on August 30, 1996, it was explained that configuration control in relation to radiological contamination is a re-occurring issue which requires decontamination be conducted on a routine basis. Configuration control appears to be a different issue than that described by the sixth paragraph. Therefore, this paragraph should also describe the decontamination efforts necessitated by radiological contamination configuration control issues.

Response: Comment not accepted. Configuration control does not relate to contamination control. Given the unpredictable nature of alpha contamination to "jump around" the facility, decontamination is conducted on an as needed basis to eliminate spread of contamination to other areas of the facility.

- 19 Section 2.3, Page 10 The roof should be included in the fourth sentence of the first paragraph. A recommended word insertion: 'Current radiation survey data indicate that fixed contamination exists in all rooms and on the roof and loose....'

Response: Comment will be incorporated as suggested above.

- 20 Section 2.3, Pages 10-15 As previously stated, reviews to consider radiological air emissions and radiological worker safety and health conditions have not been performed by the State of Washington. In addition, reviews to consider industrial hazards associated with worker safety and health conditions have not been performed by the State of Washington.

Response: Please see response to comment #3 above.

- 21 Section 2.3, Pages 10-15 During a meeting on August 30, 1996, regarding the EE/CA cost estimates, the existence of 'engineering files' which contain characterization or end-point-criteria-like information was identified. This information should be made available for review in relation to this EE/CA. Please note, Ecology has formally requested end-point criteria for the 233-S Building (see Ecology's July 29, 1996, regulatory status related to 202-S and 233-S Buildings letter), in addition to a clear delineation of deactivation states. The information should be incorporated by reference throughout Section 2.3. Similarly, references for all such facility characterization information should be included in the descriptions of Areas 1 through 6.

Response: The present facility condition is adequately addressed in section 2.2.2

- 22 Section 2.3, Page 11 The fourth paragraph of the section indicates there may be some residual liquid in the process lines. In Section 3.2 of the supporting document entitled *Passive Neutron Survey of the 233-S Plutonium Concentration Facility* (Document Number BHI-00749, Rev. 0, August 1996), it states 'a thin layer of dried residue is anticipated on the inside of the pipes and vessels.' Such discrepancies must be resolved or at the very least, discussed and qualified and/or quantified. If qualification and/or quantification is made, it is appropriate to cite all applicable documents. If confirmation has occurred, it is appropriate to cite the applicable document which resolves the discrepancy.

Response: The physical condition of residual material is not positively known for all locations in the process system. For these reasons, different calculations utilize different assumptions to provide the most conservative case.

- 23 Section 2.4, Page 15 Ecology recommends the second word 'the' in the last sentence of the second paragraph be changed to 'a'. The recommended re-wording would be, 'The potential exposure to personnel and potential threat of a release justify a removal action.'

Response: Comment will be incorporated as suggested.

- 24 Section 4.0, Page 16 Regarding alternative number 2, Table 3 of the EE/CA implies upgrades will be necessary in addition to S&M. As the cost estimates include upgrades, upgrades should be identified as part of alternative number 2.

Response: The existing alternatives (and the entombment alternative as appropriate) are being equally weighted, addressed, evaluated for risk, and estimated for the next revision of this document.

- 25 Section 4.0, Page 16 During a workshop conducted on August 20-22, 1996, it was proposed that another alternative, consisting of decontamination and/or stabilization and removal of the principal threat contamination (i.e., D&D of the process cell) without D&D of the remainder of the facility and without demolition of the structure existed as a reasonable alternative. This alternative should be considered in the EE/CA.

Response: The alternative described above is essentially the same as described in section 4.3 of the EE/CA.

- 26 Section 4.0, Page 16 Regarding alternatives number 3 and 4, 'disposal of contaminated cleanup waste to the Environmental Restoration Disposal Facility (ERDF)' is indicated. An identification that disposal of LLW and mixed waste will occur for the wastes not meeting ERDF's waste acceptance criteria should also be included. In addition, the identification of the anticipated necessity of disposal of transuranic (TRU) and dangerous wastes should be included in the two alternatives. Where applicable, alternate disposal paths should be identified for waste that does not meet ERDF's waste acceptance criteria.

