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Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

JUL 18 2002

02-RCA-0427

Mr. Michael A. Wilson, Program Manager  
Nuclear Waste Program  
State of Washington  
Department of Ecology  
1315 W. Fourth Avenue  
Kennewick, Washington 99336

RECEIVED  
JUL 30 2002

EDMC

Dear Mr. Wilson:

TRANSMITTAL OF CHEMICAL LABORATORY WASTE GROUP OPERABLE UNIT RI/FS  
WORK PLAN, DOE/RL-2001-66, REVISION 0

57775

Enclosed are three copies of the subject document (Enclosure 1). This work plan has been updated to incorporate the disposition to State of Washington Department of Ecology (Ecology) comments and to incorporate 200-LW-2 Operable Unit sites into the work plan. Also enclosed are the final dispositions to Ecology's review comments on Draft A of the work plan (see Enclosure 2). Dispositions are those agreed to during comment resolution meetings and discussions held with Ecology and the U.S. Department of Energy between May 17 and June 13, 2002.

This document describes the remedial investigation activities for the seventh work plan to follow the streamlined approach outlined in the "200 Areas Remedial Investigation/Feasibility Study Implementation Plan - Environmental Restoration Program," for characterization and remediation in the 200 Areas. The work plan contains the elements of a "Comprehensive Environmental Response, Compensation, and Liability Act of 1980" RI/FS work plan. A sampling and analysis plan is included as Appendix A in the work plan. Three copies of the supporting data quality objectives summary report for the 200-LW-1 Operable Unit are enclosed (Enclosure 3).

57776

Also enclosed please find Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Change Control Form M-15-01-03 for the 200-LW-1 and 200-LW-2 Operable Units (OU) (Enclosure 4). The proposed change control form establishes new M-15 interim milestones for Remedial Investigation/Feasibility Study (RI/FS) activities to be implemented for this OU. An initial draft of this change control form was transmitted to the U.S. Environmental Protection Agency in December 2001 as part of the Draft A RI/FS work plan submittal. The change form has been revised to be consistent with the recently completed Central Plateau Tri-Party Agreement negotiations and Change Package M-15-02-01.

Mr. Michael A. Wilson  
02-RCA-0427

-2-

JUL 18 2002

Please provide your approval of this work plan. If you have any questions, please contact Brian Foley, Waste Management Division, on (509) 376-7087, or Jon Yerxa, of my staff, on (509) 376-9628.

Sincerely,



Joel Hebdon, Director  
Regulatory Compliance and Analysis Division

RCA:JKY

Enclosures

cc w/encls:

C. Cameron, EPA  
B. Jentzen, Ecology  
J. Price, Ecology  
L. C. Treichel, EM-442  
C. D. Wittreich, CHI  
Administrative Record

cc w/o encls:

R. Gay, CTUIR  
M. J. Graham, BHI  
J. S. Hertzell, FHI  
R. Jim, YN  
O. S. Kramer, FHI  
T. M. Marten, HAB  
E. Murphy-Fitch, FHI  
K. Niles, CTUIR  
P. Sobotta, NPT  
R. F. Stanley, Ecology

