



U.S. Department of Energy
Office of River Protection

0083478

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

09-TPD-105

OCT 13 2009

Mr. Jeffrey J. Lyon
Tank Waste Storage Project Manager
Nuclear Waste Program
State of Washington
Department of Ecology
3100 Port of Benton Blvd
Richland, Washington 99354

Dear Mr. Lyon:

RESPONSE TO ECOLOGY COMMENTS REGARDING THE PHASE 2 RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION/ CORRECTIVE MEASURES STUDY MASTER WORK PLAN FOR SINGLE-SHELL TANK (SST)WASTE MANAGEMENT AREAS, RPP-PLAN-37243, REVISION 1 (PHASE 2 MASTER WORK PLAN)

- References:
1. Ecology letter from J. J. Lyon to S. J. Olinger, ORP, "Phase 2 RCRA Facility Investigation/Corrective Measures Study Master Work Plan for Single-Shell Tank Waste Management Areas, RPP-PLAN-37243, Revision 1," 0900886, dated April 16, 2009.
 2. Ecology letter from J. J. Lyon to S. J. Olinger, ORP, "Resource Conservation and Recovery Act Corrective Action Phase II Master Work Plan (Master Work Plan)," 0900885, dated April 13, 2009.

The U.S. Department of Energy, Office of River Protection (ORP) is providing the attached responses to comments on the Phase 2 Master Work Plan as submitted by the Washington State Department of Ecology (Ecology) in Reference 1. Comments and dispositions were discussed and agreed to with Ecology as part of the continuing workshops on Waste Management Area C closure planning. These workshops are being held as a collaborative process between ORP, Washington River Protection Solutions LLC, and Ecology as recommended by Ecology in Reference 2.

ORP and Ecology discussed in the workshops the timing for submittal of the revision to the Phase 2 Master Work Plan based on the responses to comments. Pending resolution of two outstanding issues, agreements were reached to tentatively submit this revision by December 31, 2009.

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Mr. Jeffery J. Lyon
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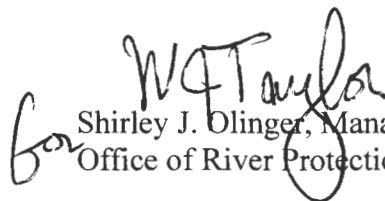
These issues are:

- Resolution of the application of the Corrective Action Decision/Record of Decision (CAD/ROD) process or other Central Plateau remediation strategies to SST corrective actions; and
- Development of the SST Closure Plan permit modification and its clarification of corrective action/closure interfaces.

In order to meet the December 31, 2009 deliverable, the above two actions would need to be resolved by October 15, 2009. Should resolution not be obtained by this date, ORP recommends revisiting the date for revision of the Phase 2 Master Work Plan.

If you have any questions, you may contact me, or your staff may contact Stacy L. Charboneau, Assistant Manager for Tank Farms Project, (509) 373-9112.

Sincerely,


Shirley J. Olinger, Manager
Office of River Protection

TPD:RWL

Attachment

cc w/attach:

S. Harris, CTUIR

C. L. Whalen, Ecology

R. R. Campbell, EPA

K. Niles, Oregon

R. Jim, YN

Administrative Record

Environmental Portal, LMSI

WRPS Correspondence

Attachment to

09-TPD-105

REVIEW COMMENT RECORD

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 1 of 23

Document Number(s)/Title(s)	Program/Project/Building Number	Reviewer	Organization/Group	Location/Phone
Phase 2 RCRA Facility Investigation/ Corrective Measures Study Master Work Plan for Single-Shell Tank Waste Management Areas, RPP-PLAN-37243, Rev. 1			Ecology	

Comment Submittal Approval:

Agreement with indicated comment disposition(s)

Status:

Organization Manager (Optional)

