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DEPARTMENT OF ECOLOGY
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March 29, 2012 12-NWP-042

Mr. Briant Charboneau
Department of Energy
Richland Operations Office
P.O. Box 550, MSIN: A6-33
Richland, Washington 99352

Re: Department of Ecology (Ecology) comments on the *200-IS-1 Operable Unit Pipeline System Waste Sites RCRA Facility Investigation/Corrective Measure Study & Remedial Investigation/Feasibility Study (RFI/CMS/RI/FS) Work Plan,* DOE/RL-2010-114, Draft A

Dear Mr. Charboneau:

Ecology completed a review of the *200-IS-1 Operable Unit Pipeline System Waste Sites RFI/CMS/RI/FS Work Plan*, DOE/RL-2010-114, Draft A (Work Plan), and our comments are enclosed. Some comments address tasks that should be described in detail for Draft B of this Work Plan, to be developed in the RFI/CMS/RI/FS, and carried out at a later time.

Ecology is concerned about limited data on potential pipeline contaminants. Through several workshops held in autumn 2011, it was agreed that the Proposed Plan or *Remedial Design/Remedial Action Work Plan*, following the Record of Decision would include additional data collection activities to fill data gaps described in several of our comments.

Ecology is further concerned that this version of the Work Plan does not detail tasks that provide or describe interfaces between this project, other operable units, and various tank farm waste management areas. We are expecting Draft B of this Work Plan to meet the Tri-Party Agreement Milestone M-015-92B, which will clarify several of these issues.

Ecology is expecting the *Central Plateau Baseline Risk Assessment* (BRA) to be submitted for review prior to the submittal date of the associated RFI/CMS/RI/FS. We are concerned that the BRA will not be completed in time for inclusion in the RFI/CMS/RI/FS.

If you have any questions, please contact Kim Welsch at 509-372-7882 or me at 509-372-7941.

Sincerely,

Nina M. Menard
Environmental Restoration Project Manager
Nuclear Waste Program

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EDMC

kw/dbm
Enclosure

cc: See next page

cc w/enc:

Craig Cameron, EPA
Dennis Faulk, EPA
Doug Hildebrand, USDOE
Stuart Harris, CTUIR
Gabriel Bohnee, NPT
Russell Jim, YN
Susan Leckband, HAB
Ken Niles, ODOE
Administrative Record: 200 Area
Environmental Portal
Hanford Operating Record General File
USDOE-RL Correspondence Control

Attachment to 200-IS-1 WP Comments
3/29/2012

Comment Number	Document Location	Comment	Modification
5	Page 1-13 and Line# 3-23	Section 1.3.1 does not accurately reflect the path set in TPA section 5.5. Rewrite as described in modification.	**1.3.1 RCRA TSD Closure Coordination with the Corrective Action and CERCLA RFI/CMS/RI/FS Evaluations** RCRA TSD ancillary equipment closure actions and corrective action requirements for releases to soil that are associated with TSD ancillary equipment will be performed in accordance with requirements described by Ecology in the Hanford Facility RCRA Permit (WA7890008967, 2007). RCRA TSD closure requirements will be coordinated with the 200-IS-1 OU RFI/CMS/ RI/FS evaluations. Coordinating RCRA closure/corrective actions and CERCLA remedial actions allows for the streamlining of cleanup decisions that will meet both TSD closure performance standards and remedial action requirements. A coordinated approach to achieving RCRA and CERCLA regulatory requirements will facilitate reaching consistent cleanup decisions and align the timing of decisions under the two regulatory processes. Cleanup design and implementation activities will thus be consistent and can be concurrently performed for both past-practice and TSD ancillary equipment and waste sites from unplanned releases (UPRs) within the same geographic cleanup area. In order to provide further optimization of remedy selection and implementation, ancillary equipment and UPR wastes sites that are within the canyons and tanks WMA remediation areas will be addressed in the closure plan and with the respective Canyon OUs remedies or tank farm WMA closure actions. The Tri-Parties have developed a specific process for coordinating the regulatory authorities for CERCLA and RCRA within Section 5.0, Interface of Regulatory Authorities, of the Tri-Party Agreement Action Plan (Ecology et al., 1989b). Section 5.4, Management of Past-Practice Units, describes the rationale for placing units in either an R-CPP or a CERCLA past-practice category for corrective action.

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Comment [JB1]: I need to see Jeff Lyon's comment on this same text to determine if any changes need to be made.

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5	Page 1-14 and Line # 1-38	Section 1.3.1 does not accurately reflect the path set in TPA section 5.5. Rewrite as described in modification.	**1.3.2 Interface between TSD Units and Past-Practice Units** In some cases at the Hanford Site, such as with the 200-IS-1 OU, TSD units are closely associated with past-practice units, either geographically or through similar processes and waste streams and through comingling of plumes from releases. Section 5.5 of the Tri-Party Agreement Action Plan (Ecology et al., 1989b) describes the interface between TSD units and past-practice units. Section 5.5 defines the procedure to coordinate the TSD unit closure or permitting activity with the past-practice investigation and remediation activity to prevent overlap and duplication of work, thereby economically and efficiently addressing the contamination. A single 200-IS-1 OU RFI/CMS/RI/FS document will be prepared. The information necessary for achieving RCRA closures/post -closures within 200-IS-1 OU will be presented in the 200-IS-1 OU RFI/CMS/RI/FS document. R-CPP waste sites will be remediated through the processes and activities described in Section 7 of the Tri-Party Agreement Action Plan (Ecology et al., 1989b). The TSD closure portion(s) of the 200-IS-1 OU RFI/CMS/RI/FS will be structured such that RCRA closure and contingent post-closure requirements can be readily identified for a separate review/approval process and the director's determination that the alternative requirements may be applied. A stand- alone closure plan and contingent post-closure plan is anticipated to fulfill the RCRA public comment requirements. A PCAD/PP will be available for public comment in parallel with the public comment period for the RCRA closure plan/contingent post-closure plan /Proposed RCRA permit modification. Following the comment period on the proposed permit modification and the PCAD/PP, a CAD/ROD and RCRA permit modification will be issued. If the alternative requirements under WAC 173-303-610(1)(e) are used then, the selected closure/post-closure criteria, corrective and remedial actions, and associated design details for the TSD units and ancillary equipment waste sites in 200-IS-1 OU and the remedial actions for the non-TSD R-CPP waste sites will be presented as part of the CMI/RD/RA WP and RCRA permit modification. The following proposed closure/ and remedial activities will be contained in the CMI/RD/RA WP: 1. Address compliance with RCRA closure performance standards and RCRA corrective action requirements and CERCLA remediation requirements. 2. Be consistent with requirements specified in the Hanford Facility RCRA permit (WA7890008967, 2007).

Comment [JB2]: If Jeff Lyon has a comment on this text I also need to see that to determine whether any text changes need to be made.

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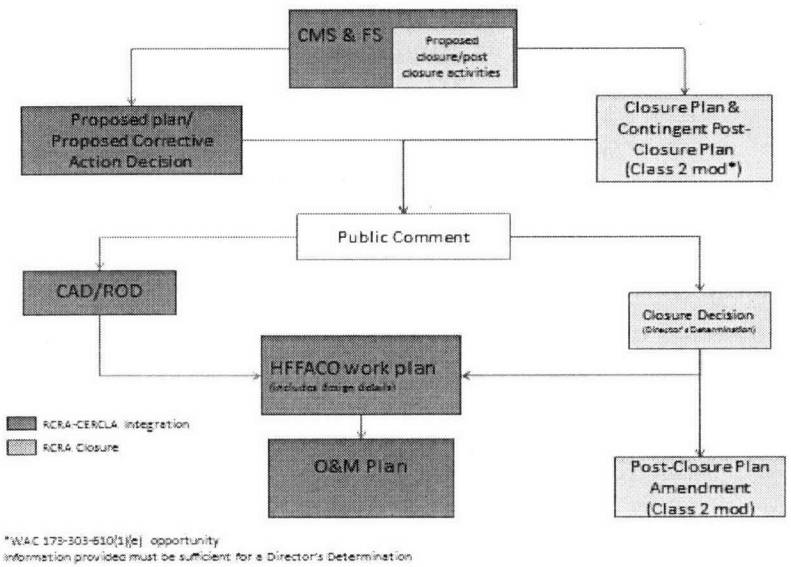
			3. Coordinate with the recommended remedial action(s) for the R-CPP 200-IS-1 OU waste sites. If, at a later date, TSD units and/or ancillary equipment waste sites need to be deleted from or added to the scope of the 200-IS-1 OU, the CAD/ROD and permit will be modified to reflect these changes. The final post closure plan and the O& M plan will be developed and submitted for approval once the remedy has been completed. The remedy will be evaluated for protectiveness at the 5 year CAD/ROD review. If further actions are required for protectiveness, the CAD/ROD will go through a ROD amendment or explanation of significant difference (ESD) and the RCRA permit will be modified.
41	Page 4-3 and Figure 4-1	The figure 4-3 is not supported by TPA Section 5.5. Replace with this figure.	
48	Page 4-13, Lines 16- 36	The section 4.4 has inaccurate language for the RCRA TSDS.	A draft modification of the Hanford Facility RCRA Permit (WA7890008967, 2007) will also be developed, with unit-specific permit conditions for SST System RCRA TSD ancillary equipment waste sites. RCRA TSD unit-specific proposed closure actions

Deleted: The SST system TSD ancillary equipment outside of the tank farm WMA in both the 200 West2 Inner Area and 200 East Inner Area will be closed in accordance with the detailed closure information that will be provided in the CMI/RD/RA WP to ensure consistency in the implementation of closure actions with the remedial decision documented in the CAD/ROD and5 permit.

Deleted: RCRA past-practice pipeline system waste sites and the applicable

		The last paragraph is presumptive. The determination of the preferred alternative and plug-in approach cannot be decided until after the public comment period and regulatory review and agreement. Delete paragraph See modification	will be identified in the CMS/FS. The proposed closure plan, contingent post-closure plan and permit modification will be prepared. The PCAD/PP and closure plan and contingent post-closure plan along with the proposed permit modification will undergo public review and comment, respectively. Supporting documents, including the CMS/FS/RFI/RI, will be made available to the public for review. Public meetings/hearings would be held during the comment period to provide information on the proposed remedial, corrective and closure actions. After the public comment period for the PP has ended, responses to public comments will be developed, and the 200-IS-1 OU CAD/ROD will be prepared. The final Permit modification will be made based. ~~The CAD/ROD will include content allowing for use of a "plug in" approach as well as evaluation of the applicability of a contingent or alternate remedy. The CAD/ROD will identify remedies based on the site characteristics and the waste site CSM. If it is determined that a new waste site is to be added that is sufficiently similar to, or comparable with waste sites for which the alternatives have already been developed and analyzed, then the new site will be assigned into that group's remedial decision. Confirmatory sampling may be required to determine whether a particular waste site fits the comparable site criteria. The "plug in" approach eliminates the time and cost required to produce multiple, redundant site-specific RFI/CMS/RI//FS documents or CAD/ROD modifications.~~
58/1	Appendix C	Missing ARAR. The National Primary Drinking Water Regulations, 40 CFR 141. Add. See modification.	Maximum Contaminant Levels for Organic Contaminants," 40 CFR 141.61. Establishes MCLs that are drinking water criteria designed to protect human health from the potential adverse effects of organic contaminants in drinking water. "Maximum Contaminant Levels for Inorganic Contaminants," 40 CFR 141.62. Establishes MCLs that are drinking water criteria designed to protect human health from the potential adverse effects of inorganic contaminants in drinking water "Maximum Contaminant Levels for Radionuclides," 40 CFR 141.66. Establishes MCLs that are drinking water criteria designed to protect human health from the potential adverse effects of radionuclides in drinking water.
58/2	Appendix C	Missing ARAR. Minimum	

