



STATE OF WASHINGTON  
 DEPARTMENT OF ECOLOGY  
 3100 Port of Benton Blvd • Richland, WA 99352 • (509) 372-7950

November 10, 2011

11-NWP-135

Stephen L. Korenkiewicz, Lifecycle Report Project Manager  
 Richland Operations Office  
 United States Department of Energy  
 825 Jadwin, MSIN: A5-16  
 Richland, Washington 99352

Re: Department of Ecology's Review of the 2011 Hanford Lifecycle Scope, Schedule and Cost Report,  
 DOE/RL-2010-25 Revision 0, dated July 2011 (Lifecycle Report) 0097859

Reference: See Next Page

Dear Mr. Korenkiewicz:

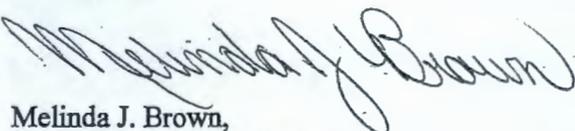
The Department of Ecology's Nuclear Waste Program staff has reviewed the Lifecycle Report. We recognize the efforts the United States Department of Energy (USDOE) Richland Operations Office and Office of River Protection made to prepare the 2011 Lifecycle Report. We also recognize your work to involve Ecology and the United States Environmental Protection Agency Hanford Project Office during its development.

We appreciate the opportunity for our staff to participate in developing a range of alternatives and to identify a reasonable upper bound for remediation of the 200-SW-2 Operable Unit. We will continue to support USDOE during the preparation of upcoming reports and to give our recommendations during the development of alternatives.

Enclosed are both general and detailed comments on the FFY 2011 Lifecycle Report. We would like to discuss these with you to support the development of future reports. We look forward to working with you to resolve all of our comments.

If you have questions about these concerns or the comments in Enclosures 1 or 2, please contact me at 509-372-7886.

Sincerely,

  
 Melinda J. Brown,  
 M-036-01 Milestone Manager  
 Nuclear Waste Program

dbm  
 Enclosures (2)

cc: See Next Page

M-36-DIA



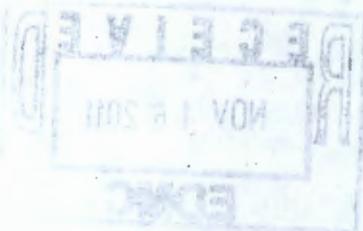
7360010  
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Reference: Letter 11-PIC-0038, dated July 21, 2011, from Matt McCormack, USDOE-RL and Scott L. Samuelsen, USDOE-ORP, to J. A. Hedges, Ecology and D. A. Faulk, EPA, "Completion of Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) M-36-01A Milestone"

0097859

cc: David Einen, EPA  
Dennis Faulk, EPA  
Stacy Charboneau, USDOE  
Shannon Ortiz, USDOE  
Pam Zimmerman, USDOE  
Dru Butler, MSA  
Stuart Harris, CTUIR  
Gabriel Bohnee, NPT  
Russell Jim, YN  
Susan Leckband, HAB  
Ken Niles, ODOE  
**Administrative Record:**  
Environmental Portal  
USDOE-ORP Correspondence Control  
USDOE-RL Correspondence Control



**Enclosure 1**  
**2011 Lifecycle Scope, Schedule and Cost Report (LCSSCR)**  
**General Comments**

**Site-Wide Services**

We noted that RL has assessed its Project Baseline Summary (PBS) accounts for site-wide services. In Appendix E where both near-term and life-cycle costs appear in separate tables for any PBS, the site-wide services work scope summary does not provide details about “adders,” “other indirect costs” or “indirect costs for site services and infrastructure”. Site-wide services assessments appear to constitute approximately 20% of the total costs in a year in RL PBS’s, but the connection with actual cleanup is not in the report.

- We would like future reports to contain more specific information about what the adders, other indirect costs, and indirect costs for site services and infrastructure comprise.
- Such specific information should provide a correlation between the assessment for site-wide services and the impacts on cleanup funds and activities.
- We would like to see the costs for site-wide services that RL assesses ORP for ORP-0014 and ORP-0060.
- We request that ORP include the schedules and costs for site-wide services in Chapter 6.0 of the FY 2013 report and in the ORP Appendix E tables.

**River Corridor Cleanup**

The text of the FFY 2011 LCSSCR states that most of the cleanup along the Columbia River will be complete by 2015. Ecology does not support that assertion; we do not consider the end of the current River Corridor Closure contract as the end of cleanup along the River. Significant efforts (such as 100-KW Basin Deactivation) will continue after 2015.

- We request that RL modify that assertion to explain what work RL expects the current River Corridor Closure Contractor to complete by 2015 Chapter 4.0.
- We request that RL add a summary of work that will continue after 2015 to Chapter 4.0.

**Central Plateau Cleanup**

When we reviewed Chapter 5.0, we noted discrepancies between Ecology’s and RL’s assumptions and uncertainties.

- RL-0040 assumptions include use of an industrial worker scenario to define exposure scenarios and threshold cleanup levels for 200 Area waste sites. In contrast, Ecology supports the industrial worker scenario in the Inner Area and rural residential scenario in the Outer Area. Please include some explanation of RL’s choice of the industrial worker scenario in future reports.
- Please include some discussion of the risk in not using the rural resident scenario.

- RL-0040 assumptions include excavation to a depth of 15 feet below grade. Ecology supports excavation of soil to depths that are protective of human health, the environment, and groundwater in the Inner Area. Please amend assumptions to reflect decisions about excavation for specific waste sites or Operable Units in future reports.

## **Soil and Groundwater Remediation**

When we reviewed the information in the FFY 2011 report, we noted that the new Deep Vadose Zone Operable Unit remediation, for which no decision documents are in place, has a budget and schedule for remediation for FY 2019 through FY 2029. Table A-5 shows that the detailed analysis of the DVZ OU will appear in the FFY 2017 report.

- In the FFY 2013 report, please provide more information on the bases for schedule and the work that will begin in 2019 and continue through 2029.

## **Solid Waste Stabilization and Disposition**

- Information is not sufficient for Ecology to determine if RL is planning or budgeting for performance assessments of the Low Level Waste Burial Grounds or the Integrated Disposal Facility. Please address DOE's plans to fund and complete those performance assessments in the FFY 2013 LCSSCR.
- Please update the objectives for PBS RL-0013C to reflect RL's request for a waiver for requirements for treating and disposing of orphan waste.