Date

Reviewer/Point of Contact

Date

Reviewer/Point of Contact

Author/Originator

Author/Originator

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	<p>Page 1-3, Introduction, last paragraph. The statement about not regulating radiation hazards of such components under Ecology's RCRA corrective action program does not clarify the intent of agreements contained in the TPA. Section 6.3 of the TPA states:</p> <p>“The TSD units containing mixed waste will normally be closed with consideration of all hazardous substances, which includes radioactive constituents. Hazardous substances not addressed as part of the TSD closure may be addressed under past-practice authority in accordance with the process defined in Section 7.0.”</p> <p>This clearly implies that radioactive constituents are to be addresses during both closure and corrective action. Please revise text to reflect TPA language.</p>		Accept	
2.	<p>Page 3-7, Section 3.2.4. Need to add statement(s) to the effect that the DQO will identify data needs arising from Phase 1 investigations,</p>		Accept	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 2 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	Ecology concerns from reviews of FIRs, RFI Reports, Performance Assessments as well as from preferred and alternative conceptual models. These data needs will guide the preparation of Phase 2 work plans and the investigations specified in each. Please include.			
3.	Page 3-21, Table 3-1, Exposure scenarios, and Page 3-26, Section 3.4.4.3. The reference cited in the 4 th row, 2 nd and 3 rd columns, EPA/540/1-98/002, is not on the reference list in Section 9.0. Please add it. Is this supposed to be EPA/540/1-89/002 instead? If so, please correct. This reference appears again on p. 3-26. Also, please see a later comment regarding exposure scenarios for the Central Plateau.		Accept	
4.	Page 3-26, paragraph 2. It appears that "EPA/540/1-98/002" should read, "EPA/540/1-89/002" (if this is RAGS).		Accept	
5.	4.3.1, Characterization. Add to the major objectives for characterization, the need to meet the requirements of WAC 173-303-610, Closure and Post-closure requirements. This will minimize the duplication of effort. The first bullet in this section is incorrect and should be changed or removed. It is not appropriate to complete to the extent possible soil and structure characterization <i>before</i> evaluations and decision documents are complete.		Accept	
6.	Page 5-3, bullet 6. Many of the facilities listed (such as diversion boxes, catch tanks, valve pits) are part of pipeline systems ONLY if they occur beyond the boundaries of a tank WMA and for characterization purposes. They are still part of an SST system and as such, however closed/remediated, MUST meet closure performance standards of WAC 173-303-610. Piping and associated structures of the SST System located inside and outside the WMA fences are ancillary equipment under Dangerous Waste regulations/RCRA and are regulated as such. Please clarify/correct.		Accept	
7.	Page 5-3, Section 5.3. This paragraph and the accompanying figures 5-1 through 5-7 list operable unit numerical designations, NOT waste		Accept	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 3 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	types (such as chemical sewer, crib, trench etc.). Please amend/correct the text and figures and make them correspond.			
8.	Page 5-4, Sect. 5.4, paragraph 2. Sentence 2 needs to address "closure requirements, as well as corrective actions. Please revise accordingly.		Accept	
9.	Page 6-1, paragraph 2 and 3. While two documents are cited, no technical basis is provided for the effective depth of any surface barrier in 200 East and 200 West Areas. Please provide and indicate whether this is based on modeling or actual field characterization/monitoring data.		Accept	
10.	Page 7-1, paragraph 1. The DQO identifies and justifies data collection and methods of data collection; however, as site characterization is an exploratory/discovery process, allowance needs to be made to get additional data when characterization yields previously unknown and unsuspected information that may require additional study. Site characterization is an iterative effort. Please clarify and include.		Accept	
11.	Page 7-4, bullets. Additional "confirmation" objectives for SGE would be to better determine the three-dimensional distribution of contaminants (especially depth) and to ascertain what level of contamination produces a recognizable electrical signature that is meaningful for characterization and/or future planning. Please add.		Accept	
12.	Page 8-1, paragraph 3. A strategy for sequencing WMA corrective actions should consider both current and future risk from both soil and groundwater based exposure pathways.		Accept	
13.	Page 4-6, Section 4.3.3. Close coordination between the separate processes will be required to ensure that the principal remedy and any additional corrective actions or closure actions meet closure performance standards.		Accept - text will be added	
14.	Page 4-5. The following sentence does not make sense and needs to be revised. 'It is principally the <i>decision</i> on the SSTs that will determine whether landfill closure is required.'		Accept – text will be clarified	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 4 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	<p>Revise the following sentence to replace 'or' with 'and'. These actions would need to be evaluated as part of either the CMS <i>or</i> closure process.</p> <p>Post closure actions will be defined in the Site Wide Permit through a SST Post Closure Plan.</p>		Accept – text will be clarified	
15.	<p>Page 5-2, bullets. NO3 is a contaminant in EACH of these groundwater operable units, but is listed as a contaminant in only two of them. Please correct by listing in each operable unit.</p>		Accept – Text will be made accurate	
16.	<p>Page 6-1, last paragraph. The deep vadose zone treatability test for Tc-99 and U is being conducted at the BC cribs. As this is a liquid waste disposal site that hasn't received waste in over 50 years and has been subject only to natural recharge/precipitation, how is such a study applicable to tank farm WMAs that have a much more lengthy and complex history of releases and waste types? Please specify.</p>		Accept – will be clarified further	
17.	<p>Page 1-11, Sect. 1.6.3. Delete the statement that "it is anticipated that a separate decision pathway will occur for WMA C for deep vadose zone cleanup" It is premature to speculate and this proposal has not been justified. The expectation that the deep vadose zone for any SST WMA may undergo a separate decision pathway has not been accepted by Ecology. Dangerous Waste Regulations can not be met without inclusion of the contaminated soil. Please revise text accordingly.</p>		Accept – will change "it is anticipated" to "may require" and clarify that soil is subject to dangerous waste regulations regardless of pathway	
18.	<p>Page 1-11, First sentence. 200 IS-1 is a RCRA Past Practice (RPP) unit subject to RCRA corrective action <i>not</i> a CERCLA OU as stated. In addition, 200 IS-1 contains SST System, TSD, and ancillary equipment that will be closed in accordance with the requirements of the SST closure plan and the Dangerous Waste regulations. Groundwater will also be subject to closure and post closure standards. Revise document accordingly.</p>		Accept – will correct text.	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 5 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
19.	Page 1-5, Purpose for the Phase 2 Program. This section fails to present the fact that Phase 2 must address closure requirements. Corrective action is to support closure of the WMAs.		Accept - will clarify	
