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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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February 4, 1999

Elizabeth Sellers, Director
Spent Nuclear Fuel Project
U.S. Department of Energy
Richland Operations Office
P.O. Box 550 Mail Stop S7-41
Richland, WA 99352



Re: EPA Comments on "Proposed Plan for the K Basins Interim Remedial Action", DOE/RL-98-71, Draft A; and "Focused Feasibility Study for the K Basins Interim Remedial Action", DOE/RL-98-66, Draft A.

Dear Ms. Sellers:

Enclosed are comments from the U.S. Environmental Protection Agency on the subject documents. These documents were very well done. The EPA has two major substantive items that will require significant rework of the feasibility study. These items, namely use of the June 1998 PCB disposal amendments at 40 CFR 761.61 and treatment alternatives for sludge are the culmination of many months of cooperative discussions among EPA and DOE. These comments incorporate draft advice from EPA's National Remedy Review Board. When that advice is finalized, we will share it with you.

The EPA does not expect DOE to provide written responses to these comments. If there are any comments that DOE would like to discuss with EPA, we can do so. EPA's desired response to these comments is documents ready for public comment. We are planning to work with DOE during the major revisions required by the new PCB strategy and the incorporation of the sludge treatment alternatives analysis. EPA looks forward to finalizing these documents with DOE for presentation to public comment in a few months. If you have any questions, please contact me at 509-376-9884.

Sincerely,

Laurence E. Gadbois

Laurence E. Gadbois
K Basins Project Manager

Enclosure

Cc: Paul Day, FDH
Bob Holt, DOE
Linda Johnson, CH2M Hill
Carol Rodriguez, FDH

Phil Staats, Ecology
Roger Stanley, Ecology
Administrative Record, 100-KR-2

1) General Comment

The Proposed Plan / Focused Feasibility Study (PP/FFS) currently identifies 4 alternatives, namely no action, chemical treatment, thermal treatment, and physical treatment of the sludge. EPA understands that the ongoing sludge treatment alternatives analysis study indicates that while all of these technology types are protective, all have merits and shortcomings. Because no one single treatment technology would efficiently and cost-effectively treat the sludge, EPA recommends that a fifth alternative be added which would combine physical/chemical/thermal treatment. By combining treatment technologies, the shortcomings of a single treatment type can be compensated by use of the other treatment types. Although the apportionment of specific technologies would be selected during remedial design, the fifth alternative should include performance criteria (examples: waste acceptance criteria of receiving facilities, compliance with ARARs during treatment). While accurate cost information is not currently available for the fifth alternative, it could be estimated based on the cost analysis for the component pieces.

Because a significant cost for any treatment alternative is design and construction of the treatment system, careful consideration should go into the implementation of combined treatment technologies if the fifth alternative is selected as the preferred alternative. Remedial design should be optimized for cost. For example, physical (grinding/milling) may be the most cost-effective treatment for almost all the sludge, except larger pieces of uranium and zircaloy. These larger pieces could be treated in a limited number of batches for chemical treatment in existing hot cells. Although a single (physical) treatment system would be constructed, the benefits of chemical treatment could be realized without having to build a second treatment system.

2 Page 1, 2nd paragraph

The document states: "this Proposed Plan is issued by the...EPA, the lead regulatory agency, the Washington State..., the support regulatory agency, and the DOE, the responsible agency". This needs to be changed because there has been no such thing as a "support regulatory agency" at Hanford since 1996. Also, DOE is the lead response agency. For ease of reading, perhaps rewrite as "this Proposed Plan is issued by the DOE, the lead agency, and the U.S. Environmental Protection Agency (EPA), the lead regulatory agency with the concurrence of the Washington State Department of Ecology".

3 Page 1, 3rd paragraph

To better clarify the differences between NEPA and CERCLA, I suggest rewriting as follows: "Under the NEPA process, alternatives to address the problems...", "The alternative selected in the NEPA record of decision...", "The decision to remove the SNF, sludge, water, and debris from the basins remains unchanged in this CERCLA Proposed Plan".