Change Number M-15-01-03	Federal Facility Agreement and Consent Order Change Control Form Do not use blue ink. Type or print using black ink	Date July 12, 2002									
Originator Bryan Foley, DOE		Phone 376-7087									
Class of Change. <input type="checkbox"/> I – Signatories <input checked="" type="checkbox"/> II – Executive Manager <input type="checkbox"/> III – Project Manager											
Change Title Establish Interim Milestones for 200-LW-1 300 Area and 200-LW-2 200 Area Laboratory Waste Group Operable Units RI/FS											
Description/Justification of Change  <p>The 200 Areas Remedial Investigation/Feasibility Study Implementation Plan – Environmental Restoration Program, DOE/RL-98-28, Rev. 0, established the approach for the assessment and remediation of 200 Area past-practice waste sites. Under this strategy, over 800 waste sites are grouped into 23 process-based operable units (OUs), which in turn are grouped into 9 major waste categories (e.g., process waste, landfills). The 200-LW-1 OU has been identified as the representative OU for two OUs (200-LW-1 and 200-LW-2) assigned to the Chemical Waste Category. Based on the Implementation Plan, Tri-Party Agreement M-013 milestones were established (Tri-Party Agreement Change Request M-13-97-01) for the submittal of RI/FS work plans for individual OUs. Under Tri-Party Agreement Milestone M-013-00L, three RI/FS work plans were due by 12/31/01. The 200-LW-1 OU RI/FS work plan is one of three workplans that were delivered to satisfy Milestone M-013-00L. Tri-Party Agreement Change Request M-13-02-01 consolidated the 200-LW-1 300 Area and 200-LW-2 200 Area Laboratory Waste Group Operable Units into a single RI/FS.</p> <p>As specified in the Tri-Party Agreement, Section 11.6, work plans must specify interim milestones for the OU that identify completion dates for major tasks and deliverables specified in the work plans. The 200-LW-1 OU work plan includes a project schedule with target project milestones. Based on this work plan schedule, the following interim milestones are proposed under the Tri-Party Agreement to implement the activities for the RI/FS process for this OU. Modifications/deletions to existing milestones are denoted using <del>redline/strikeout</del>; additions are denoted with shading.</p> <table border="0" data-bbox="97 973 1487 1193"> <tr> <td data-bbox="97 973 287 1067">M-015-46A</td> <td data-bbox="292 973 1149 1067">Submit 200 Area Chemical Laboratory Waste OUs Remedial Investigation Report, including the Past Practice Waste Sites in the 200-LW-1 and 200-LW-2 200 Area Chemical Laboratory Groups</td> <td data-bbox="1153 973 1487 1067">October 31, 2005</td> </tr> <tr> <td data-bbox="97 1073 287 1193">M-015-46B</td> <td data-bbox="292 1073 1149 1193">Submit 200 Area Chemical Laboratory Waste OUs Feasibility Study and Proposed Plan/Proposed Permit Modification, including the Past Practice Waste Sites in the 200-LW-1 and 200-LW-2 200 Area Chemical Laboratory Groups.</td> <td data-bbox="1153 1073 1487 1193">September 30, 2006</td> </tr> </table>			M-015-46A	Submit 200 Area Chemical Laboratory Waste OUs Remedial Investigation Report, including the Past Practice Waste Sites in the 200-LW-1 and 200-LW-2 200 Area Chemical Laboratory Groups	October 31, 2005	M-015-46B	Submit 200 Area Chemical Laboratory Waste OUs Feasibility Study and Proposed Plan/Proposed Permit Modification, including the Past Practice Waste Sites in the 200-LW-1 and 200-LW-2 200 Area Chemical Laboratory Groups.	September 30, 2006			
M-015-46A	Submit 200 Area Chemical Laboratory Waste OUs Remedial Investigation Report, including the Past Practice Waste Sites in the 200-LW-1 and 200-LW-2 200 Area Chemical Laboratory Groups	October 31, 2005									
M-015-46B	Submit 200 Area Chemical Laboratory Waste OUs Feasibility Study and Proposed Plan/Proposed Permit Modification, including the Past Practice Waste Sites in the 200-LW-1 and 200-LW-2 200 Area Chemical Laboratory Groups.	September 30, 2006									
Impact of Change. The interim milestones are consistent with Tri-Party Agreement Major Milestone M-015-00C, <i>Complete all 200 Area Non-Tank Farm OU Pre-ROD Site Investigations under Approved Work Plan Schedules</i> due December 31, 2008.											
Affected Documents The Hanford Federal Facility Agreement and Consent Order, as amended. and Hanford Site internal planning management, and budget documents (e.g., USDOE and USDOE contractor Baseline Change Control documents; Multi-Year Work plan; Sitewide Systems Engineering Control documents; Project Management Plans; and, if appropriate Land Disposal Report requirements.)  The 200-LW-1 and 200-LW-2 Chemical Laboratory Waste Group Operable Units RI/FS Work Plan (DOE/RL-2001-66). 200 Areas Remedial Investigation/Feasibility Study Implementation Plan – Environmental Restoration Program, DOE/RL-98-28, Rev. 0.											
Approvals <table border="0" data-bbox="97 1616 1487 1897"> <tr> <td data-bbox="97 1616 686 1709"> <u>W. Wade Ballard</u>            W. Wade Ballard, DOE IAMIT Representative         </td> <td data-bbox="691 1616 861 1709"> <u>7/17/02</u>            Date         </td> <td data-bbox="866 1616 1487 1709"> <input checked="" type="checkbox"/> Approved    <input type="checkbox"/> Disapproved         </td> </tr> <tr> <td data-bbox="97 1715 686 1808"> <u>N/A</u>            Acting EPA IAMIT Representative         </td> <td data-bbox="691 1715 861 1808">           _____            Date         </td> <td data-bbox="866 1715 1487 1808"> <input type="checkbox"/> Approved    <input type="checkbox"/> Disapproved         </td> </tr> <tr> <td data-bbox="97 1815 686 1897">           M. A. Wilson, Ecology IAMIT Representative         </td> <td data-bbox="691 1815 861 1897">           _____            Date         </td> <td data-bbox="866 1815 1487 1897"> <input type="checkbox"/> Approved    <input type="checkbox"/> Disapproved         </td> </tr> </table>			<u>W. Wade Ballard</u> W. Wade Ballard, DOE IAMIT Representative	<u>7/17/02</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved	<u>N/A</u> Acting EPA IAMIT Representative	_____ Date	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved	M. A. Wilson, Ecology IAMIT Representative	_____ Date	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved
<u>W. Wade Ballard</u> W. Wade Ballard, DOE IAMIT Representative	<u>7/17/02</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved									
<u>N/A</u> Acting EPA IAMIT Representative	_____ Date	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved									
M. A. Wilson, Ecology IAMIT Representative	_____ Date	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved									