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		Standards for Construction and Maintenance of Wells, WAC 173-160. To the extent that wells are required for monitoring, the substantive requirements of these regulations are ARARs. Add. See modification.	"How Shall Each Water Well Be Planned and Constructed?" WAC 173 160 161 "What Are the Requirements for the Location of the Well Site and Access to the Well?" WAC 173 160 171 "What Are the Requirements for Preserving the Natural Barriers to Ground Water Movement Between Aquifers?" WAC 173 160 181 "What Are the Minimum Standards for Resource Protection Wells and Geotechnical Soil Borings?" WAC 173 160 400 "What Are the General Construction Requirements for Resource Protection Wells?" WAC 173 160 420 "What Are the Minimum Casing Standards?" WAC 173 160 430 "What Are the Equipment Cleaning Standards?" WAC 173 160 440 "What Are the Well Sealing Requirements?" WAC 173 160 450 "What Is the Decommissioning Process for Resource Protection Wells?" WAC 173 160 460
58/3	Appendix C	Missing ARAR. "National Emission Standard for Asbestos," 40 CFR 61, Subpart M; "Applicability," 40 CFR 61.140. Add. See modification	"Standard for Demolition and Renovation," 40 CFR 61.145. Specifies that facilities are to be inspected for the presence of asbestos before demolition. The standard defines regulated asbestos containing materials and establishes removal requirements based on quantity present and handling requirements. These requirements also specify handling and disposal requirements for regulated sources that have the potential to emit asbestos. Specifically, no visible emissions are allowed during handling, packaging, and transport of asbestos containing materials. "Standard for Waste Disposal for Manufacturing, Fabricating, Demolition,

			Renovation, and Spraying Operations," 40 CFR 61.150. Identifies the requirements for the removal and disposal of asbestos from demolition and renovation activities.
58/4	Appendix C, Page C-2	Add the following. WAC 173-340-745(1): This ARAR establishes applicability criteria for industrial lands. Some areas on the Central Plateau may be acceptable ecological habitat and will not meet the criteria for industrial.	ADD WAC 173-340-745(1) Since the industrial criteria require ICs this is acceptable for human health protection but will not necessarily protect wildlife, plants or soil biota. .
58/5	Appendix C, Page C-2	The Oswer 9285.7-55 directive does not belong under the MTCA heading.	Move the Oswer directive to a guidance section or add a different heading for this TBC ARAR.
58/6	Appendix C, Page C-4	Terrestrial Ecological citations are not accurate. See modifications.	"Terrestrial Ecological Evaluation Procedures" (WAC 173-340-7490) "Site-Specific Terrestrial Ecological Evaluation Procedures" (WAC 173-340-7493)
58/7	Appendix C Page C-4	The language under the heading Description of Regulatory Requirement needs modified because the site specific evaluation is being done. See modification	Defines goals and procedures for determining whether a release of hazardous substances to soil may pose a threat to the terrestrial environment. Characterizes existing or potential threats to terrestrial plants or animals exposed to hazardous substances in soil; and establishes site-specific cleanup standards for the protection of terrestrial plants and animals. MTCA Table 749-3 soil concentrations for protection of plants, soil biota, and wildlife
58/8	Appendix C Page C-4	Delete the redundant language. See modification.	Soil in the Inner Areas contains contaminants that require evaluation to determine if

			ecological exposures have the potential to cause significant adverse effects
58/9	Appendix C Page C-11	WAC173-470-110 applies if a source is being designed that will emit particles. It does not seem to apply for RTD of ancillary equipment unless a treatment is being considered that will emit particles.	Remove ARAR for" Particle Fallout Standards" WAC173-470-110
58/10	Appendix C, Page C-15	Missing dangerous waste citation. Add. See modification	WAC 173-303-071 Exclusion categories. Describes those categories of wastes that are excluded from the requirements of WAC 173 303 (excluding WAC 173 303 050, "Department of Ecology Cleanup Authority").
58/11	Appendix C Page C-17	Missing dangerous waste citation. Add. See modification	WAC 173-303-200 Dangerous Waste On-Site Establishes the requirements for accumulating wastes onsite. WAC 173-303-200 further includes certain substantive standards form WAC 173-303-630,640 by reference.
58/12	Appendix C Page C-18	Missing dangerous waste citation. Add. See modification.	WAC 173-303-640(8) Closure and Post-closure care. This regulation establishes the closure requirements for a tank system.
58/13	Appendix C Page C-18	Description of the Regulatory Requirement is not accurate for WAC 173-303-610(2) Rewrite. See modification.	WAC 173-303-610(2) Describes RCRA closure and post-closure performance standards for dangerous waste facilities.
58/14	Appendix C Page C-18	Rationale for including is not accurate for WAC 173-303-610(2). Rewrite. See modification.	WAC 173-303-610(2) Applies to the owners and operators of all dangerous waste facilities. This requirement is an ARAR for TSD units encountered during the remedial action.

58/15	Appendix C Page C-19	Missing WAC 173-304-200 Add. See modification	WAC 173-304-200 Onsite containerized storage, collection and transportation standards for solid waste. Establishes the requirements for the onsite storage of solid wastes that are not radioactive or dangerous waste. Specifically, non-dangerous, nonradioactive solid wastes (i.e. hazardous substances that are only regulated as solid waste) that will be containerized for removal from the CERCLA site would be managed at the Hanford Site according to the substantive requirements of this standard.

Review Comment Record	Ecology Nuclear Waste Program Cleanup Section/ER Project	Date March 29, 2012

Document Title(s)/Number(s)

200-IS-1 Operable Unit Pipeline System Waste Sites RFI/CMS/RI/FS Work Plan (DOE/RL-2010-114, Draft A)

Project Manager	Phone Number	Document/Reviewer Point-of-Contact	Phone Number
Nina Menard	372-7941	Kim Welsch	372-7882

1)Item # 2)Page # 3)Section 4)Line #s	Comments	Modification Needed	Basis/Justification	DOE Response	Ecology Response	Open/ Close
1 2)Global	A) Use of references/acronyms/titles not using consistent format. B) This draft describes a graded approach to remediating soil in the 200 Areas based primarily on historical data and other archived information. C) At this time, based on the lack of information presented for pipeline depths and contaminant inventory, it is unknown what percentage of HLW or pipelines that routed wastes that had high activity and high chemical contaminant inventories would be removed at a depth of 8, 10, 15, 25, or 35 ft. D) Upon review of the 200-IS-1 Work Plan, the document is deficient in meeting the requirements for data collection needed for the TSD ancillary equipment to be provided in a Closure Plan that may or may not be appended to the 200-IS-I CERCLA document. E) The Executive Summary is not always consistent with content depicted in the body of the WP.	A) All references must list the full title and document number of each document used as a reference, spell out all acronyms/titles the first time used. B) Ensure that the records are well searched in order to identify and verify spill areas and types of pipeline and components are correct. C) In order to plan baseline risk assessment for these pipelines and ancillary equipment, this data must be provided with limited to no associated uncertainty. D) Add specific text to state how the following data gaps will be fulfilled by the RFI data packages to meet Closure Plan requirements: - detailed process description information to generate a component by component Closure Plan - current waste quantity information and physical form location within the component - location, amount, type, and inventory of waste released from the component - RA/PA to include all the ancillary equipment and contaminated soils including all waste residues, multiple pathways (direct, soils, groundwater, surface water, and air) for HHE and Eco receptors. E) Ensure the Executive Summary is consistent with the body of the WP.	A) Consistency and completeness. B) Documentation of changes in the function or physical structure of the pipelines in the 200 Areas as a result of modification or decommissioning may not be readily available. C-E) Consistency and completeness.			
2 2)1-1 to 1-12 3)1.1 to 1.2	USDOE did not describe the status of 3 documents considered for Tank Farm closure activities. These documents are critical to this OU, and are related to tank farm strategy for pipelines, integration, and for the determination of waste within the pipelines. USDOE ORP should be included in	Include text in the Introduction of the 200-IS-1 WP that discusses the documents that are products of the WMA-C Closure Demonstration Project Plan, TPP-46484, including the status of RPP-PLAN-47559 and RPP-PLAN-47352 and how USDOE will consider the use of RPP-46459, the	WMA-C will be considering the same type of actions as 200-IS-1 will be and the TPA anticipates that these actions will be consistent and efficient.			

	determining how to incorporate these documents into the 200-IS-1 WP and subsequent documents.	RCRA/CERCLA Integration White Paper.				
3 2)1.1 3)1.1 4)A29 B30-31 C32-33	A) The paragraph discussing Scope and Objectives is not complete. Since this operable unit (OU) scope is complex, and preparation of this document and the following RI/FS are tied to/related to documentation and activities occurring in similar or semi-parallel with other OUs in the Central Plateau (e.g. 200-WA-1 OU, 200-EA-1 OU, Canyon OUs, WMAs), then a full explanation of the relationship of OU documentation should be provided. B) The text fails to note that the pipelines also carried wastes from the SSTs within WMAs back to the facilities for reprocessing efforts. C) In the sentence, "Associated UPR waste sites are the result of leak(s) and other types of releases from the pipeline systems to the surrounding soil" - other types of releases are not identified.	A) Modify the sentence by adding the following in bold "… .UPR waste sites within" the scope of 200-IS-1 OU and its relationship with other OUs and WMAs in "the Central Plateau Inner Area. B) Add this information into the text. C) Add an example of what "other types of releases" might include.	A) This sentence starting Scope and Objectives should be consistent with discussions and agreements on the scope of 200-IS-1 OU during several fall 2011 workshops between RL, Ecology, and EPA. B) This information can be found in WIDS, AAMS reports, 200 Area Implementation Plan, among many other references. C) For document clarity.			
4 2)A/B/C 1-11 D1-12 3)A1.1 B/C 1.2 D 1.3 4)A26 B/Call D21-27	A) Risk assumptions for modeling are not articulated. B) This section on Integration Activities fails to detail the methodology of interface between effected OUs and WMAs. C) Reassignment of 200-IS-1 can't be done at anytime. D) The text does not specify if SST components are R-C PPs.	A) Add a process flow diagram, schedule, and paragraph describing process for review and Regulator concurrence of assumptions for soil and geophysical characteristics, pipe contents and release mechanisms. B) Add the following sentence in bold after "or tank farm WMAs." Criteria will be developed in the RFI/CMS/RI/FS defining various scenarios in location and methods in which pipelines will be segmented between 200-IS-1 OU and the affected OUs or WMA. Also, add to Task 1 in Ch 5. C) A reassignment criteria and time schedule should be developed. If not in this section, it must be pointed to the right section for such information. D) Provide this information on the pipelines that cross cut this WMA in WP Draft B.	A) MTCA requires Regulatory approval for use of an alternate model. As a primary document the WP will need to include radionuclide and dangerous waste chemical analysis and risk assessment information for Ecology review and approval, consistent with TPA Appendix I for the Tank Farms. B) Consistency and completeness. C) Each WMA has its own closure plan and the plan, closure actions are required by TPA milestones. Should certain 200-IS-1 components be reassigned, it must conform with that WMA's closure plan, closure actions, and closure certification. D) Completeness.			
5 2)A1-13 B1-14 4)A3-23 B1-38	A) Section 1.3.1 does not accurately reflect the path set in TPA section 5.5. B) Section 1.3.2 does not accurately reflect the path set in TPA section 5.5. Rewrite as described in modification.	A) SEE REDLINE/STRIKEOUT TEXT IN THE ATTACHED WORD FILE B) SEE REDLINE/STRIKEOUT IN THE ATTACHED WORD FILE	A) Work Plan needs to be in compliance with the TPA. B) Work Plan needs to be in compliance with the TPA.			
6 2)1-1 to 1-14 3)1.0 to 1.3.2	A) Conflicting statements, and the Work Plan did not address RCRA closure plan(s) requirement. B) In the sentence, "No separate stand alone closure plan is anticipated" - WAC 173-303-	A) Modify the Section 1.3.2 to indicate how a closure plan will be developed to satisfy the closure requirement pursuant to WAC 173-303-610(2) and 640(8); and make it consistent with Section 1, Introduction on Page 1-1, Line	A) WAC 173-303-610(3) requires a written closure plan for dangerous waste facility. Even though one set of clean up action can be used to satisfy both RCRA and CERCLA requirements, such closure plan(s) must be			

