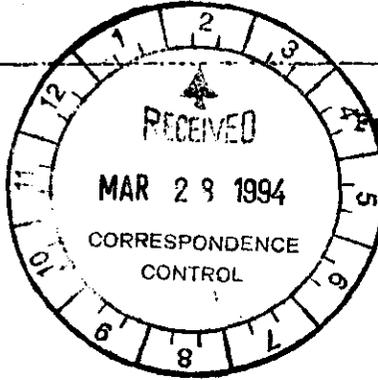




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of the Yakima Indian Nation



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February 24, 1994

Mr. John Wagoner, Manager
Richland Operations Office
Department of Energy
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Richland, WA 99352

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Subject: ENVIRONMENTAL ASSESSMENT FOR TANK 241-C-106 PAST-PRACTICE
SLUICING WASTE RETRIEVAL; COMMENTS ON--

Dear Mr. Wagoner:

Department of Energy Richland Operations letter 94-PRJ-006 from Mr. Dunigan of your staff requested comments on the subject environmental assessment (EA).

We support the action to expedite the remediation of Tank C-106; however, we are concerned with the potential environmental impacts associated with the evolution and recommend that thorough engineering evaluations be accomplished and reported by means of the subject EA.

We consider that, in general, EA's should be used more consistently as a project controlling document to assure comprehensive engineering evaluations for projects are accomplished and potential impacts properly identified and quantified.

This type of information is necessary to rationally reach conclusions about the conceptual design of a project and impact mitigation measures. It is consistent with Mr. Grumbly's recent initiative to improve the front-end planning as a means of reducing project costs.

Comments concerning the subject EA for Tank C-106 reflecting this consideration are contained in the Attachment to this letter.

Sincerely,

Russell Jim, Manager
Environmental Restoration/Waste Management Program
Yakama Indian Nation
P. O. Box 151
Toppenish, WA 98948



ATTACHMENT: Comments on Environmental Assessment Tank 241-C-106
Past-Practice Sluicing Waste Retrieval DOE/EA/XXXX
(see next page for distribution)

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cc: K. Clarke, DOE/RL
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Washington Gov. M. Lowry
U. S. Congressman J. Inslee
U. S. Senator P. Murray

**ATTACHMENT: Comments on Environmental Assessment Tank 241-C-106
Fast-Practice Sluicing Waste Retrieval DOE/EA/XXXX**

Comments prepared by J.R. Brodeur, P.E.

General Comment:

USE OF EA'S TO IDENTIFY ENGINEERING SCOPE AND ENVIRONMENTAL ISSUES-

We consider that Environmental Assessments (EAs), including the subject EA, provide a primary means of identifying issues and concerns about technical aspects of a project. However, the subject (EA) does not adequately address engineering concerns associated with potential environmental impacts of the subject project.

Our concerns reflect a potential for significant environmental impacts, such as leaks or spills resulting from the sluicing operation, and we consider these concerns should be addressed and resolved. Resolution of some of those concerns may be the responsibility of the various engineering functions of the project and may not necessarily be resolved in the EA; but the EA should provide the formal vehicle to commit to addressing the concerns and should respectively identify or reference the appropriate engineering documents that are planned or completed.

It appears that there is inadequate preliminary engineering assessment of the subject sluicing project to comprehensively scope technical issues and establish conceptual designs. We note that Mr. Grumbly, in connection with the recent stand down, identified the need to perform more comprehensive engineering at the initial stages of major projects such as this one. We agree that comprehensive engineering in the initial stages of various DOE projects has been a root cause of cost over-runs and inefficient operations. In it's current form, the EA falls short of providing a true assessment of the impacts to the environment. Furthermore, it appears to be based on a collection of disorganized, uncoordinated documents that use inconsistent design and operational criteria. The EA should be revised to correct the deficiencies identified below.

SPECIFIC COMMENTS:

1. LEAK EVALUATION, OVER-FILLING TANK-AY-102--Page 2-1, 3rd par.-- This paragraph states that C-106 contains 173,000 gal. of top layer sludge of which at least 75% is to be removed (129,750 gal.) to AY-102 in the sluicing operation. However, according to WHC-EP-0182-64 (TF Surveillance and Waste Status), Tank AY-102 only has 131,000 gal. of space available. This leaves only a 1250 gal. difference. Additionally, both the EA and the functional design criteria (FDC) (WHC-SD-W320-FDC-001-Rev.1) indicate that the transfer lines will be flushed after completion of the sluicing operation.