**Attachment 2**

*Review Comment Record (RCR)*



# REVIEW COMMENT RECORD (RCR)

1. Date April 8, 2002	2. Review No.
3. Project No.	4. Page Page 2 of 13

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. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
	radionuclides will necessarily be the area that high concentrations of chemical contaminate will be located.		described in the data quality objectives (DQO) summary report and in Sections 3 and 4 of the work plan, the sampling depths were determined based on existing knowledge of the waste site construction, surface stabilization activities, existing knowledge of the types and amounts of contaminants discharged, existing knowledge of geologic horizons, information from geophysical logging of nearby boreholes, and past experience with investigations of similar sites. In general, previous 200 Area remedial investigations have shown the chemical contaminants to be generally located with the radionuclides. However, to address uncertainties, the sampling regime calls for more concentrated sampling at the discharge point (see the sampling and analysis (SAP) plan Figures A-5 through A-8). As depth increases, the sampling intervals are increased in coordination with the types and amounts of discharge so that samples can adequately define the vertical extent of the contamination. Field screening for radionuclides (beta, gamma, and alpha) and other constituents, such as volatiles, are conducted for both characterization and health and safety needs. As noted in Section A.1.5.4, changes to the work scope detailed in the SAP can be made at any time based on the acquisition of new data. Therefore, as indicated in Section A.3.3.1, the need to modify sample depths will be influenced by information resulting from characterization activities based on field conditions (such as a deeper layer of clean backfill), obstructions to sampling (such as recovery of insufficient sample material), or unusual conditions (such as high moisture, unexpected lithology changes, or other indications of potential contamination).	

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			<p>As discussed in the May 20 and June 13, 2002, comment resolution discussions with Ecology, the following revisions will be made:</p> <ul style="list-style-type: none"> <li>* Section A.3.3.1, second paragraph, page A-27, "hypothetical" will be changed to "planned"</li> <li>* The captions to Figs. A-5 through A-8 will be changed from "Approximate Sampling Intervals...." to "Planned Sampling Intervals..."</li> </ul>	
3.	<p>Cover Revise Title as: 200-LW-1 300 Area and 200-LW-2 200 Area Chemical Laboratory Waste Group Operable Units RI/FS Work Plan. This RI/FS work plan addresses both operable units.</p>		<p>Per agreement reached between Ecology and RL on May 23, 2002, the title will be revised to "Chemical Laboratory Waste Group Operable Unit RI/FS Work Plan" followed by "Includes 200-LW-1 and 200-LW-2 Operable Units" in smaller font, as has recently been done for other 200 Area work plans.</p>	
4.	<p>Change footer designation of work plan scope, consistent with comments above.</p>		<p>The footer will be changed to be consistent with the comments above.</p>	
5.	<p>Pg. ES-1 ¶ 1st This is a global comment, but this page &amp; paragraph are the first example of its application. Change "for the 200-LW-1 Chemical Laboratory Waste Group Operable Unit (OU)." to "for the 200-LW-1 Chemical Laboratory Waste Group Operable Unit (OU) and 200-LW-2 Chemical Laboratory Waste Group OU." This RI/FS work plan addresses both operable units.</p>		<p>Where appropriate, the text will be globally rewritten as "for the 200-LW-1 and 200-LW-2 OUs," to reflect that the work plan addresses both operable units (OUs).</p>	
6.	<p>Pg. ES-1 ¶ 3<sup>rd</sup> Delete paragraph. Replace with: "The Tri-Parties (U.S. Department of Energy, the Washington State Department of Ecology, and the U.S. Environmental Protection Agency) have agreed on an implementation approach for remedial investigation/feasibility studies in the Hanford 200 Area. The</p>		<p>The change will be made in the Executive Summary and in Section 1.0.</p>	