Response: This information is provided in section 4.1 of the EE/CA.

- 27 Section 4.0, Page 16 During a workshop conducted on August 20-22, 1996, it was suggested that another alternative, consisting of grouting or foaming of the facility, be identified. If this alternative has been evaluated and dismissed as an alternative, discussion reflecting the decision should be included. In addition, reference the documented decision making process by which this alternative was dismissed.

Response: Entombment is currently being analyzed and the results will be documented in the EE/CA as appropriate.

- 28 Section 4.1, Page 17 Estimated volumes of waste generated, by waste type (LLW, TRU, dangerous, mixed, etc.), should be included in the EE/CA. A more appropriate place for inclusion of this information may be in Tables 4 and 5.

Response: Waste volumes by waste type will be included in the EE/CA.

- 29 Section 4.1, Page 17 The entire definitional criteria of TRU waste should be included in the first sentence of the fourth paragraph as the following: 'Transuranic waste is defined by U.S. Department of Energy Order 5820.2A as any waste, regardless of source or form, that is contaminated with alpha-emitting transuranic radionuclides with half-lives greater than 20 years and in concentrations greater than 100 nanocuries per gram of the waste matrix at the time of assay.'. It should also be noted, it is Ecology's understanding that at the Hanford Facility, transuranic waste also includes uranium-233 and radium sources.

Response: TRU will be defined in more detail and included in section 4.1 of the EE/CA.

- 30 Section 4.1, Page 17 The identification of another TRU waste storage facility should be included in the fourth paragraph of this section. It is Ecology's understanding the TRUSAF facility will close in the near future and the waste currently being stored there will be moved to the Central Waste Complex (CWC). It should be noted, if CWC is identified as the receiving facility of this waste, USDOE must first confirm applicable curie loading criteria limits at CWC. If TRU waste management is in question, identify this issue in the EE/CA.

Response: Central Waste Complex will be identified for storage of TRU waste generated during D&D of the 233-S facility.

- 31 Section 4.1, Page 17 It is indicated that liquid wastes might be packaged and transported to the Hanford Site underground tank farms to be dispositioned with other radioactive liquids. If this statement is to remain in the EE/CA, it should specify the liquids would be sent only to the double shell tanks (DSTs) and that prior to the DST System's acceptance and receipt, the liquids would first have to be characterized and meet DST waste acceptance criteria. An alternate disposal path should be identified for waste which does not meet the DST System's waste acceptance criteria.

Response: Section 4.1 will be revised to specify radioactive contaminated liquids sent to double shell tank farms and/or the Effluent Treatment Facility in the 200 West Area of the Hanford Site.

32 Section 4.1, Page 17 The words 'an offsite' in the last sentence of the fifth paragraph should be deleted and the word 'a' should be inserted in their place. It is also recommended the sentence be re-written to read 'Non-radioactive liquids contaminated...would be packaged and shipped to a permitted facility for storage, treatment, and/or disposal in compliance with applicable regulations.'

Response: Comment will be incorporated into section 4.1 of the EE/CA.

33 Section 4.2, Page 17 The paragraph does not discuss the potential risk to the public in the event of a release due to roof collapse. If there is risk to the public with the no action alternative, identify it in this paragraph. Also, the wording 'releases of contaminants from the facility would ultimately occur' does not differentiate between human health (including workers) and/or the environment as being impacted or a recipient of the releases.

Response: Clarification will be provided describing impacts to human health and the environment upon implementation of the no action alternative.

34 Section 4.3, Page 18 The section does not discuss the minimization of risk to the public due to the performance of S&M and upgrades. If there is a change in risk to the public in comparison to the no action alternative, it is appropriate to identify the change in this paragraph.

Response: There is no additional risk to the public upon implementation of the continued S&M alternative. This fact is specified in section 5.1 of the EE/CA.

35 Section 4.3, Page 18 During a meeting held on August 30, 1996, regarding the EE/CA cost estimates, it was explained the \$100,000 figure was derived by averaging the cost of a new roof (and disposal costs associated with foam and tar currently existing on the roof) over a twenty year period. For clarification, the text should state the two million dollar amount estimated for the roof was averaged over a twenty year period resulting in the \$100,000 annual cost estimate.