20.	Page 1-9, Section 1.6.1. Both RCRA closure and corrective action will be incorporated or contained in the SST System closure plan.		Accept – will clarify	
21.	Page 2-2, Table 2-1. Please explain why dangerous waste constituents were not analyzed in the Phase 1 characterization efforts. This omission could prove very costly. All future characterization efforts must address the requirements for all regulatory and remedial needs such as RCRA closure, post closure, and corrective action.		Accept – will clarify	
22.	Page 2-7, bullet 4. When the extent of contamination is not known in the deep vadose zone, then there is no real basis for stating that the bulk of the contaminant inventory remains in the vadose zone. Provide data for justification.		Accept – will clarify	
23.	Page 2-14, Figure 2-6. Please acknowledge that Figure 2-6 (i.e., risks to groundwater from past releases and tank residuals) is incomplete. For example, results are lacking for other contaminant MCLs (e.g., nitrate, nitrite, uranium, U-238, Pu-239/240, Co-60, Np-237, Sr-90, Cs-137) and other exposure scenarios (e.g., MTCA cancer risk, Native American, intruder). In addition to groundwater impacts, there is a need to evaluate risks associated with soil direct contact pathways (i.e., human and eco).		Accept – will clarify	
24.	Page 2-16, Table 2-2. What is meant by quarterly groundwater monitoring in SX Farm as part of an interim measure? Is this referring to post-sampling pumping of additional water for transport to TEDF? If so, it needs to be more clearly stated, as groundwater is routinely sampled quarterly in SX Farm. Please clarify.		Accept – will clarify	
25.	Page 2-17, Table 2-3., Past Leak Volumes. Not only are past leak volumes being assessed, but also possible inventories of waste released to the soil (where possible). Please clarify.		Accept – will clarify	
26.	Page 2-17, Table 2-3. Near-surface soil concentrations-inventories. Please modify the last sentence in the 3 rd row, second column as		Accept – will clarify	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 6 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	follows: Impacts from direct <u>human and ecological</u> exposure may need to be characterized.			
27.	Page 8-1, Section 8.2.1. Risk is stated as a criterion, but it is not clear whether this is on a tank by tank basis or a WMA basis. The original retrieval sequence of a decade ago was based on risk on a tank by tank basis, but that was changed. Compared to other WMAs, WMA C is NOT a high risk farm. Please clarify and explain.		Accept – will clarify	
28.	Page 3-12, Section 3.3.1. The text states; Section 7.5 of the HFFACO Action Plan states: “The parties intend that ARARs, as appropriate, will apply at units being managed under the [RCRA Past Practice] RPP program at the Hanford Site to ensure continuity between the RCRA and CERCLA authorities.” The above sentence is incorrect. The tank farms and soils underlying the tanks are not RCRA past practice. The corrective action is an interim measure for a TSD which released and may still be releasing mixed waste. This does not make it past practice. Revise text accordingly.		Accept. Introductory text will be added to explain that soils are part of TSD and that it is the corrective action process that is functionally equivalent to CERCLA process, including ARAR evaluation, not a discussion between RPP and CPP processes	
29.	Page 1-1, Second paragraph. The first sentence is an inaccurate statement. The closure process also takes into account contaminated soil, WAC 173-303-610(2)(b) and Appendix I shows all interim corrective actions feeding into the closure plan. The paragraph has been rewritten as follows: The RCRA corrective action program was used for interim measures to mitigate risk from releases to the soil. However, once the EIS is completed and the Site-wide permit is issued for the SST system the actions to mitigate risk from release to the soil will be considered closure actions. These actions are authorized under the state RCRA program by the Ecology Hazardous Waste Management Act of 1976 (HWMA), Revised Code of Washington (RCW) 70.105, and Washington Administrative Code (WAC) 173-303, “Dangerous Waste		Accept – text will clarify that the TPA sets up two programs but that closure will be under one SST Closure Plan	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 7 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	<p>Regulations.” The interim RCRA corrective action portion will integrate into closure.</p> <p>Page 1-1, Introduction. Closure will address structures, soil and groundwater contamination.</p> <p>It is unclear what “subsurface” soil characterization is or why it is called out.</p>		<p>Accept – will clarify further that closure under the TPA will address structures, soil and groundwater</p> <p>Accept; will remove “subsurface”</p>	
30.	<p>Page 5-13, Table 5-1, Column titled 200-IS-1 and Related Tank Infrastructure. Operable unit 200-IS-1 is a RCRA past practice (RPP) unit and therefore is to implement RCRA corrective action. In accordance with the TPA Section 5.2.2 RCRA Past-Practice Unit, the purpose of this category is to address releases of RCRA hazardous wastes or constituents from sources other than TSD units at the Hanford Site regardless of the date of waste receipt at the unit. This includes single incident releases at any location on the Site and corrective action beyond the Site boundary. Corrective action will be conducted under the authorized state HWMA corrective action program. Corrective action authority is based on three separate components of HSWA as follows:</p> <ul style="list-style-type: none"> • RCRA Section 3004(u). Section 3004(u) of RCRA provides authority for corrective action at solid waste management units at a facility seeking a RCRA permit. This includes units that received any solid waste, as defined in 40 CFR Part 261.2, including RCRA hazardous wastes or hazardous constituents, at any time. Hazardous constituents are those that are listed in 40 CFR Part 261 Appendix VIII. Those waste management units that will be addressed as RPP units under Section 3004(u) are so designated in Appendix C. • RCRA Section 3004(v). RCRA Section 3004(v) specifies that corrective action to address releases from a RCRA facility will extend 		Noted	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 8 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	<p>beyond the physical boundaries of the Site, to the extent necessary to protect human health and the environment. Section 3004(v) does not apply to releases within the boundary of the Hanford Site.</p> <ul style="list-style-type: none"> • RCRA Section 3008(h). RCRA Section 3008(h) is a broad corrective action authority that is applicable to the Hanford Site as long as RCRA interim status is maintained. It is more expansive than RCRA Section 3004(u), in that it can be used to address corrective action for any release of RCRA hazardous waste or constituents, including single-spill incidents, and can be used to address releases that migrate offsite. <p>Explain that IS-1 is a RCRA past practice operable unit in which corrective action is to be carried out. Modify or footnote Table 5-1 to indicate 200 IS-1 is a RCRA corrective action operable unit. 200-IS-1 contains many components of the Single Shell Tank (SST) System, TSD unit, which will be closed in accordance with the SST RCRA Closure Plan. Remedial actions for TSD components may be performed concurrently with IS-1 remedial activities but ultimate regulatory authority will reside with the TSD unit.</p> <p>In addition 200 IS-1 contains SST System, TSD, ancillary equipment that will be closed in accordance with the requirements of the SST closure plan and the Dangerous Waste regulations. Groundwater will also be subject to closure and post closure standards.</p>			