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	<p>Implementation Plan addressed more than 800 waste sites that were grouped into 23 process-based OUs, which in turn were grouped into 9 major waste categories (e.g., process waste, landfills, cooling water). This categorization facilitates the use of an analogous sites approach: combining into groups waste sites with similar process histories, structures, and contaminants; and then choosing one or more representative sites for comprehensive field investigations. Findings from the field sampling of representative sites are then used to make remedial decisions for all of the waste sites in the waste group. The scope of this work plan addresses two OUs, but most of the representative sites are in the 200-LW-1 OU.”</p>			
7.	<p>Pg. 1-2 ¶ 1st Another example of the global comment. Change: “for 200-LW-1” to “for this work plan.”</p>		Where appropriate, the text will be changed to “the 200-LW-1 and 200-LW-2 OUs” to reflect that the work plan addresses both operable units.	
8.	<p>Pg. 3-13 ¶ 3.4.2 The first bullet is inaccurate as ingestion is a separate pathway from inhalation. The four routes of entry are inhalation, ingestion, absorption, and contact.</p>		A fourth bullet will be added: “Inhalation of contaminant dusts, vapors, or gases.” Portions of text will also be updated, as appropriate.	
9.	<p>Pg. 3-15 ¶ last The statement that the preliminary list of COPCs, the excluded analytes and the rationale for exclusion are presented in the DQO summary report (BHI 2001) leads one to reference the DQO. However, the DQO does not adequately explain the reasoning behind the exclusion of many of the chemicals. The DQO makes statements such as: This chemical is unlikely to be present in toxic concentrations. This commercial chemical is sodium silicate and organic complexants, etc. How are these statements justifications? What are the references for the number of chemicals that are stated in</p>		<p>As discussed in the May 15 , 2002, comment resolution meeting and in subsequent discussions with Ecology, the following revisions will be made to the DQO:</p> <ul style="list-style-type: none"> <li>* On page 1-18 of the DQO report, add to the text located between Tables 1-3 and 1-4 wording that indicates that Table 1-4 lists the source documents that are the basis of the contaminant of potential concern (COPC) exclusions listed in Table 1-6.</li> <li>* On Table 1-6 of the DQO report, for Americium-242 and 243, add a reference identifying the ORIGEN2 modeling.</li> </ul>	

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	the DQO to have been used in small amounts?		<ul style="list-style-type: none"> <li>* Some rationale/exclusion wording in Table 1-6 (e.g., hydroxyacetic acid) begins with the statement, "No direct standard analytical technique available." Since this sentence should not be the first sentence in the justification, it will be made the second or third sentence.</li> <li>* Some rationale/exclusion wording in Table 1-6 (e.g., citric acid) includes the statement, "Unexpected mobility of COCs will indicate the presence of complexants." When present, this sentence should be moved to be the first sentence in the justification.</li> <li>* Bismuth will be removed from Table 1-6 and added to the COC list in Table 1-7 and to Table 3-6.</li> <li>* Statements will be added to Table 1-6, where necessary, that various components of some chemicals are already being analyzed for in the COC list (e.g., while H<sub>2</sub>SO<sub>4</sub> is not a COC, sulfate is).</li> <li>* For Oakite, the reference to trichloroethane in Table 1-6 will be modified to acknowledge the 1,1,1 and 1,1,2 forms; Tables 1-7 and 3-6 will be modified accordingly.</li> </ul> <p>Significant research was done during the preparation of the Aggregate Area Management Study (AAMS) reports for the processing facilities in the 200 Areas. These reports serve as a starting point for developing the COPCs. Additional site-specific evaluations are done for the OUs to refine the COPC list for a specific OU. The list of all the information reviewed during this process is included in the DQO (Table 1-4). It is not possible to provide line-by-line citations in Table 1-6 for constituent-specific exclusion criteria. As stated in the DQO and the Implementation Plan, "The</p>	