## **Tank Waste Cleanup**

- Ecology is pleased that ORP is assuming that a second Low Activity Waste will facility provide supplemental waste treatment in Chapter 6.0 of the FFY 2011 LCSSCR. Please retain that assumption in the FFY 2012 and FFY 2013 reports.
- Integration of waste retrieval and transfer activities that appear in the Treat Waste work scope in ORP-0014 does not have a parallel effort within ORP-0060. In the FFY 2012 LCSSCR, please identify the integration work scope more fully in ORP-0014.
- Please address parallel efforts that the contractor building the Waste Treatment and Immobilization Facility (WTP) is providing in ORP-0060.
- ORP-0014 assumptions do not address how ORP will address single-point failures (e.g., waste transfer line failures) nor do they include estimates of costs to address such failures. Please address funding and risk of such failures in the FFY 2012 report.
- ORP-0014 work elements Base Operations and Tank Operations Contract – ORP Project Support have annual schedules and costs. Please provide more detailed information about what cleanup activities and/or administrative activities that those elements include in the FFY 2012 report.
- Please coordinate ORP information about “shared services” with the “site-wide services” information that RL will provide in the FFY 2012 LCSSCR.
- Please provide specific information about the “Plant Wide” work element in ORP-0060.

### **Safeguards and Security (S&S)**

- Ecology requests that RL address why it is maintaining S&S funding at a fixed level, although the Site will shrink after FFY 2020.
- Ecology requests that RL explain why S&S funding drops after FFY 2038 then slowly increases in the years following. Please correlate changes in work scope with the decrease and subsequent increase.

### **Infrastructure and Services**

- Please explain why Real Estate and Site Planning is funded through PBS RL-0040, rather than through Program Direction funds that RL receives.
- Please explain why real property asset management is in Infrastructure and Services, rather than Real Estate and Site Services.
- Please explain in detail the inclusion of Real Estate and Site Planning in “other scope elements” of PBS RL-0040. Ecology is concerned that PBS-0040 is funding too little cleanup and too much overhead/indirect/general and administrative costs.
- Please provide a list of planned Infrastructure Reliability Projects.

### **Long-Term Stewardship**

- Please include information about development of long-term stewardship plans for facilities operations, waste sites, and activities that will end in 2024.
- Please address long-term stewardship that will continue after 2090.

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5. Document Number(s)/Title(s) DOE/RL-2010-25, Rev. 0/2011 Hanford Lifecycle Scope, Schedule and Cost Report	6. Program/Project/Building Number	7. Reviewers Melinda J. Brown	8. Organization/Group Ecology/Nuclear Waste Program	9. Location/Phone 3100 Port of Benton Blvd/(509) 372-7886
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17. Comment Submittal Approval:  _____ Organization Manager (Optional)	10. Agreement with indicated comment disposition(s)  _____ Reviewer/Point of Contract  _____ Date  _____ Author/Originator	11. CLOSED  _____ Reviewer/Point of Contact  _____ Date  _____ Author/Originator
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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	<b>Editorial:</b> P. ES-2, ¶ 5 last sentence states the cleanup schedule is from FY 2011 through FY 2090. In the President's budget submission for FFY 2012 for USDOE Environmental Management (Vol. 5), Overview, p. 18, the EM Project schedule range for Hanford is 2050 – 2062. Please explain that the Report extends the schedule 28 years because it includes long-term stewardship through 2090.			
2	P ES-2, ¶ 6, sentence 1, states that the upper bound cost estimate is approximately \$115 billion. In Vol. 5 USDOE EM FY 2011 budget, Overview p. 36, the life cycle cost total range for Hanford is \$58,563 million to \$61,285 million and for ORP is \$56,784 million to \$74,687 million (total upper range for Hanford + ORP = \$135,972 million) for 1997 through 2009, including prior year costs. In the FY 2012 report, please include the ranges for the <u>total cost of cleanup</u> as they appear in the FY 2012 EM budget submission (p. 17). The M-36-01A report addresses to-go costs from FFY 2011 forward; however, that amount would be more meaningful if it were placed in the context of total funds.			
3	P. ES-4 described the lower bound for the reactor alternative analysis			

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	<p>as interim safe storage followed by one-piece removal by 2068. That lower bound matches the USDOE's preferred alternative and the Record of Decision for the EIS, <i>Decommissioning of Eight Surplus Production Reactors</i> (DOE/EIS-0119F) dated September 14, 1993. The description of the alternative analysis did not reference Sec. 4.4, where the summary of the alternative analysis appears. In the FFY 2012 and successive reports, please consider adding a reference to the discussion of the alternatives in the text (e.g., Sec. 4.4) in the Executive Summary.</p>			
4	<p>P. ES-5 summarized the alternatives analysis for the 200-SW-2 Operable Unit. In ¶ 2, sentence 1, the text stated that the reasonable alternatives for the 200-SW-2 Operable Unit, which consists of 25 separate trenches, leaves most or all of the waste in place. The text then summarized the reasonable upper bound analysis (removal of all but one of the trenches). The text did not include a reference to the PBS that includes the 200-SW-2 effort. In the FFY 2013 and future reports, please provide a direct reference to the PBS where the summaries of the analyses appear and to the appendixes that provide more information on the analyses. Ecology suggests that future summaries of alternative analyses also provide more explanation of the bases of dramatic differences in total costs and schedules for the alternatives (e.g., \$823 M versus \$16.6 B). For example, in the FFY 2011 Report Executive Summary, the estimated totals and the descriptions on p. ES-5 do not reveal that a 50% contingency totaling \$5.5 B raised the total cost of the upper bound from \$11.1 Billion to \$16.6 Billion. The text on p. ES-5 did not explain that the 50% contingency was necessary because of uncertainties in addressing the topic in advance of the completion of the CERCLA investigation activities and RCRA closure.</p>			
5	<p>P. 1-3, Sec. 1.3, sentence 3 states that the Federal budget cycle begins when DOE field offices receive fiscal year planning guidance from the President, DOE-HQ, and OMB. For the past several years, guidance has been late or never arrived (for example, the 2013 through 2017 guidance, dated July 8, 2011, arrived AFTER the</p>			