4 Page 1, text box:

Change third line to read "public comment period on the preferred alternatives for...". Note that we are inviting comment on all the alternatives, not just the preferred alternative. Suggest a global search for comparable statements.

- 5 Page 1, text box:
Unless DOE needs the public meeting to be a public hearing for its NEPA equivalence, suggest changing to read “a public hearing meeting on this Proposed Plan...”.
- 6 Page 2, Figure 1
To better clarify CERCLA and NEPA, under the legend, suggest changing “Scope of SNF EIS” to “Scope of NEPA EIS”. In the title I would add “NEPA” before EIS.
- 7 Page 1 or page 3
This document does not contain the remedial action objectives. These should be added (see section 3.0 of the FFS). This gives the public an opportunity to comment on our objectives, and the basis of evaluation for the CERCLA 9 criteria.
- 8 Page 3, 3rd paragraph
Suggest an addition to read “leaked up to 56.8 million liters (15 million gallons) of contaminated water to the soil over several years in the 1970s...”. This helps explain how a basin that only holds 1.3 million gallons can leak 15 million gallons.
- 9 Page 3, figure 2
A good map is needed. It should show Hanford relative to the state of Washington. It should also be legible, and show functional areas of Hanford rather than roads.
- 10 Page 3, “Scope and Role of Action”
This section contains the scope. It does not address the role of the action. This is a good place to add the remedial action objectives.
- 11 Page 3, “Scope and Role of Action” and Page 4, “Summary of Remedial Alternatives”
It takes extremely careful reading to get a spacial sense of where these various remedial actions will be taking place. A visual aid would be valuable. Perhaps a cartoon map showing: the two K basins, the CVD (for fuel drying, sludge processing), the CSB in 200E, 200 Area tank farms, ETF and SALDS, BNFL’s vitrification plant, and ERDF. Each of these items could be annotated with a phrase describing its part of the process. Perhaps construct this figure in tandem with a revised figure 2.
- 12 Page 3
Along with the discussion of the facilities that are part of this interim action, the stage of completion of these facilities should be presented. This should be done in lay terms. (Ex.: K basins, 200 Area tank farms, ETF and SALDS, and ERDF – complete and operating. CVD, CSB – building structure nearly complete. CVD process equipment for fuel is being built. CVD process equipment designed, sludge processing not designed...). Also we may want to add a short description of each of these facilities to the glossary, and perhaps in the glossary is where we identify the completion status of these facilities.
- 13 Page 3, 1st bullet of the “scope does not include”
Suggest splitting this bullet into two, namely:
- Drying the SNF

- Interim storage of the SNF, treated sludge, pretreated water, and debris

14 Page 3, last bullet

The phrase "all of these" is confusing. Cannot tell if "all of these" refers to disposition of the soil, cleanup of the soil, and cleanup of the groundwater; or does "all of these" refer to all the bullets under "the scope does not include". Suggest removing the parenthetical phrase and make it a new sentence outside the bullet. Consider "Scope outside this K Basins CERCLA interim remedial action will be addressed in separate CERCLA actions".

15 Page 4, 1st bullet under "Summary of Site Risk"

The document states that "a maximum tritium concentration of 536,000 pCi/L in 1997". The way it is written suggests that the maximum that has been measured was in 1997 and the concentration was 536,000 pCi/L. In fact the maximum that has been measured was in 1993 and the concentration was 3.32 million pCi/L. Since the 1993 data doesn't represent current conditions but does indicate that conditions can get bad, suggest replacing the existing statement with "the maximum tritium concentration that has been measured was 3.32 million pCi/L in 1993, and the average concentration in 1998 was about 750,000 pCi/L. For comparison, the drinking water standard is 20,000 pCi/L".

16 Page 4, General Comment

An expanded discussion is needed for the CERCLA action and how that relates to what is in the EIS and NEPA ROD. The key elements to strengthen are to tell a connected story about why the sludge is an important issue and what is important in a decision about how it should be handled. A suggested location for this discussion is on page 4 prior to the description of the sludge alternatives. The description should be sort of a remedial action objective for the sludge. The basic elements for this discussion are contained in Pages C-1 and C-2 of the National Remedy Review Board package. Here is a draft paragraph:

"The sludge is an important part of this action. The goal of the sludge treatment is to change its characteristics so that it can be safely transported and stored in compliance with regulatory requirements until its final treatment and disposal. Some factors that make this complex are concerns about the potential for criticality, the presence of potentially reactive metals, waste storage and disposal acceptance criteria, and worker safety".