31.	<p>Page 4-5, Section 4.3.3. The text states: In contrast, the RCRA closure process for tank systems is much more prescriptive in that it provides only two options for closure. The tank system closure requirements of WAC 173-303-640 (which apply to the SST and their ancillary equipment) require owners and operators to remove or decontaminate all soils, structures, and equipment to close the system. When complete removal is not possible, the tank system must be closed as a landfill under WAC 173-303-665, a RCRA-compliant</p>		<p>Comment rescinded – TOC/ORP will work with Jeanne Wallace to obtain agreed-to text in Section 4</p>	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 9 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	<p>surface barrier must be placed over the WMA, and the WMA be provided with post-closure care (including institutional controls) as long as the waste remains hazardous.</p> <p>The above statement is not consistent with Dangerous Waste regulations... Under WAC 173-303-610(2)(b)(i) the criteria to meet clean closure is not just remove soil or decontaminate equipment. The standard used in WAC 173-303-610(2)(b)(i) to determine whether soil meets unrestricted clean up levels refers to chapter 173-340 of the WAC (Model Toxics Control Act (MTCA)). The clean closure standards set for structure, equipment, etc. for clean closure are set by the department on a case-by-case basis.</p> <p>The closure process uses the same clean up levels as RCRA corrective action for environmental media and the closure process can also use closure action to characterize, determine extent of contamination, and determine the appropriate closure decision to protect human health and the environment.</p>			
32.	<p>4.3.2, Risk Assessment. The risk assessments must be consistent with the requirements of the SST Closure Plan, corrective action and TPA not the TC & WM EIS. The risk assessment must address past releases, structures and soils in order to make regulatory decisions.</p>		<p>Accept in part; it must be consistent with all and these requirements, including the TC & WM EIS, and this will be reflected in text</p>	
33.	<p>Page 1-5, paragraph 4. Re Phase 2, please include Native American receptors in the "all pathways" analysis.</p>		<p>Accept.</p>	
34.	<p>Page 3-20, paragraph 3. EPA eco risk guidance should also be listed:</p> <ol style="list-style-type: none"> 1) EPA. 1998. Guidance for ERA. EPA/630/R-95/002F. 2) EPA. 1997. ERAGS. EPA/540-R-97-006. 3) EPA. 1997. EPA Region 10 Supplemental ERAGS. EPA 910-R-97-005. DD 		<p>Accept.</p>	
35.	<p>Page 3-23, paragraph 5. Along with the exposure scenarios listed, a Native American scenario should be included.</p>		<p>Accept.</p>	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 10 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
36.	<p>Page 5-1, Central Plateau Operable Unit and Waste Management Area Corrective Actions Integration. Page 5-2, Section 5.2.2 Source Operable units. To minimize confusion and what appears to be misinformation, there needs to be a thorough and clear discussion of CPP and RPP. Most of information can be extracted from the TPA. The source operable units need to be called out as the groundwater operable units (OU) indicating which are RPP and which are CPP. Specify the applicable regulations for RPP and CPP. Explain that corrective action is to be conducted in RPP OUs.</p>		Noted. Text in Section 5 will be updated to be consistent with currently developing Central Plateau Cleanup Strategy at the time of section revision	
37.	<p>Page A-19, A-20, #28, and 29. Conceptual models are discussed, but in general terms. What is needed to perform effective fate and transport modeling and ultimately risk assessment is a conceptual model at a scale and level of detail that exceeds that discussed in this work plan. Will detailed conceptual models at a scale needed to conduct effective risk assessments be found in individual WMA work plans? Please elaborate in the appropriate sections.</p>		Accept – will clarify that detailed conceptual models for each WMA will be required, and will be included in the WMA specific documents (work plans and risk/performance assessments)	
38.	<p>Page 5-1, bullet 2. What is meant by the deep vadose zone as "...the region below the depth of effective treatment with traditional surface remedies (e.g., surface barriers)"? As the depth of effectiveness of a surface barrier is unknown at this time, please be more definitive as to what constitutes "the deep vadose zone."</p>		Accept. A pointer to Section 6.1 will be added	
39.	<p>Page A-5, #6; Page. A-6, #7. What is meant by Comment 2.2? There is no such comment identified. Please clarify.</p>		Accept. Text was added in error and should have referred to Section 3.2 of the plan	
40.	<p>Page 5-1, bullet 4. Coordination of remediation/closure of tank farm WMAs with surrounding liquid waste disposal sites should be specified as to what is meant. Does this mean coordination as to selection and integration of technical remedial action/closure actions, or does it refer to schedule only (or perhaps both)? Please clarify.</p>		Accept. Text will be clarified to address coordination of both schedule and actions.	
41.	<p>Page 3-30, Corrective Action Decision/Record of Decision Process. Ecology has communicate the proposed CAD/ROD is not appropriate for the SST System. In regard to the corrective action and closure of the SST System CAD/ROD is not an option.</p>		Pending ORP/Legal discussion	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 11 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	This comment also applies to Section 3.5.3 Other Central Plateau Integration Initiatives, second paragraph of Section 3.5.3.1 and to Section 3.5.3.2. Revise text accordingly.			
42.	Page 5-4, bullet 1. Section speaks hypothetically of a CAD/ROD. The CAD/Rod will not be considered for the SST System. Please revise accordingly.		Noted	
43.	<p>Page 5-4, Section 5.4 Integration Approaches. There is a discussion of the “Memorandum of Agreement, Interface Agreement for Coordination of Groundwater and Vadose Zone Programs” and the Hanford Integrated Groundwater and Vadose Zone Management Plan.</p> <p>Ecology will not be implementing the alternative standards of WAC 173-303-645(1)(e), as presented in these documents, for the SST System closure. Ecology has informed the permittees that the SST System will be subjected to the requirements for regulated units. This regulatory management practice will be presented in the SST Closure Plan upon issuance.</p> <p>The text then once again discusses the CAD/ROD approach. Ecology will not be allowing the application of this approach to the SST System closure or corrective actions.</p> <p>Geographic closure zones are not an element of the SST closure plan being issued by Ecology. Wastes sites adjacent to the WMAs will need to be integrated and meet the Dangerous Waste regulations.</p>		<p>Noted</p> <p>Pending ORP/Legal discussion</p> <p>Accept. This section will be clarified regarding TSD requirements and will be updated with ongoing Central Plateau Cleanup Strategy.</p>	