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			<p>analytical approach employed for this project generally targets the significant risk drivers that are representative of the waste constituents present." Thus, chemicals that are "not likely to be present in toxic quantities," or "are present in minute quantities," are excluded based on process knowledge or a detailed evaluation of the facility's operation. "Organic Complexants" and other organic compounds have no analytical techniques available to measure/detect them. Quite often these constituents are not regulated. Thus, they are excluded from analysis on that basis.</p> <p>Concerning those justifications in Table 1-6 that include statements indicating the constituent was used in low or trace quantities (e.g., tungsten), as indicated in Table 1-4, this type of information and all other information on constituents discussed in the DQO and work plan comes from high-level documents such as the AAMS reports and facility technical manuals, and then expanded by information from multiple process records including interviews with operators, engineers, and scientists that work in or ran facilities; daily log books; occurrence reports; site waste discharge records; and operators records.</p>	
10.	Pg. 3-26 through Pg. 3-28 These models work well for a worst case scenario. They are not appropriate models for understanding the extent and magnitude of the contamination. The models do not accurately describe lateral spread which limits the program of investigation.		As agreed to during the May 15, 2002, comment resolution meeting and in subsequent discussions with Ecology, Section 5.6 of the work plan will be modified to identify the potential for confirmatory sampling during the post-Record of Decision (ROD) timeframe to address extent of lateral migration, if required.  Preliminary conceptual contaminant distribution models	

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			were developed for the waste groups in the waste site grouping report. Based on site-specific information, conceptual contaminant distribution models are developed to support sampling design. During remedial investigation/ feasibility study (RI/FS) characterization, only the vertical extent of contaminant distribution will be determined. Lateral migration will be assessed during post-ROD confirmatory sampling.	
11.	<p>Pg. 4-1, 4-2 Page 1-9 of the DQO Summary Report, Draft A, states that "The final selection of the waste sites . . . will consider critical data needs of other Groundwater/Vadose Zone core projects (e.g., the River Protection Project or the Science and Technology Project)."</p> <p>However, there is no documentation in Section 4 of the work plan that any other core projects were consulted. What core projects were consulted (and when – provide dates), and what specific data needs were incorporated into the work plan?</p>		<p>Other projects (e.g., Groundwater/Vadose Zone Integration Project) were informally notified of the 200-LW-1 OU plans to begin planning characterization efforts. However, no specific requests for sampling of additional sites resulted from these contacts. Other 200 Area projects will be given another opportunity to incorporate their specific 200-LW-1/2 characterization needs during pre-job planning for the RI.</p>	
12.	<p>Pg.4-1 ¶ 3<sup>rd</sup></p> <p>What is the basis or reference for this statement: Contaminants released through a small crib would likely impact the soil immediately beneath the crib with minimal lateral spread; Clarify how the amount of lateral spread will be determined.</p>		<p>The statement will be revised to not anticipate the extent of lateral contamination. Also, Section 5.6 of the work plan will be modified to identify the potential for confirmatory sampling during the post-ROD timeframe to address extent of lateral migration, if required.</p> <p>Note that the main purpose of the work plan is to refine the conceptual model and provide data to support remedial decisions. As outlined in the Implementation Plan (see Sections 2 and 6), the goal of the RI/FS investigation at the OU is to determine the nature and vertical extent of contamination at the representative waste sites. These data</p>	