Something along these lines would set the stage for why we think a particular alternative is the best alternative.

17 Page 4, Summary of Remedial Alternatives, 3rd sentence

I would rewrite "~~It was included only to provide a baseline for evaluation~~" as "CERCLA requires that a No Action alternative be included to provide a basis for evaluation of the other alternatives". Two subtle points: includes CERCLA to remind the reader we are talking about CERCLA, and second, avoids confusion that may result from the use of the term "baseline" which the reader may be thinking the baseline for the CERCLA action was the NEPA action when in fact the baseline is No Action.

18 Page 4, Summary of Remedial Alternatives

Remove quote marks from the beginning of the 1st and the end of the 4th bullet.

- 19 Page 5, 6th line from the end of page
Add "to" to the phrase "and 4 would be designed to reduce the..."
- 20 Page 4, right column, 1st paragraph after the bullets
For clarification, I would suggest adding the following sentence to the beginning of the paragraph: "Although Alternatives 2, 3, and 4 include the above five components, they differ in the type of sludge treatment proposed. Sludge treatment was not analyzed in the K Basins..."
- 21 Page 4, alternative 2
The document states "The resulting slurry would have an estimated volume of 1,600 m³ (400,000 gallons) including the water added to make the sludge pumpable". It would be good to add an explanation of any consequences from adding the water. Perhaps rewrite as "The resulting slurry would have an estimated volume of 1,600 m³ (400,000 gallons) including the water that is added to sluice the sludge from the basins and to make the sludge pumpable. This water may not result in additional waste volume for final disposal, as all water is either evaporated prior to or in the process of vitrification or calcination, or water content is adjusted in the process of making grout".
- 22 Page 5
Descriptions of alternatives are supposed to have capital and annual O&M and present worth costs, as well as time to implement. When this discussion is revised based on the outcome of the alternatives study, this information should be added. I presume cost comparisons are done best in a table. Time to implement will be set to the TPA date and can be done in a single sentence.
- 23 Page 5, 2nd column, 1st paragraph, last line
The document states "Evaluations will continue to determine whether there is a thermal or physical treatment process that would meet the interim storage and disposal criteria and that would be more cost-effective than chemical treatment". Evaluation against the NCP nine criteria needs to be added to this. Otherwise there appears to be an over-weighting of "cost-effective" relative to the other NCP criteria. Remember that the NCP criteria is not that we have to select the most cost-effective alternative, but that the alternative we select does have to be cost effective.
- 24 Page 5, second column "Overall Protectiveness"
Alternatives 2, 3, and 4 can all be done in a manner that achieves overall protectiveness. However it would appear that going immediately to glass would be a more protective intermediate waste form. It would appear that glass as an end product would be the most protective long term waste form. It may be appropriate to state that alternatives 2, 3, and 4 can all be done in a manner that achieves overall protectiveness, however the alternatives are slightly different in short-term and long-term effectiveness and permanence.
- 25 Page 6
Reduction in TMV through treatment should specifically address the main issues with the sludge: criticality, reactive metals, hydrogen(flammable) gas, and also mention PCBs.
- 26 Page 6, Short-Term Effectiveness, 1st paragraph, last line

It indicates that alternatives 2 and 3 involve heat. The description for alternative 2 does not mention heat. These should be consistent.

27 Page 6, Implementability, last sentence

The document states “If thermal treatment is determined to be feasible, Alternative 3 may become more favorable than Alternatives 2 and 4 because it reduces volume impacts on the tank waste system”. This may be confusing to readers who are not familiar with the tank systems and their volume issues. Perhaps this would be more understandable: “alternative 3 may become more favorable...because it reduces the volume that needs to be stored in the Hanford Tank system”.