44.	Section 4.1, Current RCRA Closure Process for Single-Shell Tank and Ancillary Equipment, Page 4-1. It is not appropriate to present RPP-13744, <i>Single-Shell Tank System Closure Plan</i> as the current closure process. The function of this document must be explained in context of the permitting process. The official SST System Closure Plan will be issued by the Washington State Department of Ecology. RPP-13744 is a closure application the state has used to draft a		Accept. Will change reference to Appendix I (which sets up same hierarchy).	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 12 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	<p>Dangerous Waste (TSD) Closure Plan. Some but not all of the information presented in RPP-13744 will be contained in the issued closure plan. Other aspects of the plan will be changed from what was presented in RPP-13744.</p> <p>The summary of the RPP-13744 and Appendix I is ok but the official closure plan may deviate somewhat from what is presented in this section. Ecology is reevaluating some established processes presented here for more efficient and effective management through, and of, the closure plan. The following elements are not yet contained in the draft closure plan and may be brought in after issuance through a permit modification;</p> <ul style="list-style-type: none"> • A general description of the administrative framework and process for closure, • Description of the process for incorporating Tier 2 and Tier 3 with soil and groundwater cleanup, and • Post-closure process [currently reserved in closure plan]. <p>Also the format (appendices and addendums) discussed may be revised in regard to the closure plan.</p> <p>At a minimum add a discussion and plan is accordance with the official Dangerous Waste Closure Process and Plan.</p>		<p>Noted.</p> <p>Accept. This information will be added as understood at time of revision</p>	
45.	<p>Page 4-6, Section 4.4.1, Early Principal Remedy Decision. Each WMA will have aspects of clean and landfill closure applied. For example, piping and ancillary equipment may be removed to minimize the footprint of the area closed as a landfill.</p>		<p>Accept – text will be added, however, with a different basis: should early landfill decision be made, closure actions will require evaluation of further removal actions to <u>meet closure performance standards</u> not for <u>meeting clean closure</u></p>	
46.	<p>General Comment. Rewritten Executive Summary</p>		<p>Accept</p>	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 13 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
47.	<p>General Comment on crosswalk table. The crosswalk table points the reader to where the general topic addressed in an Ecology comment is discussed, but in so doing, avoids answering the substance of many Ecology comments. Provide definitive responses to how the comment is addressed and incorporated into the work plan.</p>		<p>Accept. Introductory text will be added, where appropriate, to specify that information is not currently available to resolve the comment but that the information will be obtained through the process identified in the Phase 2 Master Work Plan.</p>	
48.	<p>Page 4-2, Section 4.2, Figure 4-1. This figure shows that corrective measures and closure are separate. Once the EIS is completed then all actions even those for characterization, data gathering, and evaluation of alternatives for remedy are part of the closure and will be closure actions. Please clarify this diagram</p>		<p>Rescinded by Ecology</p>	
49.	<p>Page 4-8, Second and Third Bullet. Please provide a basis for the proposals presented in the second and third bullet.</p>		<p>Noted. Text will be updated</p>	
50.	<p>General Comments. As written the Phase 2 RCRA FI/CMS Master Work Plan for SST WMAs fulfills the requirement for TPA milestone M-45-58 but the intend of establishing this document as the template for corrective action to support final closure of the SST System has missed its mark. The document lacks adherence with WAC 173-303-610 and clear support of integration and coordination between Dangerous Waste Regulations (closure and corrective action) and CERCLA.</p> <p>Throughout the document it was silent on addressing procedures that would be used to replace unsuccessful methods with alternate methods based on the complexities associated with each WMA. Phase 2 WMA C RFI/CMS work plan development concurrent with the WMA C the Master Work Plan should stand alone as a lessons learned strategy. Ecology strongly disagrees in use of WMA-C as a template for the other 6 WMAs based on locations, complexities</p>		<p>Noted.</p> <p>Accept. Text will clarify extent/limitations of WMA C Work Plan and the Master Work Plan</p>	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 14 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	and waste streams.			
51.	Page 4-6, Section 4.3.4 Remedy Implementation. Closure and Corrective action will be combined into the SST Closure Plan for regulatory oversight and coordination.		Accept – text will be updated	
52.	Figure 3-1, Page 3-5: This figure is inaccurate and does not depict the current Hanford Federal Facilities Agreement and Consent Order (HFFACO), Appendix I path appropriately. The Appendix I indicates that the interim corrective action investigations will become part of the SST System Closure Plan through permit modifications.		Accept – text will be updated	
53.	Page 4-1, Introductory paragraph; Although it is true that the releases into soil are currently under corrective action, this paragraph is incorrect. The HFFACO, Appendix I clearly shows the corrective actions feeding into the SST System closure. Closure covers the structures and environmental media.		Accept – text will be updated	
54.	General Comment. Please clarify the integration of soil corrective actions, to achieve closure performance standards in keeping with the intent of the TPA Appendix I.		Accept – text will be clarified	
55.	Page 4-1, Section 4, Integration of RCRA Corrective Actions with RCRA Closure Activities. Closure actions and corrective actions will both be incorporated through permit modifications if not initially included in the SST System RCRA Closure Plan.		Rescinded by Ecology	
56.	Page 3-2, Section 3.1.3.1. All involved operable units (OU), both CERCLA and RCRA past practice units must be presented. Confusion is introduced in the document in relation to the 200 IS-1 operable unit. IS-1 is a RCRA past practice unit and therefore is to implement RCRA corrective action. It is unclear if the groundwater OUs are RCRA or CERCLA past practice. Distinguish the need to integrate source and groundwater requirements		Rescinded by Ecology and text will be clarified in other sections of report	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 15 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	<p>(CA, closure, CERCLA) for each type of OU.</p> <p>Radionuclide authority- cite other areas of Hanford Federal Facilities Agreement and Consent Order (HFFACO) that provide cleanup of all constituents, including rad.</p> <ul style="list-style-type: none"> Hanford Federal Facilities Agreement and Consent Order (HFFACO), Section 6.3; The TSD units containing mixed waste will normally be closed with consideration of all hazardous substances, which includes radioactive constituents. Hazardous substances not addressed as part of the TSD closure may be addressed under past-practice authority in accordance with the process defined in Section 7.0. 		<p>Accept. Language will be added to document.</p>	
57.	<p>Page 3-20, paragraph 2. Re Table 3-1, please clarify similarities and differences between RCRA corrective action and RCRA closure, addressing the Washington Dangerous Waste regulations and the HFFACO.</p>		<p>DOE and Ecology are currently participating in a collaborative process with other regulators and stakeholders to develop a human health and environmental risk assessment for Waste Management Area C. This process will determine the assumptions, inputs, an</p>	