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			<p>will then be used to support the evaluation of alternatives and to obtain a ROD for the OU. Following issuance of the ROD, a confirmatory sampling DQO and SAP will be prepared to support additional data collection as needed to ensure waste sites are adequately addressed by the chosen remedial alternative and to collect design data. If the determination of lateral spread is a data gap (for example, if capping is chosen and the aerial extent of the cap needs to be determined), then that data will be collected during the confirmatory phase.</p> <p>Because of the tendency for the contaminants to move more quickly in a vertical direction than laterally, small sites do not generally warrant more than a single borehole to collect the data to support remedial decisions. Some understanding of the lateral spread is gained pre-ROD through the evaluation of existing boreholes using geophysical logging for gamma-emitting, and in some cases, other radionuclides. Because cesium-137 is a very prevalent radionuclide in the 200 Areas and is readily detected by downhole geophysical methods, this is a useful tool for evaluating the location of this contaminant in relation to the waste site.</p>	
13.	<p>Pg. 4-3 ¶ 4.1.4 2<sup>nd</sup></p> <p>The statement because the 216-T-28 Crib and the 216-S-20 Crib are small point-source-type sites, the lateral extent of contamination within the site boundaries is not considered necessary for remedial decision making. What is the reference that justifies this statement?</p>		<p>The following clarification will be added to the text: "If the determination of lateral spread is a data gap identified through the confirmation sampling DQO, then those data will be collected during the confirmatory phase." Also, see response to Comment #12.</p>	

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14.	Pg. 4-4 ¶ 4.2.2 <sup>nd</sup> Provide more clarity as to when you will sample at other depths than the 15 and 25 feet intervals. Sampling at these two depths may not be adequate. Who makes this decision?		As stated in Section 4.2, second paragraph (also see DQO Table 1-8), the 15-foot sampling is required to meet ARARs. As already indicated in Section 4.2.2, second paragraph, the 25-foot sample is necessary to support the project need to evaluate applicability of remedial alternatives (also see DQO Tables 2-1 and 5-3). However, note that these sample locations are but two of many planned sampling intervals. Proposed sampling locations are identified in Tables A-6 through A-9 and Figures A-5 through A-8 of the SAP. The last sentence in the 2 <sup>nd</sup> paragraph of Section 4.2.2 provides for additional samples to be collected by the field geologist/engineer, based on field conditions observed during characterization activities. Decisions on sampling strategy have been made by the DQO team and concurred with the decision makers, as documented in the DQO report.	
15.	Pg. 4-5 ¶ 4.2.2 <sup>nd</sup> Clarify that the sampling generally will begin at the first sign of radiological contamination. This practice assumes that chemical contamination follows radiation contamination? Justify.		Based on historical sampling at other 200 Area OUs, contamination is expected to be highest at the point of release (e.g., at the bottom of the crib or trench). See the conceptual contaminant distribution models (work plan Figures 3-9 through 3-13) where this information is depicted. Work plan Section 4.2.3 will be modified to indicate that field screening for radionuclides (beta, gamma, and alpha), as well as for and other constituents, such as volatiles, will be conducted for both characterization and health and safety needs. For example, at 200-TW-1, mercury was monitored in the field. Field screening and sampling for previous 200 Area RIs have shown the chemical contaminants to be generally located with the radionuclides. However, each individual OU is evaluated for COCs and potential field screening options are evaluated and implemented, as	

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			appropriate.	
16.	Pg. 4-6 ¶ 4.2.3 The statement that all samples from the boreholes will be field screened for evidence of radionuclide needs clarification. What evidence is available to support that the non-radiological COC will be located at the highest concentration with the radiological COC?		In general, previous 200 Area remedial investigations have shown the chemical contaminants to be generally located with the radionuclides. However, to address uncertainties, the sampling regime calls for more concentrated sampling at the discharge point (see SAP Figures A-5 through A-8): As depth increases, the sampling intervals are increased in coordination with the types and amounts of discharge so that samples can adequately define the vertical extent of the contamination. Work plan Section 4.2.3 will be modified to indicate that field screening for radionuclides (beta, gamma, and alpha), as well as for and other constituents, such as volatiles, will be conducted for both characterization and health and safety needs. See response to Comment #2.	
17.	Pg. -24, 25, Table A-4, Appendix A Discuss with Ecology the reasoning behind the analytical priorities. What criteria were used to set the priorities (e.g., VOA is ninth on the list and can be analyzed with only 4 ounces of sample)?		The need to prioritize analyses stems from the nature of sample collection through boreholes. In some instances, geologic and field conditions result in limited sample recovery. The prioritization provides a way to ensure the most critical data are collected in these instances. Other steps are also taken to ensure adequate, quality data, such as arranging minimum volumes with the laboratories. Analytical priorities are set considering the following criteria:  <ul style="list-style-type: none"> <li>* Project data needs to accurately assess the waste site(s) and make a remedial decision(s) for the OU FS.</li> <li>* Toxicity and risk of specific radionuclides and chemicals. Radionuclides and chemicals that drive risks more significantly than others are ranked as a higher analytical</li> </ul>	