28 Page 6, General comment on the nine criteria analysis

The current analysis against the nine criteria appears to favor alternatives 3 or 4 rather than alternative 2. All of the action alternatives can achieve overall protection and compliance with ARARs. Alternative 2 loses to alternatives 3 and 4 in the long- and short-term effectiveness criteria, and reduction in toxicity, mobility, or volume. Alternative 2 is was evaluated for implementability, alternatives 3 and 4 were not evaluated in similar detail, so alternative 2 was rated higher by default. We know alternative 2 is high cost, and we don't have cost information for the other alternatives. In summary, the Proposed Plan and FFS to not provide a compelling argument in favor of alternative 2 – in fact, just the opposite. Understandably, the analysis in the Proposed Plan and Focused Feasibility Study will change with input of information from the sludge alternatives analysis study. At that time it will be important to base the final preferred alternative on the nine criteria analysis.

29 Page 6, Costs

With the results of the sludge treatment alternatives analysis, this section will need to be completed. A comparative table of costs would be appropriate.

30 Page 7, 2nd column, last paragraph

Presumably this paragraph will be modified when the results of the sludge treatment alternatives analysis results are available. The proposed plan will need to be very clear regarding any opportunities for future public comment resulting from changes in the selected remedy. If the preferred alternative outlined in Proposed Plan comment #1 is used, then an additional public comment opportunity is not needed.

31 Page 7, Summary of Preferred Alternative, 2nd-3rd line

Rewrite to read: “by removing SNF, sludge, water, and debris, and deactivation waste from the K Basins”.

32 Page 7, last paragraph of text

Rewrite as “Alternatives 3 and 4 could achieve the same level of risk reduction, but it is not certain that the sludge treatments are technically feasible...”. Note that the other components are technically feasible and the sludge treatment is the component that distinguishes the alternatives.

33 Page 8, Administrative Record

The only administrative record that should be listed is the one located in Richland, WA.

- 34 Page 9, Points of contact
Since EPA is now the lead regulator for the K Basins, Ecology should be removed from the Points of Contact list.
- 35 Page 10, Glossary
- 1) Suggest adding "criticality".
 - 2) Suggest adding to the end of CERCLA, "and provides for cleanup of hazardous substances to protect human health and the environment".
 - 3) Suggest adding to Interim Remedial Action, "a remedial action that is taken at a site to address risks to human health and the environment, but is not considered a final action for the site".
 - 4) Suggest rewriting Proposed Plan as "a fact sheet that summarizes the remedial alternatives analyzed in the feasibility study and presents the alternatives, including a preferred alternative for public review and comment".
 - 5) Suggest rewriting Record of Decision as "This term is used both in the NEPA and CERCLA process. Under CERCLA it is a public document that records the final decision regarding an proposed interim or final action. The record of decision is based in part on information and technical analyses generated during either the CERCLA process or NEPA process, both of which take into consideration public comments and community concerns.

Consider adding a figure that expands upon the Sludge → treat box in Figure 1. Given that the difference in sludge treatment alternatives forms the distinction of the remedy to be selected, this could help the reader visualize the alternatives. A figure that combines the main elements of FFS figures 5-1, 5-2, 5-3, 5-4, 5-5, 5-6 (and whatever else is appropriate based on the alternatives analysis study) could be effective.

Focused Feasibility Study for the K Basins Interim Remedial Action

- 1 Page v
Missing Acronyms/Units: BTU, FGE, K_{oc}, pCi/L, SpG x, Pu-239 FGE
- 2 Page 1-1, Section 1.1, 2nd paragraph
The document states "(Conway 1994) and committed the DOE". This reads that the DNFSB commits the DOE. In fact, DOE makes commitments to the DNFSB.
- 3 Page 1-1, Section 1.1, 2nd paragraph
The document states "The K Basins EIS evaluated alternatives to upgrade the basins or remove the SNF and contaminated materials from the basins". Need to add that the conclusion from the EIS was that the fuel, sludge, debris, and water needed to be removed from the basins. Any options that involved long-term use of the basins failed to meet several of the CERCLA criteria (such as implementability, long-term effectiveness, and high cost) and therefore were not evaluated in this FFS. Therefore besides no-action, the alternatives all involved removal from the basins.
- 4 Page 1-2, 2nd paragraph.
Add to read "EPA was identified as the lead regulatory agency for the action in June 1998".
- 5 Page 1-3, 1st paragraph
This document references the Sludge Treatment Alternatives Analysis. For several weeks DOE and EPA have discussed merging the results of that analysis into the FFS. EPA supports that plan understanding that several weeks delay to start of public comment will likely result. To be able to provide a more intelligible package to public comment will be worth the delay.

