S&GRP Central Plateau Remediation Project

DOCUMENT REVIEW AND COMMENT FORM

1. Date: 11/20/2007	2. Page 1 of 7
3. Project: 200-PW-1/3/6 OUs Feasibility Study	4. Review No: DOE/RL-2007-27, Draft A

5. Document Number(s)/Title(s): DOE/RL-2007-27,Draft A **Feasibility Study for the 200-PW-1, 200-PW-3, and 200-PW-6 Operable Units**	6. Program/Project/Building Number	7. Reviewer EPA	8. Organization/Group U.S. Environmental Protection Agency	9. Location/Phone

12. Comment Submittal Approval (optional):	15. Concurrence with indicated comment disposition(s)	17. **Closure Approval** ○ **No Comments** (Disposition status is either "Open", "Closed", etc.)
Reviewing Organization Manager (print / sign)	Date / Reviewer/POC (print/sign)	Date / Reviewer/POC (print/sign)
Date	Date / Author/Originator (print/sign)	Date / Author/Originator (print/sign)

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1	General Comment	The Feasibility Study must address all 17 waste sites, not just the representative sites. This includes evaluating the sites through the CERCLA criteria.		A	All 17 waste sites will be evaluated in the revised FS report.	
2	General Comment	A Tribal Use scenario should be included in the risk assessment.	RECEIVED FEB 27 2008 EDMC	A	Regarding the CTUIR Native American Subsistence Scenario (NASS), RL will include a stand alone quantitative analysis of the CTUIR NASS in the revised FS report. The CTUIR NASS will be analyzed as part of the comparative analysis of remedial alternatives with respect to the U.S. Environmental Protection Agency balancing criteria under CERCLA. The NASS will be analyzed as provided by the CTUIR for comparative purposes and does not represent DOE agreement or endorsement of the scenario or underlying assumptions. Discussions are in progress regarding other tribal use scenarios.	
3	General Comment	Cleanup goals should be developed for Remove-Treat-Dispose (RTD) sites. Also, vapor levels should be calculated for organics for the deep vadose zone that will be protective of groundwater.		A	Cleanup goals will be developed for contaminants of concern that could migrate to groundwater if left in place below the removal depth at RTD sites. Carbon tetrachloride vapor concentrations in the vadose zone that will be protective of groundwater will also be developed for inclusion in the revised FS.	00763361
4	General Comment	100 mrem/year is not the correct cleanup goal for radionuclides. 15 mrem should be used as well as the CERCLA risk range.		Partially accept	EPA guidance on dose assessments (EPA 540/R/99/006, Dec 1999) says: "Cleanup levels not based on an ARAR should be based on the	

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					carcinogenic risk range (generally 10^{-4} to 10^{-6}, with 10^{-6} as the point of departure and 1 x 10^{-6} used for PRGs) and expressed in terms of risk (# x $10^{-\#}$)…At CERCLA sites dose assessments should generally not be performed to assess risks or to establish cleanup levels except to show compliance with an ARAR that requires a dose assessment…" No ARARs require a dose assessment, so all dose values will be removed from the revised FS and only risk values (e.g. # x $10^{-\#}$) will be presented.	
5	General Comment	Risk is a range of 10^{-4} to 10^{-6}. This is incorrectly referred to throughout the document as 1 in 10,000.		A	The risk range of 10^{-4} to 10^{-6} will be used in the revised FS report.	
6	General Comment	Eco-Risk. The plan does not show the screening levels used to come to the conclusion of no eco-risk. There needs to be an explicit statement that a Scientific Decision Management Point was reached in order to terminate the eco-risk assessment after Step 2. Eco-risk screening levels should be evaluated against the contaminants of potential concern (COPCs). It appears that in some cases an alternative point of compliance was used at 6 feet from information in the FS.		Partially accept	The FS eco evaluation does not list screening values because the screening assessment never made it to that stage. Based on the screen's problem formulation, site knowledge (WIDS) and the site visit, waste sites were eliminated from further consideration because the exposure pathway was incomplete. Contamination was too deep to be realistically accessed or active management precluded the establishment of plants/animals capable of biointrusion into the buried contamination and subsequent transport. The alternate point of compliance of 6 ft bgs is allowable under WAC for sites having institutional controls in place. If there is no exposure, there is nothing to compare effects data against.	
7	General Comment	CERCLA Balancing Criteria and MTCA ARARs. 404,347,826 pCi/g of Pu at 216-Z-9 crib at 22 ft with the remedy to leave in place. How does this meet the CERCLA Balancing Criteria and MTCA ARARs? • In particular, reduction of toxicity, mobility or volume: long-term effectiveness (utilize permanent solutions and alternate treatment technology or resource recovery technologies to the maximum extent practicable 40CFR300.430(f)(ii)(E)).		Discuss with EPA	This comment is tied to comments 28 and 29 (see below), and further discussion is needed. Need to review what risk pathway is being reduced by an RTD remedy. The balancing criteria discussion needs to be refined to articulate the various tradeoffs between leaving transuranic contaminants in place and a partial RTD alternative to remove ~90% of that contaminant mass. Since Hanford is on the National Priorities list, MTCA is not applicable. Long term protection of the preferred alternative	