58.	<p>Page 2-17, Table 2-3, General Comment. If this Master Work Plan (MWP) is to describe work needed to get to closure, then investigation of remedial technologies and their effectiveness needs to be included. Alternatively, a reference to where such work is occurring would be beneficial. Please address. The reason for the comment is that according to HFFACO Appendix I, page I-6 (“...<i>pertaining to the SST system overall and is commonly referred to as the “Framework Plan.”</i>”) Master work plan are not expected to be detailed in the Tier 2 (“...<i>Mid-level plans (Tier 2) document requirements pertaining to each of the seven SST WMAs and are termed WMA closure action plans.</i>”) However, for clarity this information needs to be</p>		<p>Accept. A subsection will be developed that will describe the need and general principles for technology development (for both characterization and corrective action alternatives). This section will discuss the use of WMA-specific corrective action documents (e.g., work plans; CMS) for identifying technology development needs and planning.</p>	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 17 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	<p>corrective action, not just CERCLA as stated.</p> <p>Only cleanup actions that meet the closure performance standards will achieve final closure of the WMAs.</p> <p>Again this Phase 2 master work plan fails to describe the approach to integration of corrective actions with other processes.</p> <p>The TC&WM EIS ROD and SEPA will <i>not</i> outline a path for closure of the WMAs. The SST closure plan will describe the path for closure of the WMAs.</p> <p>Ecology is not aware of any viable and innovative technologies for corrective actions. Please provide description of these technologies.</p> <p>The screening process for soil remediation must consider the closure performance standards to achieve final closure of the WMAs.</p> <p>Characterization of the WMAs must consider the closure performance standards to achieve final closure of the WMAs.</p>		Noted.	
62.	<p>Page 3-23, Section 3.4.3.4, 1st paragraph of section. Since it is stated that the exposure scenarios will be consistent with those used for RI/FSs on the Central Plateau, Ecology will provide a <u>Washington State Department of Ecology Guidance: Exposure Assessment Criteria for the Core Zone of the Central Plateau on the Hanford Site</u> pending finalization. This guidance will provide Ecology's expectations for exposure scenarios.</p> <p>This comment is for information and documentation purposes. No changes are suggested for this document.</p>		Noted	
63.	<p>Page 4-8, Section 4.4.2 Combined Corrective Action/Closure Documentation. The Ecology SST permit manager likes the concept</p>		Noted	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 18 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	<p>presented here but thinks it needs further development for consideration. Tier 1 remedy decision is not currently included in the SST Closure Plan pending issuance. It is also not clear who within Ecology is discussing the combined CMS/closure plan document because the Ecology permit writer is not aware of such discussions.</p> <p>Again Ecology is reevaluating the function and management of the component closure plans. The process for conducting component closures will be presented in the SST Closure Plan to be issued by Ecology. Currently thinking is to take the time to fully develop this process and bring it into the Closure plan through a permit modification after the initial issuance.</p>			
64.	<p>Page 4-2. Currently draft SST System Closure Plan uses a Final TC&WM EIS <i>issuance</i> date (with a delay for ROD development) not the date of issuance of the ROD to initiate activities.</p> <p>Ecology concurs with the need to reevaluate component closure plans to improve the efficiency of closure. However this evaluation has yet to occur so no guidance can be provided at this time. Do not assume that closure plan submittal dates will be extended if component closure plans are managed or processed differently. The efficiencies gained should not slow the closure plan development process.</p> <p>Corrective action for the SST System is part of the draft closure plan. This section is currently reserved in the closure plan. Detail will be incorporated into the closure plan through permit modifications.</p>		<p>Noted – text will be updated</p> <p>Noted – text states that this not finalized – it can be deleted as can comment associated with “do not assume...” text. However these are real problems that should be resolved – which was the purpose for adding the text.</p> <p>Noted – plan already specifies that CA and TSD closure are RCRA permit modifications</p>	
65.	<p>Page 4-4, Section 4.3, Integration of Single-Shell Tank RCRA Corrective Action and Closure Processes. Ecology is incorporating the corrective action of the SST System into the SST closure plan in order to integrate schedules and physical actions and regulatory requirements.</p>		<p>Noted – plan already specifies that CA and TSD closure are RCRA permit modifications</p>	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 19 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
66.	Page 6-1, Corrective Measures Alternatives at Single-Shell Tank Waste Management Area. Corrective measures will be included in the SST closure plan.		Noted – this information is not topic of section and was presented previously	
67.	Page 7-1, Characterization Technologies in Phase 2. All characterization conducted on the SST System, whether within a WMA or on ancillary equipment located outside the WMAs, must identify and incorporate constituents and detection levels to be used in the closure process.		Noted – this is the subject of the DQOs which are discussed	
68.	Page 5-5, bullet. Deep vadose zone operable units are NOT acceptable under the definition of a RCRA TSD which includes the facility, waste contained/discharged therein, AND all media contaminated by releases from said facility. As such, soil and groundwater contaminated by releases from a facility are a part of that unit. Subdivision is not permissible. Please correct.		Noted. Again, this is not intended to usurp RCRA authority over release from the TSD, it is intended to introduce a concept that may streamline cleanup. Text will be deleted or updated	
69.	Page A-16, Comment 14. The last column indicates that Section 6.2 of the Master Work Plan specifically discusses the use of evaluation criteria for screening technologies. However, Section 6.2 instead refers to another document that may contain this information, RPP-34028. Please discuss screening criteria in the Master Work Plan.		Accept. Will add a brief summary of the evaluation criteria.	
70.	Page 2-18, Table 2-4, WMA C. Please check that the UPR number in the 3 rd row, 2 nd column is E-82, rather than E-86, for the Tc-99 plume. Correct if necessary.		Noted. Text will be updated to discuss UPR-E-86	
71.	Page 2-2, Table 2-1, WMA C. UPR-86 is cited in the 3 rd row, 3 rd column, and in the 5 th column, but UPR-200-E-82 is cited in the 4 th column. Should all of these be UPR-200-E-86? Please correct if necessary.		Noted. Text will be updated to discuss UPR-E-86	
72.	Chapter 5. GENERAL. This chapter should be titled, “Central Plateau Past Practice and Waste Management CLOSURE Actions Integration.” This chapter should address CLOSURE ACTIONS under the RCRA Permit which should be coordinated with remedial actions under CERCLA for nearby past-practice liquid waste disposal sites. Please correct.		Per HFFACO Milestone M-45-58, the master work plan is specific to the corrective action process, not the full closure process per the milestone and Appendix I language. Closure and CERCA actions are added as integrating functions to process of performing soil	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 20 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
			corrective actions	
73.	Page 3-8, bullet 4. "Detailed cost estimates" for what? For each interim measure? Corrective measure? Closure action? Which component(s)? Please specify as indicated.		Reject. This information is for corrective measures, not interim measures or closure actions. This is for soil (component) corrective actions, which is the subject of the entire plan. It follows the corrective measure process pursuant to -646.	