When the decision is made regarding how the alternatives analysis is to be addressed in the FFS, a global search will be needed for reference to the alternatives analysis.
- 6 Page 2-1, section 2.1, first paragraph
The document states "including the 100 Area, which is located in the north-central part of the Site along the southern shore of the Columbia River". In fact, the 100 Area is on both sides of the river. Perhaps rewrite the last two sentences to read: "It is divided into several operational areas, including the 100 Area in the northern part of the site. The 100 Area contains nine inactive nuclear reactors and associated support facilities and waste sites along the southern shore of the Columbia River".
- 7 Page 2-4, 3rd paragraph
The document states "A formal determination regarding designation of the sludge as a high-level waste (HLW) has not yet been made. Some fractions of the sludge (the canister sludge and wash sludge) that derive predominantly from corrosion of the SNF might be determined to be HLW". Because WIPP will not be able to take the sludge if it is designated as HLW, acceptability into WIPP should be determined in order to support remedial design planning. While the CERCLA action only addresses removal of the sludge from the basins through treatment necessary to meet

waste acceptance criteria of a storage or disposal facility, DOE is responsible for the sludge life-cycle through final disposal. The EPA supports having the CERCLA action planned to support the life-cycle for the sludge. If a TRU decision that is binding to WIPP is not available in time to supporting planning for sludge waste treatment, then the most cost-effective approach to convert the sludge into a form acceptable to the repository should be used.

8 PCBs

Based on discussions with DOE during the week of January 4th, 1999 DOE and EPA agreed to a PCB strategy for the basin sludge. This strategy is based on the June 29, 1998 PCB disposal amendments in 40 CFR 761. Specifically 40 CFR 761.3 – the definition for PCB Remediation Waste and 40 CFR 761.61(c) – PCB Remediation Waste: Risk-based Disposal Approval. These sections are reproduced below, with the relevant portions highlighted in underlined bold.

40 CFR 761.3 Definitions **PCB Remediation Waste**

means waste containing PCBs as a result of a spill, release, or other unauthorized disposal, at the following concentrations: Materials disposed of prior to April 18, 1978, that are currently at concentrations ≥ 50 ppm PCBs, regardless of the concentration of the original spill; **materials which are currently at any volume or concentration where the original source was ≥ 500 ppm PCB beginning on April 18, 1978, or ≥ 50 ppm PCB beginning on July 2, 1979**; and materials which are currently at any concentration if the PCBs are from a source not authorized for use under this part. **PCB remediation waste** means soil, rags, and other debris generated as a result of any PCB spill cleanup, **including, but not limited to:**

- (1) Environmental media containing PCBs, such as soil and gravel; dredged materials, such as sediments, settled sediment fines, and aqueous decantate from sediment.
- (2) Sewage sludge containing < 50 ppm PCBs and not in use according to 761.20(a)(4); PCB sewage sludge; commercial or **industrial sludge contaminated as the result of a spill of PCBs** including sludges located in or removed from any pollution control device; aqueous decantate from an industrial sludge.
- (3) Buildings and other man-made structures, such as concrete or wood floors or walls contaminated from a leaking PCB or PCB- Contaminated transformer, porous surfaces and non-porous surfaces.