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	<p>budgets for 2013 went in <u>and</u> after RL had presented its budget at EM on 4/1/201). In the FFY 2013 report and beyond, please add the approved baselines that RL and ORP use for work in the near term. The approved baselines include all of the compliance commitments for RL and ORP, and they reflect all of the components of cleanup within RL and ORP PBS's. The approved baselines tie estimates with approved work scope. The details of the baselines appear in the approved building blocks (ABB's) that represent specific work within each project baseline summary (PBS). The ABBs have become the bases for discussions with the regulators and the public as part budget development process. Please revise the text to add a brief discussion of the ABBs and approved baselines with respect to submissions of annual budget requests.</p>			
6	<p>P. 1-10, ¶ 2, last sentence makes reference to "...dozens of inactive storage tanks..." The statement is confusing because the USDOE considers the SSTs as inactive, as well as other miscellaneous underground storage tanks. The State regulates the SST's as non-compliant tanks actively storing mixed waste. Please clarify what the dozens of inactive storage tanks are.</p>			
7	<p>P. 1-11 through 1-14, Sec. 1.5 is a useful addition to the FY 2011 report because it recounts the USDOE's understanding of the provisions of Milestone M-036-01. Ecology recommends that the information appear in each report henceforth.</p>			
8	<p>P. 1-16, Table 1-4, please update River Corridor Cleanup Actions to remove two bulleted items: "Restore 100-KR-4 Groundwater OU to Beneficial Use." and "Restore 100-HR-3 Groundwater OU to Beneficial Use." Specific goals are in place to clean up the groundwater to aquatic water quality standards.</p>			

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9	P. 2-2, Sec. 2.1.2 In the FY 2013 report, please include a discussion of the ABB's in the description of the project formulation process and explain how they tie discrete pieces of work in a PBS. Include a discussion of approved project baselines so that the public understands that a process is in place to fund specific tasks within a PBS and that the PBS control point is at the "top" of the budget "pyramid". For illustrative purposes, abstract one of the RL PBS's from the FY 2013 EM Budget Guidance letter, Attachment D (11-PIC-0036).			
10	P. 3-2, Table 3-1, PBS RL-0013C General Scope: Please add the following text: "The USDOE has agreed that the Hanford Site will not receive waste from other sites at least until the Waste Treatment and Immobilization Plant is operational. [12/31/2022]"			
11	P. 3-3, Sec. 3.2, ¶ 1: Revise Tank Waste Cleanup to be complete by 2050 to 2052 or specify "Complete pretreatment processing and vitrification of high and low activity waste by 12/31/2047" (MM M-062-00) and M-045-00A "Complete closure of Double Shell Tanks by no later than 9/30/2052". The detailed schedules show TPA MS M-62-00 and M-45-00A completion dates are the most extended to date).			
12	P. 3-3, Sec. 3.2, ¶ 1: Cleanup on the Central Plateau is forecast to be complete by 2066. The Record of Decision for the 200-ZP-1 Operable Unit indicates that this remedy must be in place and under active management past 2066 (for a total of 125 years). Please revise the FY 2013 report to show that Central Plateau groundwater remedies will extend past 2066.			
13	P. 3-3, Section 3.3: For the FY 2013 report, please consider adding the total life cycle cost ranges for cleanup for RL and ORP. See p. 17 in Vol. 5 EM of the FY 2012 budget submission.			
14	P. 3-5, Figure 3-3: Duration of ORP project is 2050. TPA MMS M-42-00A requires completion of DST Tank Farm closure by end of M-62-45 plus 5 years, or no later than 9/30/2052. Please extend the ORP Project duration through 9/30/2052.			

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15	P. 3-6, Figure 3-4: Please extend ORP-0014 through 9/30/2052.			
16	P. 3-6, Figure 3-4 and parallel figures 4-5, 4-8, 5-4, 5-9 et al. Please list the applicable tables in Appendix E that list specific \$ totals. The colored three-dimensional graphic is eye-catching but very difficult to use. The reader can see increases and decreases in funds pictorially, but the actual details are too small to evaluate. A reader interested in the detailed information must review Appendix E.			
17	Table 3-2 In the FY 2013 report, please consider adding the total life cycle cost by PBS. Please use the ranges that appear in the USDOE FY 2012 budget request, volume V, EM, pp. 31 – 32 for Hanford and pages 35-36 for ORP.			
18	P.3-8 Sec 3.4 cites the requirement in TPA MS M-036-01 that allows the DOE to include costs other than directly related to environmental obligations. The text states that the 2011 Lifecycle Report treated all costs (including obligations such as safeguards & security) as directly related to environmental obligations. Ecology continues to assert that the costs for safeguards and security, surveillance and maintenance, and site services should be separate from cleanup. Ecology appreciates that details of Safeguards & Security, Regulatory Support, and Long-term Stewardship that appear in Chapter 7. Ecology also appreciates that Table 3-2 contains estimated cleanup costs for RL-0020 (S&S), Richland Community & Regulatory Support (RL-0100) and long-term stewardship (RL-LTS) in Table 3-2. The costs for RL-0040 site-wide services, ORP-0014 Project support, and ORP-0060 Plant Wide are not clearly defined. We ask that RL and ORP present those work elements in detail.			
19	P. 4-1, Sec. 4.0 RIVER CORRIDOR CLEANUP, ¶ 2 states “The majority of RC Cleanup is on track for completion by FY 2015.” In the FFY 2013 report, please revise the statement to say “The HFFACO Action Plan Appendix D. Major Milestone M-016-00 requires the USDOE to complete remedial actions for all non-tank farm and non-canyon operable units by 09/30/2024. Many of the River Corridor Cleanup interim remedial actions that appear in Table			