4)A12-14/14-17 B17 C34 D36-38 E37	610 (Closure and Post Closure) doesn't appear to be part of the discussion. C) It is not clear in lines 31-35 if the CMI/RD/RA WP is identified as being a closure plan. D) Deletion or addition of 200-IS-1 components can not be done any time. E) This sentence does not adequately address relative actions/agreements.	12-14. B) Explain why WAC 173-303-610 is not included. Or, further explain why a separate closure plan is not needed. C) Identify if the "detailed closure information" noted in lines 31-35 will be used in lieu of a closure plan. D) A reassignment criteria and time schedule should be developed. If not in this section, it must be pointed to the right section for such information. E) After '...the CAD/ROD' add the following "TPA Appendix C". Also, add to Task 4 in Ch 5.	developed. B) Ensure RCRA/State requirements are met for closure and post closure. C) Ensure RCRA/State requirements are met for closure and post closure. D) Each WMA has its own closure plan and the plan, closure actions are required by TPA milestones. Should certain 200-IS-1 components be reassigned, it must conform with that WMA's closure plan, closure actions, and closure certification. E) Consistency and completeness.			
7 2)1-15 3)1.3.3 4)A6-8 B8-12	A) The sentence starting "Ecology will make a decision during the development of the RFI/CMS/RI/FS if the information...." is not correct. Ecology will make some initial decisions following the approval of the RFI/CMS/RI/FS and ROD. However, to satisfy SEPA requirements associated with TSDs, site-specific Ecological Resources Reviews and Cultural Resources Reviews will be required within 180 days of actual field remediation activities are to occur. Following evaluation of these TSD-specific Ecological and Cultural Reviews, Ecology will decide 'if the information is going to be sufficient to make a determination on the TSD closure actions and to support a permit modification'. B) The sentence stating "The coordination of CERCLA remedial action and RCRA closure and corrective action processes will ensure that National Environmental Policy Act of 1969 (NEPA) values addressing the potential environmental impacts of the actions are considered during the evaluation of remedial alternatives for the 200-IS-1 OU" is incorrect and incomplete. This is not how NEPA values are addressed and incorporated into the applicable proposed CERCLA and RCRA actions. Identification and compliance with applicable 'environmental' ARARs within the CERCLA/RCRA documentation and processes will ensure NEPA values are addressed, and adequately satisfy SEPA requirements/determination(s).	A) Reword the sentence to read as follows, "Ecology will make initial decisions following the approval of the RFI/CMS/RI/FS if the information may be sufficient to make TSD closure action determinations and to support permit modifications." B) Change sentence as follows, "National Environmental Policy Act of 1969 (NEPA) values addressing potential environmental impacts of 200-IS-1 actions considered during the evaluation of remedial alternatives will occur through compliance with applicable environmental ARARs for the 200-IS-1 OU. For example, through compliance with the Hanford Site Biological Resources Management Plan (DOE/RL 96-32), then the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.), and Migratory Bird Treaty Act of 1918, as amended (16 USC 703 et seq.) would be complied with, as applicable. Through compliance with the Hanford Cultural Resources Management Plan: A Preservation and Protection Strategy (DOE/RL-98-10), then the National Historic Preservation Act of 1966, as amended (16 USC 470 et seq.), and Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001 et seq.) would be complied with, as applicable." Add to Task 4 in Ch 5.	A) Consistency and completeness. Compliance with SEPA. B) Consistency and completeness. Compliance with SEPA.			
8 2)1-16 3)1.4	Regarding the sentence, "closeout actions to satisfy CERCLA requirements will be addressed as appropriate, for RCRA TSD	Include more specific closeout details for this sentence/section.	Ensure RCRA and CERCLA requirements are met.			

4)5-6	units in the 200-IS-1 OU remedial action process. It is not clear when closeout actions might be addressed for RCRA TSD units in 200-IS-1 (an estimated time frame), and what other types of units (in addition to the 241-Z TSD) may be covered by the remedial action process indicated here.					
9 2)2-1 3)2.0 4)14-15	This bullet lists RPP-PLAN-41977, *Single-Shell Tank System Component Identification and Proposed Closure Strategy* as a reference. Ecology has not approved this regulatory strategy for SST components within 200-IS-1.	Delete this bullet and all references to this document and its strategy through-out the document, until all of Ecology's outstanding comments have been resolved by WRPS/ORP.	Consistency between programs.			
10 2)2-10 to 2-14 3)2.2 and sub-sections	This section and sub-sections are a good example of not adequately applying NEPA values into CERCLA/RCRA documents and processes. The information provided merely parrots excerpts from, and/or references, mostly generic PNNL documents (i.e PNL-6415). Compliance with the Hanford Site Biological Resources Management Plan (DOE/RL 96-32) is required (see comment on section 1.3.3, NEPA values/SEPA compliance). For example, there is little to no mention of protection of swallows and bats, both of which live in and around 200-IS-1 OU structures and are protected under the Migratory Bird Treaty Act. Both are listed either as WA State candidate species, or sensitive species. In addition, there is no mention of mud daubers, which are of concern with spreading contamination outside of 200-IS-1 OU. In addition, there is absolutely no discussion of revegetation following 200-IS-1 OU remediation activities. Revegetation is required under DOE/RL 96-32, as appropriate.	In section 2.2, add "The RFI/CMS/RI/FS will discuss in detail compliance with the Hanford Site Biological Resources Management Plan (DOE/RL 96-32). In particular, detail compliance with protection of specific species under the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.) and Migratory Bird Treaty Act of 1918, as amended (16 USC 703 et seq.). In addition, applicable revegetation efforts will be detailed in the RFI/CMS/RI/FS. TSD components will be required to provide a site-specific Ecological Resources Review be completed within 180 days prior to the start of field remedial activities in support of a SEPA determination." Also, add to Task 4 in Ch 5.	Consistency and completeness. Compliance with SEPA.			
11 2)A2-13 to 2-14 B2-14 3)2.2.7 4)A38-46 and 1-9 (p.2-14) B5-8	A) There are numerous plants that are capable of developing deep roots at Hanford, even though the limited observations on the Hanford site have not found roots deeper than 10 ft. Additionally, weeds are of concern because they may bring contamination to the surface. Regarding Antelope Bitterbrush it appears that only a few specimens of Antelope Bitterbrush have been examined. Roots for Antelope Bitterbrush may be as deep as 15 to 18 ft in the subsurface. Also, possible climatic changes (cooler and wetter) may result in Antelope Bitterbrush out-competing Big	A) Maintain the ecological point of compliance at a depth of 15 ft. B) Revise text to indicate that a 15 ft depth will be implemented in the Central Plateau as the standard POC for ecological receptors.	A) Antelope Bitterbrush: http://www.fs.fed.us/database/feis/plants/shrub/purtri/all.html#INTRODUCTORY and http://www.fs.fed.us/pnw/pubs/journals/pnw_os_rn-204.pdfFires Field Bindweed: http://www.ag.ndsu.edu/pubs/plantsci/weeds/w802w.htm Indian Ricegrass: http://www.gardenguides.com/taxonomy/indian-ricegrass-achnatherum-hymenoides/ Weeds on the Hanford Site: Landeen, D., and R. Roos, Noxious Weeds of the Hanford Site, booklet prepared by the Nez Perce Tribe and Fluor Hanford. Russian			

	Sagebrush. Other plants to consider, which were present on the Hanford Barrier (DOE/RL-99-11) are: (1) Field bindweed (Convolvulus arvensis), which can have roots as deep as 30 ft; and (2) Indian Ricegrass (Oryzopsis lymenoides), which can have roots down to 18 ft Known weeds on the Hanford site , with deep roots include Russian Knapweed (Acroptilon repens), with roots that can go as deep as 23 ft and Saltcedar (Tamarix spp.), with roots down to 26 ft (though it is recognized that this is a riparian species and human efforts to eradicate it at Hanford have been successful). B) Text states, "…a site-specific depth of 244 cm (8 ft) is proposed for the Hanford Site Central Plateau as the depth in soil below which it may be reasonably expected that contaminants do not pose a threat to terrestrial plants or animals, or otherwise be transported to locations that create potential exposure pathways." However, plant rooting depths have been reported deeper than 8 ft (e.g., up to 4.0 m for Lupinus ornatus in silt loam soil in Washington state) [Canadell, J et al. 1996. Maximum rooting depth of vegetation types at the global scale. Oecologia 108:583-595]). Also, Ecology requires institutional controls for a conditional point of compliance (POC) which may be problematic to implement over a large area. As such, Ecology has determined that a site-specific conditional POC of 8 ft is not acceptable.		Knapweed: http://mtwow.org/Russian-knapweed.html Saltcedar: http://www.columbia.edu/itc/cerc/danoff-burg/invasion_bio/inv_spp_summ/Tamarix_ramosissima.html B) Ecology requires a 15 ft depth as the standard POC without institutional controls (WAC 173-340-7490[4][b]).			
12 2)2-14 3)2.3 4)11-13	This one sentence section is woefully inadequate in addressing or applying NEPA values into CERCLA/RCRA documents and processes concerning Cultural and Historic Preservation compliance. The information provided merely references a mostly generic PNNL document (i.e PNL-6415) with no specifics to 200-IS-1 OU activities. Compliance with the Hanford Cultural Resources Management Plan: A Preservation and Protection Strategy (DOE/RL-98-10) is required to satisfy SEPA determinations. At the minimum, 200-IS-1 OU documentation must detail how project activities will comply with the National Historic Preservation Act of 1966, as amended (16 USC 470 et seq.), and Native American	In section 2.3, add "The RFI/CMS/RI/FS will discuss in detail compliance with the Hanford Cultural Resources Management Plan: A Preservation and Protection Strategy (DOE/RL-98-10). In particular, detail compliance with protection of specific species under the Endangered Species Act of 1973, as amended (16 USC 1531 et seq.) and Migratory Bird Treaty Act of 1918, as amended (16 USC 703 et seq.). TSD components will be required to provide a site-specific Cultural Resources Review be completed within 180 days prior to the start of field remedial activities in support of a SEPA determination." Also, add to Task 4 in Ch 5.	Consistency and completeness. Compliance with SEPA.			

	Graves Protection and Repatriation Act of 1990 (25 USC 3001 et seq.), as applicable.					
13 2)2-15 3)2.4.1 4)C12-18 D19-26 E30-31	A) The text states "Tank and scavenged wastes generally are defined as liquids discharged directly from the high-activity SST tank farms, or as treated high-activity tank wastes. These waste types generally are characterized as relatively small volume when compared to cooling water volumes." B) The text states "These waste streams generally were routed between tank farms, between facilities and tank farms, or from…" However, often these waste streams were sent from tank farms back to facilities. C) The text incorrectly states that Process waste is "low-level and/or hazardous waste that directly contacted radioactive material and may contain organic components that could enhance mobility. Process waste streams were derived from solvent recovery, ion-exchange regeneration, and ammonia scrubber distillation. The processing was done off-line of a plant's major processing system." D) The text incorrectly states that "Process condensate generally is water that was condensed from the closed process system that became contaminated from direct contact with radioactive and chemical materials. The condensates formed from the heating of the process chemicals and were removed in the vapor space of a dissolver or concentrator vessel, condensed off-line in a cooling vessel, treated as necessary, and discharged to the ground. The vaporized material mostly was water, but volatile chemicals and trace quantities of radionuclides were also removed. Common contaminants included tritium, iodine-129, cesium-137, strontium-90, ruthenium-106, technetium-99, uranium-238, plutonium-239/240, organics, nitrates, and a number of other inorganic components." E) The text incorrectly states that "Liquid volumes for the chemical laboratory waste streams (former 200-LW-1 and 200-LW-2 OU waste streams) were typically smaller than the other waste streams."	A) Either compare the volumes of all waste streams to the cooling water volumes, using actual numbers as presented in the SIM or Table A-1 of the Waste Groupings report, or strike sentence. B) Add this information into the text. C) Modify text to state that "These process operations and others including cell drainage, recycling, solvent preparation and recovery and nitrate recovery were considered main operations of the processing facilities and often column waste tops/bottoms and interstitial crude were directly routed from the "main columns" to evaporators and or concentrators and then out of the facility as waste." D) Modify the text to state that "These process operations and others including cell drainage, recycling, solvent preparation and recovery and nitrate recovery were considered main operations of the processing facilities and often column waste tops/bottoms and interstitial crude were directly routed from the "main columns" to evaporators and or concentrators and then out of the facility as waste. All of these waste streams may have been evaporated and condensed and contained acidic to basic wastes with primarily all of the volatile and semi-volatile chemicals. Drainages from process facility canyon cells and interstitial crude or waste from column packings were also quite high in radionuclides, metals, and anions." E) Modify the text deleting the " were typically smaller than the other waste streams." and replace with "received several thousands to over a million cubic meters of liquid wastes and are indicated in Table A-1 of the Waste Groupings reports to have impacted groundwater at most of the waste sites.	A) There were significant quantities of these waste streams generated that are now in storage in SSTs and DSTs not to mention the thousands of cubic meters of wastes in the vadose zone and groundwater that were discharged to the TW-1 and TW-2 OU waste sites, per Table A-1 of the Waste Groupings Report. B) This information can be found in WIDS, AAMS reports, 200 Area Implementation Plan, among many other references. C) PUREX, REDOX, Z-Plant Facility, Hot Semi-Works, T/B, URP, and UO3 Technical Manuals. D) PUREX, REDOX, Z-Plant Facility, Hot Semi-Works, T/B, URP, and UO3 Technical Manuals. E) Per Table A-1 in the Waste Groupings Report (DOE/RL-96-81).			
14 3)3&5	Application of graded approach: Ecology concur with the graded approach for the use of vadose zone flow and transport models to	Insert appropriate text at relevant chapter(s) reflecting the comment.	Modeling would be integral part of the assessment. It is important the methods and procedure maintain proper QA/QC procedures.			