74.	Page 3-7, Section 3.2.5. In accordance with section 10.6 of the Hanford Federal Facilities Agreement and Consent Order (HFFACO), any proposal/work plan that potentially addresses interim measures will be submitted for public review. That was true for the T-106 interim barrier, so any work plan that addresses the potential for interim measures should also be subject to public review. Please revise text accordingly.		Information regarding interim measures is in Section 3.2.2. Section 3.2.5 is not for interim measures, it is for corrective measures pursuant to WAC 173-303-646	
75.	Page 1-7, Section 1.5. It is inappropriate and inefficient to use only the document number in referring to documents. This practice is repeated throughout the document (see Page 2-5, Section 2.2.1.1).		Standard format	
76.	General Comment. It should be a general principle: that whenever and wherever modeling is performed to simulate past and future processes assumptions, boundary conditions, and input data uncertainty are stated clearly at the beginning of such efforts. Uncertainty of results should also be clearly stated and analyzed. Please address these topics at the general level as they would apply to all elements of work plans.		DOE and Ecology are currently participating in a collaborative process with other regulators and stakeholders to develop a human health and environmental risk assessment for Waste Management Area C. This process will determine the assumptions, inputs, an	
77.	General Comment. The document should be revised with regard to plans for risk assessment. A different process is being developed through Waste Management Area (WMA) C Performance Assessment (PA) workshops ongoing with USDOE, NRC, USEPA and Ecology. Please make references to the workshops in the document and revise the risk assessment text accordingly.		DOE and Ecology are currently participating in a collaborative process with other regulators and stakeholders to develop a human health and environmental risk assessment for Waste Management Area C. This process will determine the assumptions, inputs, an	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 21 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
78.	<p>Page 3-17, Figure 3-2. Closure is the end point, not corrective action. If further actions are needed after closure then the post-closure plan will identify and implement. All interim measure under corrective action will be included in the closure plan and closure decisions.</p>		<p>DOE and Ecology are currently participating in a collaborative process with other regulators and stakeholders to develop a human health and environmental risk assessment for Waste Management Area C. This process will determine the assumptions, inputs, an</p>	
79.	<p>Page 3-17, Figure 3-2. Please revise this figure to be consistent with the process being developed through the Waste Management Area (WMA) C Performance Assessment (PA) workshops ongoing between USDOE, NRC, USEPA and Ecology that are on-going to develop the performance assessment for WMA C.</p>		<p>DOE and Ecology are currently participating in a collaborative process with other regulators and stakeholders to develop a human health and environmental risk assessment for Waste Management Area C. This process will determine the assumptions, inputs, an</p>	
80.	<p>Page 3-18 – 3-19, Section 3.4.1, General Comment. This section describes how performance assessments will address several objectives. It discusses methods and assumptions, public and stakeholder involvement, peer review, integration of characterization activities, data and databases, coordination with groundwater modeling and risk analyses, and uncertainties in the milestone schedules. It may not be consistent with the Waste Management Area (WMA) C Performance Assessment (PA) workshops ongoing with USDOE, NRC, USEPA and Ecology plans, and some of the accomplishments listed may not still be planned. Please assure that the accomplishments are possible or revise this section.</p>		<p>DOE and Ecology are currently participating in a collaborative process with other regulators and stakeholders to develop a human health and environmental risk assessment for Waste Management Area C. This process will determine the assumptions, inputs, an</p>	
81.	<p>Page 3-18, paragraph 1, last bullet. Please provide more detail on integrating the performance assessment with human health and ecological risk assessments, conducted as part of the CERCLA RI/FSs for operable units on the Central Plateau. Re eco risk, the Jan 2008 Central Plateau Terrestrial Ecological Risk Assessment report (p. v in: DOE-2007-50, Draft A, Reissue) notes, “the tank farms [and US Ecology site] were not identified for ecological sampling in Phase II because their operations, regulatory plans, and interim stabilization plans (unique to the tank farms) represented a poor fit from an</p>		<p>DOE and Ecology are currently participating in a collaborative process with other regulators and stakeholders to develop a human health and environmental risk assessment for Waste Management Area C. This process will determine the assumptions, inputs, an</p>	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 22 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	ecological risk characterization standpoint.” Therefore, please clarify the current status and future plans for eco risk assessment in tank farms.			
82.	Page 3-22, Table 3-1. Note 1 states that a parallel process (to the CERCLA RI/FS process for the Central Plateau) for using Tribal scenarios is not available for evaluating corrective measures alternatives under RCRA Corrective Action. However, this is not consistent with statements made on p. 3-2 about the functional equivalence of the past practice RCRA corrective action program and the CERCLA remedial action program. Please describe in the document the application of Tribal scenarios for the SSTs.		DOE and Ecology are currently participating in a collaborative process with other regulators and stakeholders to develop a human health and environmental risk assessment for Waste Management Area C. This process will determine the assumptions, inputs, an	
83.	Page 3-24, paragraph 1. Please clarify that an exposure point concentration (EPC) is a representative contaminant concentration in terms of both space and time.		DOE and Ecology are currently participating in a collaborative process with other regulators and stakeholders to develop a human health and environmental risk assessment for Waste Management Area C. This process will determine the assumptions, inputs, an	
84.	Page 3-25, paragraph 3. In addition to radionuclides, intruder impacts should evaluate nonradionuclide contaminants.		DOE and Ecology are currently participating in a collaborative process with other regulators and stakeholders to develop a human health and environmental risk assessment for Waste Management Area C. This process will determine the assumptions, inputs, an	
85.	Page 3-27, Section 3.4.4.4, 2nd and 3rd paragraphs of section. The discussions regarding evaluation of the conceptual and numerical modeling need to be revised to consider the NRC-DOE-TPA workshops that are on-going to develop the performance assessment for WMA C.		DOE and Ecology are currently participating in a collaborative process with other regulators and stakeholders to develop a human health and environmental risk assessment for Waste Management Area C. This process will determine the assumptions, inputs, an	
86.	Page 3-28, Section 3.4.4.5, 1st paragraph of section. The text states “the identification of performance objectives in an initial step in a WMA-specific PA.”		DOE and Ecology are currently participating in a collaborative process with other regulators and stakeholders to develop a human health and	