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	4-1 will be complete by 2015, when the current Closure contract ends. Final remedial activities may extend until 09/24/2024.”			
20	P. 4-2 Please add milestone M-016-00 to Table 4-1.			
21	P. 4-1, Sec. 4.0 ¶ 2 states that work related to the 100-K Area is scheduled for completion by 2024, in conjunction with RL-0012 and RL-0013C. Ecology requests that the USDOE revise sentence 2 as follows: “Work related to the 100-K Area is scheduled for completion in 2024, per HFFACO Major Milestone M-016-00.”			
22	<p>P. 4-2, Table 4.1 contains the milestone numbers, titles, and compliance dates. Ecology requests that the USDOE add major milestone M-016-00 to Table 4-1 in the FY 2013 LCSSCR.</p> <p>Ecology requests that the USDOE correct the compliance date for Milestone M-016-00C to show 12/31/2020 in the FY 2012 LCSSCR.</p> <p>Ecology requests that the USDOE correct the title of M-016-74 in Table 4-1 to include “...inside the fence waste sites north of Apple Street...” in the FY 2012 report.</p> <p>Ecology requests that the USDOE add the M-016 milestones that the Tri-Parties added in FY 2011 to address the 100 K Area sludge removal (including knock out pot containers), and deactivation, and demolition and removal of the 105-KW Fuel Storage Basin in Table 4-1 in the FY 2013 report,. These milestones include M-016-170/171/172/173/174/175/176/178/181/186/187, M-093-26/27.</p> <p>In Table 4-1 in the FY 2012 report, Ecology requests that the USDOE update MS M-016-00C language and insert the milestone due date (12/31/2020).</p> <p>In Table 4-1 in the FY 2012 report, Ecology requests that the USDOE update the compliance date for MS M-094-08 to 06/30/2012.</p>			
	In the FY 2012 report, please revise Table E-22, Nuclear Facility D&D- River Corridor Closure (100-K Area Remediation) to reflect			

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	completion of the 100-K remediation by Qtr 1 FFY 2021 (e.g., show increased costs for remediation prior to FY 2022, rather than in FFY 2022, 2023, and 2024).			
	In the FY 2012 report, please adjust totals in Figure 4-4 to reflect increased funding prior to 2022 and 2023. Please revise Figure 4-5 to include 100-K Area Remediation.			
23	P. 4-3, Sec. 4.1 states that the River Corridor Closure Project established certain closure objectives. Remediation of 618-10 and 618-11 by 09/30/2015 is part of TPA MS M-016-00B. Completion by 9/30/2015 does not appear as a specific requirement of the completion strategy in DOE/RL-2009-10. Please revise the text of the cleanup objective to explain that the cleanup of 618-10 and 618-11 by 09/30/2015 is part of the interim remedial actions that the USDOE must complete per Milestone M-016-00B by 09/30/2018.			
24	P. 4-4, Table 4-2. Reactor Status: In the FY 2012 report, please revise N Reactor remaining activity to change 2013 to 09/30/2012 per TPA MS-093-20.			
25	P. 4-8, Figure 4-4 Remaining Estimated Costs by FY shows approximately \$550 million in FFY 2011. The administration requested a total of \$386,028,000 and RL received \$351,028,000 in appropriations. For FY 2011, the reader must assume that the difference in funds is either due to a carryover from prior years OR receipt of Recovery Act funds. Designating the base and Recovery Act funds in 2011 would better illustrate the contribution from the Act.			
26	Figures 4-5 (RL-0041), 4-8 (RL-0012), 5-4 (RL-0011), 5-9 (RL-0030), 5-12 (RL-0041), 5-15 (RL-0042), 5-18 (RL-0013C) all show Site-Wide Services. Appendix Tables E-1 (RL-0011), E-4 (RL-0012), E-7 (RL-0013C), E-12 (RL-0030), E-15 (RL-0040), E-19 (RL-0040 Infrastructure and Services), E-21 (RL-0041) E-24 (RL-0042) contain a standard description of the work element designated as Site Services ("...includes proportional share of indirect costs for site services and infrastructure, add, and other direct costs.) In the			

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	<p>FY 2013 report, please add specific information about what "indirect costs" and "other direct costs" include to Chapter 3.0 in Section 3.4.</p> <p>In Section 3.4, please add a table that shows all Site Services costs together (by RL PBS) and as a percentage of the total cost for each PBS to aid the USEPA and Ecology in understanding how Site Services affects the total costs.</p> <p>In the FY 2013 report, please add the same information on Site Services direct and indirect costs to Chapters 4.0 for PBS RL-0012 and 5.0 for PBS RL-0011/0030/0040/0042/0013.</p> <p>Please provide information in ORP-0014 in sufficient detail for Ecology to determine the costs for Site Services that are levied on the Tank Operations Contract work.</p>			
27	<p>P. 4-9, Figure 4-5: The cost scale (\$0 – 200 M) is too small to see actual totals for work elements. Please add a reference to Appendix Table E-22 after the Table 4-5 Title and/or provide totals in another table.</p> <p>Please explain why the work elements in Figure 4-3 and Table 4-3, and the element totals in Table E-22 do not match the Richland Authorized Building Block totals that appear in the FY 2011 ABB list that RL provided on the Hanford Budget web page (dated 06/12/2009). Direct correlation of the ABB with the Level 2 Scope Summary is not possible. Please reconcile the ABB and the Work Elements.</p>			
28	<p>P. 4-10, Sec. 4.2 references six main work elements then presents a schedule for each in Figure 4-6 on p. 4-11, a scope summary for each in Table 4-4, and details of estimated costs for the six elements plus Site Services in Appendix E, Table E-6.</p> <p>As is true with other PBS's in the Lifecycle Report, a reader cannot correlate the six main work elements and their totals to the RL FY 2011 ABBs. Some correlation between the FY 2011 RL ABB list and the six main work elements is necessary.</p>			
29	<p>P. 4-12, Table 4-4 does not list Site Wide Services. Site Wide Services appears in the RL ABBs for FY 2011 and in Appendix E</p>			