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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. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
			<p>priority.</p> <p>* Chemicals that have shorter holding times and complicated methods of preservation are ranked higher in analytical priority.</p> <p>Volatile organic analyses (VOAs) are ranked 9<sup>th</sup> as, based on available process knowledge and site history, very limited amounts of VOAs were discharged to the waste sites within the 200-LW-1 and 200-LW-2 OUs. Therefore, VOAs are much lower in priority than other analytes. Radionuclides and metals that have a higher risk are more likely to be present in higher concentrations at the waste sites, again, based on process history. Thus, these constituents are ranked higher than VOAs. 125 grams of soil is needed for a VOA 8260 Gas Chromatography/Mass Spectroscopy suite according to the laboratory procedure defined by EPA Method 8260 from SW-846.</p> <p>Note that, following review of the table for clarity and completeness, technetium-99 was elevated from No. 11 to No. 5 in the rankings, and PCBs have been elevated from No. 13 to No. 11.</p>	
18.	Pg. A-27, ¶ A.3.3.1 2 <sup>nd</sup> Figures A-6 through A-9 illustrate hypothetical sampling intervals in boreholes. What criteria are used to decide when to take actual samples? See comment #3.		Please see Sections 4.0, 5.0, and 6.0 of the DQO report for identification and development of specific project data needs (this information is not repeated in the work plan). Section 7.0 of the DQO report then presents the most resource- and cost-effective sample design for supporting the identified data needs. The optimized sampling design is described in DQO Table 7-4 and shown graphically in SAP Figures A-5 through A-8 and work plan Figures 4-1 through 4-4. Also,	

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			see response to Comment #2.	
19.	Pg. A-28-29, ¶ A.3.4 Clarify how the spectral gamma-ray logging is the appropriate screening tool for alpha and beta emitting radionuclides?		Spectral gamma-ray logging is not a useful tool for alpha- and beta-emitting radionuclides. Please note, however, that all the drill cuttings are screened for all three types of radiation as they are removed from the borehole.	
20.	Pg. A-28 ¶ A.3.3.3 Who makes the decision on chemical (non-radiological) contaminants that are to be sampled? Will samples for the full suite of chemical (non-radiological) contaminants of concern always be taken?		<p>The development of COCs is a team effort involving DOE, their contractors, and the regulators. The project team initially identifies chemical contaminants that are to be sampled. The contaminants are selected based on a detailed waste stream analysis of the original facilities (see response to Comment #9). DOE reviews the project team's list and the DQO regulator interview is conducted. Ecology and/or EPA then review the constituents listed by the project team and provide comments on the COPC, exclusion, and COC lists as part of the DQO process.</p> <p>The soil samples taken are generally analyzed for all the radionuclides and chemicals listed in the final COC listing (Table 1-7 in the DQO and Table 3-2 in the work plan). In some instances, site-specific conditions warrant different sampling schemes for different strata (such as pesticide sampling in the upper vadose or uranium sampling at confining layers). If these types of specialized sampling are warranted; they will be identified in the work plan. For this OU, all the COCs will be analyzed for at each sample depth. The analyses are run as a specific method; however, the project only requests data on the list of COCs.</p> <p>As discussed in the May 20, 2002, comment resolution meeting with Ecology, the following changes will be made</p>	

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			<p>to the SAP:</p> <ul style="list-style-type: none"> <li>* The following note will be added to Figures A-5 through A-8 and to Tables A-6 through A-10: "Additional samples may be collected and analyzed at the discretion of the field engineer/geologist based on field conditions or observations made during the conduct of remedial investigations."</li> <li>* The following sentence will be added to Section 4.2.4 of the work plan and to the first full paragraph on pg. A-28 of the SAP: "All soil samples collected, whether planned (Figures A-5 through A-8) or discretionary, will be analyzed for the complete list of COCs."</li> </ul>	