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		• Leaving the waste in place also relies primarily on institutional controls for protectiveness.			is achieved in three ways. Primary reliance is placed on physical separation between ground surface and the contaminated soils. Secondary reliance is from both the proposed 22-ft-thick CDF barrier, and the existing 9-inch-thick steel-reinforced concrete cover. Finally, institutional controls, both active and passive, are the third line of defense.	
8	General Comment	COCs. COPCs may not have been screened properly. For example, from the FS: 216-Z-9 Trench: chromium at 162 ppm max. at 119.5 depth and the reader is unable to tell how much of this is Cr^{+6}. The CUL for protection of groundwater for Cr^{+6} is 0.2 ppm and Cr^{+3} is 200 ppm; Nitrate as N is 6,990 ppm at 100 feet, the MTCA level for Nitrate as N is 40 ppm for groundwater protection. Nitrate <u>should be</u> a COC at the trench, Uranium data does not include U_{238} but includes U_{234} and U_{235}.)		Partially accept	The risk assessment process used the RI data set to develop COCs. COPCs in soil were selected based on direct contact exposure pathways. Soil concentrations exceeding protection of groundwater levels are addressed in FS Section 3.4 and there is a detailed discussion regarding why nitrate was not identified as a COC on p. 3-25. Despite the large quantities of nitrate previously discharged in the millions of gallons of wastewater, it is not a significant health hazard at the 90th percentile groundwater concentration. Since current and future vadose zone conditions are significantly less saturated than in the past, it is not credible that the remaining nitrate in the vadose zone is a risk to groundwater. The RI data set at 216-Z-9 has results for both Cr^{+3} (162 mg/kg at 119.5 ft – sample B17N63) and Cr^{+6} (230 µg/kg [U-undetected] at 119.5 ft – sample B17N65) and the uranium results include U_{234}, U_{235}, and U_{238} (see RI report, Appendix B for results).	
9	General Comment	A discussion should be added regarding plutonium oxide. Did the waste streams contain plutonium oxide? If so, estimates should be provided, as well as describing the colloidal transport mechanisms.		Partially accept	The revised FS will incorporate additional discussion of the relationships between Z Plant waste stream chemistries and probable mechanisms for plutonium movement in the soil column. Based on Z Plant technical documents from the 1950s, 60s, and 70s, it was well understood that initially there would be little sorption of plutonium by the soil in the high-salt waste streams coming from RECUPLEX and the plutonium reclamation facility. However, it is highly unlikely that "colloids" played a role in "plutonium mobility" at 216-Z-1A, 216-Z-9, or 216-Z-18. The chemistry of colloids is well understood and the interaction of the high-salt	