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We assumed from the description of operations in the EA that pumping of liquid from C-106 will be accomplished at the same rate at which sluicing liquid is pumped into C-106 (350 gpm). Therefore, after pumping 75% of the liquid from C-106 there would only be a maximum of 3.5 minutes before the pump must be turned off to assure AY-102 is not filled beyond its capacity.

This will require careful monitoring with adequate instrumentation and operational controls to prevent spills and overflowing tank AY-102. In this regard monitoring criteria should be specified in the EA, and the EA should assess the environmental impact of leak or spill considering the capabilities of the instrumentation.

In summary, our concern is that tank AY-102 may be filled beyond design capacity, resulting in an environmental impact due to a release from the first shell of the double shell tank. We consider that additional engineering is required to address and prevent this scenario.

The EA should consider the realistic impact of overflowing AY-102, and such a risk should be minimized by adequate process design, instrumentation and automatic pump controls.

2. OPERATIONAL CONTROLS TO PREVENT LEAKS/SPILLS--

The EA is not clear about the amount of liquid that will be in Tank C-106 at any time during the sluicing operation. The functional design criteria (FDC), described in WHC-SD-W320-FDC-001, provide an upper limit of liquid in the tank at 79 inches (217,000 gal). However, this document a) does not indicate how the amount of liquid in the C-106 will be minimized; b) does not state what criteria will be used to decide when pumping from C-106 will occur; or c) does not indicate, if there will be any additional controls to minimize the liquid. Also, there is no explanation of the sequence of events relative to the pumping and sluicing operations in the EA, in the FDC, or in the procedural report (WHC-SD-WM-ES-234).

The following additional questions should be resolved by the engineering documents justifying the subject operation: a) Will the existing liquid in the tank be pumped prior to introduction of the sluicing liquid? b) Will the sluicing liquid be pumped from C-106 during the sluicing operation? c) Will there be a significant fluctuation in the liquid level? Appropriate operational limits should be specified in the procedures.

The EA should provide a clear statement as to the maximum volume of liquid to be placed in tank C-106 at any time, and it should clearly indicate the sequence of the pumping and sluicing operations. These process design data should be used as input parameters in the tank leak engineering study (WHC-SD-WM-ES-218). Currently, that study assesses tank volume criteria that are inconsistent with the FDC.

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A primary concern is that leaving a large amount of liquid in C-106 during the sluicing operations could promote a leak from the tank and result in an environmental impact. The EA should consider such an impact and assess this impact. (The significant cooling anticipated by the removal of the sludge will cause thermal contraction of the tank that could lead to tank failure.)

3a. LEAK DETECTION CAPABILITY--

As suggested by the comments above, questions remain about the current ability to detect leaks and the resulting environmental impacts from undetected leaks. The tank leak engineering assessment (WHC-SD-WM-ES-218) postulates a low volume leak, even though, as a result of poor precision leak detection instrumentation, a high volume leak may go undetected,

Therefore, an engineering assessment of the Hanford single shell waste tank leak detection systems to be used in the sluicing operations should be completed and those data should be used to provide input to the tank leak engineering study. This, in turn should be referenced and used in the EA. Engineering evaluations of the leak detection systems that exist should be made public as background information.

The EA should provide a credible assessment of the maximum leak volume to compare with our estimate of 200,000 gal. (See comment 3b below) that could be released in the sluicing operation, and an evaluation should be made of various sluicing methods so as to minimize the chances of a leak from C-106.

3b. TANK INTEGRITY WITH SLUICING--Section 5, pp 5-7 & 5-8--

We have a major concern about the current integrity of Tank C-106; about the possibility that the sluicing operation will induce further leaks from the tank; about the inadequacy of the leak detection instrumentation; and about the inadequacy of the EA in assessing the impacts resulting from a leak.

