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December 5, 1997

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Tom Fitzsimmons, Director  
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Subject: TWRS Vadose Zone Characterization

Dear Messrs. Clarke, Fitzsimmons and Wagoner:

**Advice**

A year ago, the Hanford Advisory Board made a series of recommendations in Advice #54 to get on with vadose zone characterization. The Hanford Advisory Board reiterates that DOE must now get on with it and use slant drilling for the followup borehole to supplement the results of the vertical SX borehole. The SX slant borehole is only part of getting on with full characterization of tank farms by 2003 as part of a comprehensive characterization plan with adequate budget. Recognition that tank leaks have reached groundwater adds urgency to addressing this issue. The Board also supports a process that involves stakeholders, tribes, and regulators in the development of the vadose zone characterization plan.

**Background**

The Hanford Advisory Board has long believed that removal of wastes from the tanks is one of the highest priorities for cleanup of the Hanford site. However, informed, defensible decisions on how to retrieve tank wastes and close the tank farms cannot be made until the risks to the vadose zone, groundwater, the Columbia River, and, ultimately, human and ecological health and safety are understood. Such an understanding requires a comprehensive vadose zone characterization to determine where contaminants are located in the vadose zone and what will happen with additional contaminants from retrieval methods. The present method of retrieval is sluicing (i.e., adding water under high pressure) to old single-shell tanks, of which nearly half are leakers. The rest are past their design life and have suspect integrity.

The recent statement from DOE at the November 25 press conference confirms that leaking tanks at four tank farms are already impacting groundwater. This shows the necessity for expedited, comprehensive characterization of the vadose zone.

The Hanford Advisory Board provided Consensus Advice #54 a year ago to make several recommendations on the vadose zone characterization program. These included a recommendation to use slant drilling for another borehole in the SX Tank Farm. Both the SX Farm Expert Panel and technical experts from contractor organizations have agreed that slant drilling is both feasible and valuable to provide additional information on the

distribution of contaminants in the vadose zone. Because this drilling could be started outside the tank farm, it could reduce costs and provide additional protection for workers.

We look forward to your response and to periodic progress updates on this matter.

Very truly yours,

Merilyn B. Reeves, Chair  
Hanford Advisory Board

cc: Al Alm, Department of Energy Headquarters  
Alice Murphy, Designated Federal Official  
The Oregon and Washington Congressional Delegations  
Randy Smith, Environmental Protection Agency  
Dan Silver, Washington Department of Ecology

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*This advice represents HAB consensus for this specific topic. It should not be taken out of context to extrapolate Board agreement on other subject matters.*

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*For questions or comments, please send [email](mailto:Hanford_Advisory_Board@rl.gov) to Hanford\_Advisory\_Board@rl.gov*

*HAB Consensus Advice #83*

*Subject: TWRS Vadose Zone Characterization*

*Adopted: December 5, 1997*