Response: The clarification requested above will be identified in section 4.3 of the EE/CA.

36 Section 4.3, Page 18 During a meeting held on August 30, 1996, regarding the EE/CA cost estimates, it was explained the cost estimates of Table 3 did not take credit for remote surveillance. Provide the assumptions for all of the cost estimates, for each alternative, for review in relation to this EE/CA. In addition, reference all such documentation used for the preparation of this EE/CA.

Response: The cost estimate is accurate and will not be revised. The assumptions used in preparation of the estimates may be discussed in a separate meeting but are inappropriate for use in the EE/CA.

37 Section 4.4, Page 18 As all wastes generated during the decontamination of 233-S are not destined for ERDF, the words 'To ERDF' in the title of the section should be deleted.

Response: The recommended change will occur and the ERDF word will be deleted.

38 Section 4.5, Page 19 As all wastes generated during the decontamination of 233-S are not destined for ERDF, the words 'To ERDF' in the title of the section should be deleted.

Response: Please refer to comment number 37 above.

39 Section 4.5, Table 4 The title of the table implies all disposal will occur at ERDF. As this may not be the case, delete the words 'To ERDF.'

Response: Please refer to response to comment number 37 above.

40 Section 4.5, Table 4 Provide the assumptions for all of the cost estimates, for each alternative, for review in relation to this EE/CA. In addition, it is appropriate for all such documentation used for the preparation of this EE/CA be referenced in the EE/CA.

Response: The assumptions utilized for establishment of a cost estimate for continued S&M include:

- S&M continued for the next 20 years, assuming disposition of 233-S in accordance with the date (2016) provided in the long range plan for disposition of the REDOX complex.
- S&M upgrade assumes cost for a new roof that will last for at least 20 years. Cost of roof includes decontamination and disposal of contaminated roof material as well as construction of a new roof. S&m upgrades do not include costs associated with potential structural modifications, ventilation upgrades, or installation of remote monitoring systems.
- The \$325,000 annual S&M cost includes decontamination of the facility as necessary to ensure confinement of radioactive contamination; monitoring the ventilation stack and outdoor air monitoring stations; waste disposal costs associated with decontamination efforts; maintenance of operating systems (ventilation); routine surveys of radioactive conditions; and removal/control of water that enters the facility due to extreme weather conditions.

- 41 Section 4.5, Table 4 During a meeting held on August 30, 1996, regarding the EE/CA cost estimates, it was indicated the cost estimates of Table 4 do not include the decontamination of the alpha contaminated roof. It was also indicated the disposal estimates associated with the roof tar and foam material removed and generated as waste during decontamination of the roof were not included in Table 4. Add the associated costs to Table 4.

Response: Costs are included in table 4-2 for S&M upgrades after implementation of the Decontamination with Reduced Surveillance and Maintenance Alternative. The \$50,000 annual cost only addresses roof patching activities and waste disposal costs associated with roof maintenance. The roof will not be as expensive as the continued surveillance and maintenance alternative because it is assumed that most of the inventory will be removed.

- 42 Section 4.5, Table 4 During a meeting held on August 30, 1996, regarding the EE/CA cost estimates, it was explained the cost estimates associated with removal of vessels and decontamination of the hood were based upon experience gained during D&D activities associated with glove boxes in a laboratory located in Columbus, Ohio. The cost estimates of removal of vessels and decontamination of the hood should be based upon costs which more accurately reflect the type of work to be conducted in the 233-S process cells.

Response: The cost estimates were based on the Columbus, Ohio activities because it is relative to the hazards and conditions present in the 233-S facilities. Gloveboxes present the same type of working conditions and dismantlement challenges as the process piping and vessels within 233-S.

- 43 Section 4.5, Table 4 During a meeting held on August 30, 1996, regarding the EE/CA cost estimates, it was explained the cost of upgrades associated with a decontaminated roof were not estimated on the same assumptions used for Table 3. The associated costs of S&M upgrades in relation to a decontaminated roof should be reflected by the S&M upgrades cost estimate figure.