The question about the current integrity of the tank has not been addressed in the EA. However, documents describing studies about possible tank leaks in the C-farm, specifically addressing possible leaks from C-106, have not been reviewed or referenced in the EA. Studies about the integrity of C-106 have not been completed (see recommendations section of WHC-SD-EN-TI-185). Specifically, there is contamination in the unsaturated zone on the north-west and east sides of this tank that is of unknown origin. Some of that contamination is deep in the unsaturated zone and is probably not from downward migration of surface contamination. Additional studies are required to identify the sources of that contamination. Such studies, together with a comprehensive assessment of the origin of the unsaturated zone contamination and the tank integrity should be completed. This study should include a review and analysis of all historical tank leak detection data.

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We consider that the sluicing operation should not proceed without knowing if the tank is currently sound, if it has leaked in the past, if the operation will induce another leak, or if the sluicing operation could be performed with a minimal amount of free liquid in the tank to mitigate such a potential leak.

To evaluate the worst case scenario, the EA should assess the impacts resulting from a large leak (over 200,000 gal). In any case, adequate tank integrity characterization should be performed and sluicing operational controls should be put into place to minimize the possibility of a large leak.

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4. LEAK DETECTION FOR TRANSFER LINES AND PUMP PITS--Page 2-3--
The last sentence states "Leak detection would be provided for the new transfer lines and pump pits." Since leak detection is critical to prevention of spills, considering the spill history at C farm, more detail concerning this issue is warranted in the EA. A more rigorous assessment of the possibility of a spill is needed. Such an assessment should identify the instrumentation required to assess a spill and evaluate the probability of a spill. This was not accomplished in the referenced Hazard Classification (WHC-SD-WM-HC-007). As a result, the real hazard associated with a spill is not determined, and the potential environmental impacts were not assessed.

5. FACILITY DECONTAMINATION AND WASTE DISPOSITION--Pg 2-4, Par. 2--
This paragraph discusses decontamination of the transfer lines and equipment. This decontamination process will generate both liquid and solid waste. Estimates of the nature of this decontamination waste and its environmental impact should be provided, as well as, a description of how the decontamination waste will be handled, including facilities needed to accomplish the decontamination and plans for disposal.

6. INCORRECT TRANSFER LINE FLOW RATES--Section 5, p 5-6, par. 1--
The transfer line leak scenario appears to incorrectly use a transfer line flow rate of 105 gpm, which is inconsistent with the sluicing pump output which would pump liquid from AY-102 at a rate of 350 gpm (pg. 2-2, par 3). The scenario should be re-evaluated to include the highest possible flow rate. Additionally, the probability that has been "determined" may not be correct. The EA should incorporate the probability calculations or a proper scientific reference.

7. WORKER PROTECTION FROM TANK C-103 TOXIC VAPORS--
There is nothing in the environmental assessment which addresses the problem of worker protection from organic vapors arising from Tank C-103. The assessment of a vapor release from C-103 during the sluicing operations is critical to the health and safety of the workers. Measures appropriate to mitigate the impact on workers from such releases should be identified.

8. RECOVERY FROM A LEAK FROM TANK C-106--Page 5-7, par 2.--
This paragraph implies that a surface barrier will be constructed over C-106 if a leak occurs. Further, it alludes to an action of recovering or treating any contaminated soils. These statements do not constitute an assessment of the impact of a release on the groundwater or unsaturated zone environment and remediation associated with these natural resources. As noted above, a proper and comprehensive assessment of these potential impacts, together with possible remediation, should be completed in the EA.

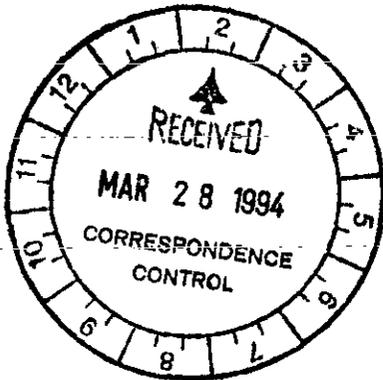
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Subject: ENVIRONMENTAL ASSESSMENT: TANK 241-6-106 PAST-PRACTICE SLUICING
 WASTE RETRIEVAL; COMMENTS ON--

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