

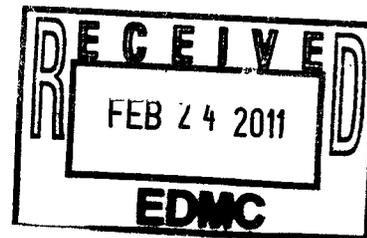


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION 10 HANFORD/INL PROJECT OFFICE

309 Bradley Boulevard, Suite 115
 Richland, Washington 99352

February 23, 2011

Rich Holten, Assistant Manager
 for the Central Plateau
 Richland Operations Office
 U.S. Department of Energy
 P.O. Box 550
 Richland, Washington 99352



Re: EPA Comments on *Proposed Plan for the Remediation of the 200-CW-5, 200-PW-1, 200-PW-3, and 200-PW-6 Operable Units, DOE/RL-2009-117, Draft A*

0093675

Dear Mr. Holten:

The U.S. Environmental Protection Agency (EPA) has reviewed the referenced document and has several major points to discuss. The U.S. Department of Energy's (DOE) preferred alternative proposed a modified barrier to the remedy for the Cesium-137 waste sites. EPA does not support the concept of bringing in clean backfill to maintain a soil cover as an effective remedy. RTD-Option B should be the preferred alternative for these waste sites. DOE's preferred alternative also identifies the pipelines associated with 200-PW 1, 3, and 6 Operable Units (OUs) as a separate waste group from the other waste sites. EPA has maintained that pipelines in these OUs should be remediated with their associated waste sites and not grouped separately.

There is lengthy explanation of DOE's *Hanford Site Cleanup Framework* and *Central Plateau Cleanup Strategy* in the Proposed Plan. Discussing the content of these DOE documents suggests that they represent an agreement between the Tri-Party agencies. EPA acknowledges that these are tools developed by DOE, but does not agree with the entirety of the details they contain. Discussion of these DOE tools in Proposed Plans or Feasibility Studies should be minimized and clearly communicate that they are DOE products.

The document states that some contaminants may be deferred to the Deep Vadose Zone OU. EPA does not support this statement and stresses that contaminants associated with the 200-PW 1, 3, and 6 OUs will be remediated under the same decision document.

Changes made to this document should be reflected in the respective feasibility studies for these operable units. It is important to EPA that the Proposed Plan for these OUs be issued in a timely fashion in order to facilitate the development of a Record of Decision by the end of the fiscal year. We look forward to working towards this goal with DOE.

Enclosed are EPA's comments. We will have more comments pending our legal review which will occur after these initial comments have been addressed. If you have any questions, please contact me at 509-376-4919.

Sincerely,

A handwritten signature in black ink, appearing to read "Emerald Laija". The signature is fluid and cursive, with a long horizontal stroke at the end.

Emerald Laija
200-PW 1, 3, and 6 Project Manager

Enclosure

cc: Stuart Harris, CTUIR
Gabriel Bohnee, Nez Perce Tribe
Russell Jim, Yakama Nation
Greg Sinton, DOE
Arlene Tortoso, DOE
Brenda Jentzen, Ecology
John Price, Ecology
Ken Niles, ODOE
Susan Leckband, HAB
Administrative Record

General Comments

- 1) EPA has issues with three parts of DOE's preferred alternative.
 - a. Cesium-137 sites are presented with a "modified barrier" remedy to maintain soil cover with a 350 year institutional control (IC) timeframe. EPA does not consider this to be a reasonable length of time and thus cannot agree with its selection. Furthermore, EPA does not support the addition of clean fill to maintain a soil cover to 15 feet. RTD-Option B should be selected as the preferred alternative for these sites. This option affects 216-A-7, 216-A-8, and UPR-200-E-56. For the other two waste sites with deep contamination, 216-A-24 and 216-A-31, EPA expects an ET barrier to be used if there are contaminants that pose a threat to groundwater.
 - b. The pipelines in these OUs are presented as a separate waste site group (ex. Table 1). The pipelines will be dispositioned as part of the remediation of their associated waste sites and should not be called out separately. Additionally, any reference to an RTD depth of 10 feet for pipelines needs to be stricken from the document. EPA had not agreed that the biologically active zone is limited to 10 feet bgs or to an alternate point of compliance for protection of human health and the environment.