Response: The cost estimate for removal of the roof is contained within the cost for facility dismantlement (\$1,038,000) and the 871 yd<sup>3</sup> for waste disposal.

- 44 Section 4.5, Table 4 During a meeting held on August 30, 1996, regarding the EE/CA cost estimates, it was explained the cost of additional characterization (i.e., to obtain additional information about the conditions of the facility prior to decontamination) is not anticipated due to the existence of 'engineering files' which contained characterization or 'end-point-criteria-like' information. It was also indicated that additional characterization information would be obtained during decontamination activities. Due to the concern of inadequate characterization information regarding conditions of the facility, an additional line should be added to Table 4 which identifies the estimated costs associated with obtaining additional characterization information prior to the implementation of

decontamination. Similarly, an additional line should be added to Table 4 which identifies the estimated costs associated with obtaining additional characterization information during decontamination. It is noted that during the August 30, 1996, meeting, it was explained the characterization costs during decontamination have been built into the specific activities. In particular, it is noted that real time in-situ analyses have been recommended to be performed in coordination with component and vessel removal in the summary/conclusions of the supporting document entitled *Passive Neutron Survey of the 233-S Plutonium Concentration Facility* (Document Number BHI-00749, Rev. 0, August 1996). As these costs are believed to be considerable and represent a specific activity/cost which is appropriate to evaluate separately, an itemization should be made by the addition of a line for this specific cost/activity.

Response: Cost have been added as requested.

- 45 Section 4.5, Table 4 During a meeting held on August 30, 1996, regarding the EE/CA cost estimates, it was explained the cost of characterization for waste acceptance purposes after waste generation is built into the 'subcontracts' and activity-specific cost estimates. As these costs are believed to be considerable and represent a specific activity/cost which is appropriate to evaluate separately, an itemization should be made by the addition of a line for this specific cost/activity.

Response: EPA has requested this specific information and it will be included in tables 4 and 5 of the EE/CA.

- 46 Section 4.5, Table 4 Footnote 'a' of Table 4 indicates 'key cost assumptions include disposal of low-level radioactive waste at the ERDF....' Considering the incomplete definition of TRU waste on page 17 of the EE/CA, a confirmation of the accuracy of the assumptions related to the volumes of LLW waste to should be generated during these activities be made. In particular, it is noted, the majority of the waste generated is identified to be 'packaged as LLW'. Additional cost information should be added to the table to identify the key cost assumptions associated with storage, treatment and/or disposal of TRU waste.

Response: As discussed previously in comment response number 28, the waste volume and corresponding associated cost for storage or disposal will be provided in tables 3, 4, and 5.

- 47 Section 4.5, Table 4 Footnote 'b' of Table 4 indicates the estimated disposal costs do not include costs to dispose of inert (non-hazardous) demolition waste. For purposes of this cost analysis, these estimates should be added to the table. While it is understood the demolition waste disposal costs associated with this alternative may be low, those associated with alternative 4 may be substantially higher and therefore, are appropriate to identify.

Response: There is no disposal fee associated with final disposition of inert waste.

- 48 Section 5.1, Pages 21 and 22 This section does not adequately address overall protection to workers by comparing the safety risks associated with each alternative. For decision making purposes, this information must be included. By this omission, the alternatives are not equally weighted. During a workshop conducted August 20-22, 1996, the lack of a complete inventory of hazards was repeatedly identified as a concern. If a complete inventory of hazards is not known or quantifiable, it is appropriate to identify this deficiency and address it in such a way that maximizes, to the extent possible, an equal comparison of alternatives in relation to safety risks to workers. For such cases which risks are not completely inventoried, it is recommended a quantification, if possible, of the uncertainties associated with the incomplete hazards inventory be included for each alternative in relation to worker safety and health.

Response: Section 5.1 will be revised to identify risks to the fullest extent possible based on existing information. The appropriate level of data required for quantification of risk does not exist. Even if risk could be quantified, at this time the analysis of long term protection would likely not change.

