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STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

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January 27, 1998

Mr. John P. Sands  
U.S. Department of Energy  
P.O. Box 550  
Richland, WA 99352

Dear Mr. Sands:

Re: Sampling and Analysis Plan for 221-U Facility (DOE/RL-97-68 Draft A)

48175

Enclosed is a copy of the joint review comments from the Washington State Department of Ecology and U.S. Environmental Protection Agency on the document referred to above. These comments were communicated to you electronically on November 20, 1997.

Please feel free to contact me if you have comments or questions at (509) 736-5704.

Sincerely,

A handwritten signature in cursive script that reads "Shri Mohan".

Shri Mohan  
Nuclear Waste Program

SM:ch  
Enclosure

cc: Pamela Innis, EPA  
Administrative Records: 221-U Facility



Bcc: Ron Skinnarland, Ecology  
Alex Stone, Ecology  
Dib Goswami, Ecology

**Comments on  
'Sampling and Analysis Plan for 221-U Facility'  
(DOE/RL-97-68 Draft A)**

The U.S. Environmental Protection Agency (EPA) and the Washington State Department of Ecology (Ecology) have completed the review of the Sampling and Analysis Plan for the 221-U Facility (DOE/RL-97-68). The review focused on the technical adequacy of the proposed sampling of the facility.

	General Comments	CERCLA specifies a specific sequence of RI/FS process. Please specify the sequence of this document in this process. A schematic flow diagram should be provided and if the process has been explained in the earlier documents, appropriate reference should be made.
		<b>SPECIFIC COMMENTS</b>
1	Section 1.1.1, page 1-3, 1st paragraph, 1st sentence	The comment is made that "The 221-U Facility is a multi-storied, predominantly reinforced concrete structure . . ." Explain the use of the term 'predominantly' or include a reference in this document which explains the applicability of this term and how it affects the SAP and DQO.
2	Section 1.2.5, page 1-12	The statement is made in both the SAP and DQO that "Decontamination and reclamation activity was also accomplished at the 221-U Facility for an unspecified period." This information suggests that activities similar to those done at T-Plant were also done at 221-U. This section needs to be expanded to indicate where this activity took place, what processes were done and what materials were used. During the 50's, 60's and 70's, a large number of environmentally significant organic species were used as degreasers, cleaners, etc. If some of this material were utilized in portions of the 221-U plant, it would affect the COPC's selected for this area and would affect the types of analyses required especially as it relates to spills and concrete analysis. This issue needs to be addressed in the SAP and DQO.
3	Section 1.5.9.3.6, page 1-37, 3rd paragraph	This section considers some aspects of the long-term integrity of the concrete structures at Hanford and identifies a study completed on end walls of Waste Encapsulation and Storage Facility by Moody. This information does not clearly identify the structural integrity concerns associated with the end walls of 221-U and similarly constructed canyon facilities. It is Ecology's understanding that rebar was either eliminated or substantially reduced at the end of the canyons in order to allow the possibility for easy future expansion should the need arise.