- 2) The following comments are specific to the 200-CW-5 waste sites.
 - a. The northern portion of the 216-Z1D Ditch is listed as having No Action as the preferred alternative. For the No Action alternative to be selected the site must be able to support unrestricted use and unlimited exposure (UU/UE). For example, cleanup performed to meet industrial cleanup levels still requires ICs to ensure that exposures are consistent with industrial land use. The site does not have chemical contaminant information and thus requires confirmatory sampling. Confirmatory sampling does not fit within a No Action alternative. The preferred alternative should be to confirm that the site is clean enough to meet industrial cleanup levels; otherwise an RTD remedy should plug in to address the site. Either way, if it does not meet UU/UE, ICs and monitoring will be necessary until it does.
 - b. Industrial cleanup standards are appropriate for the Z-Ditches because they are within the inner area of the Central Plateau and the reasonably anticipated land use is industrial. However, if DOE and EPA agree, the Z-Ditches may be completely removed down to unimpacted soil depending on field conditions, thus eliminating the need for ICs and monitoring for these sites.

- 3) The document makes reference to deferring remediation of contaminants to the deep vadose zone OU (200-DV-1). Contamination in the PW 1, 3, 6 OUs will not be deferred to another OU. Remove any reference to deferring remediation to 200-DV-1. The document should emphasize that, while there is uncertainty, Tc-99 and nitrate are not expected to pose a risk. Sampling will be conducted to verify contaminant levels. If these levels present an unacceptable risk, actions will be developed to protect human health and the environment.

- 4) The discussion of common elements between alternatives is unclear. Clarify as follows:

Common Elements

- Institutional controls, long-term monitoring, and maintenance will be required under any action alternative that does not meet unrestricted use and unlimited exposure (UU/UE).
 - Soil Vapor Extraction (SVE) will be required to address contamination from carbon tetrachloride and other VOCs at three of the High-Salt sites.
 - Sampling of Tc-99 and nitrate will be required in the deep vadose zone to determine if additional action is required.
 - Sludge will be removed from the Settling Tanks and then they will be grouted.
 - No action is required at 216-Z-8 French Drain and 216-Z-10 Injection/Reverse well.
- 5) SVE is described as lasting for 10 years for costing purposes. While it is understandable that a period of time had to be selected to determine approximate cost, it is not acceptable to use the assumption that RTD activities would not commence until SVE is concluded. DOE has a deadline (M-16-00 major milestone) to complete all non-tank farm remedial actions including shipment of any transuranic waste to the Waste Isolation Pilot Plant (WIPP) by 2024. Since RTD is identified as part of DOE's preferred alternative, it is important to plan activities around this deadline. Revise the document to clarify when RTD activities will begin.
- 6) There is lengthy explanation of DOE's *Hanford Site Cleanup Framework* and *Central Plateau Cleanup Strategy*. DOE can reference and summarize these documents in 1-2 sentences as tools DOE used in developing their preferred alternative. Delete the rest of the discussion on pages 19-22 (see specific comments below).
- 7) There is not an adequate discussion and definition of transuranic waste. The proposed plan should discuss the statutory requirements for transuranic waste (must be disposed of at WIPP) and explain when transuranic materials are considered transuranic waste.
- 8) The document should avoid the use of the term "Tri-Parties" when referring to the roles of DOE and EPA as the lead and lead regulatory agencies, respectively.
- 9) On the progress bar graphic, highlight the current topic/section differently than the previous ones. Also, delete "RCRA" from the last box and replace with "NEPA Values" since RCRA is not part of the CERCLA RI/FS process.
- 10) There are a number of detailed figures provided for each waste site. The public would better benefit from a simplified figure representative of each type of waste site. For example, there can be a figure for a representative crib, ditch, settling tank and pipeline.

10. Page 3, line 31: Revise as follows:
“...preferred alternative at three waste sites.”
11. Page 3, Preferred Remedial Alternatives section: See previous general comment on the Cs-137 waste sites and pipelines. Revise accordingly.
12. Page 4, line 24: Add this sentence:
“The Inner Area is located in the central portion of Hanford, as shown in Figure 3.”
13. Page 6, Figures 4 and 5: Give the whole names of the waste sites, not just their numbers in the parenthetical text. Whole names of waste sites should be used consistently throughout the document (e.g., 216-Z-20 tile field).
14. Figure 4 is not adequate to show the Z Ditches as they continue on south to where they emptied into the U Pond (216-U Pond). Add a figure to show the 200-CW-5 waste sites.
15. Page 7, line 27: Revise the sentence as follows:
A remedy for treating the groundwater below these operable units has been...”
16. Page 7, lines 28-29: Revise the sentence as follows:
“The potential for contamination from the soils in the 200-CW-5, 200-PW-1, 200-PW-3, and 200-PW-6 OUs to migrate to the groundwater and contribute to the existing groundwater contamination was evaluated.”
17. Page 7, lines 33-39: Revise as follow:
“Technetium-99 and nitrate were detected in soil samples collected during the drilling of three wells (two at 216-Z-9 Trench and one at 216-A-8 Crib) during sampling for the RI for the 200-PW-1, 200-PW-3, and 200-PW-6 OUs. There is a high level of uncertainty associated with the analytical data because it is not considered representative of current conditions. Although these contaminants are not expected to pose an unacceptable risk to groundwater, additional sampling is needed for verification. For the 200-CW-5 OU, technetium-99 was not detected and nitrate was detected at low levels, so these contaminants were not identified as a threat to groundwater.”
18. Page 8, line 32: Revise as follows:
“The cleanup of the existing organic groundwater contamination below...”
19. Page 9, line 14: Revise as follows:
“...generally expressed a preference for ~~some~~ removal of the...”
20. Page 9, line 17: Revise as follows:
“Comments suggested such a remedy may not...”
21. Page 10, line 8: Define UPR site.
22. Page 10, Table 1: Add a column that lists the primary contaminants for each waste group.