	calculate soil cleanup goals protective of groundwater presented in the document DOE/RL-2011-50, October 2011. Please note that this document defines only the regulatory basis and general methodology. However, the justification of specific parameters and assumption for a site must use site specific parameters or as close as possible (to mimic the site specific parameters) so that the assessments are technically defensible and meet state and federal regulatory standards. Prior Ecology approval would be required on how the graded approach (e.g. 1D, 2D, or 3D) would be used along with agreements on the, conceptual model, modeling parameters and other related issues.					
15 2)A3-4 B3-6 C3-8 D3-9 3)3.1 4)A T3-1 B17 C F3-31 D1-5	A) Table 3-1 and entire Chapter 3 devoted to list some past sampling efforts, but lack an overall evaluation on how well DOE understand the 200-IS-1 with regard to waste characterization. B) The same locations were used for samples collected before and after October 1989, with one exception, the PUREX Plant process condensate." C) The figure states that the pathway to groundwater is not complete. This is a complete pathway. Since the most beneficial use of groundwater is drinking water, this use must be protected. D) Add where the EPA, analytical, ASTM, laboratory methods can be found in this document (refer to reference list or other indicator).	A) An evaluation is needed to assess how the sites sampled representing the 200-IS-1. Number of samples and constituents analyzed in each sites may be necessary to be listed in the table. B) Provide reasoning for not evaluating 200 Area pipeline that serviced the PUREX Plant. C) Evaluate incidental ingestion of groundwater for both WAC 173-340 scenarios. D) Modify text to show "the following methods" are included in the references for this document or similar wording.	A) Risk assessment need adequate characterization of the waste sites. B) This ensures complete knowledge of the radioactive materials that may have spilled from the pipeline. C) There is no barrier against water migration to groundwater throughout the area of the 200-IS-1 pipelines and their unplanned releases. For discussion on groundwater most beneficial use see WAC 173-340-720(1)(a). D) Document clarity.		
16 2)A3-35 B3-40 3)3.2.3.6 4)A12-14 B6	A)The text states " The Single-Shell Tank Waste Management Area C Pipeline Feasibility Evaluation (RPP-PLAN-47559) presents a summary of SST characterization experience at the Hanford Site, and of previous residual waste volume estimates that may exist in SST pipelines." Ecology had many, major concerns regarding the volume, distance, and inventory calculations presented in this document. This document remains un-approved. B) Add more clarification to the sentence, "in a few cases, follow-up site characterization of UPRs was conducted and provided some idea of contamination and waste distribution."	A) Delete reference to this document until it is revised and approved. B) Add more specific wording on what the follow-up site characterization of UPRs showed regarding contamination and waste distribution.	A) Calculational errors, omissions, etc. lead to inaccurate values for void volumes, lengths, and inventories. B) Document clarity.			

17 2)A/B3-45 C/D3-49 3)A/B3.2.5 C/D3.2.6 4)A28 B26-29 C3-9 D7-9	A) The sentence, "Consequently, cost efficiencies could have been realized by initially performing removals rather than characterizing first, failing to meet cleanup levels, and then performing retrieval." Identify in less wording - what the issue is here. B) Sentence(s) contradicts itself. C) Add more clarification as to what "some plumes" indicates (line 4). In line 8, it is stated "groundwater contamination is more closely associated with large liquid discharge sites" - add what supports this statement (groundwater, or historical and process data)? D) Claims not well grounded: Many UPRs were described as release amount unknown. It might be untruthful to claim that the pipeline system and releases did not affect groundwater contamination.	A) Identify when "subsequent" characterization took place for the 100 and 300 Areas. Add a more readable version of the effects of "cost efficiencies" and characterization efforts, and the relationship to waste removal. B) Needs clarification. C) Specific detail is needed to show where the groundwater characterization came from. D) Rephrase this claim to indicate the uncertainty on how pipelines and UPRs might have affected groundwater contamination.	A) Document clarity, and to identify what areas were cleaned, how it was done, and the relationship to cost effectiveness (as described in this section). B) "Majority of the results exceeded contaminant levels" does not seem to "allow the pipelines to remain in-place" C) Document clarity. D) Lack of direct evidence on whether or not the pipeline and UPRs have affected groundwater.			
18 2)A3-50 B3-51 3)A F3-26 B F3-37 4)A fig. Bnote 1&5	A) Groundwater table was not clearly labeled. B) The CSM should include old data that would have a potential to detect the migration of contamination through the vadose zone to groundwater.	A) The groundwater table in the figure should be noted as either depth or elevation. B) Include vadose and groundwater monitoring well information.	A) Without such notification, reader will be confused. B) Completeness.			
19 2)3-52 4A4 B8-12 C16-18 D16-18	A) The text states "Residual waste material inside pipelines and pipeline components, if present, …". However, all field characterization has found contamination within the pipes. B) Very few records indicate that lines were flushed. Tank Farms Operations did have a procedure. However, waste sites usually did not. C) Underlying rationale is needed for identifying primary contaminants. D) The bullet indicates primary contaminant constituents. This is improper and leads one to believe only these constituents are present.	A) Delete "if present" portion of sentence. B) Reference the procedures if found to substantiate this claim, or delete bullet. C) Provide rationale for identification and selection of both rad and nonrad COPCs. D) Delete this bullet or indicate class of chemicals (i.e. VOAs, anions, etc.) or list all COCs.	Assumptions require supporting information.			
20 2)A3-53 B3-53 C3-54 3)3.4 4)A1 B2 Call	A) Text states "constituent list was reviewed using the exclusion rationale presented in D&D-30262…", but does not provide enough detail for a work plan. B) Text states "...sampling results from Tank Farm's SST WMA C RFI characterization results documented in HEIS." C) The section does not provide a cross-walk	A) Either list and explain how the exclusion rational in D&D-30262 is used here or delete reference and do not use this reference. B) The SST DQO should only be referenced, not just analytical results. Revise text to state that all COCs in SST DQO will be used. C) Incorporate all of the requirements of a RCRA RA/PA and discuss the WMA C	A) Clarification. B) The SST DQO outlines the potential COCs that could be present at any SST WMA. Just because several are not found exclusively in WMA C, does not mean that they will or will not be found at other WMAs. C) Add to the tasks in Section 5 work that needs gather any needed information for the			

	between the CERCLA BRA and a RCRA RA/PA. Also there was no mention of the WMA C PA efforts.	RA/PA efforts and how they apply to this project. Discuss how the RA/PA screening is different than that of the RBA and provide this additional screening for COPCs, Risk, exposure pathways scenarios, etc. Reference and include the WMA C RA/PA work in these areas.	BRA/PA.			
21 2)A3-57 B3-58 to 3-59 T3-5	A) AMSCO tributyl phosphate diluent is given as a constituent. However, it is not clear that this is a single constituent, rather than a mixture. B) PCB congener data are needed to assess dioxin-like risk with toxicity equivalents (TEQ).	A) Include the individual components of tributyl phosphate diluent on the table. B) Please list PCB congener data (in addition to Aroclor data).	A) The dilutent may have more than one component. B) PCB toxicity (including dioxin like TEQ) is characterized more completely with both Aroclor and congener data.			
22 2)3-60 3)3.4.2 4)1-22	Tank Farm constituents and sampling processes and procedures are unique to the circumstances and respective Data Objectives. As the author notes, the 2 cited DQO's served a specific purpose, retrieval residuals and WMA-C RFI investigation. Each Tank Farm and release have unique circumstances that have lead to the existing set of RFI and closure needs. For the pipelines we will need to have a DQO for the specific purpose of resolving data needs and decision-making for TSD components in 200-IS-1. If the DQO requires sampling then a SAP will be required as well.	Include a sentence that states USDOE and Ecology will work collaboratively to complete a DQO and, if necessary, a SAP that will ensure that there is agreement on information needed for regulatory decision-making and that will meet the schedule requirements of the TPA.	Refer to OSWER Directive 9502.00-6D. EPA 530/SW-89-031; TPA. Both indicate that investigations may need sampling and additional data.			
23 2)3-61 B3-62 C3-62 D3-62 3)3.6.1.1 4)A38-43 B11-15 C13-15 D36-37	A) This section does not describe how "underreporting of cumulative risks of non-cancer hazards" (line 43) might be improved. B) The text states "Along with the exposure scenarios…human health risks for non-radionuclide COPCs in soil also will be assessed using Method B (WAC 173-340-740) for the BRA and Method C (WAC 173-340-745) standards for final cleanup levels". Ecology will not use Method C for protecting groundwater. C) Text states, "…human health risks for non-radionuclide COPCs in soil also will be assessed using Method B (WAC 173-340-740) for the BRA and Method C (WAC 173-340-745) standards for final cleanup levels." However, final cleanup levels (CULs) may also include MTCA Method B CULs (e.g., soil to protect groundwater; groundwater ingestion). D) Because COPCs in pipeline wastes may leach to groundwater and be transported to the Columbia River, ERA should evaluate	A) Add what other results might affect the outcome of "underreporting." B) Please change the text to: "**Along with the exposure scenarios…human health risks for non-radionuclide COPCs in soil also will be assessed using the human health risk sections in WAC 173-340-700 through -760, as amended.**" C) Revise text to indicate that MTCA Method B CULs may serve as final CULs for groundwater protection and ingestion. D) Include both terrestrial (upland) and aquatic (river) systems in the ERA.	A) Show if "underreporting" affects the toxicity assessment for COPCs - or other results not discussed in 3.6.1.1. B) Method C does not protect the most beneficial use of the water, which includes drinking under unrestricted land use. Also, this medium flows into areas outside of the Core Zone where the land use may differ from that in the Core Zone. C) Groundwater is not limited to the Inner Area and is continuous with areas designated for unrestricted land use (i.e., evaluated with MTCA Method B). D) COPCs from pipeline wastes may be transported to the Columbia River (via a soil leaching/groundwater pathway) and may therefore impact aquatic receptors.		