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	Tables E-4 and E-5 for PBS RL-0012. Please add to Table 4-4 in the FY 2013 report.			
30	P. 4-15, Sec. 4.4 states that the National Park Service is evaluating B Reactor for inclusion in the Manhattan Project National Historical Park. In the FY 2012 or 2013 report, please update the information. Please add the recommendation that Sec. of the Interior made to the US Congress to establish the Manhattan Project National Historical Park (including B Reactor) on July 13, 2011. In addition, please add any Congressional action on the recommendation.			
31	P. 4-15 assumptions for PBS-0012 include the assumption that T Plant is acceptable for sludge storage and no pretreatment is necessary before transfer. Figure 4-6 shows a schedule for the sludge treatment project that ends at the FY.2019. Page 5-34, Figure 5-16 shows T Plant operation through ~ FY 2054. If T Plant is placed into standby mode for FY 2012 through FY 2015, please address the impact on the sludge treatment project end date.  Please discuss the T Plant safe standby through 2015 impact on an early start (2025) for the 30-year implementation of the upper bound reactor dismantlement option.			
32	P. 5-1, last ¶ states that the goal of the groundwater portion of the Central Plateau cleanup effort is to restore the groundwater to its beneficial uses. The text does not provide specific milestones or provisions in the settlement that support the assertion. In the FY 2013 report, please amend the paragraph to include specific milestones in the text or reference the milestones in Table 5-1.			
33	P. 5-4, Table 5-1, Milestones M-091-01A and -01B text is incomplete. The M-091-01A text deletes the requirement to "... submit a milestone change package documentation (based on the conceptual design) for annual construction milestones for the planned facilities necessary for retrieval, storage, and treatment/processing, of all Hanford Site RH TRUM waste and large container CH TRUM waste." Please add the text in the FY 2013 report.  The text for M-091-01B omits the additional requirement "In			

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	addition, submit a milestone change package documenting any substantial variations, based on the definitive design, from annual construction milestones finalized pursuant to M-091-01A." Please add the text in the FY 2013 report.			
34	P. 5-4, Table 5-1, Milestone M-091-043 text is incomplete. Please add "...to applicable LDR standards in compliance with WAC 173-303-140." after "... retrievable storage."			
35	P. 5-5, Table 5-1 "Soil and Water Remediation – Groundwater /Vadose Zone, PBS RL-0030" does not list the specific milestones that the Tri-Parties established for groundwater remediation (not including target milestones). If they are not already in the FY 2012 Table 5-1, please revise the soil and groundwater remediation – groundwater/vadose zone milestone list to include the specific milestones that apply to groundwater (e.g., Change Form M-015-09-02/M-15-110A).			
36	P. 5-8, last sentence: The text states that the ARRA funding accelerated the work scope. That acceleration in turn contributed to initial peaks in the work scope funding. The text then makes a general statement that costs decline for the remainder of the lifecycle. That generalization does not address the drastic reduction in costs for FY 2012. Please add a more specific explanation that addresses reasons why efforts to disposition PFP halt for one year then resume.			
37	P. 5-11, Sec. 5.2, last ¶, sentence 1 lists cyanide as a major chemical contaminant in Hanford Site groundwater. The map of the major Hanford groundwater plumes does not show the cyanide plume. Please add the cyanide plume in 200-BP-5 to Figure 5-5.			
38	P. 5-15, Figure 5-6 footnote lists 200-ZP-2. Please change name to 200-PW-1 to reflect the change that text contains on P. 5-14 within discussion of 200-ZP-1.			
39	Page 5-19, Table 5-4 lists 200-ZP-1. Please change name to 200-PW-1 to reflect change that text contains on P. 5-14 within discussion of 200-ZP-1.			

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40	<p>Page 5-22, Table 5-6 Soil Flushing, Reason for Treatability Testing In the FY 2012 report, please revise the text as follows: “Under consideration as a potential mechanism...” The Tri-Parties are considering soil flushing; however, Ecology has not agreed to testing soil flushing yet. No testing is underway or planned to date.</p>			
41	<p>P. 5-27, Section 5.4: ¶ 3 In the FY 2013 Lifecycle report, please update the description of the FFTF containment building final closure to reflect the USDOE’s preferred alternative and the subsequent Record of Decision.</p>			
42	<p>P. 5-29, Figure 5-12 shows Site-wide services – RL-0040 shows three work elements in Figure 5-10 Schedule and in Table 5-7 Level 2 Scope but four scope work elements in Figure 5-12 (including Site-wide Services). Table E-15 that lists the Level 3 Scope Summary includes Site-wide Services as does Table E-17, which shows that Site-wide Services will total \$165,118,000 between 2011 and 2016. Table E-16 shows the remaining cost for Site-wide Services to be \$2,628,445,000, an amount almost equal to that of regulatory decisions at \$2,646,872,000. Please add Sitewide Services to Table 5-7.</p>			
43	<p>P. 5-32, Figure 5-15 shows funds for FFTF Site-wide Services, but a description of the Work Element does not appear in Table 5-8 or on the schedule in Figure F-13. Please add a scope description for FFTF Site Services in Table 5-8 and a schedule line in Figure 5-13.</p>			
44	<p>P. 5-33, Sec. 5.5 ¶2 Solid Waste Stabilization and Disposition – 200 Area lists one of the additional objectives as developing alternative methods of treatment and disposal of orphan waste. On P. 5-35, Table 5-9, descriptions of the functions of the CWC/T Plant/WRAP/200 Area LETF do not include orphan waste treatment and disposal. Please amend the appropriate work elements and scope descriptions to include orphan waste treatment and disposal in Table 5-9.</p>			
45	<p>Page 5-36, Table 5.9: Please add a brief description of Site-wide Services RL-0013C (similar to that in Table E-7).</p>			

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46	<p><b>Editorial</b> Page 5-38, Figure 5-18 shows the estimated clean-up costs by Level 2 work element; however, the order of the elements does not match the order in Table 5-9 or Appendix E Tables E-7 and E-8. The disparity in order makes visual comparisons difficult. In the FY 2013 report, please reorder the Level 2 Work Elements to reflect the order of the scope summaries and the estimates.</p>			
47	<p>P. 5-39, Sec. 5.6 ¶ 3 introduces the assumptions that the USDOE made for PBS RL-0040 D&amp;D – Remainder of Hanford. In the first bullet, the report states that the industrial worker scenario will define the exposure scenarios and the threshold cleanup levels for waste sites in the 200 Areas. The first bullet then adds a parenthetical explanation that DOE/RL-2009-81 assumes an industrial worker scenario for the Inner Area and a rural residential scenario in the Outer Area. Ecology’s views differ from those that the USDOE used in the LCSSCR and align more closely with the assumptions in DOE/RL-2009-81. Ecology supports the use of the industrial worker scenario for the Inner Area and rural resident scenario for the Outer Area. In the FY 2013 report, please address the State’s assumptions.</p> <p>For the LCSSC Report, Ecology agrees that the USDOE may use 15 feet below grade for the depth of excavations that is in the 5<sup>th</sup> bullet but <u>only</u> to calculate costs and schedules. As part of the planning for a specific remediation effort, the USDOE and the regulatory agencies will determine the depth of excavation that will be necessary to remediate a waste site to ensure protection for humans, the environment, and the groundwater. In the FY 2012 report, please add a statement that the depth of excavation will be determined when the Parties plana specific remediation measure.</p>			
48	<p>P. 6-1, ¶ 2 states that the River Protection Project (RPP) must retrieve, treat and dispose of 53 million gallons (Mgal) of tank waste. ORP-11242 Revision 4 states that 57 Mgal must be retrieved, while Revision 5 states that 56 Mgal must be retrieved. In the FY 2013 report, please use total quality of waste to retrieve as of 07/30/2012.</p>			