23. Page 17, line 15. Determine if “identified” is the appropriate word or if “detected above background or risk-based levels” is more accurate.
24. Page 18, line 3. Confirm whether the depth provided (54.2 m) is below the ground surface or below the well bottom. It appears it is lower than the well bottom, but not by the mentioned amount.
25. Pages 19-22, Scope and Role Section: Delete the discussion on DOE’s *Hanford Site Cleanup Framework* and *Central Plateau Cleanup Strategy*. The current language suggests that this is an agreement between the Tri-Party agencies. Figure 24 should be retained, but Figure 25 should be deleted. Revise this section as follows:

“This section presents a description of how the remediation of the 200-CW-5, 200-PW-1, 200-PW-3, and 200-PW-6 OUs fits within the overall cleanup strategy for Hanford. Figure 24 shows that the Central Plateau is divided into Inner Area and Outer Area components. A Tri-Party Agreement Change Package (**cite change package number and fact sheet**) identifying a total of 11 future cleanup decisions for the Central Plateau was approved in October 2010. As part of the cleanup decisions, appropriate human health scenarios and corresponding environmental media cleanup levels will be established by the Tri-Party agencies with the intent to ensure protection of human health and the environment. DOE has created the *Hanford Site Cleanup Framework* and the *Central Plateau Cleanup Strategy* as tools to develop cleanup alternatives.

This Proposed Plan and the respective FS reports for the 200-CW-5, 200-PW-1, 200-PW-3, and 200-PW-6 OUs were originally prepared in 2003 and 2007, respectively. All cleanup actions that are proposed for the Central Plateau, including those mentioned in this Proposed Plan, will be protective of human health and the environment, meet statutory requirements for remedy selection, and will be in compliance with ARARs.”

26. Page 22, line 20. Add the following sentence:
“A baseline risk assessment helps provide the need, or basis, for cleanup actions.”
27. Page 22, line 28. Instead of ending the sentence with “and a fate and transport model was completed” revise to state “fate and transport modeling was performed using site-specific information.”
28. Page 23, lines 1-3: Include a table that clearly lists the COPCs. This will make the information easier for the reader to understand.
29. Page 23, lines 7-9: Clarify the sentence. Revise as follows:

“The goal of using an RME individual to evaluate cancer risks and non-cancer health hazards is to provide an exposure scenario that is both protective and reasonable, but not the worst possible case (OSWER...)”

30. Page 24, Risk Characterization Section, lines 4-9: Explain what the excess lifetime cancer risk (ELCR) is in simpler terms. This is a technical term that may not be readily understood. Revise as follows:

“The calculated cancer risk estimates the probability that additional cases of cancer may develop within a population if the people are exposed to the contaminated soil over the course of a lifetime. This risk estimate is referred to as the **excess lifetime cancer risk (ELCR)**. To evaluate health risks, EPA has developed the following acceptability values under CERCLA. For contaminants that are known or suspected to cause cancer, acceptable exposure levels are generally concentration levels that represent an ELCR range to an individual of 1 in 1,000,000 (referred to as 10^{-6}) to several in 10,000 (referred to as 10^{-4}). The results of this baseline risk assessment indicate that concentrations of radiological contaminants in soil from Z-Ditches (200-CW-5), High-Salt (200-PW-1), Low-Salt (200-PW-1 and 200-PW-6), and Cesium-137 (200-PW-3) waste groups pose an unacceptable cancer risk (greater than 10^{-4}) under a subsistence farmer exposure scenario.”