		<p>Assuming Ecology's understanding is correct, this issue needs to be identified and it needs to be made clear how the analyses required by this SAP and the DQO will address this concern. Without this discussion, Ecology cannot concur with the statement at the end of the paragraph: "It is anticipated that the U Plant can be shown to have lateral load capacities adequate to assure worker safety during entombment." Please update the SAP and DQO to include this discussion.</p>
4	<p>Table 1-13, pages 1-53 through 1-56</p>	<p>Ecology is unsure what COPCs will be done on each analysis. It appears from Table 1-13 that all COPCs will be done on all samples (each section includes the bullet "-same as Electrical Gallery". Upon review of table 5-2 in the DQO document, it was observed that no analyses were requested for the concrete samples other than the radioactive species. This contradicts subsequent information. For example, in Section 5.7.5.1 of the DQO (3rd paragraph, page 5-28), the comment is made "Because no characterization data are available for non-radiological COPCs, biased locations for sampling of the COPCs will take place in order to obtain a worst-case estimate for their concentrations." As Ecology recognizes the need to analyze for radiological species deposited on the concrete, it seems logical that other non-radiological species would also be deposited and therefore concurs with the decision to run all COPCs on all samples. For example, mercury maybe one example of a species deposited on concrete for which an environmental hazard should be assessed. Ecology suggests clarifying this point and perhaps including an updated table like 5-2 from the DQO into the SAP.</p> <p>While referring to Table 5-2 in the DQO, Ecology fails to understand the logic behind some of the entries in the table. There are compounds, for example, which are marked as being COPC but are not sampled in any of the matrices listed. Examples of such compounds are asbestos, acetylene tetrabromide, uranyl nitrate hexahydrate, zirconium, etc. In addition, the reverse is also observed. Compounds are marked as not being COPC but are listed for analysis in one or more of the subsequent samples. Examples are EDTA, HEDTA, etc. Ecology may not be correctly interpreting the information in these tables. These logic gaps should be explained or the document should be updated to better explain the contribution the table makes to the DQO and SAP.</p>
5	<p>Section 2.1.4, page 2-2</p>	<p>The statement is made that "The accuracy and precision will meet HASQARD . . . or meet specified protocol referenced in the FIG." It should be noted that HASQARD is the minimum level of QA/QC</p>

		<p>provided by the laboratory and this document should only refer to cases where more stringent QA/QC requirements are needed. HASQARD is an Ecology approved document and delineates the minimum level of QA/QC acceptable for data to be used to meet regulatory requirements. Although the DQO can identify areas where a lower level of QA/QC is needed, it should also be noted that this data can not be used for regulatory purposes.</p>
6	<p>Section 2.2.6, page 2-4, first and second bullets.</p>	<p>The frequency of collection of equipment rinsate blanks is not specified. It is recommended that rinsate blanks be taken as new equipment is brought in for sampling.</p> <p>The frequency of duplicate sampling is specified as one per 20 samples of the same matrix. This should be changed to one per 20 samples, regardless of matrix, if sufficient material is available.</p>
7	<p>Section 3.1.2.2, page 3-3 and 3-4</p>	<p>The second and third paragraphs state that the liquid and sludge in the cell 10 tank will be sampled in the event no other liquid samples can be collected. Justification should be provided within the text for not analyzing the samples from cell 10 regardless of the presence of other liquids. It would appear that at some point that the liquids in cell 10 must be analyzed.</p>
8	<p>Section 3.1.5.2, page 3-5.</p>	<p>It is not clear why the only criterion for not combining liquid samples within the pipelines is pH. It seems justified to combine samples from process lines that carried similar liquids but not from dissimilar lines based only on pH.</p>
9	<p>Section 3.1.6, page 3-6, last paragraph</p>	<p>. It should be clearly stated that the ratio of grabs to samples is four to one. Though it is apparent for eight biased locations, it is unclear if 12 locations are identified.</p>
10	<p>Section 3.4, page 3-8.</p>	<p>Specific detail should be given on the storage, inspection, and disposal of all waste generated during the investigation. An appropriate storage area should be specified for waste generated during sampling. The plan should also specify a site for disposal of all materials.</p>
11	<p>Table 3-2, page 3-11</p>	<p>This table includes the list of COCs and, upon review, Ecology observed one item that would improve the quality of the DQO and SAP. This table under the heading of 'Analytical Technique' indicates that a number of SW-846 methodologies are being requested for specific items. What the DQO and SAP do not address is that these methods provide more than the specific result being requested. For example, analyses such as Volatile Organics (8260), Semi-volatile Organics (8270), and ICP metals (6010) have been requested for</p>

		<p>specific analytes. These methods, however, provide a number of additional analytes at no additional cost. The DQO and SAP therefore should request that all analytical information provided during these and other analyses be provided. This SAP and DQO should take advantage of this "opportunistic" data wherever possible.</p>
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