- 49 Section 5.1, Page 22 Ecology recommends this section be re-written to separately identify the potential consequences of each alternative so each alternative can be evaluated without bias. It is noted, the limited discussion of the decontamination and demolition alternatives do not identify the potential consequences associated with the proposed work. In particular, the safety summary contained in the supporting document entitled *Safety Analysis for the 233-S Decontamination and Decommissioning Project* (Document Number BHI-00892, Rev. 0, August 1996), indicates radiological consequences due to accidents or upsets were found to be primarily localized to the interior of the 233-S Facility and near proximity. The same summary also indicated de-commissioning workers are the most likely receptors at risk of radiological exposure.

Response: Please see response to comment number 24, above.

- 50 Section 4.5, Page 21 The third paragraph indicates further evaluation of remaining subsurface structures and contaminated soils is beyond the scope of this EE/CA. It is assumed that continued S&M associated with the subsurface structures (piping trenches, filtration system box, etc.) would occur. If this assumption is correct, the S&M associated with these structures should be identified and the applicable S&M costs be reflected in Tables 4 and 5. If this assumption is incorrect, the lack of S&M associated with the subsurface structures should be identified in the paragraph.

Response: Activities associated with surveillance and maintenance of structures left behind after D&D will be identified. The costs associated with such maintenance is already identified in the cost tables.

- 51 Table 5, Page 22 The title of the table implies all disposal will occur at ERDF. As this may not be the case, delete the words '(ERDF Disposal).'

Response: Comment will be incorporated as identified above.

- 52 Table 5, Page 22 During a meeting held on August 30, 1996, regarding the EE/CA cost estimates, it was explained the cost of additional characterization (i.e., those costs to obtain additional information about the conditions of the facility prior to decontamination) is not anticipated due to the existence of 'engineering files' which contain characterization or 'end-point-criteria-like' information. It was also indicated that additional characterization information would be obtained during decontamination activities. Due to the concern of inadequate characterization information about the conditions of the facility, an additional line should be added to Table 5 which identifies the estimated costs associated with obtaining additional characterization information prior to the implementation of decontamination, even if that line indicates a non-cost. Similarly, during the August 30, 1996, meeting it was explained that the characterization costs during decontamination have been built into the specific activities. In particular, it is noted that real time in-situ analyses have been recommended to be performed in coordination with component and vessel removal in the summary/conclusions of the supporting document entitled *Passive Neutron Survey of the 233-S Plutonium Concentration Facility* (Document Number BHI-00749, Rev. 0, August 1996). As these costs are believed to be considerable and represent a specific activity/cost which is appropriate to evaluate separately, an itemization should be made by the addition of a line for this specific cost/activity.

Response: Sampling and analysis for the purpose of waste designation and final verification (if necessary) will be provided in the EE/CA as appropriate.

- 53 Table 5, Page 22 During a meeting held on August 30, 1996, regarding the EE/CA cost estimates, it was explained the cost of characterization for waste acceptance purposes after waste generation is built into the 'subcontracts' and activity-specific cost estimates. As these costs are believed to be considerable and represent a specific activity/cost which is appropriate to evaluate separately, an itemization should be made by the addition of a line for this specific cost/activity.

Response: Please refer to response to comment 52, above.

- 54 Table 5, Page 22 Footnote 'b' of Table 5 indicates the estimated disposal costs do not include costs to dispose of inert (non-hazardous) demolition waste. For purposes of this cost analysis, these estimates should be added to the table. It is understood the demolition waste disposal costs associated with this alternative may not be insignificant and are, therefore, appropriate to identify.

Response: There is no cost associated with disposal of inert waste.

- 55 Table 5, Page 22 Footnote 'a' of Table 5 indicates 'key cost assumptions include disposal of low-level radioactive waste at the ERDF....' Considering the incomplete definition of TRU waste on page 17 of the EE/CA, a confirmation of the accuracy of the assumptions related to the volumes of LLW waste to be generated during these activities should be made. In particular, it is noted that the majority of the waste generated is identified to be 'packaged as LLW.' Additional cost information should be added to the table to identify the key cost assumptions associated with storage, treatment, and/or disposal of TRU waste.