31. Page 24, Table 2: This table is not useful to the public. Pie charts would be more useful to show which contaminant poses the majority of risk for each waste group. Revise the table to present the information in a pie chart format. It may not be necessary to include contaminants that contribute less than 1% risk.
32. Page 25-28, Summary of Ecological Risks Section: The majority of this section should be deleted. Revise as follows:

“Summary of Ecological Risks

A screening-level ecological risk assessment was conducted for the Z-Ditches (200-CW-5), High-Salt (200-PW-1), Low-Salt (200-PW-1 and 200-PW-6), and Cesium-137 (200-PW-3) to identify contaminants, receptors, and exposure pathways that were considered in the development of remedial alternatives.

Problem Formulation

Determining if cleanup is needed to protect ecological receptors involved assessing potential ecological risks under baseline conditions. In this case, baseline conditions means assuming that the soil covers would no longer be maintained and that other active land management methods would no longer be performed.

If contaminants might be present in shallow soil (less than 4.6 m [15 ft]) that is potentially accessible to ecological receptors, a potential exposure pathway was considered to be complete for that waste site. The depth of 4.6 m (15 ft) reflects the standard point of compliance for ecological protection as described in the state of Washington’s regulations for cleanup for protection of ecological receptors (WAC 173-340-7490[4][b]). This depth is based on unrestricted use where human activities could bring contamination to the ground surface. The physical dimensions of the waste sites and the

distribution of soil contaminants detected in them were compared to the 4.6 m (15 ft) standard point of compliance. The results from this comparison indicated that potentially complete ecological exposure pathways could be present at some of the waste sites.

Screening-Level Ecological Exposure and Effects Assessment

Ecological risks associated with these exposure pathways were assessed by comparing contaminant concentrations in soil with ecological screening levels. Contaminants were not found in samples taken from the top 4.6 m (15ft) at the High-Salt, Low-Salt, Settling Tanks, and Cesium-137 waste sites. However, an evaluation of site information indicated that contaminants could have been present within in this area. As a result, it was assumed that complete ecological exposure pathways and ecological risks could be present at these waste sites. Contaminants were found in samples taken at the Z-Ditches at levels above ecological screening levels.

Risk Characterization

The results of comparison of concentrations in soils to the ecological screening levels indicate either a need for further evaluation of ecological risks or a need to cleanup waste sites to protect ecological receptors. This comparison showed that cleanup of the Z-Ditches would be necessary to protect ecological receptors. Since contaminants were not found in samples taken from the top 4.6 m (15 ft) at the other waste sites, it was not possible to do this comparison. However, it is assumed that cleanup of these sites is also needed.”

EPA does not support any references to a biologically active zone of 10 feet. Delete any references to this phrase throughout the document.

33. Page 28, Identification of Contaminants of Concern Section and Table 5: See general comment on Tc-99 and nitrate. Revise lines 24-25 as follows:
“Two additional contaminants were identified for 200-PW-1 and 200-PW-6 for protection of groundwater: carbon tetrachloride and methylene chloride. Two other contaminants, technetium-99 and nitrate, had a high level of uncertainty as potential threats to groundwater. Although these contaminants are not expected to pose an unacceptable risk based on fate and transport modeling results, sampling will be conducted to verify contaminant levels and actions will be developed to address the contamination if it presents unacceptable risk.”
34. Page 29, lines 22 through 26. Where is the discussion in the document about having more than one contaminant and using a hazard index, not just a hazard quotient?
35. Page 29, lines 24-26. Need to be more explicit that the 0.1 rad/day is for terrestrial organisms and that 1 rad/day is the value used for plants.
36. Page 29, line 27. Be consistent and replace “remediation goals” with “PRGs.”
37. Page 29, line 30: Revise the sentence as follows:
“These values are set using screening levels...”