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					waste stream with the soil column probably was not an environment conducive to colloid formation.	
10	Page iii, 1st sentence, 1st paragraph.	Suggest defining industrial exclusive once and then simply referring to it as industrial.		A	Industrial exclusive will be defined when first used and subsequent references will just use industrial.	
11	Page iv, 2nd paragraph, 5th sentence.	Suggest changing this sentence to say, "DOE will maintain institutional controls through the life of the cleanup, which is expected to last until approximately 2050."		Partially accept	Sixth sentence – "DOE will maintain institutional controls as specified in final CERCLA decision documents, and consistent with the Site Wide Institutional Control Plan".	
12	Page iv, last paragraph, last sentence.	EPA disagrees with this statement. The presumption is that we do have enough information to select a preferred remedy for the analogous sites and data will be collected to develop aspects of remedy implementation.		Discuss with EPA	Some waste sites have less data than others and some post-ROD confirmatory investigations will be needed. See response to comment 19 below.	
13	Page v, 3rd paragraph, 1st sentence.	The concept of contingent actions needs more discussion among the agencies.		Discuss with EPA	Agreed, more discussion is needed.	
14	Page vii, Table.	The footnote assumption is not relevant to this site. The tank contains a large amount of plutonium waste that poses an unacceptable risk. The table should be changed to reflect this.		A	The tank footnote will be modified to indicate that the sludge poses a risk.	
15	Page vii, RAO #1.	Using a dose of 100 mrem/year is not correct. 15 mrem/year should be used.		Partially accept	See General comment 4 response – only risk values will be used in the revised FS.	
16	Page x and xi, 216-Z-10, 216-Z-8.	The use of the language "no regulatory requirement" seems inappropriate. Isn't what you are really trying to communicate that in DOE's opinion these sites do not pose an unacceptable risk?		A	The text will be revised to indicate that following the CERCLA process, no risks exceeding the range of 10^{-4} to 10^{-6} are present at these sites, so no remedial actions are needed.	
17	Page 1-3, Section 1.2, 1st paragraph.	This paragraph states that the evaluation of the FS focuses on four waste sites. This is not correct. The FS must evaluate all 17 waste sites associated with these operable units.		A	All 17 waste sites will be evaluated in the revised FS report.	
18	Page 1-4, Section 1.3.	Move paragraph two above paragraph one.		A	The paragraphs will be moved as indicated.	
19	Page 2-1, Section 2.1, 3rd paragraph.	This paragraph states that if significant uncertainty exists for a waste site, the Proposed Plan will identify how to deal with the uncertainty. This statement is not correct.		A	This comment relates to the issue of contingent actions (see response to comment 13) and we agree that more discussion among the agencies is needed. The revised FS will identify the	

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		This FS must identify the uncertainty and describe how it will be dealt with during the evaluation of the seven CERCLA criteria.			uncertainty for a waste site and how that is factored into the evaluation.	
20	Page 2-17, Table 1.	Is the 22-foot level of Americium-241 and Plutonium-239/240 still present or was it removed during the mining operations?		Comment noted	The 216-Z-9 Trench was a 20-ft deep open excavation (p. 2-15) and the mining in 1976-1977 removed 1 ft of soil from the trench floor (p. 2-15), so the trench is now 21 ft deep and the soil at 22 ft deep is still present with very high concentrations of Americium-241 and Plutonium-239/240.	
21	Page 3-5, Section 3.2.	The waste within Tank Z-361 should have been evaluated as part of the risk assessment.		Partially accept	The sludge in this tank needs remedial action and rather than evaluate the sludge as part of the risk assessment, more discussion will be added with reference to both the tank sludge investigation report and the tank engineering evaluation report to document that sludge removal is an appropriate remedial action for the tank contents.	
22	Page 13-26, table.	241-A-361 should have contaminants of concern (COCs) identified.		A	COCs will be included for the 241-Z-361 tank contents. See response to comment 21 above.	
23	Page 3-30, Waste Streams, 1st paragraph.	Given that many of these sites contain plutonium and americium, isn't TRU one of the major waste streams if RTD is selected as the remedial alternative?		Partially accept	"Waste designated as transuranic" will be included in the first paragraph in the revised FS, although it is discussed on the following page 3-31in Draft A.	
24	Page 5-7, Section 5.1.2.6, 1st paragraph, 2nd to last sentence.	Please expand upon the statements that available information does not support a meaningful evaluation of quantities.		Partially accept	The statement will be revised to indicate that the available information was used to provide estimated quantities of transuranic and low-level wastes for this partial RTD alternative at 216-Z-1A.	
25	Page 6-15, 3rd paragraph.	It is difficult to understand why CCl_4 is not a COC at this site. DOE is proposing continued vapor extraction.		Partially accept	The explanation of CCl_4 as a COPC at 216-Z-1A is provided in FS Section 3.2.1, p. 3-7, last paragraph and in Appendix A, p. A-16, first paragraph. The existing data set includes soil vapor concentrations, but all of the 23 post-SVE soil samples down to 85 ft depth did not detect CCl_4, so CCl_4 is considered a COPC in soil vapor but not a COC in soil.	
26	Page 6-15, 4th paragraph, 3rd sentence.	It is not clear how this material would pose a short-term risk to the public.		A	The short-term effectiveness discussion will be expanded to clarify the four key elements of this criterion from EPA/540/G-89/004.	