	both terrestrial and aquatic environments.					
24 2)3-65 3)3.6.2.1	A) The BRA did not address why the surface water as drinking water pathway was not included. B) Texts states, "Under current site use conditions, no complete human or ecological exposure pathways to groundwater exist." However, a complete exposure pathway may exist downgradient under current conditions, as a result of groundwater transport to the Columbia River and exposure to riparian/aquatic biota (via river seeps/springs). In addition to this ecological exposure pathway, human exposure to groundwater (via a drinking water well) may occur in the future at locations downgradient and outside the Inner Area.	A) In spite of the distance from the river, we still need to protect the most beneficial use of the water which is drinking under unrestricted conditions. The water flows into areas of the site where the land use is still hoped to achieve unrestricted cleanup levels. Therefore, the surface water pathway is needed in the risk assessment. B) Note that a groundwater exposure pathway may be complete outside of the Inner Area for nonhuman biota at the river (current and future) and for humans via well water (future).	A) The Columbia River water is a downstream water of the Hanford Site groundwater and the hydrogeological connection between groundwater and surface water makes the surface water a potential pathway for the contaminants to transport from Hanford Site. The BRA shall address the potential pathways for unrestricted use cleanup levels. B) COPCs may be transported via groundwater (out of the Inner Area), establishing a complete exposure pathway at a distant location.			
25 2)A/B/C 3-67 to 3-68 D/E 3)A/B/C 3.6.2.2 T 3-7 D/E3.6.2.2 text 4)A/B/C table D10-16 E14	A) Many exposure scenarios appear deficient (i.e., incomplete exposure pathways). B) The WAC 173-340 scenarios do not include groundwater ingestion. C) Suggest also referring to pages 3-78 and 3-79, which show four components of a completed exposure pathway (source, transport, human contact, human exposure route). D) Wild game/fish ingestion and sweat lodge inhalation/dermal exposure should be considered complete pathways for CTUIR and Yakama scenarios. E) For purposes of this risk assessment, both exposure pathways are considered incomplete and are not evaluated.	A) In addition to complete exposure pathways shown, the following scenarios/pathway combinations should be shown as complete: EPA resident (groundwater ingestion-rad/nonrad, produce ingestion-nonrad, beef/milk/poultry/eggs/fish ingestion-rad/nonrad), MTCA resident-nonrad (groundwater ingestion, fish ingestion), MTCA industrial-nonrad (groundwater ingestion), and CTUIR/Yakama (produce ingestion/beef/milk-nonrad, wild plants/poultry/eggs/wild game/fish-rad/nonrad). Also, add a groundwater protection pathway (via soil leaching) for residential and tribal scenarios. Finally, provide a reference for the non-resident tribal scenario. B) Include groundwater ingestion for WAC 173-340 scenarios. C) Add a more definitive sentence, explaining what a complete exposure pathway might include. D) State that wild game/fish ingestion and sweat lodge inhalation/dermal exposure are complete pathways for CTUIR and Yakama scenarios. E) Define "incomplete" in the context of this work plan.	A) All complete exposure pathways should be shown in the table to appropriately assess risk. B) Unrestricted use under MTCA includes ingestion of groundwater (see WAC 173-340-720 and -740). Industrial use also includes groundwater ingestion. See WAC 173-340-720 (5). C) Makes the document easier to use. D) The Inner Area is large enough to support hunting activities for wild game. Although their home range may be larger than the Inner Area, wild game are likely to migrate through the Inner Area. Sweat lodge use (with groundwater) could also occur in this area. E) The two pathways are consumption of wild salmon and sweat lodge use by the Confederated Tribes of the Umatilla Reservation and the Yakama Nation. An explanation of what these pathways were not studied in depth will address any concern on the part of Native American nations.			
26 2)3-70 3)3.6.2.3 F 3-28	"Carnivorous Reptiles" and "Insectivorous Amphibians/Reptiles" do not appear in bulleted text description.	List "Carnivorous Reptiles" and "Insectivorous Amphibians/Reptiles" as text bullets.	Text and figures should be consistent.			
27 2)3-71	A) As in the Baseline Risk Assessment (BRA), groundwater protection should also	A) For groundwater protection, compare MDL with GWP screening level, and compare	A) Re groundwater protection, MDL should be <GWP screening level, and the dataset should			

3)3.6.2.4 F 3-29	include comparison of Method Detection Limit with groundwater protection (GWP) screening level to assess analytical sensitivity, as well as comparison of GWP screening level with background. Re the step where max is compared to Tier 1 eco Preliminary Remediation Goal (PRG), human Risk-Based Screening Level, or GWP screening level, EPA's ProUCL recommends 95UCL (over max), as an estimate of exposure point concentration (EPC). Also, provide rationale for frequency of detection (FOD) (<5%) as a criterion for eliminating Constituents Of Potential Concern (COPCs). B) Screening COPCs against PRGs is non-conservative and not necessary. C)For the BRA, use of FOD is not accepted. D) Frequency of detection is used to screen contaminants of concern. If not many samples were taken then a risk contaminant could be missed and shouldn't be screened out based on its low detection rate. It states in section 5.9.3 of EPA remedial action goals (RAGs) that "infrequently detected chemicals with concentrations that greatly exceed reference concentrations should not be eliminated." E) For groundwater protection (which is actually evaluated as part of a BRA), the process of screening contaminants should not go beyond determining which contaminants were detected, determining if toxicity information exists for each contaminant, and comparing concentrations with background and practical quantitation levels.	GWP screening level with background. Use 95UCL (rather than max) for comparison with PRG, RBSL, or GWP screening level. Provide basis for using FOD as a criterion for eliminating COPCs. B) Remove the decision diamonds that asks "Is Max > Tier 1 eco PRG?" Replace this diamond with one that asks "Are toxicity information available for risk assessment?" C) Eliminate the decision diamond that asks if FOD exceeds 5%, and do not use that criterion. D) Explain how the frequency of 5% was selected. Explain why the "optional section" of the EPA RAGS document was used. EPA's statistical software Pro-UCL has methods for handling small data sets. E) (1) Include groundwater protection evaluation as part of the BRA. (2) Replace the last 2 decision diamonds (comparisons against screening levels) with questions about existence of toxicity information and exceedence of background levels or practical quantitation limits.	be >background to justify remediation. 95UCL incorporates data variability, whereas max does not. Elimination of COPCs based on FOD is somewhat arbitrary (e.g., depends on detection limit, sampling design). B) For the BRA, screening against eco PRGs is a step that is not needed. (1) For ecological risk, calculation of hazard quotients is very easy and can be done for all contaminants for which there is toxicity information. (2) For human health, risk assessment requires summation of contaminant hazard quotients (noncarcinogens) based on target organs, and summation of risks for individual contaminants (carcinogens). This cannot be done for eliminated contaminants. C) For the BRA, screening against eco PRGs is a step that is not needed. (1) For ecological risk, calculation of hazard quotients is very easy and can be done for all contaminants for which there is toxicity information. (2) For human health, risk assessment requires summation of contaminant hazard quotients (noncarcinogens) based on target organs, and summation of risks for individual contaminants (carcinogens). This cannot be done for eliminated contaminants. D) The process of screening contaminants for soils by detection rate should not have more weight than contaminants with higher concentrations. Section 5.3.3 EPA/540/1-89/002 E) The reasoning is the same as that given above for the baseline risk assessment.			
28 2)3-73 4)Aall B9 C10-11 D13-22 E27	A) The bullets on this page discuss incorrectly and inappropriately how the COPCs will be "screened-out" and not become part of the BRA. This is inappropriate. B) The "Cleanup Level and Risk Assessment" developed by Ecology in 2009 is not final cleanup levels to be used or cited in the risk assessment. C) COPCs with no toxicity factor should be addressed as an uncertainty. D) Re background vs. waste site comparisons, ProUCL notes a preference for hypothesis testing (n≥8 detects for waste site data) vs. point by point comparison of waste site data (n<8 detects) with a background	A) Include all COPCs as part of the CERCLA BRA and RCRA RA/PA. B) These cleanup level are the least requirements based on MTCA (WAC 173-340). It did not include all the potential pathways Hanford has. C) Discuss COPCs with no toxicity factor as an uncertainty. D) When n≥8 detects for waste site data, clarify the preference for hypothesis testing over point by point comparison of waste site data (e.g., max) with BTV. E) Use 95UCL (rather than max) to estimate EPC for comparison with RBSL.	A) Correctness. B) MTCA requires all the potential pathways for risks be included in the risk assessment. The Cleanup Level and Risk Assessment 200-IS-1 WP cited is not to be regarded as Ecology set or agreed cleanup levels. C) Uncertainty exists for COPCs without toxicity information. D) ProUCL notes that hypothesis testing can control Type 1 and Type 2 error rates more efficiently than point by point comparisons. E) 95UCL captures population variability, whereas the max does not.			

	threshold value [BTV, e.g., 90th percentile of background data). Hypothesis testing may use one sample testing when BTV is known or two sample testing when BTV is unknown. E) ProUCL recommends 95UCL (over max), as an estimate of EPC.					
29 2)A/B3-75 C3-76 3)3.6.2.6 4)A/B26-27 C10	A) Update recent Hanford PRG citations, and note that there are unresolved Ecology comments on these documents. B) This section references *Soil-based Tier 1 Preliminary Remedial Goals for Ecological Receptors at the Central Plateau Area,* Hanford, Draft A (CHPRC-00784). Ecology has not accepted this document as a basis for ecological risk assessment. C) Define what "the literature" includes.	A) In addition to CHPRC-00784 (Tier 1 PRGs), also cite CHPRC-01311 (Tier 2 PRGs) and ECF-Hanford-11-0158 (Tier 2 Plant/Invert PRGs) documents. Note too that comment resolution is incomplete on these documents. B) Please refer to Ecology's comments for the 100-K RI/FS report (DOE/RL-2010-97, Draft A) for comments on CHPRC-00784 and other ecological risk documents used in the 100-K RI/FS. Also see Ecology's comments on DOE/RL-2007-50 drafts, and *Evaluation of Biointrusion at the Hanford Site for Protection of Ecological Receptors* (CHPRC-00651). Incorporate analogous changes in this document. C) Not clear if most of the Tier 1 Values were drawn from EPA - or were other types of literature used as a basis. If other than EPA literature was used, add.	A) All recent Hanford PRG reports should be acknowledged for completeness. B) The ecological risk assessment process must be developed to obtain Ecology's approval. Ecology's comments on CHPRC-00784 and CHPRC-00651 indicate the bases for areas of inconsistency with requirements. C) Provides clarity to the document.			
30 2)3-76 to 3-78 3)3.6.2.7 4)all	A) There is not enough data to perform a screening prior to analyses and modeling. B) States "graded approach" will be provided at a later date. C) Consistent with a prior comment regarding screening contaminants for the groundwater risk assessment, the process of screening contaminants for soils should not go beyond determining which contaminants were detected, determining if toxicity information exists for each contaminant, and comparing concentrations with background and practical quantitation levels.	A) Delete the Graded approach section from this work plan or perform more analytical analyses of pipelines in the field to generate more data so that the Graded Approach is applicable. B) Define what document the graded approach will be described in. C) Delete 2b from Figure 3-30 and modify the rest of the section accordingly.	A) Quality B) Guiding Principle #5 of the Graded Approach: The GA defines a general methodology, but justification of specifics for a given application of the GA is to be presented in other application specific documents. C) Ecology continues to have numerous unresolved comments on DOE/RL-2011-50.			
31 2)3-79 3)3.6.4.1 4)all	A) As discussed in WP workshops, Ecology has not committed to a conditional point of compliance for ecological protection. B) The text states "The SLERA will also identify the depth of the biologically active zone within the Central Plateau is 3.05 m (10 ft) or shallower (CHPRC-00651)." Ecology has not accepted 10 ft as the limit of the biologically active zone. C) Ecology does not agree with the conditional POC (10 ft) proposed by USDOE	A) Add text stating that "DOE will prepare a disproportionate costs in accordance with WAC 173-340-360(3), for remediation of pipelines to a given depth (biologically active zone) vs. the 15 ft standard point of compliance." B) See Ecology's comments on CHPRC-00651. Maintain the standard point of compliance of 15 ft as the limit of the biologically active zone. C) Revise text to indicate that a 15 ft depth	A) This approach was presented to Hanford Senior Executive Committee, and is consistent with the WAC 173-340. B) CHPRC-00651 did not adequately establish a 10 ft limit. C) Ecology requires a 15 ft depth as the standard POC without institutional controls (WAC 173-340-7490[4][b]). D) Dose from external radiation requires neither an environmental transport medium nor contact with the medium.			