Response: As discussed in response to comment numbers 26 and 48, waste volumes and cost estimates will be provided specific to the type of waste.

- 56 Section 5.2, Page 23 The last sentence of the first paragraph implies the process for determining applicable or relevant and appropriate requirements (ARARs) in relation to USDOE Orders is yet to be done. As applicable environmental laws have been identified as ARARs (RCRA, CAA, TSCA, etc.), it is appropriate to also identify which USDOE Order imposed worker safety and health ARARs are to be acknowledged. In particular, USDOE Orders should be identified by number with a further identification of which requirements are considered administrative versus substantive. For clarification, an additional section (Section 5.12) should be added to the EE/CA which describes the resolution of the safety issues associated with USDOE Order requirements as related to conducting D&D activities under CERCLA authority. This section should detail how administrative and substantive requirements of which safety-related USDOE Orders are to be satisfied. In addition, it would be appropriate to identify the most important safety-related USDOE Orders by description and reference.

Response: Appropriate DOE Orders will be added as "to be considered" (TBC) documents in section 5.2. The orders, although not promulgated regulations, will be followed as further defined in the removal action design report. In addition to the TBC section that will be added to the EE/CA, a DOE order assessment and 233-S roadmap is being prepared to provide technical clarification of the appropriate implementation of such orders to the 233-S project.

- 57 Section 5.2, Page 23 The last sentence of the second paragraph indicates other standards to be met by the response action include various USDOE, federal and State worker safety standards. The EE/CA should clearly specify which standards are to be met by citation and further by identification of administrative versus substantive requirements.

Response: Please see response to comment number 56, above.

- 58 Section 5.2.1, Page 23 A recommended rewording for the second sentence is: 'Implementing regulations.....and identifies standards for storage, treatment, and/or disposal of these wastes.'

Response: Comment will be incorporated as identified above.

- 59 Section 5.2.1, Page 23 A recommended rewording for the third sentence is: 'These requirements are applicable to any wastes existing or generated in the 233-S Facility that designate in accordance with WAC 173-303 as a dangerous or mixed waste.'

Response: Comment will be incorporated as described above.

- 60 Section 5.2.5, Page 25 The subsection entitled 'Radiation Protection Standards' appears to belong in Section 5.1 rather than as a subsection of the section entitled 'Waste Management Standards.' This subsection should be moved to Section 5.1.

Response: Section 5.2.5 is appropriate for the discussion on Radiation Protection Standards since such standards are proposed ARARs. Therefore, the paragraph is a subsection of section 5.2, Compliance with Applicable or Relevant and Appropriate Requirements. Section 5.1 is intended for analysis of the first CERCLA criteria, Overall Protection, such section is inappropriate for use in identifying ARARs.

- 61 Section 5.2.4, Page 25 The safety summary contained in the supporting document entitled *Safety Analysis for the 233-S Decontamination and Decommissioning Project* (Document Number BHI-00892, Rev. 0, August 1996), indicates 'verification of radiological inventory characteristics will be performed to ensure validity of the assumptions used in the ASA.' This verification commitment should be identified in this section. It is noted, the verification commitment identified in the safety analysis is different from that implied by the text as 'Individual monitoring would be performed as necessary to verify compliance with the requirements.'

Response: Verification of radiological characteristics is part of the radiation protection standards and TBCs identified in the EE/CA. Furthermore, the removal action design report will identify this action specifically.

- 62 Section 5.2.4, Page 25 In the last sentence of the second paragraph, a statement about disposal of radioactive waste is made in relation to ERDF. Either an additional statement should be included which addresses disposal of TRU waste generated during alternatives 3 and 4 or the statement should be deleted. The single statement incorrectly leads the reader to think all waste generated from the proposed activities will be disposed at ERDF.

Response: Comment will be incorporated as described above.

- 63 Section 5.2.5, Page 25 Indicate in the paragraph that WAC 173-303 also regulates wastes with PCBs.

Response: Comment will be incorporated as described above.

- 64 Section 5.2.7, Page 26 The subsection entitled 'Worker Protection' appears to belong in Section 5.1 rather than as a subsection of the section entitled 'Waste Management Standards.' This subsection should be moved to Section 5.1.

