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

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Ms. Mary Lou Blazek, Administrator
Nuclear Safety Division
Oregon Office of Energy
625 Marion St. NE, Suite 1
Salem, Oregon 97301-3742

Dear Ms. Blazek:

RESPONSES TO COMMENTS PROVIDED FOR THE ENVIRONMENTAL ASSESSMENT (EA) FOR K BASINS SLUDGE STORAGE AT 221-T BUILDING, HANFORD SITE, RICHLAND (DOE/EA-1369)

The U.S. Department of Energy, Richland Operations Office (RL), has reviewed the comments you provided in your letter dated April 13, 2001, on the EA for K Basins Sludge Storage at 221-T Building, Hanford Site, Richland (DOE/EA-1369). Enclosed are the RL responses to your comments.

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Please direct any questions about these responses to Todd Shrader, Waste Management Division, on (509) 376-2725. Questions regarding the National Environmental Policy Act process may be directed to me on (509) 376-6667.

Sincerely,

for Paul F. X. Dunigan, Jr.
NEPA Compliance Officer

WMD:TAS

Enclosure

cc w/encl:
Administrative Record

Enclosure

The following is a list of questions submitted by the Oregon Office of Energy and the RL responses.

Overall we believe that this document does not present sufficient evidence and analysis to determine a Finding of No Significant Impact (FONSI). Our reasons for this conclusion are:

This Environmental Assessment (EA) has been developed in compliance with applicable National Environmental Policy Act regulations. The level of analysis presented is intended to be sufficient to make a determination of a FONSI or an Environmental Impact Statement (EIS).

1. **"Too many important parameters remain undetermined at this time. For example, the sludge container design is not final. (Section 2.3), It has not been determined whether the Type 2 containers would be stored wet or dry (Section 2.1), The seismic upgrades to the canyon necessary to safely store the sludge have not been precisely determined (Section 2.1)."**

   As the EA is a pre-decision document, it is premature to develop detailed design specifications. All designs are conceptual at this time and will be refined and finalized as the project progresses. A final National Environmental Policy Act determination (EA FONSI or EIS ROD) is required prior to definitive design work, per 10 CFR 1021.210(b). However, the conceptual design information presented in the EA and the supporting documents provides bounding assumptions with which to make a decision as to whether a FONSI or an EIS is appropriate. Section 2 has been updated with the most current information available on sludge container design. Any future design changes or refinements made for this project will be evaluated to determine if there is a substantial deviation from the design presented in this EA.

2. **"The discussion of environmental impacts of the proposed action and alternatives is desultory and consists mainly of unsupported statements. There is no discussion of indirect or cumulative effects of these alternatives."**

   Discussions for the various aspects of the environmental impacts were developed based on the best available data for the project. All assumptions were based on a conceptual design and the anticipated environmental impacts are bounding. Final design will provide a refined estimate of the environmental impacts. Discussion of indirect or cumulative impacts of the alternatives is provided in section 5.

Further specific comments:

1. **The discussion of proposed upgrades to the 221-T Building does not contain any discussion of criticality monitors. We recommend that the need or lack of need for these monitors be discussed as applicable.**

Preliminary analysis, shown in *Preliminary Criticality Study for K Basin Sludge Containers at T Plant* (HNF-6435), indicates that criticality is not a credible occurrence for the sludge storage mission due to the sludge form and container design. Thus, criticality monitors are not required. A brief discussion has been added to section 2 of the Environmental Assessment concerning criticality.

2. **Page 4-2; the fourth paragraph (221-T Canyon), references Figure 18 as a description of the canyon deck and cells. Figure 18 is a map of the 200 West Area. We recommend this be corrected.**

   The reference has been corrected.

3. **Page 5-7; the section on Type 2 container failure due to hot overpressure lists the causes of a hot overpressure event as either gas formation within the container, or an overheated condition of the sludge. What is the possibility that a facility fire could also result in this condition, especially for a dry-stored container? We recommend this possibility be discussed.**

   The following paragraph has been added to section 5.1.14 of the Environmental Assessment.

   A discussion of a full spectrum of hazards associated with sludge storage, including facility fires, was considered in the *Hazard Evaluation for the Storage of Spent Nuclear Fuel Sludge at the Solid Waste Treatment Facility* (HNF-6527). The Environment Assessment presented the bounding accidents identified during the hazards analysis and evaluated in the *Preliminary Accident Analysis for Storage of K Basin Sludge at T Plant* (HNF-6625). The consequences of these accidents bound those anticipated from a facility fire. A facility fire that would result in a hot overpressure event involving a dry-stored (type 1) container has been determined not to be credible due to the following mitigating factors.

   - In order to limit the combustible loading, the majority of contaminated waste, equipment, implements, and material will be removed from the canyon before K Basin sludge can be delivered to 221-T.
   - The sludge contains no strong oxidizers as described in *105-K Basins Material Design Basis Feed Description for Spent Nuclear Fuel Project Facilities* (HNF-SD-SNF-T1-009).
   - The waste matrix cannot sustain vigorous combustion. Ignition testing and thermogravimetric analysis on samples of damaged fuel elements support the non-ignitability of sludge until temperatures between 277 and 500 degrees C are reached as discussed in *Analysis of Ignition Testing on K-West Basin Fuel (*PNL-11816).
   - The sludge within the container will be maintained in water during transport and storage.

Page 5-7; the section on Type 2 container failure due to hot overpressure also states that no event that could result in the loss of the canyon exhaust simultaneous with a Type 2 container hot overpressures has been identified. Could the facility fire discussed above result in the simultaneous loss of canyon exhaust ventilation and a Type 2 container hot overpressurization? We recommend that this possibility be analyzed.

A fire causing both Type 2 container failure and ventilation exhaust system failure is not considered a credible event based on the facility design. The ventilation system is located outside of the Canyon adjacent to the 291-T building. In addition, the Canyon walls are concrete and at least 1 meter (3 feet) thick. Thus, it is not credible for a fire inside of the Canyon to affect the ventilation system near the 291-T Building.