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49	<p><b>Editorial:</b> P. 6-1, ¶6 states that six facilities, called canyons, served as separations facilities. Per the description of canyons on the Hanford web page, only five (5) canyons served the original objective: separation of plutonium from irradiated fuel <a href="http://www.hanford.gov/page.cfm/CanyonFacilities">http://www.hanford.gov/page.cfm/CanyonFacilities</a>. They included B, T, U, REDOX, and PUREX. PFP or Z Plant housed the end of the process where the liquid plutonium nitrate solution underwent processing to become solid plutonium or plutonium oxide powder <a href="http://www.hanford.gov/page.cfm/PFP">http://www.hanford.gov/page.cfm/PFP</a>. Please revise the statement to list 5 canyons and one facility that solidified the liquid the others produced.</p>			
50	<p>P. 6-2, ¶ 2 described past practices in which supernate underwent evaporation, but the description did not include interim stabilization. Interim stabilization came to be governed by a consent order because the schedule for stabilization was not sufficient to protect the environment. Please insert a brief description of interim stabilization (similar to that on P. 6-8 Sec. 6.1 ¶ 1).</p>			
51	<p>P. 6-2 ¶ 4 3rd bullet states that the current strategy will be to develop and deploy supplemental treatment capability to treat the two-thirds of the Low Activity Waste (LAW) fraction. Figure 6-1 shows “2<sup>nd</sup> LAW Waste”. Neither location specifies what the supplemental treatment will be. Please insert the assumption that supplemental treatment will be the same as the LAW vitrification process in the existing LAW (matching assumptions on P. 6-16 in bullet 4).</p>			
52	<p>P. 6-7 Table 6-1 lists TPA Milestone M-062-45-ZZ. That milestone does not appear in Hanford Federal Facility Agreement and Consent Order, Attachment 2 Action Plan Appendix D. Reference to the submittal of a one-time supplemental treatment selection and milestones appears in M-062-040 Supplemental Treatment item 3. In the FY 2013 report, please revise the Table 6-1 Milestone to delete M-62-45 ZZ. Please add TPA Milestone M-62-40 “DOE shall submit a one-time Hanford Tank Waste Supplemental Treatment Technologies Report, which will be required if a tank waste supplemental treatment technology is proposed, other than a 2<sup>nd</sup></p>			

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	LAW Vitrification Facility.” Compliance date: 10/31/2014.			
53	P. 6-7 Table 6-1 Please add the following TPA Milestone M-62-40: “ DOE shall submit a one-time Hanford Tank Waste Supplemental Treatment Technologies Report, which will be required if a tank waste supplemental treatment technology is proposed, other than a 2nd LAW Vitrification Facility.” Compliance date: 10/31/2014.			
54	Page 6-7 Table 6-1 does not include any of the M-47-00 milestones that govern management of secondary waste. In the FY 2012 report, please add M-047-00 and M-047-06 to Table 6-1.			
55	Page 6-9, Table 6-2 Please add work element Secondary Waste Treatment with a scope description.			
56	PP. 6-12 & 6-13, Sec 6.2 Figure 6-7 presents a schedule for the “Plant Wide” work element. Table 6-3 describes “Plant Wide” as cross-cutting services and equipment that is provided to the construction site. In the FY 2013 report, please expand the Table 6-2 “Plant Wide” description to explain more fully what “cross-cutting services and equipment” includes. Please indicate whether the category includes an estimate of site-wide services (e.g. fire protection, electricity, water), costs for rental of construction equipment (e.g., large cranes), or costs for security.			
57	P. 6-13 Table 6-3 does not contain a work element or a work summary that describes the activities that will be necessary to ensure integration of waste retrieval/transfer in the Tank Farms with the commissioning and operation of the WTP. Please add a work element for the integration effort in the ORP-0060 in Table 6-3.			
58	P. 6-16, Sec. 6.3 ¶ 2 bullet 1 states that the cesium and strontium capsules will not be processed in the WTP. In contrast, Chapter 5 Table 5-1 (P. 5-5) lists TPA MS M-092-05. That milestone requires the USDOE to determine a disposition path and establish interim milestones for Hanford Site cesium/strontium capsules by 6/30/2017. Please provide more information about the bases for the ORP assumption and add any tentative or final agreements among the Tri-			

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	Parties to delete the M-092-05 or declare it complete.			
59	<p>P. 6-16 assumptions include the assumption that CH TRU treatment and processing capability will be available in FY 2015 to support TRU tank retrieval. In addition, another key assumption is that packaged CH TRU waste will be interim stored onsite in the CWC. Ecology disagrees with any assumption that HLW tank waste may be designated as TRU waste. Please address this issue in the FY 2013 report.</p> <p>In addition, Rev. 4 of the system plan contains different assumptions than those that appear on P. 6-16 of the FY 2011 Lifecycle Report. Per System Plan Rev 4 Sec. 5.5.1, a supplemental TRU treatment facility will support beginning CH-TRU processing in FY 2018 and ending processing in FY 2022. Rev 4 Section 5.7 Disposal Offsite Sec. 5.7.1 states that ORP will begin shipments of 7,491 drums of CH-TRU to WIPP no sooner than April 2018 and finish no later than May 2022. Rev. 4 does <u>not</u> specify that CWC will provide interim storage (which appears in Figure 1-2 Simplified Process Flow Diagram). In contrast, System Plan Rev 5 shows supplemental TRU treatment and includes interim storage at CWC (Figure ES-1 and Table ES-1). In the FY 2013 report, please add a table that outlines the changes in the System Plan from the FY 2012.</p>			
60	P. 16, Sec. 6.3, 4th bullet states that supplemental treatment will be provided by a second LAW vitrification facility located adjacent to the WTP. In the FY 2013 report, please continue to assume that supplemental treatment will be 2 <sup>nd</sup> LAW. Ecology does not support the assumption that other form of technology will provide supplemental treatment as an option in the LCSSCR.			
61	P. 16, Sec. 6.3, Revise 9 <sup>th</sup> bullet: Please insert the following new sentence before the existing text in the 9th bullet. Add sentence: "The 242-A Evaporator is a critical resource." Please discuss the risk of loss of the 242-A Evaporator in terms of a single point failure.			
62	Page 6-17 Sec. 6.3, 3rd bullet lists the assumption that the official WIR determinations will be consistent with the assumed disposition			