Response: "Worker Protection" is an individual category that is part of the CERCLA criteria used in comparison of alternatives. It is inappropriate to combine analysis of separate CERCLA criteria and is inconsistent with EPA guidance.

- 65 Section 5.2.7, Page 26 See comment below regarding the recommendation for a new section (Section 5.12). Due to the concerns discussed during a workshop held on August 20-22, 1996, definitions of 'substantive' and 'administrative' requirements in relation to USDOE Orders should be included in the EE/CA. It was noted during the workshop that the differentiation between administrative and substantive would appropriately be based upon the intent of the USDOE Order rather than on nomenclature which distinguishes between the two types of requirements. It is also recommended the documented resolution (whether it be an approved process or a formal delegation of applicable authority) of the safety issues associated with substantive versus administrative requirements in relation to USDOE Orders be referenced.

Response: Please refer to comment number 56, above.

- 66 Section 5.3, Page 26 It is recommended the term 'long-term' be quantified. In relation to this EE/CA it appears the term means twenty years or greater.

Response: The description provided on the criteria for long-term effectiveness is taken from EPA guidance.

- 67 Section 5.3, Page 26 Ecology recommends the last sentence of the second paragraph be qualified to indicate due to the lack of adequate upgrades and/or maintenance in the past, the upgrades anticipated to be necessary in relation to the S&M alternative are considered to be significantly higher than those for active facilities. It might even be appropriate to indicate the upgrades recommended for inactive facilities (i.e., a new roof every twenty years) were not made for the 233-S facility.

Response: Facility condition and subsequent events are adequately discussed in section 2.2.2.

- 68 Section 5.3, Page 26 The last sentence of the second paragraph should be worded to agree with the cost estimates of Table 3. It is recognized the cost of a new roof (including the removal and disposal of tar and foam from previous repairs) is estimated to be two million dollars. If additional 'major upgrades beyond the scope of routine maintenance' are anticipated, specifically identify them or indicate the statement is in agreement with Table 3's upgrade cost estimate.

Response: Comment will be incorporated in accordance with guidance provided above.

- 69 Section 5.3, Page 27 The accuracy of the statement in the last sentence of the third paragraph regarding the precluded need for any further S&M should be confirmed. If S&M of subsurface structures is required, the statement would more accurately indicate a minimized S&M applicable to alternative 4.

Response: Section 5.3 will be revised to reflect comment described above.

- 70 Section 5.4, Page 27 The last sentence of the third paragraph indicates the TRU waste will be stored at TRUSAF. Because of the likely closure of TRUSAF, it is recommended the sentence indicate storage will occur at a TRU waste storage facility.

Response: The sentence will be revised to indicate "storage will occur at TRU waste storage facility on the Hanford Site."

- 71 Section 5.4, Page 27 The third paragraph does not indicate that mixed and/or dangerous waste, which is not acceptable at ERDF, will be managed. It is recommended an additional sentence be added which indicates storage, treatment, and/or disposal of mixed and/or dangerous waste not disposed at ERDF will occur at a permitted RCRA TSD.

Response: The DOE Explanation of Significant Difference for the ERDF facility, approved by EPA, allows disposal of any waste generated during D&D to be disposed at ERDF provided that the waste meets applicable waste acceptance criteria.

- 72 Section 5.5, Page 27 An identification of the potential of exposure to the public (i.e., in the event of roof collapse) should be included in the first paragraph of this section, if applicable.

Response: Comment will be incorporated as described above.

- 73 Section 5.5, Page 28 Ecology recommends the last sentence of the second paragraph be re-worded to indicate the S&M alternative does not meet this particular removal action criteria.

Response: The section adequately addresses how continued surveillance and maintenance compares to other alternatives for short-term effectiveness, therefore the recommended change will not be made.

- 74 Section 5.7, Page 29 The second sentence of the first paragraph indicates the costs of the S&M alternative do not include any estimate of the additional costs that would be incurred for surveillance as the condition of the building deteriorates. The paragraph should identify the cost of a new roof (including removal and disposal of tar and foam from previous repairs) has been reflected in the estimate and is shown on Table 3 as an upgrade. In addition, it is noted the cost of a new roof has been estimated to be two million dollars rather than 'several million dollars' as indicated on page 30. If there are

additional major upgrade expenses not shown on Table 3 which are being referred to in this paragraph, it is appropriate to add them to Table 3.