	in CHPRC-00651 for terrestrial eco receptors in the Central Plateau. D) External radiation does not require an environmental transport medium or contact with the medium to be considered a complete exposure pathway.	will be implemented in the Central Plateau as the standard POC for ecological receptors. D) Re requirements for a complete exposure pathway, note the exceptions with external radiation (i.e., transport medium and contact with the medium are not needed).				
32 2)A3-80 B3-81 3)3.6.4.1 F 3-31 & F 3-32	A) The human health risk assessment CEM diagram has several shortcomings. For example, CTUIR and Yakama receptors are missing. MTCA receptors have a complete pathway shown for external radiation from shallow soil, although MTCA does not regulate rad. Food pathways (produce, beef, milk) are not displayed for the EPA resident. That is, soil COPCs can be transferred to plants and animals which can then be consumed by humans. Groundwater is shown as an incomplete pathway, although this pathway should be complete (as a result of COPCs leaching from soil to groundwater and humans accessing this groundwater via a well or irrigation). As such, ingestion, dermal contact, inhalation, external rad, and food ingestion should be listed as exposure pathways for groundwater. B) The ecological risk assessment CEM diagram has several shortcomings. For example, external radiation is missing from surface and shallow soil. Also, a groundwater to surface water pathway is not shown. As a result of this pathway, riparian and aquatic receptors (at the Columbia River) could be exposed to COPCs via ingestion, dermal contact, uptake (plants and soil/sediment biota), and external radiation. In addition, plants and invertebrates should be included in the "Food Web Transport" pathway related to shallow soils, standing water, and biota. Finally, re footnote "c," there are likely more VOCs besides CCl4.	A) Please make changes to the CEM, described in the comment. B) Please make changes to the CEM (as well as text on p. 3-79), described in the comment.	A) All receptors and exposure pathways should be shown in the human health risk assessment CEM. B) All exposure media and exposure pathways should be shown in the ecological risk assessment CEM.			
33 2)A/B3-82 C3-83 3)3.6.4.2 4)Aall B29-31 Call	A) Methodology of how concentrations are estimated, and which concentrations are representative, has been contentious in previous RI/FS documents. B) The text states "For the BRA, it is assumed that characterization data from the "endpoint" liquid waste disposal sites are a conservative representation of contaminated soil around the pipelines under baseline conditions." This is not a conservative assumption.	A) Insert sentence "DOE will submit to Ecology for review and approval as an addendum to this work plan, of how concentrations will be estimated. " B) Delete this statement and use source information, discharge site information, UPR sample data, and pipe sample data in the BRA to represent the pipeline contamination. C) Do not use these documents as references and delete these bullets.	A) Cooperation B) Some contaminants may preferentially precipitate in pipes, and would not be represented by the data from the discharge locations. C) Correctness.			

	C) The SST PA and the WMA C Pipeline Feasibility Study are both documents that Ecology has not approved due to their errors and omissions.					
34 2)3-83 3)3.7.1 4)35-38	The text states "PRGs for protection of human health will be developed using the exposure scenarios (i.e., the Industrial Worker, Trespasser and Construction Worker scenarios) that reflect the reasonably anticipated future land use in the Central Plateau Inner Area. These PRGs for radionuclides and carcinogenic non-radioactive contaminants will be based on EPA target cancer risk range of 1 x 10-6 to 1 x 10-4." This strategy does not comply with state regulations.	Evaluate protection of groundwater using WAC 173-340-740(3). Evaluate soil direct contact using WAC 173-340-745(5) and (6). [Cleanup levels based on risk levels of 10-4 and without total site risk adjustments cannot be accepted.] Finally, do not base cleanup levels on trespasser and construction worker scenarios.	The following sections of WAC 173-340 are not satisfied with the above strategy: WAC 173-340-745(1)(b)(iv): "Note that a change in the reasonable maximum exposure to industrial site use primarily affects the direct contact exposure pathway. Thus, for example, for sites where the soil cleanup level is based primarily on the potential for the hazardous substance to leach and cause ground water contamination, it is the department's expectation that an industrial land use will not affect the soil cleanup level." WAC 173-340-745(5)(b)(iii)(B): "Soil direct contact. Concentrations that, due to direct contact with contaminated soil, are estimated to result in no acute or chronic noncarcinogenic toxic effects on human health using a hazardous quotient of one (1) and concentrations for which the upper bound on the estimated excess cancer risk is less than or equal to one in one hundred thousand (1 x 10-5)." WAC 173-340-745(6)(a): Total site risk adjustments. Soil cleanup levels for individual hazardous substances developed in accordance with subsection (5) of this section, including cleanup levels based on state and federal laws, shall be adjusted downward to take into account exposure to multiple hazardous substances and/or exposure resulting from more than one pathway of exposure. These adjustments need to be made only if, without these adjustments, the hazard index would exceed one (1) or the total excess cancer risk would exceed one in one hundred thousand (1 x 10-5). These adjustments shall be made in accordance with the procedures specified in WAC 173-340-708(5) and (6). In making these adjustments, the hazard index shall not exceed one (1) and the total excess cancer risk shall not exceed one in one hundred thousand (1 x 10-5)." WAC 173-340-708(3)(d): "Land uses other than residential and industrial, such as agricultural, recreational, and commercial, shall not be used as the basis for a reasonable maximum exposure scenario for the purpose of establishing a cleanup level."			
35	A) In addition to MTCA Method C	A) Revise text to indicate that MTCA Method	A) Groundwater is not limited to the Inner			

2)3-84 3)A3.7.1 B3.7.2 C3.8 D3.8 4)A1 B5-6 C21-22 D25-26	standards, Method B standards may also be identified as PRGs for groundwater protection and ingestion. B) Update recent Hanford PRG citations, and note that there are unresolved Ecology comments on these documents. C) RAO 2 needs to add protection of the Columbia River. D) RAO 4 The terms 'threatened and endangered' species are primarily related to the Endangered Species Act and/or federal regulations. Species are also protected under the Migratory Bird Treaty Act and associated state laws, which include protection of candidate and sensitive species.	B CULs may serve as PRGs for groundwater protection and ingestion. B) In addition to CHPRC-00784 (Tier 1 PRGs), also cite CHPRC-01311 (Tier 2 PRGs) and ECF-Hanford-11-0158 (Tier 2 Plant/Invert PRGs) documents. Note too that comment resolution is incomplete on these documents. C) RAO-2 Prevent or mitigate unacceptable risk to human and ecological receptors associated with chemical exposure to waste or soil contaminated above risk-based criteria, including protecting the Columbia River from adverse impacts. D) Add "state candidate and sensitive" after 'threatened and endangered'.	Area and connects with areas designated for unrestricted land use (i.e., MTCA Method B). B) All recent Hanford PRG reports should be acknowledged for completeness. C) Completeness. D) Consistency and completeness. Compliance with ARARs.			
36 2)3-85 3)3.9 4)29-39 T3-8	A) No justification is provided as to why baseline risk assessment domains are defined and divided, or how Hanford site or 200-IS-1 is broken down to sub-areas for BRA? B) The table omits consideration of U Plant and WMAs.	A) Need some justification on how the BRA OU or assessment domains are determined. B) Modify the two BRAs to include U Plant and WMAs.	A) How the BRA areas are divided may significantly affect risk assessment results. B) Consistency and completeness.			
37 2)3-88 3)3.10.3.1 4)13-14	If there is no characterization before excavation, it will add great uncertainty with regard to meeting RCRA clean closure or landfill closure requirements.	Need to develop a procedure with various scenarios for the excavation operation to follow, to ensure the final cleanup meet RCRA closure requirement, and CERCLA remedial goals. This procedure should be identified and included in Task List (Ch 5)	The no characterization prior to excavation, and characterization during excavation approach gives no guarantee that the RCRA closure requirements will be met. There is not procedures control with regard to various scenarios during the excavation.			
38 2)3-89 3)3.10.6 4)23-28	A) Threat to groundwater may be identified during excavation, so excavation beyond pre-determined depth may be justified. B) Statement that removal is "preferable" is not supported - why is it preferred?	A) Modify sentence as follows: "If a threat to groundwater is identified, additional (deeper) excavation or alternative remedies will be evaluated." B) Replace sentence with: "DOE and Ecology have agreed that removal of near-surface 200-IS-1 OU pipeline system waste sites occurring within a prescribed depth <4.6m (15 ft) as a post-ROD remedy would be more cost-effective and efficient than trying to characterize these waste sites. They also agree it would provide important insight into the probable characteristics of deeper pipelines."	A) This is the approach proven in the Hanford 100 Area. B) Correctness.			
39 2)4-1 3)4.0 4)Aall B7-8 C23 D24-25 E29-30	A) Not sure what "plugging in " to a CSM means.New data should help define a CSM. B) The text states "The preliminary alternatives described in Chapter 3 will be evaluated and compared against CERCLA screening criteria in the 200-IS-1 OU RFI/CMS/RI/FS document." This does not meet the requirements of RCRA.	A) The text in this section needs to be expanded to clarify this approach. An example would be helpful. B) The sentence should be changed to note that the preliminary alternatives will be evaluated using RCRA criteria for the TSDs. And then add sections to this document to actually state the RCRA/Dangerous Waste criteria and screen the TSDs proposed	A) It is not clear that data collection is being used to define the Conceptual Site Model. B) By using CERCLA criteria only and not RCRA/Dangerous Waste criteria, other preliminary alternatives that would be required from a risk perspective will be eliminated due solely to costs. C) Without any knowledge of when or how these decisions can be made and no distance			

	C) The statements that portions of the 200-IS-1 pipeline system will be reassigned to optimize the remedy and closure decision does not state the criteria that will be used to make those determinations. D) Text States "Portions of those 200-IS-1 OU pipeline system waste sites are in the immediate proximity of a Canyon OU or tank farm WMA will be re-assigned to those facilities to optimize remedy and closure decisions." However, no detail is provided on what distance "immediate proximity" is, nor does the work plan state when and how these decisions will be made. E) The text states "Coordination of closure requirements, for the 200-IS-1 waste sites that are RCRA TSD ancillary equipment, and remedial action requirements, for the remaining 200-IS-1 OU waste sites, will be defined and agreed to between the Tri-Parties." However, Ecology is the lead for all TSDs and the 200-IS-1 OU, agreements should be made with Ecology.	preliminary remedial alternatives in this document. C) State in this work plan the criteria that will be used to make ancillary equipment reassignment decisions. D) Please remove "immediate proximity" and add criteria that describes how the interface with 200-IS-1, and other projects to the text stating how and when the IS-1 waste sites will be re-assigned E) Revise the text to state "...for the remaining 200-IS-1 OU waste sites, will be defined and agreed to between DOE and Ecology".	assumptions, a remedial alternative for these ancillary equipment/infra structure sites cannot be properly made in this document. Kim and Michelle will have the bullet deleted and will suggest a replacement bullet D) Without any knowledge of when or how these decisions can be made and no distance assumptions, a remedial alternative for these ancillary equipment/infrastructure sites cannot be properly made in this document. E) Observation.			
40 2)A4-1, 4-1, 3-89 B4-2 3)4.1.1 4)A F 4-1 Ball	A) "Within" (Page 4-2), "Immediate proximity"(Page 4-1), "Geographic association" (Page 3-89) were used as "factors" to consider to reassign pipelines to WMAs or Canyon OU, which indicates DOE has not figure out have to reassign pipelines under various conditions. Such vague consideration is not acceptable to RCRA closure requirements. B) "canyon remediation areas" are not defined, but Canyon OU is defined.	A) DOE should develop a set of criteria for inclusion or exclusion of 200-IS-1 pipelines or components for WMA or Canyon OU closures. B) Change "canyons and" with "Canyon OU and"	A) Each dangerous waste facility must have a written closure plan and the facility to be closed must be described within the closure plan. The reassignment of pipelines must not be conflict with the TPA milestones of each WMA. B) Unclear what existing text would mean, so change for clarity.			
41 2)4-3 F 4-1 & all	A) Figure 4-3 is not supported by TPA Section 5.5 B) The WP entirely missed the most important source term for Hanford pipeline residual inventory, and grossly overestimated the ease with which necessary information on pipelines can be obtained. Pipelines are generally flushed or drained with water before taken out of service. Thus only a relatively small amount of residual inventory could remain on the pipeline wall. In addition, self-boiling tanks and waste that has gone through the evaporator may cause a significant concentration of the waste in the pipelines. While researching inventory history, there often will be conflicting or absent needed information. The historical	A) REPLACE WITH NEW FIGURE THAT IS ATTACHED TO THIS DOCUMENT. B) In Section 4.3, add an additional subsection to detail process upsets in various pipeline systems. In addition, discuss measures that were taken to clear plugged pipelines. Several occurrences using these past measures resulted in loss of integrity of pipelines that were indeed taken out of service for this issue. Loss of integrity could have occurred in other pipelines as well. Fully reference "Residual Waste Inventories in the Plugged and Abandoned Pipelines at the Hanford Site" Lambert page ES-I (RPP-25113 Rev.0). This study identified more than 100 failed pipelines at Hanford with only 10 of which are inside a Waste Management Area	A) Figure needs to be in compliance with TPA Section 5.5. B) Completeness, clarity, and a better WP.			

