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## HANFORD ADVISORY BOARD

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U.S. Environmental Protection Agency, Region 10  
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PO Box 47600  
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John Wagoner, Manager  
Department of Energy, Richland Operations  
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Richland, WA 99352



December 12, 1994

RE: Carbon Tetrachloride Pump and Treat Project (200-ZP Interim Action) Consensus Advice  
Adopted December 2, 1994

Dear Messrs. Clarke and Wagoner, and Ms. Riveland:

As Acting Chair of the Hanford Advisory Board (HAB), I am forwarding to you the following advice on the Carbon Tetrachloride Pump and Treat Project (200-ZP Interim Action), which was adopted by consensus by the Board at its December meeting in Portland, Oregon:

The Board's Environmental Restoration Committee examined the proposed 200-ZP Interim Action and the Board endorses continued action with the following recommendations for goals and criteria for measuring results/success.

- Emphasize the removal of volatile organic compounds from both the vadose zone and the unconfined aquifer.
- Commence to pump liquids from the highest concentration area(s) to achieve mass reduction and containment.
- All returned effluent should meet the drinking water standard. Do not suggest any lesser criteria.
- Pumping efforts should be increased if outward migration continues, this requires the use of sufficient monitoring wells to measure conditions in both the groundwater plume as well as the vadose zone cloud. All monitoring wells must be sealed to prevent the downward movement of contaminants.
- A DNAPL investigation must occur at the Z-9 crib area. If DNAPLs are encountered, the

- agencies should take appropriate actions to mitigate the DNAPL source.
- There are a number of innovative technologies being tested on volatile organics in the 200 Area and other places throughout the world. If any of these prove out, the agencies should be willing to incorporate technology into the interim action where appropriate.

#### Success Criteria 1: Containment

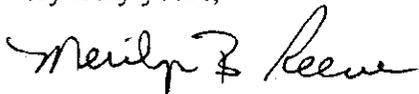
- Is the well field hydraulically containing and/or intercepting the carbon tetrachloride plume in the area of the extraction wells? This evaluation will require estimating the extent of the three-dimensional capture zone. Field measurements to support this evaluation will consist of measurements of hydraulic head at the extraction and monitoring wells. If this criterion is met, the action will have achieved the overall interim goal of containment. A three-dimensional model will be used to communicate results.
- This data will be used to design next-phase extraction well locations, spacing, screen lengths, pumping rates, and pumping schedules (in conjunction with other field results) and other potential technologies.
- Have contaminant concentrations downgradient of the containment zone been stabilized? Field activities will consist of collecting groundwater samples at monitoring wells, and the extraction wells prior to treating the groundwater. Analysis results will be used to plot contaminant concentrations.

#### Success Criteria 2: Mass Removal

- Is mass removal occurring at a rate that will remove the dissolved contamination in a reasonable period of time and at a reasonable cost by all interested parties? Field and laboratory measurements will include contaminant concentration changes over time in the extraction and monitoring wells and evaluation of treatment system effectiveness/efficiency. Specifically the rate of mass removal will be measured (grams per unit time; grams per unit volume; cost per unit gram), and the amount of mass removed will be compared to the estimated total dissolved mass for the partial plume and the entire plume.

The Board looks forward to your written response, as called for in our charter.

Very truly yours,



Merilyn B. Reeves, Acting Chair  
Hanford Advisory Board

RL Commitment Control

DEC 14 1994

Richland Operations Office

cc: Thomas Grumbly

Consensus Advice December 1994, Letter to Tri-Parties  
Carbon Tetrachloride Pump and Treat Project

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