Response: This section already identifies S&M cost for the current condition of the facility. It is inappropriate to identify costs that are unknown at this time.

75 Section 5.7, Page 30 The first sentence of the second paragraph indicates disposal will occur at ERDF. As this may not be the case, delete the words 'at ERDF.'

Response: Comment will be incorporated as described above.

76 Section 5.7, Page 30 As the estimates in relation to alternatives 3 and 4 are anticipated to change, the changes should be reflected here to agree with those of Tables 4 and 5.

Response: It is likely the estimates will not change since activities, although admittedly not described in this EE/CA, have been addressed in development of cost figures. The tables will be changed to identify different activities but the total cost will remain unchanged.

77 Section 5.8, Page 30 It should be noted that this section should only be completed after the lead regulatory agency's review of this EE/CA.

Response: The section will be revised to state "This section will be evaluated following the public comment period", since EPA is now the lead agency.

78 Section 5.10, Page 30 As the second paragraph does not indicate what cumulative impacts may occur for each alternative, the paragraph is not informative. It is recommended the second paragraph either be changed to indicate what impacts may occur from implementation of each alternative or deleted.

Response: The second paragraph is required for the purpose of incorporating NEPA values.

79 Section 5.10, Page 30 Clarification of the paragraph in relation to alternatives is required. For example, it is appropriate to identify if there are anticipated long-term offsite impacts with the no-action alternative. Also, the fourth sentence of the third paragraph should specify the long-term impacts associated with the S&M alternative.

Response: The paragraph will not be revised because it adequately addresses NEPA values. The paragraph is not intended to supplement the long term impacts already identified in section 5.3.

80 New Section, Page 30 An additional section (Section 5.11) should be added to the EE/CA which describes the environmental regulatory status of 233-S Building in relation to Section 8 of the existing TPA, the proposed modified TPA, and the pending resolution of the REDOX facility as a potential non-permitted TSD. This section should detail the

status of 233-S in relation to Section 8 of the existing TPA (i.e., an identification of 233-S as a key facility) and address the end point criteria requirements associated with facilities in the Surveillance and Maintenance (S&M) status.

**Response:** This issue is applicable for all buildings on the Hanford Site and should not be addressed in the EE/CA. The Tri-parties should address this issue in separate negotiations related to the TPA.

- 81 New Section, Page 15 An additional section (Section 5.12) should be added to the EE/CA which describes the resolution of the safety issues associated with USDOE Order requirements as related to conducting D&D activities under CERCLA authority. This section should detail how administrative and substantive requirements of which safety-related USDOE Orders are to be satisfied. In addition, it would be appropriate to identify the most important safety-related USDOE Orders by description and reference. This section should include a detailed description of the proposed integrated USDOE safety/CERCLA removal action process for facility decommissioning. It is also recommended that advantage be taken of the public comment period for obtaining the public's opinion of the process. In particular, it is recommended that comment be solicited regarding the timing of preparing the Remedial Design Report (RDR). It is Ecology's opinion that in consideration of decommissioning of the 233-S Building, preparation of the RDR prior to the issuance of the EE/CA would better allow a qualification and/or quantification of worker safety and health risks associated with alternatives number 3 and 4. It should be noted that in this case, the RDR would be prepared for the bounding case scenario (alternative number 4) and as such, it is believed its preparation is appropriate prior to the issuance of the EE/CA. Lastly, it should be noted that as this integration decommissioning process is a new one, flexibility can be afforded in the process, and more importantly, for the consideration of decommissioning the 233-S Building, such flexibility is justifiable.

**Response:** As described in previous responses regarding DOE Orders, a TBC paragraph will be added to section 5.2. A white paper regarding the other issues described above relating to D&D under CERCLA and the ER initiative will be provided during formal regulator review of the EE/CA commencing approximately mid November, 1996.