40 CFR 761.61(c) **PCB Remediation Waste: Risk-based Disposal Approval**

(1) Any person wishing to sample, cleanup, or dispose of PCB remediation waste in a manner other than prescribed in paragraphs (a) or (b) of this section, or store PCB remediation waste in a manner other than prescribed in 761.65, must apply in writing to the EPA Regional Administrator in the Region where the cleanup site is located. Each application must contain information described in the notification required by 761.61(a)(3). EPA may request other information that it believes necessary to evaluate the application. No person may conduct cleanup activities under this paragraph prior to obtaining written approval by EPA.

(2) EPA will issue a written decision on each application for a risk-based method for PCB remediation wastes. EPA will approve such an application if it finds that the method will not pose an unreasonable risk of injury to health or the environment.

If the DOE determines the K Basin sludge is a PCB remediation waste, DOE can choose to pursue a risk-based disposal approval as per 40 CFR 761.61(c) to the EPA Regional Administrator via this Focused Feasibility Study. To use 40 CFR 761.61(c), the DOE must provide the risk based analysis required by 761.61(c), and that risk-based analysis can be included in this Focused Feasibility Study.

The above mentioned PCB remediation strategy is dramatically different than currently contained in the Focused Feasibility Study. The entire document needs to be reviewed and the portions that address PCB and TSCA issues need to be revised. The revised FFS should indicate the point at which the waste streams exit TSCA. Leading up to that exit from TSCA, there should be a discussion of and the steps taken to destroy PCB, and the steps taken to isolate PCBs from the environment.

- 9 Page 2-5, 1st paragraph
Both here and a few other places, PCB concentrations are discussed relative to 50 ppm. Rather than discuss the 50 ppm which is irrelevant if DOE chooses to call the sludge PCB Remediation Waste, a table listing the existing PCB data would be useful. This will also support and be needed as part of DOE's risk assessment for a Risk-Based Disposal request. A global search for 50 ppm and TSCA should be conducted and revised to match the new PCB strategy.
- 10 Page 2-5, 2nd full paragraph, 1st bullet
The dose is discussed but not presented. It would be useful to present the surface dose rate that would result from one or several standard containers filled with sludge. This will support EPA's determination of the appropriateness of a risk-based disposal decision as PCB remediation waste.
- 11 Page 2-6, section 2.3.3, 5th bullet; and footnote
Regarding the bullet "Previously-generated ion exchange columns packaged in burial boxes and residing in the 100-K area", and the footnote "Approximately 2,000 empty canisters that were in the basins were removed in 1998". Since these are comparable to the waste that will result from basin remedial action under CERCLA, it is acceptable to include this as contaminated debris because this may allow environmentally protective cost-effective disposal to ERDF. Note that for this waste to be disposed to ERDF, it will need to meet the ERDF Waste Acceptance Criteria (BHI-00139), currently in Rev 4; the Supplemental Waste Acceptance Criteria for Bulk Shipment to the Environmental Restoration Disposal Facility (BHI-0000X-DC-W0001), currently in Rev. 1; and be included in the CERCLA ROD.
- 12 Page 2-10, Figure 2-2
The CVD should be added to the 100-K Area Site Plan.
- 13 Page 2-11, Figure 2-3
This figure, especially the font, is very rough.
- 14 Page 4-2, 1st full paragraph, last sentence
The document states "Preliminary acceptance criteria for the vitrification facility are discussed in the following section". Is the "following section" the rest of the current section 4.1 which is about treatment for criticality, pyrophoricity, reactivity, flammable gas; or is the "following

section” section 4.2 which is Sludge Disposal, not the vitrification facility. Perhaps drop the confusing sentence.