	record does not generally record the result of the plug removing actions. The historical record is incomplete.	(see Table1). Also, review Section 3.0, Cross Country Waste Transfer Lines of RPP-25113. Additional information on failed or plugged pipelines can be found in "Supplemental Information Hanford Tank Waste Leaks" Johnson (RPP-RPT-29191 table1). App. A of this document also has valuable information on pipelines that were successfully unplugged and repaired. Review the info in these references concerning plugged and leaking pipelines. Section2.4 should include a description of the process in how to evaluate available info to determine accurate waste inventories. In addition, discuss what actions could be taken to investigate a failed pipeline such as use of cameras or a pig.				
42 2)4-4 3)4.1.2 4)A10 B12-15 C28-33 Dall	A) Ecology may need to obtain a determination from our Director and this process will involve additional information based on what the director determines is needed. Information for a decision that the alternate closure requirements are protective is necessary. B) Lines 12-15 do not clearly explain why a "separate, stand-alone closure plan is not anticipated" (line 15). C) As described in lines 28-31, it is not clear if the Corrective Measures Implementation/Remedial Design/Remedial Action (CMI/RD/RA) WP is a substitute for a RCRA closure plan for the SST System TSD ancillary equipment (outside of tank farm WMA) for the 200 West Inner Area and 200 East Inner Area. Does WP mean "Work Plan" for lines 32 and 33, if a TSD unit is deleted/added - would this also mean no closure plan in this context as well? D) A RCRA closure decision making process was not included in this chapter, and was not identified in Chapter 5.	A) Add "If alternate requirements are determined to be applicable, then USDOE will need to provide adequate risk evaluations and environmental impact assessments sufficient to obtain a Director's determination." B) Add an explanation of how WAC/RCRA requirements for a closure plan (and post-closure planning) are met - as defined in section 4.1.2. C) More clearly define how a stand-alone closure plan will not be needed - as described in the context of this section. D) A stand alone section should be devoted to describe how the clean up action will meet the RCRA closure requirements, including, but not limited to, 1) Identify RCRA performance standards; 2) Identify/justify actions needed to meet RCRA performance standards; 3) Non-clean closure options if RCRA clean closure standards can not be met; 4) RCRA documentation: Closure certification, and impractibility demonstration documentation for non-clean closure process. (Wouldn't this go into the ROD WP?)	A) WAC 173-303-610 1(e) and (2) B) WAC 173-303-610 (Closure and Post-Closure) C) Section 4.1.2 is confusing. The path does not appear clearly defined on how to interface RCRA and CERCLA regarding TSD units and past-practice units. D) The RCRA closure requirements must be met through actions, and documentation.		
43 2)A4-4 & 4-5 B/C4-5 3)4.1.3 4)A40-41 & 1 B1-3 C4-5	A) The following sentence does not represent SEPA. - "Ecology will make a decision during development of the RFI/CMS/RI/FS as to whether the information is going to be sufficient to make a determination on the TSD closure actions and to support a permit modification." B) The sentence stating "The coordination of CERCLA remediation and RCRA closure	A) Ecology will make a decision during development of the RFI/CMS/RI/FS as to whether the information is going to be sufficient to make a determination on the TSD closure actions and to support a permit modification of significance or non-significance for TSD closure. B) See second comment on 1.3.3. C) Add "and SEPA" to the end of the	A) Consistency and completeness. Compliance with SEPA. B) Consistency and completeness. Compliance with SEPA. C) Consistency and completeness. Compliance with SEPA.			

	and corrective action processes to be used for the 200-IS-1 OU provides for the integration of NEPA values" is an incorrect statement, similar to section 1.3.3. This is not how NEPA values are addressed and incorporated into the applicable CERCLA and RCRA documentation. Identification and compliance with applicable 'environmental' ARARs within the CERCLA/RCRA documentation and processes will ensure NEPA values are addressed. These NEPA values need to be adequately addressed to satisfy SEPA determination(s). C) This document must also comply with SEPA.	sentence.				
44 2)A4-5 B4-6 3)A4.1.4 B4.2.1 4)A6-28 B27-28	A) USDOE - ORP has been working on this issue for quite some time, and has developed a document that remains under the TPA Primary document review process, *Radioactive Waste Determination Process Plan for Waste Management Area C Tank Waste Residuals* (RPP-PLAN-47325). USDOE -RL and USDOE-ORP should coordinate their activities and reach a point of mutual agreement on what needs to be done, once Ecology comments have been resolved on the cited document. B) The text states "As indicated previously, the RCRA corrective action process to address RCRA past-practice releases will be satisfied through the CERCLA process." However, this does not provide an integrated RCRA/CERCLA approach to the project.	A) Include a reference to the RPP-PLAN-47325, discuss comment resolution process and include USDOE-ORP approach to the WMA pipelines, so that USDOE RL and ORP are consistent in the application of their Order 435.1. Indicate that this will minimize work, be consistent in the application of this order and be efficient. B) Modify the sentence to state, the RCRA corrective action process to address RCRA past-practice releases will be evaluated, documented, and included as part of the CERCLA documentation process."	A) TPA section 5.5 B) Previously, this work plan stated that RCRA requirements would be clearly indicated in the CERCLA documentation.			
45 2)4-7 4)A4 B7-9 C14-15 D14-16 E16	A) Change the last sentence in the paragraph as it is not accurate for TSD. B) The text states, "All waste sites will be evaluated through the CERCLA process using a coordinated approach that is responsive to RCRA corrective action and supports TSD closure requirements. Sections 4.2.1 and 4.2.2 present the processes to complete these evaluations." However, this sentence and referenced sections do not clearly describe how the CERCLA process will be implemented and what specific RCRA corrective action or closure requirements will or will not be implemented and how to support TSD closure. C) The text states, "Clean closure would remove all 200-IS-1 OU hardware, including the removal of associated contaminated soil,	A) .....constituents or residues do not exceed the cleanup levels and/or meet closure standards for clean closure or demonstrate that clean closure is impracticable. B) Re-draft this sentence and the referenced sections to clearly state what RCRA corrective and closure requirements will be used and how they will be used to achieve closure as documented through the CERCLA process for 200-IS-1. C) Modify the text to state "...including the removal of associated contaminated soils and treatment of contaminated soils..." D) WAC 173-303-640(8) states: • Clean closure requires the removal or decontamination of all waste residues, contaminated containment systems components, contaminated soils, and	A) Logic B) This information is needed in this document to be agreed upon by Ecology and DOE in order to write a valid RFI/CMS and perform an RA/PA for the TSDs. C) Look at the 100 Area for depth of RTD and how applied. D) Compliance E) Compliance			

	to a depth of 4.6 m (15 ft), or until PRG concentrations are achieved." However, at this time, it is unknown if groundwater has been contaminated by 200-IS-1 pipelines. D) The following statement is not the definition of clean closure for TSDs. Ecology could not accept this, to date, as meeting the criteria for TSD closure. - As part of the development of alternatives, DOE will define one or more alternatives based upon the following assumptions: •Clean closure would remove all 200-IS-1 OU hardware, including the removal of associated contaminated soil, to a depth of 4.6 m (15 ft), or until PRG concentrations are achieved. • Removal of pipeline system waste sites to a depth of about 3 m (10 ft). E)The text states:"Removal of pipeline system waste sites to a depth of about 3 m (10 ft)." However, the extent of excavation is more like 35 feet based on our soil type and most contaminated lines are buried deeper than 10 ft.	structures and equipment contaminated with waste if this is not possible then DOE will demonstrate that not all contaminated soil can be practicably removed or decontaminated. • Ecology will review the FS preferred alternative and closure section to determine if an alternative requirements will meet the closure performance standards of WAC 173-303-610(2) and the director may determine that alternative requirements can be used to satisfy closure of the TSD. E) Modify the text to state "…about 12 m (35 ft)."				
46 2)4-10 3)4.3 4)Aall B2-13 C33 D28-37	A) A key need is to identify leak locations, especially for deeper pipelines that won't de facto be RTD. B) The text states "The following information gathering tasks and evaluations will be completed to support this remedial alternative logic: • Defining....footprint of a protective barrier (for the purposes of assignment to SST WMAs or Canyon OUs)." However, these actions have already been completed for most of the pipelines and ancillary equipment. C) ORP has been working on this issue for quite some time, and has developed a document that remains under the TPA Primary document review process, RPP-PLAN-47325. USDOE -RL and USDOE-ORP should coordinate their activities and reach a point of mutual agreement on what needs to be done, once Ecology comments have been resolved on the cited document. D) The text states "In order to complete the pipeline system RFI/RI data package and the remedial alternative evaluations, additional information on the construction and operation of the pipeline systems is needed.	A) add bullet: "Presence of breaks or gaps where leaks occurred." B) Modify the text to state that this work has been completed and provide a date that the RFI/RI data packages) will be compiled and submitted to Ecology. C) restate the bullet to start with USDOE-RL and ORP will collaborate on RPP-PLAN-47325 to consistently apply Order 435.1; then modify existing sentence by deleting "Clear definition", and then state: "USDOE will clarify the…." D) As a significant portion of this information has been collected and presented in previous documents, please modify the text to state that information will be compiled and presented to Ecology 1 year prior to the submittal of the RFI/RI/CMS/FS.	A) Completeness B) This work has already been completed and presented in several documents including past versions of this Work Plan, CP Closure strategy documents, etc. C) Clarity. D) This work has already been completed and presented in several documents including past versions of this Work Plan, CP Closure strategy documents, etc.			

	Additional information needs and activities to be completed include the following:" There are two sets of bullets delineating the information being gathered. Most of this information has been complied. Is the project intending on using this information and then adding new information as necessary or is the project intending to compile all the information from scratch?					
47 2)4-11 3)A/B/C/D 4.3.1 E4.3.2 4)Aall B4 C/D20-21 E33	A) This section is detail about the FS methodology, whereas the title is about the DQO. B) EPA 540-R-00-002 are guidelines, not requirements. C) This sentence states use of the existing 200-IS-1 DQO report (D&D-30262). During the project workshops held in fall 2011 between DOE, Ecology, and contractors, DOE committed to reworking or replacing the 200-IS-1 DQO in support of the RFI/CMS/RI/FS. D) The text states "The confirmatory and verification sampling cost estimate DQO process will utilize the existing 200-IS-1 DQO report (D&D-30262) to define the DQOs in this activity." Will this DQO be completed with Ecology consultation? Will Ecology have the opportunity to review and approve this document? E) The paragraph does not fully address changes/activities that would occur when segmenting a pipeline system.	A) Move text to a different section on FS, and add additional detail on DQO. B) Change the sentence to read in part as, "meet EPA CERCLA cost estimating guidance (EPA…" C) Please clarify the DQO statement and what DQO will be used. Also, add to Task 4 in Ch 5. D) Modify the text to state that this DQO effort will be conducted in consultation with Ecology and that Ecology will have the opportunity to review and approve this document in 2013, prior to completion of the RFI/RI. E) Add a sentence between the last two sentences that states, "The proposed segmentation of a pipeline would require a TPA Change Notice to cover the remaining pipeline segments, and identify which portion of the pipeline goes into which specific OU. Also, reword the last sentence to read in part as, "...For those newly identified/numbered pipeline system waste sites considered not part of 200-IS-1 OU, they will be designated to be part of a Canyon OU...." Also, add to Task 1 in Ch 5.	A) Clarity B) Consistency and completeness. C) Consistency and completeness. D) Clarity E) Consistency and completeness.			
48 2)A4-12 B4-13 C4-14 3)A4.3.3 B4.4 C4.5.1 4)Aall B16-36 C15-22	A) Existing video surveys were a key discussion during workshops. Section omits mention. B) The following statement is not the definition of clean closure for TSDs. Ecology could not accept this, to date, as meeting the criteria for TSD closure. See modification As part of the development of alternatives, DOE will define one or more alternatives based upon the following assumptions: • Clean closure would remove all 200-IS-1 OU hardware, including the removal of associated contaminated soil, to a depth of 4.6 m (15 ft), or until PRG concentrations are achieved.	A) Add text as follows: "Locations of leaks can be established from existing video surveys that show gaps and breaks in pipelines. DOE will index and review video surveys, and will prepare text and figures showing where gaps and breaks exist. They will also prepare text and figures showing sections of pipelines where there is no video coverage." B) SEE WORD FILE C) Add another bullet listed the use of an OVM to perform organic vapor monitoring during excavation activities.	A) Discussed during fall 2011 Work Plan workshops. B) Correctness. C) Completeness.			