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	of the primary and secondary waste forms before their disposition. Ecology suggests that subsequent revisions of the Ch. 6.0 Assumptions list the modification of the WIPP permit to accept Hanford tank waste as TRU waste among the uncertainties.			
63	P.6-17, Sec. 6.3 4 <sup>th</sup> bullet: Please add the following new text before existing text: "The cross-site transfer system is a critical resource. The cross-site transfer system will operate as needed through the life of the mission."			
64	Pages 6-16 and 6-17 do not include any assumptions about the treatment of secondary waste from WTP tank waste treatment. Please address WTP secondary waste treatment and include assumptions in the FY 2012 report.			
65	P. 7-2 Sec. 7.1 ¶ 2 discusses the Safeguards and Security funding profile in Figure 7-3. The text states that the initial drop in cost after the initial peak correlates with the completion of the initial remedial actions for non-tank farm and non-canyon operable units. Another abrupt decrease appears in Figure 7-3 (in 2039), but the text contains no explanation. In the FY 2013 report, please add an explanation for the second drop in 2039.			
66	P. 7-4, Sec. 7.2 RL Community and Regulatory Support ¶ 3 states the drop in costs is related to the end of grants following completion of actions for all non-tank and non-canyon Operable Units. Costs extend to 2060. This assertion appears to contradict Figure 5-10 where the Zone Environmental Remediation time line extends to FY 2065 and Table 5-7 that describes the Zone Environmental Remediation as geographic remediation of closure zones in the Central Plateau. In the FY 2013 report, please extend regulatory support to 2065 to match the schedule for zone environmental remediation and recalculate the costs to recognize that extension in the schedule.			
67	PP. 7-6 & 7-7, ¶ 4 states that in FY 2012, Real Estate and Site Planning will be planned in the other elements of RL-0040. Please clarify where the Real Estate planning for the River Corridor will			

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	appear in FY 2012.			
68	<p>GENERAL – the scope of LTS is ambiguous. It must be more precise to support a \$4 billion cost estimate.</p> <p>Revise the description of LTS to address the following issues:</p> <p>A. Move “Institutional Controls” out of this section because text refers to “Institutional Controls AND Long Term Stewardship” – with the implication that they are two separate work elements. Ecology agrees with the separation into two separate work elements – ICs are specified in the remedy and should be described in the costs for River Corridor Cleanup and Central Plateau Cleanup.</p> <p>B. Similarly, surveillance and maintenance of engineering controls is specified in the remedies and should be described in the costs for River Corridor Cleanup and Central Plateau Cleanup.</p> <p>C. The “Waste Management” scope as defined in Table 7-4 is part of the remedy implementation because it includes groundwater treatment. This should be described in Section 5.2 of this report, not in LTS.</p> <p>D. Some of the “Site and Environmental Monitoring” is associated with monitoring groundwater remediation and should also be described in Section 5.2.</p> <p>E. Delete reference to the “Hanford Site LTS Program” because this text refers to it as “when created.” Text should not refer to a Program that does not exist.</p> <p>F. The reference to the CLUP is outside of the scope of the CLUP ROD, which allows DOE to plan land use for at least 50 years. Upon “completion of Hanford Site cleanup actions,” the Hanford Site will presumably have no mission, so the authority of the CLUP will lapse. Constrain the reference to the CLUP to “until cleanup completion” and delete the phrase “In addition to managing the post-cleanup completion obligation” in conjunction with the CLUP.</p>			
69	P. D-2 In the FY 2013 report, please ensure that the Hanford Site RCRA permit title reflects Rev. 9 that the State will issue ( <i>Hanford</i>			

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	<i>Site Dangerous Waste Permit Rev. 9)</i>			
70	<p>P. D-23 Permit ST 4507. Please revise the description to state that permit has expired but remains in active status pending imminent closure of 100 Area facilities. The permit will not be renewed for the 100-N system. The USDOE's contractor is submitting an application for a replacement system that will lie in the 600 Area, immediately outside of the northeast corner of 200 West Area. That system will require a separate permit.</p>			
71	<p>MS-036-01A states "...Costs shall be displayed by program baseline summary. Additional levels of detail will appear in the appendixes of the report.... Reporting in the appendixes will typically be one level below the PBS for the lifecycle, and at levels below that for two to five years beyond the execution year (usually at the activity level within the budget assigned to a specific project, e.g., RL-0011, WBS element 011.04.01, Nuclear Material Stabilization and Disposition – PFP, Disposition PFP, Transition 234 5Z)...." Appendix E contains tables that display varying levels of detail; however, they do not all display the information with a designation of the WBS level. Without WBS structure, Ecology cannot determine if the information in the Appendix E near term and life cycle table reflects the approved WBS. Please include the approved WBS structure for RL and ORP in the FY 2013 report.</p>			
72	<p>P. E-5 Table E-3 NM Stabilization and Disposition PFP Near-Term Schedule and Costs, Level 3, by Fiscal Year shows the Total for FFY 2012 as \$48,371,000. The FY 2012 request to Congress totaled \$ 48,458,000. Please explain the disparity in the totals or replace the FFY 2012 total in the table.</p> <p>Also in Table E-3, Transition 243-Z stops in FFY 2012 then resumes and finishes in FY 2013. Perhaps an explanation would be appropriate to explain why a task that costs \$1.115 million cannot be funded and completed in 2012, given facility system and components increases from \$9.6 M in FY 2011 to \$10.4 M in FY 2012 when dispositioning halts then returns to \$9.4 M in FY 2013 when</p>			