- 15 Page 4-6, Table 4-1
Note that if the Sludge Alternatives Treatment Study is rolled into this document, this table may be overhauled and these comments may no longer apply.
- For the storage option “Existing DST”, a disadvantage with the existing chemical baseline is the large (33x) volume increase.
 - The disadvantage “if not blended with other tank waste for vitrification, substantial increase cost (~\$30 M) associated with production of additional glass logs” could use additional explanation. It would seem to many readers that a given volume of K basin sludge would result in a certain volume of glass, be that some number of K-basin-sludge-only logs, or a comparable portion of a larger number of logs.
- 16 Page 4-7, table 4-1
For storage option “KW Basin”, a disadvantage is the substantial cost to maintain the basin. For storage option “KW Basin”, add the following phrase at the end of the applicability: “...conflicts with regulatory agreement to mitigate the potential to release hazardous substances”.
- 17 Page 4-8, table 4-2
A footnote that defines several of the uncommon symbols in this table would be useful, in particular K_w , and SpG x.
- 18 Page 4-15, table 4-5, Technology Type column, 2nd row.
Define the technology type “DOE”.
- 19 Page 5-1, 3rd paragraph
Add “ly” to the phrase “treating the sludge sufficiently to...”.
- 20 Page 5-1, last paragraph, last sentence.
Modify to read “SNF, sludge, water, and debris, and deactivate the basins.”
- 21 Page 5-5, last sentence
Modify to read “If the CVD facility is determined not to meet those requirement, an alternate on-site facility will be selected ~~or if it is determined that there is a more cost-effective treatment location, the regulatory agencies, stakeholders, and the public would be involved, as appropriate in selection of another facility.~~” Note that this is part of the remedial design that will be specified in the RDR/RAWP subject to EPA approval.
- 22 Page 5-8, 2nd full paragraph.
The sentence containing “...then heated either in an oxygen-rich atmosphere.” is incomplete.
- 23 Page 5-9, section 5.3.3, 3rd sentence
Something is missing from “The dry products ___ not be amenable to tank storage”. (may?)
- 24 Page 5-9, section 5.3 .3, 2nd paragraph

Modify to read: "There are three concerns associated with disposal at WIPP:".

- 25 Page 5-14, 2nd full paragraph, 4th line
Please clarify what "equalization" means.
- 26 Page 5-15, 1st bullet, 2nd paragraph
Regarding treating for volume reduction, the document states that: "For example, when the fuel canisters are emptied, they will be removed and transported to the privately-owned Allied Technology Group treatment facility, to be constructed in Richland, for crushing. The crushed canisters will be returned to the Hanford Site for disposal at ERDF". Suggest removing this sentence as there is no value in specifying a specific vendor for this activity, and it may not make sense to manifest all this waste for off-site shipment to do something as simple as crushing debris. Because DOE's ER program crushes debris for ERDF on a routine basis, it is not clear why the SNF project is specifying a separate process and would want to transport it off-site.
- 27 Page 5-17, last sentence
Remove the word "existing" from "monitoring and ~~existing~~ controls".
- 28 Page 6-2, 2nd paragraph
As this paragraph shows, in the search for PCB and TSCA during the rewrite to update to the new PCB strategy, be sure to include "Boomer et al".
- 29 Page 6-5, sections 6.2.1 and 6.2.5
The idea contained in section 6.2.1 "with increased maintenance as the basins age, and this would result in increased radiation exposure to workers" needs to replace the contradictory statement in 6.2.5 "a comparable dose would be expected for each year that the No Action Alternative continues".
- 30 Page 6-6, section 6.2.6
Modify to read "and milestones ~~proposed~~ under the Tri-Party Agreement". This should be a global change. (Note it is also in section 7.6).
- 31 Page 6-6, section 6.3.1
Beginning with the second sentence "Essentially all hazardous...", replace the rest of the paragraph with the similar but better text in 6.5.1.
- 32 Page 6-7, section 6.3.2, 4th paragraph, 1st line
Modify to read "The chemical treatment system would be required to treat the...".
- 33 Page 6-8, section 6.3.3, 1st paragraph, last sentence
Change the last sentence to read "~~Existing~~ DOE controls on public access to the 100-K Area will remain in place following the interim remedial action, until final remedial action of the site is completed". Note this should be a global change in the document.
- 34 Page 6-11, 1st full paragraph, last sentence
The document states "From this standpoint, hot water dissolution could be preferable over acid

dissolution because it requires less chemical addition and would likely produce a lower volume of treated sludge”. First, this statement may change as a result of the alternatives study. Second, if the chemical baseline is selected as the preferred alternative, this statement would suggest that some portions of the chemical baseline could and should be replaced with hot water dissolution.

