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DEPARTMENT OF ECOLOGY

Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

October 21, 1991



Steven H. Wisness
U.S. Department of Energy
P.O. Box 550, A5-19
Richland, Washington 99352

RE: Review of the Assessment of Potential Environmental Impacts From Continued Discharge to the 300 Area Process Trenches at Hanford

This letter is in response to the Assessment of Potential Environmental Impacts From Continued Discharge to the 300 Area Process Trenches at Hanford received by Ecology on September 16, 1991, and the letter dated September 20, 1991 transmitting the final report.

As referenced in the September 20 letter, Ecology and EPA have reiterated the requirement for validated data for both pre- and post-excavation soil samples as an integral part of this report. This requirement is consistent with agreements made during May 1991 negotiations concerning the change request.

Ecology is unable to make a determination concerning approval or disapproval of the change request for Milestone M-17-06 until such time that all data and information concerning the ERA and continued discharges into the trenches is received and reviewed. In the interim, please accept comments concerning the aforementioned report.

If you or your staff have questions concerning this review, please contact Mr. Larry Goldstein or Mr. Chuck Cline at (206) 438-7018, or 438-7556, respectively.

Sincerely,

Timothy L. Nord
Hanford Project Manager
Nuclear and Mixed Waste Management



cc: Paul Day, EPA
Tim Veneziano, WHC
Dave Nylander, Ecology



REVIEW OF

ASSESSMENT OF POTENTIAL ENVIRONMENTAL IMPACTS FROM CONTINUED DISCHARGE
TO THE 300 AREA PROCESS TRENCHES AT HANFORD

1. Page 1, Executive Summary, 4th paragraph:

Deficiency: Without addressing the quality or quantity of data being analyzed, nor the analysis of such data, Ecology disagrees with the implied assumption that continued discharges into the 300 Area Process Trenches is acceptable since the "impact on groundwater concentrations (of copper and uranium) is expected to be small or indiscernible" because of existing aquifer contamination.

This assumption is contrary to 90.48.080 RCW and WAC 173-200-030 which prohibits discharges that shall cause or tend to cause degradation of waters of the state, or to impair existing and future beneficial uses of said waters. Further, USDOE has failed to demonstrate compliance with 90.54.020(3)(b) which states that regardless of the quality of the waters of the state, all substances discharged into said waters shall be provided with all known, available, and reasonable methods of treatment.

Recommendation: The Executive Summary and the "Conclusions and Recommendations" section should acknowledge potential continued violation of state statutes and regulations should discharges to the 300 Area Process Trenches continue.

2. Page 10, 1st paragraph, 1st sentence:

Deficiency: The statement contained in the parenthesis "likely due to alpha radioactivity", does not make sense in the context of the sentence. Does uranium (total) appear in concentrations above background or does gross alpha radioactivity?

Recommendation: Clarify this sentence by stating that either alpha activity or uranium appears above background.

3. Page 10, Section 2.3, 1st paragraph, 1st sentence:

Deficiency: Gross alpha and beta are not considered inorganic chemicals. Also, there is no distinction made in the text between enriched vs "natural" uranium.

Recommendation: Remove the reference to gross alpha and beta from this sentence.

It is also suggested that discussion of uranium concentrations take into account enriched vs natural uranium. It is probable that enriched uranium has been discharged from the trenches in the past and this can be distinguished

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from natural uranium within the various media of the 300 Area. This has been done to determine ground-water plumes from the process trenches and those from sources further south.

4. Page 11, Table 2.2:

Deficiency: The title of this table should specify discussion of constituents from trench sediment and not sediment, in general. Are these values mean values? If so, then some range or uncertainty figures should be included.

Recommendation: Clarify this table and include uncertainties, if necessary.

5. Page 13, Figure 2-5:

Comment: This figure would be more useful if it showed the distribution of enriched uranium. Recent isotopic analysis (Evans et al. 1989-PNL 6886) distinguishes between the plume generated by the process trenches and that from some source south of 316-1. There was a difference in the isotopic ratios of ^{235}U and ^{238}U . The ground water nearest the process trenches showed up as enriched uranium while that further south had ratios more typical of natural uranium.

Figure 2-5 differs from Figure 24 of the 300 FF-1 RI/FS workplan. Both supposedly represent uranium distribution during late 1987, but interpret the distribution differently. By plotting the distribution of enriched uranium this discrepancy probably could be eliminated.

6. Pages 18 and 19, Sections 3.2 and 3.3, 1st paragraphs:

Comment: This is a plausible approach to determining the contaminant mass in the saturated zone; however, it might be more beneficial to determine the mass of enriched uranium in the saturated zone. If it can be determined that only enriched uranium was discharged to the process trenches, a comparison of uranium of isotopically similar ratios in the saturated and vadose zones could provide a more direct estimate of mass to both zones.

7. Page 23, Section 5.2, paragraph 1):

Deficiency: It is recommended that process sewer effluent be analyzed only for chloroform. In addition to chloroform and uranium, data indicate that ground water contamination exists for: trichloroethene; 1,2 dichloroethene; barium; copper and nickel. Why not sample for these contaminants as well?

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Recommendation: It is recommended that routine monitoring of the influent be established that includes sampling and analysis for contaminants of concern. The list of constituents should include radionuclides and organic and inorganic chemicals.

8. Pages 23 and 24, Recommendation 2):

Deficiency: Total uranium is not sufficient for monitoring downgradient wells. The analyses should include determination of uranium isotopic ratios, including those of ^{234}U , ^{235}U , ^{236}U , ^{238}U .

Recommendation: Develop a program for monitoring downgradient wells that includes some means of distinguishing constituents that are possibly unique to the process trenches. This includes the isotopes of uranium, and inorganics such as copper and perhaps some organics that may have been discharged from the process trenches.

9. Page 24, Recommendation 3):

Comment: It isn't clear from the information provided to Ecology that the proposed method for sampling trench bottoms after the ERA is completed will provide data supporting a determination that removal of the soils of concern has occurred. The sampling methodology should provide data of sufficient quality and quantity to verify that the stated ERA goals have been reached or exceeded, and to enable Ecology and EPA to evaluate the change request for Milestone M-17-06. It can then be determined what additional contamination may have been left in place at selected depths and over a representative spatial distribution.

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Author	Addressee	Correspondence No.
SH Wisness, RL	PT Day, EPA TL Nord, Ecology	Incoming: 9105143

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