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27	General comment, Page 7-2, Alternative 2.	The acronym IPF is not well understood. The title should be spelled out here and elsewhere in the document.		A	The term will be spelled out in the revised FS. The Intrusion-Prevention Feature (IPF) was introduced in Section 5 (description of alternatives) and is included in the List of Terms in the front of the FS.	
28	General comment, Page 7-2, Comparative Analysis for 216-Z-1A.	EPA does not agree with how the comparative analysis is done. As an example, we believe Alternative 4 provides the greatest level of environmental protection, yet DOE ranks it third. In general, it appears that Alternative 4 should rank highest in all categories except short-term effectiveness and cost. Further discussion is warranted.		Discuss with EPA	Further discussion is needed. Need to review what risk pathway is being reduced by an RTD remedy. The balancing criteria discussion needs to be refined to articulate the various tradeoffs between leaving transuranic contaminants in place and a partial RTD alternative to remove ~90% of that contaminant mass.	
29	Page 7-11, Section 7.2.3, Preferred Remedy for 216-Z-9.	It appears it may be prudent to remove the extremely high concentrations of plutonium and americium located between 19 and 22 feet. Further discussion is warranted.		Discuss with EPA	Further discussion is needed. Need to review what risk pathway is being reduced by an RTD remedy. The balancing criteria discussion needs to be refined to articulate the various tradeoffs between leaving transuranic contaminants in place and a partial RTD alternative to remove ~90% of that contaminant mass.	
30	Page 7-14, Section 7.3.2.6, Cost.	The cost for Alternative 2 seems extremely high. Further discussion is warranted.		Discuss with EPA	The high cost for RTD at 216-A-8 Crib is primarily due to the large size of this site, excavation to 30 ft bgs, and a 10:1 mix ratio with clean soil to achieve a safe work condition and ERDF container loading limits. Details are described in Appendix D, pp. D-5, D-27 and D-30 to D-31. The RTD extent at this site and the cost estimate will be reviewed and refined in the revised FS, considering the results from waste site 116-C-1. A range of RTD extents may be included.	
31	Page 7-14, Preferred Remedy for 216-A-8.	Alternative 2 seems like the better remedy, as it will remove the risk posed to the work force. Further discussion is warranted.		Discuss with EPA	Further discussion is warranted. Need to review what risk pathway is being reduced by an RTD remedy, especially since the Cs-137 at 216-A-8 will decay to below risk levels in about 136 years (i.e., within the period that institutional controls are assumed to exist).	
32	Page 9-5, Section 9.2.1, Proposed Plan.	Although EPA is the final decision-maker for these sites, the Proposed Plan will be issued by the Tri-Parties, not just EPA.		A	In the revised FS, "EPA" will be replaced with "the Tri-Parties".	

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33	Page 9-7, Section 9.2.7, Delisting.	Sites are not delisted from the NPL, they are deleted.		A	In the revised FS, "delisting" will be replaced with "deleted".	