35 Page 6-11, 3rd full paragraph

The document states “An evaluation would be completed during remedial design to confirm that processing can be done inside the CVD facility. If not, an alternate location such as an annex to the K Basins or another environmentally-protective facility onsite would be selected. The selection of location would not be expected to affect the overall feasibility of this option, although it might affect cost”. This idea should be used on the bottom of page 5-5.

36 Page 6-12, section 6.3.8

The State of Washington has reviewed Draft A of the FFS. Other than addition of other sections of WAC 173-303 to table B-2, the State had no other comments on the FFS.

37 Page 6-12, section 6.4.1

Modify to read “Alternative 3 would achieve ~~provide~~ overall...”. This will then match the format of sections 6.5.1 and 6.3.1.

38 Page 6-18, last line

Please clarify the statement “the impacts of changing those criteria”. Does this mean “what does it take as far as project resources – time and dollars – to change the WAC”?

39 Page 6-19, 1st bullet

Modify to read “Although DST ~~tank~~ space...”.

40 Table 6-1, costs.

The cost for project management and integration is very high. Especially as a percentage (30%) of the CERCLA Cost. CERCLA cost is less than half of the total project cost, yet 60% of project management and integration is assigned to CERCLA cost. Project management and integration costs should be equitably distributed.

41 Table 6-1, costs.

The shaded boxes are too dark to be legible.

42 Page 7-2, 1st paragraph, 5th line from end

A right parenthesis is missing from Alternative 4.

43 Page B-3, 2nd paragraph

The document states that “it is anticipated that the sludge will be regulated as a mixed waste due to concentrations of heavy metals”. What are the suspect heavy metals? What evidence is there that the waste would designate? Is it a listed waste? Is it a TCLP waste? Is it a reactive waste? This will affect determination of the proper LDR, and perhaps other RCRA requirements as well. Can this paragraph back reference to this information in the main body of the FFS?

- 44 Page B-3, section B1.3, third line
I believe the "Megarule" is being referred to as the "PCB Disposal Amendments". The rule as finally issued was not as "mega" as earlier drafts which earned the "megarule" nickname.
- 45 Page B-3, section B1.3
Note that the disposal amendments added some specific provisions in regards to storage of PCB waste. The alternatives need to comply with these requirements.
- 46 Page B-3, section B1.3
It would be worthwhile to add a definition of remediation waste here and say how the sludge fits into that category.
- 47 Page B-4, 8th bullet
This may not capture the regulatory section, but I don't know if the regulatory section really applies in this case. (For example, it is designed for short term storage of up to 180 days.) Section 40 CFR 761.65(b)(9) also allows a risk based modification of the requirements, just like a different section allows a risk based modification of the remediation waste disposal requirements. The EPA suggests that DOE consider including storage requirements as well as disposal requirements in the risk-based discussion regarding PCBs.
- 48 Page B-5, last bullet.
In the major revisions to reflect the new PCB strategy, keep the bullet:
"Air emissions must contain less than 10 ug/cubic meter of PCBs".
- 49 Page B-5, last paragraph under TSCA.
Some of this information is out of date. In light of the 1998 disposal amendments, Boomer et al 1988 is very dated guidance. Under the risk based option for remediation wastes (and some other waste streams), EPA decides when a waste stream is no longer under TSCA jurisdiction. This whole discussion on the bottom of page B-4 and most of B-5 should be revised and based on the current TSCA regulations as amended in June 1998 rather than the 1988 guidance.
- 50 Page B-10, TSCA
The TSCA rule also has substantive storage requirements.
- 51 Page B-12
Since there is a change that some waste may be transported off-site, the off-site disposal rule should be added as a potential ARAR. (Actually, like these transportation requirements, since they would apply off-site, they are applicable requirements (where we have to meet all the requirements, not just the substantive ones).
- 52 Page B-13, table B-2.
Four sections of WAC 173-303 are missing: 173-303-141 (Treatment), 173-303-160 (Container Management), 173-303-240 through 270 (Transport), and 173-303-700 (Extremely Hazardous Waste). These individual sections can be added to the list, or a general inclusion of 173-303.