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	dispositioning resumes. Ecology is interested in understanding more about the work that is in the facility system and component scope in FFY 2011 and 2012.			
73	Table E-6 SNF Stabilization and Disposition Near Term - Please explain what Cost and /or Schedule Uncertainty – Sludge Treatment Project is intended to represent.			
74	Page E-14 Table E-7, Integrated Disposal Facility IDF Regulatory and Safety, contains a description of work that includes regulatory support including performance assessment. The presentation of the budgets that appears on Pages E-24 and 25 in Table 9 following presents a total for IDF regulatory and Safety that does not present costs for the performance assessment activities separately. Please provide Ecology the schedule and cost for conducting a performance assessment of the IDF.			
75	Page E-15 Table E-7, Low-Level and Mixed Low Level Waste Level 3 work element does not include Regulatory and Safety scope that would include a performance assessment. The 200-SW-2 remediation cost estimate concentrates on the costs to cap the burial grounds and to dig up the burial grounds. Please provide Ecology information about regulatory and safety budget for the burial grounds, including the schedule and cost of a performance assessment.			
76	Table E-11 Safeguards and Security costs reflect a significant decrease from FFY 2038 to 2039. Please add a note that reiterates the cause for the reduction. The last estimate appears in 2060. That would presume that Long-Term Stewardship will not require S&S. Please so state or revise the schedule.			
77	Page E-31 Table E-12 Deep Vadose Zone Operable Unit Scope Summary states that initial action planned for the OU will be addressed in the future. Pages E-33 and E-34 Table E-13 show budget from FFY 2019 through FFY 2029. In the FFY 2013 report, please provide information about the bases for the duration of the Deep Vadose Operable Unit effort and the technical bases for the cost			

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	estimates.			
78	Pages E-14 – E-16, Table E-7 Level 3 Scope Summary does not contain information in the T Plant, LETF, or WRAP scope that includes development of alternative methods of treatment for orphan waste. In the same table, scope that includes alternative methods of disposal is not in the IDF, LLMW trenches, or ERDF scope. Please add the information about the treatment of orphan waste to the scope summaries of the appropriate work element scope.			
79	<p>Table E-8 Capsule Storage and Disposal shows significant increases in FY 2015 and 2016, but the decision on disposition does not occur until 06/30/2017. Please provide more information about the increases in FY 2015 and 2016 within Table 5-9 or on page 5-33 (are these WESF upgrades?).</p> <p>Capsule Storage and Disposal costs rise again in FY 2024 and 2025, but no explanation of the increases appears in Table 5-9. Please explain the increases.</p> <p>Table E-8 shows no costs from 2031 through 2037 for Capsule Storage and Disposal, then small costs in 2038, 2040, 2043, and 2045. Figure 5-16 shows the remaining cleanup schedule for Capsule Storage and Disposal in two parts, with the first ending in 2031. The second begins in 2038 and ends in 2045. Please provide more information about the work planned for 2038 through 2045 that will require intermittent funding. Please include estimated dates for WESF D4 if available.</p>			
80	Pp E-44 through E-45, Table E-14 does not contain cost information sufficient for Ecology to determine when RL will conduct performance assessments of the Low Level Burial Grounds or the Integrated Disposal Facility. Please provide the schedule and costs to Ecology.			
81	P. E-33 and E-34, P. E-38 show that the remediation of the Deep Vadose Zone Operable unit is scheduled for funding and completion beginning in FFY 2019 and ending in FFY 2029 using a total of			

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	\$255.6 Million. Please provide Ecology more information about the bases for RL's assumptions of schedule and cost.			
82	Pages E-75 through E-76 Table E-31 and Pages E-77 through E-78 Table E-32 In the FY 2012 report, please add Work Element "Secondary Waste Treatment." Please provide Level 2 Schedules and Costs in Table E-31 and Level 3 Near Term Costs and Schedules for Secondary Waste Treatment.			
83	PP. E-79 Table E-33 and PP. E-80 through E-83 Table E-34 Please add costs and schedules for the work element that describes the activities that will be necessary to ensure integration of waste retrieval/transfer in the Tank Farms with the commissioning and operation of the WTP.			
84	Page F-3, Sec. F.2. Last ¶. Ecology endorses the assumption that the lower bound included continued cap maintenance and monitoring.			
85	Page F-6, Sec. F.2.2 Group 3 wastes: The description states that Group 3 wastes have no readily identifiable handling or processing methods at the Hanford Site and require negative pressure containment structures to support waste retrieval and conditioning. These wastes are assumed to be in the burial grounds and retrievable. Ecology requests that the USDOE insert more information about the assumptions about Class 3 wastes that form the bases of the estimates (e.g., 1940's and 1950's wastes in caissons, waste residues in PUREX tanks, dispersible waste forms resulting from past operations) into the LCSSC Report. References to the PFM-00011 are not sufficient because the document is not readily accessible.			
86	Page F-6 Group 2 (Cost Model 2) wastes are TRU wastes in volumes are said to be based on historic costs or current estimates for comparable Hanford Site activities. In the assumptions for the Solid Waste Stabilization and Disposition is a statement that T Plant will be available for modification to be the facility that will house retrieval, storage, and treatment/processing of all TRUM waste. Please clarify when the upgrades required for M-91 will begin, the duration of the project to upgrade the facility, and the estimates for the upgrades by			

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	year.				
87	Page F-7, Sec. F.2.2 Table F-3: The highest volumes of Group 3 wastes are said to be in the TSD Unit Landfills. The USDOE assumes that handling and processing methods for these wastes are not yet in existence. This would imply that the waste cannot be disposed; thus, the upper bound estimate does not fully estimate the cost to remove/treat/dispose of all of the waste in 200-SW-2. The reference to the rough order of magnitude estimate (PFM-00011) is insufficient. Please add more information because the document is not readily accessible for the public.				
88	Page F-9 Table F-4: It is not clear whether the 50% Cost and Schedule Uncertainty includes the costs that the USDOE will incur to develop treatment methods for the Group 3 wastes that are TSD wastes-. Please clarify whether the uncertainty includes an estimate for development of such treatment methods.				