REVIEW COMMENT RECORD

Date July 8, 2009

Review No.

Project No.

Page 23 of 23

12. Item	13. Review criteria # (basis), Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.) See task assignment sheet and RCR procedure for review guidance.	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
	This should be revised in consideration of the Waste Management Area (WMA) C Performance Assessment (PA) workshops which are not planned to address performance objectives for risk as an initial step.		environmental risk assessment for Waste Management Area C. This process will determine the assumptions, inputs, an	
87.	Page 4-4, Section 4.3.2. Revise this section to be consistent with the process being developed through the Waste Management Area (WMA) C Performance Assessment (PA) workshops that are on-going.		DOE and Ecology are currently participating in a collaborative process with other regulators and stakeholders to develop a human health and environmental risk assessment for Waste Management Area C. This process will determine the assumptions, inputs, an	
88.	Page 4-4, paragraph 3. Please clarify why "separate risk assessments are planned for soil and structures." Although separate regulatory processes may target separate media (p. 3-21, Table 3-1), it unclear why separate risk assessments are needed. Alternatively, a single risk assessment can accommodate multiple source terms, contaminants, exposure media, pathways, and receptors.		DOE and Ecology are currently participating in a collaborative process with other regulators and stakeholders to develop a human health and environmental risk assessment for Waste Management Area C. This process will determine the assumptions, inputs, an	