38. Page 29, lines 31-35: Revise as follows:
“These values are preliminary and alternative values may be developed as further data is collected. The PRGs for protection of groundwater do not apply to RTD of the Z-Ditches Waste Group, as no contaminants were identified as COCs for groundwater protection for those waste sites. Technetium-99 and nitrate will be sampled for to verify contaminant levels and actions will be developed to address the contamination if it presents unacceptable risk.”
39. Page 30, line 2: Add “and groundwater protection is demonstrated” to the end of the sentence.
40. Page 30, lines 3-6: This section states that SVE is being used to treat carbon tetrachloride and will be used as long as necessary to avoid recontamination of groundwater. The proposed plan needs to identify at what carbon tetrachloride levels SVE would be considered effective and complete. A figure should be created that shows the current distribution and concentrations of carbon tetrachloride in the vadose zone.
41. Page 30, lines 7-10: Delete these sentences.
42. Pages 31-32, ISV Section: It is inappropriate to discuss the disadvantages of ISV in this section. They should be covered in the evaluation of alternatives section.
43. Page 32, lines 12-13: Move the language from page 34 on post-ROD sampling to this page and revise as follows:
“Waste sites remediated under RTD will be sampled to verify that cleanup goals have been achieved.”
44. Page 32, lines 14-17: Add language stating the benefits of full RTD (going beyond just meeting industrial cleanup levels) would include avoiding the need for ICs and monitoring. Explain that the choice to remove the contaminants down to unimpacted soil will be made during RD/RA by DOE and EPA depending on field conditions.
45. Page 33, Table 6: It may not be clear to the reader why some of the RTD depth values are “NA.” Explain this for each waste group in the text.
46. Page 33, lines 1-2: Delete these sentences.
47. Page 34, Common Elements Section: See the General Comment on clarifying this information. Remove the second bullet on post-ROD sampling and the last four bullets.
48. Page 35, lines 17-18: Revise as follows:
“A preferred alternative’s ability to meet modifying criteria can only be completed after the public review and comment period of this document. At that time, Ecology will determine if they concur with the preferred alternative.”
49. Page 40, lines 2-3: Delete this sentence.

50. Page 40, lines 32-33: Delete the sentence on post-ROD sampling.
51. Page 41, lines 4-7: Delete the sentences on SVE remediation commencing after a 10 year SVE period. See General Comment on this topic.
52. Page 41, lines 38-40 and Page 44, lines 1-2: Revise as follows:
“Sampling will be conducted to verify nitrate and technetium-99 contaminant levels and actions will be developed to address the contamination if it presents unacceptable risk.”
53. Pages 44-45, Cesium-137 Waste Group Section: See General Comment on Cesium-137 waste group preferred alternative. Revise this section to reflect RTD-Option B as the preferred alternative.
54. Page 45, lines 1-2: Revise as follows:
“... waste sites will be sampled to confirm the presence or absence of...”
55. Page 46, Settling Tanks Preferred Alternative Section: RTD is not the correct term for this proposed remedy. Rename the remedy “Sludge Removal and Tank Stabilization.” Revise Table 11 and any related text to reflect this change.
56. Page 47, Pipelines Section: See General Comment on pipelines. Appendix H needs to be edited to only provide background and historic information on the pipelines. A different set of alternatives for the pipelines is not required since they will be dispositioned as part of the remediation of their associated waste sites. Delete this section and Table 13 and add language to the preferred alternative under each waste group. Use the language below:
“Any pipelines that are significantly contaminated and pose a threat to human health and the environment will be remediated.”
57. Page 48, lines 10-19 and Table 14: Delete these sentences. Note that the public is not “consulted.” Consultation occurs between DOE and the Tribal Nations. Revise Table 14 to list the waste group and preferred alternative as presented in the document.
58. Page 49, lines 1-26: Revise this text based on previous comments on common elements and sampling of nitrate and technetium-99. Do not reference the deep vadose zone OU or the pipelines as a separate waste group.
59. Page 50, RCRA Corrective action: Delete this section as it is not part of the CERCLA process.
60. Page 51, Community Participation: Provide a contact email (specifically for comments on this document), mail address, and fax where the public can submit comments. Do not provide Paula Call’s personal email address as this may lead to comments potentially being delayed.
61. Page 51, Line 21: Revise as follows:
“After the public comment period, the Tri-Party agencies will consider...”

62. Page 52, COC definition: Explain in plain language.
63. Page 52, Baseline Risk Assessment definition: Add a sentence that indicates that it is also used to determine the need, or basis, for action.
64. Page 52, ELCR definition: See previous comment on explaining ELCR. Revise this definition to match that language.
65. Page 53, MTCA definition: Move “(WAC 173-340)” from the first sentence to be after “WAC” in the last sentence.
66. Page 53, line 4: Replace “U.S.” with “federal.”
67. Page 53, line 19: Replace “land disposal” with “waste.”
68. Page 53, Plutonium definition: Delete lines 25-26.
69. Page 53, lines 36: Revise to state “remedial action proposed after...”
70. Page 54, SVE definition: Add a sentence that states the vapors are treated through a granulated activated carbon system and then disposed of accordingly.
71. Page 54, Transuranic waste definition: See the General Comment related to transuranic waste definition and revise.
72. Page 54, lines 33-38: Delete these lines beginning with “More specifically...”
73. Page 54, line 42. Add a sentence to explain that the practical depth of the surface remedy varies based on site-specific conditions.