	• Removal of pipeline system waste sites to a depth of about 3 m (10 ft). C) The text states "Data collection during the remediation of pipeline system components will be specifically identified in the CMI/RD/RA WP and would include the following activities: • Radiological screening of soil that is excavated to reach and remove buried pipeline and pipeline components • Radiological screening of the exposed exterior of structures • Visual inspections of the interior of pipelines and pipeline components, to the extent practical, either by personnel inspection or by remote video equipment • Sampling and analysis of pipeline and pipeline component residual wastes." However, organic vapor monitoring is not listed and can be used as a survey method to ensure semi and volatile organic wastes are removed during excavation activities.					
49 2)A/B5-1 C/D5-1 to 5-4 3)A5 B5.1 C/D5 & ES 4)A23-26 B36 C/Dall	A) The text states "Based on existing waste site information and data, along with DOE's preference to remove potentially contaminated pipeline system waste sites, additional field characterization is not identified as a data need to support remediation alternative evaluations and remedy decisions." There is no evidence that all contaminated pipelines will be excavated. Also, data are insufficient to establish the extent of contamination and perform a risk assessment. B) "Evaluating risks" can mean many different things. C) These tasks require detailed identification of tasks that will be required in preparation of the RFI/CMS/RI/FS addressing applicable issues/commitments, as detailed in several earlier comments (i.e. showing compliance with several ARARs such as with NEPA/SEPA) D) Coordination of activities associated with other projects (e.g. canyon OUs, Tank Farm Waste management areas): Provide necessary coordination of activities associated with other planned activities such as the Tank Farms (e.g. the RFI/CMs, PAs deep vadose zone, etc.) and canyon OUs in terms activities and the associated	A) Please delete this statement. B) Define risk. C) Add a description in the applicable Task (1 through 5) that identifies activities in preparation of the RFI/CMS/RI/FS. D) Modify the text and provide coordination links with graph/chart showing various linkages.	A) See Appendix B comment regarding adequacy of data. B) Clarify construction, human health, ecological..... risks, etc. C) Consistency, completeness, and confirming obligations made in fall 2011 workshops. D) Integration of activities across the site is essential to maintain consistency across the sites.			

	timelines/schedules so that all the programs gets benefits out of this program and vice versa.					
50 2)5-1 to 5-4 3)5 & ES 4)all	A) General: The tasks identified (e.g. Chapter 5) are too general and did not identify any specific activities/action that must be identified as RI/FS/ Work to be performed. It is confusing that another RFI/RI data package is a part of the work plan. It is assumes that data are already available, based on which you already identified all the waste sites by categories. This work plan is supposed to be one step ahead of that scope. To meet these overarching requirements, based on the available information this document should clearly identify the tasks to be completed with clear work plan and associated attributes (e.g. sampling plan, etc.) B) Data Collection and the nature and extent of contaminant distribution: identify the data to be collected for the specific pipeline system and provide the necessary logic why and what kind of information and how these data will be used. The task should highlight what data are currently available, the data gaps identified. C) Task-not clearly identified. Inventory and uncertainty: Provide full details of the inventory of the waste sites and the uncertainty associated with. Clearly identify the task to be performed as a part of this RI/FS work plan to reduce the uncertainties/data gaps in order have a credible risk /impact study so that appropriate remedial alternative evaluation could be carried out. Although in many cases there is no inventory information (Table B-1), in some cases, we have good inventory information which could be used to select some of those sites as candidates for modeling. D) Vadose Zone transport modeling: In many cases where there is no inventory information (Table B-1), in some cases, we have good inventory information which could be used to select some of those sites as candidates for modeling.	A) Modify the text and clearly identify the work to be carried out in this chapter. B) Modify the text and clearly identify the work to be carried out in this chapter. C) Modify the text and clearly identify the work to be carried out in this chapter. D) Based on the current inventory, use nature and the extent of contamination and other related information, identify facilities where vadose zone transport modeling will be conducted using Ecology codes, input parameters. Provide appropriate logic of site parameters to be used at each specific site in this work plan. Identify the waste sites that may require vadose zone modeling. Provide appropriate logic of site parameters to be used at each specific site in this work plan.	A) This is a CECRLA work plan which should clearly identify the tasks to be completed with actual field and other activities with schedules and deliverable. B) This is a CECRLA work plan which should clearly identify the tasks to be completed with actual field and other activities with schedules and deliverable. C) This is a CECRLA work plan which should clearly identify the tasks to be completed with actual field and other activities with schedules and deliverable. D) This is a CECRLA work plan which should clearly identify the tasks to be completed with actual field and other activities with schedules and deliverable.			
51 2)5-2 3)A5.1.1	A) The section is titled and describes how the project will Define Inventory, Structural Characteristics, and Other Physical	A) Provide a paragraph describing what has been completed (i.e. X X of YY total pipelines have data accumulated, and how	A)This delays the schedule of this OU unnecessarily. B) Discussed during fall 2011 Work Plan			

B/C5.1.2 4)A4-25 Ball C26-42	Attributes of Pipeline System Waste Sites. However, this effort was initiated in 2002 and should have been completed by 2007. B) Existing video surveys were a key discussion during workshops. Section omits mention. C) This section is titled and describes how the project will Assemble Pipeline System Waste Stream Characteristics. However, this effort was initiated in 2002 and should have been completed by 2007.	many pipelines remain to be evaluated.) Also discuss how long this task will take to be completed and what specific data sources have been reviewed and which ones remain. B) Add text as follows: "Locations of leaks can be established from existing video surveys that show gaps and breaks in pipelines. DOE will index and review video surveys, and will prepare text and figures showing where gaps and breaks exist. They will also prepare text and figures showing sections of pipelines where there is no video coverage." C) Provide a paragraph describing what has been completed (i.e. X X of YY total pipelines have data accumulated, and how many pipelines remain to be evaluated.) Also discuss how long this task will take to be completed and what specific data sources have been reviewed and which ones remain.	workshops. C) This delays the schedule of this OU unnecessarily.			
52 2)5-3 3)A5.1.3 B/C5.1.4 4)A13-24 B25-35 C27-35	A) This section is titled and describes how the project will Coordinate Pipeline System and Associated Unplanned Release Waste Sites Assignments with the Respective Canyon Operable Units and Tank Farm Waste Management Areas. However, this effort was initiated in 2002 and should have been completed by 2007. B) More detail on vadose zone transport modeling is needed, along with a discussion on related uncertainties. C) The main focus of this section should be contamination along the belt of soil moisture consisting of first-order calculations evaluate contamination migration. This allows for consideration of uncertainty in the development of the conceptional mode, sources term, infiltration rates, hydrologic properties, and other parameters that are consistent with local field observations and data.	A) Provide a paragraph describing what has been completed (i.e. X X of YY total pipelines have data accumulated, and how many pipelines remain to be evaluated.) Also discuss how long this task will take to be completed and what specific data sources have been reviewed and which ones remain. B) As information becomes available, provide more detail on vadose zone transport modeling, including assumptions on input parameters and source term. In addition, please describe parameter and model uncertainties. C) Include in this section details of the vadose zone transport models and/or whether the data management system will include multiple models, different model types and its interface tools.	A) This delays the schedule of this OU unnecessarily. B) Model details and uncertainties need to be described. C) Clarity			
53 2)5-4 3)5.3 & 5.4 4)1-22	A step is missing between Task 3 and Task 4. Include an additional task between 3 and 4 that explains how and when the RFI/RI data package will be completed and sent to Ecology for review and approval.	Add this information as a new task. Also, describe how this data package will be documented and organized. (i.e. a spreadsheet for each pipeline listing all data with references, maps, and drawings attached; or a word file executive summary for each pipeline listing all the data with references, maps, and drawings attached.	Completeness and correctness.			
54 2)6-1	The schedule as presented is incomplete.	Add the task of completing the RFI/RI data packages, Ecology's review and concurrence	Completeness.			

T6-1		of said packages.				
55 2)7-1 3)7.1 F 7-1	The figure is almost pointless, as it does not truly depict the project organization. And it does not show the interface between the 200-IS-1 OU project and other OU projects. The figure and the following subsections fail to detail relationships between the entities identified. As an example, the 'Integration' box shows 'integration' between Tank Operations Contractor and Plateau Remediation Contractor. This does not, and will not happen as depicted. The only way the two contractors will interface is if RL directs their contractor to 'interface' with the ORP contractor on a specific issue, and at the same time DOE ORP directs the Tank Ops Contractor to 'interface' with the Plateau Remediation Contractor on a specific issue agreed upon within DOE - notably because that interaction may not be in either contractor's contract. And, the figure shows 'Regulatory Managers' outside of the 'Integration' box, which should show the Ecology Project Manager inside the box and perhaps the EPA Project Manager and other Regulatory Managers in an outside box.	Provide a new Figure more accurately showing relationships, followed with word descriptions of those relationships. Also, add to Task 4 in Ch 5.	Consistency and completeness.			
56 2)7-1 to 7-3 3)all of 7	This section fails to accurately describe in detail the relationship of the entities involved. Further, the section does not detail the relationship of the RFI/CMS/RI/FS to other OU documentation or WMA documentation (i.e. EIS). During the 2010 Fall Workshops, RL committed to detailing these relationships in development of the RFI/CMS/RI/FS.	Improve this section by explaining the detailed interfaces of the RFI/CMS/RI/FS to other OUs, WMA; and between RL and entities such as ORP, Ecology, EPA, RL contractors, ORP contractors, WDOH, etc. Also, add to Task 4 in Ch 5.	Consistency and completeness.			
57 3)App B 4A/B/C/D T B-1 & T B-2 E T B-1, B-2, B-3 F T B-3	A) Many of the dates are not specified. However, the project can review the dates associated with the dates of operation for a crib, trench, tank or specific process operation. B) Many of the contaminant inventory and liquid discharge volume are not specified. However, the project can review the information associated with the operations for a crib, trench, tank or specific process operation. C) Contaminate inventory and volume release data is essential in the vadose transport modeling CSM and monitoring network. D) The tables show a limited amount of data	A) Add this information. B) Add this information. C) Include field data not as an evaluation exercise. D) Refer to the DQO completed in 2008 for 200-IS-1 for a strategy to gather adequate data for baseline risk assessment and remedy evaluation. If funding is inadequate to perform further characterization, the scope of this effort should be limited to those areas with adequate data. After performing remediation in those areas, a work plan can be written to address all of the remaining pipelines. E) Add a column to each Table to include the References for the data presented.	A) Completeness B) Completeness C) Completeness D) In East Area there are roughly 32 out of 179 pipelines (16%) with any data, and for West Area there are roughly 35 out of 140 pipelines (25%) with any data. Most of the data are radiological surveys, and in many cases surveys done many years ago. There are very few chemical data. E) Completeness F) Completeness			

	for the pipelines. This is inadequate for risk assessments. Risk assessments are required for both baseline conditions and remedy development. E) References are missing from all data in the Tables. F) Missing Low, Moderate and High radionuclide activities of waste streams. Also add if the waste stream contained VOAs or Semi-VOAs.	F) Add this information.				
58 3) App C	Several ARARs are missing from Appendix C.	SEE ATTACHED WORD FILE THAT LISTS MANY OF THE MISSING ARARs.	All applicable ARARs need to be listed.			
59 Maps, Plate 2	A) The map does not show that pipeline 200-E-127 continues from the northern part of 200 East down to the southern section that enters PUREX. It appears on the map that a large section of this pipeline has been removed. B) UPR waste sites 200-E-80 and 200-E-1 are not shown on Plate 2.	A) Correct Plate 2 to show the full extent of 200-E-127-PL. B) Please include these two waste sites on Plate 2.	A) See Hanford Site 200 East Area Waste Site Operable Units Map of 7/19/2005, Central Mapping Services, Fluor Hanford B) These waste sites are referred to on p. 3-29.			