



[Advice # 83](#) From: John D. Wagoner

Ms. Marilyn B. Reeves, Chair
Hanford Advisory Board
723 The Parkway, Suite 200
Richland, Washington 99352

March 3, 1998

Dear Marilyn Reeves:

HANFORD ADVISORY BOARD (HAB) ADVICE ON TANK WASTE REMEDIATION SYSTEM (TWRS) VADOSE ZONE

In response to your letter to me, "TWRS Vadose Zone Characterization," dated December 5, 1997, HAB Consensus Advice #83, on Vadose Zone Characterization needed to support the overall mission of the TWRS Program, the U. S. Department of Energy, Richland Operations Office (RL) concurs that understanding existing vadose zone contamination and the properties and processes of the vadose zone beneath the Single-Shell Tank (SST) farms is necessary to make successful decisions on retrieval of wastes from the tanks. Results of Draft Phase I Resource Conservation and Recovery Act (RCRA) Groundwater Assessments indicate that previous leaks from SSTs and other releases from SST farms are contributing to groundwater contamination. This provides further justification of the need to "get on with" TWRS Vadose Zone Characterization, as well as the overall treatment of waste from the tanks to eliminate the source of potential additional vadose zone and groundwater contamination.

The TWRS Vadose Zone Program is currently evaluating alternatives for the next characterization effort in the SST farms, including the use of slant drilling, as recommended by the TWRS Vadose Zone Expert Panel. Different methods for slant drilling have already been evaluated. A final decision on the objectives of the next subsurface drilling will be made after the results of additional sediment and groundwater analyses from the extension of borehole 41-09-39 to groundwater in the SX Tank Farm are obtained. However, as discussed at the HAB meeting on December 4, 1997, there was not unanimous agreement among stakeholders who were present, that a slant borehole should necessarily be the next characterization effort in TWRS. Nevertheless, slant drilling is a viable option and will continue to be used in the data quality objectives process for the next characterization activity.

RL further concurs with the importance of meaningful stakeholder and Tribal Nations involvement in the Vadose Zone Program for TWRS, and for vadose zone and groundwater issues across Hanford. This is a key element in RL's effort to integrate vadose zone and groundwater programs across Hanford, with the ultimate goal of protecting the Columbia River. RL's Environmental Restoration Program has lead responsibility for integration because of its programmatic responsibility for groundwater monitoring, protection, management, and remediation.

We will continue to provide periodic progress updates on the TWRS Vadose Zone, as well as site-wide groundwater and vadose zone integration efforts to the HAB. RL recognizes that there is considerable

interest by members of the HAB on this subject and that many important programmatic and technical issues remain to be resolved. RL is concerned that discussions on vadose zone issues at HAB meetings have become increasingly contentious and do not provide a supportive environment where individuals and organizations can work together to effectively address these issues. It is important to have a constructive environment for discussion of these issues

Although not mentioned in your letter, the HAB called attention at its December 4 and 5, 1997, meeting to several specific pieces from its Advice #54 of November 8, 1996, concerning the TWRS Vadose Zone Program which RL has not directly responded to in writing. They are addressed below:

1. "Budgets for the TWRS Vadose Zone Characterization project need to be reviewed by the Dollars & Sense Committee of the HAB."

Information on Fiscal Year (FY) 1998 Task Plans at various funding levels, including the current \$4M level, was provided to the Dollars & Sense Committee at the HAB meeting of November 7, 1997. On December 12, 1997, the TWRS Vadose Zone Program Manager met with the Committee to discuss this information. TWRS welcomes further consultation with the Dollars & Sense Committee on vadose zone funding levels.

2. "RL needs to ensure that the PHMC contractor recognizes its responsibility for the vadose zone under the tanks."

In April 1997, the Project Hanford Management Contractor (PHMC) assigned additional personnel from Fluor Daniel Hanford, Inc., and Lockheed Martin Hanford Corporation to help meet its responsibilities for TWRS Vadose Zone activities, including development and management of a TWRS Vadose Zone Program Plan to support tank waste retrieval, tank farm closure, and interim corrective measures to lessen potential additional impacts to soil and groundwater prior to retrieval and closure. In November 1997, the PHMC contractor made a presentation to the Environmental Restoration Committee of the HAB on the Vadose Zone Program Plan being developed in conjunction with a team comprised of representatives from RL and the State of Washington Department of Ecology, as well as the State of Oregon and affected Tribal Nations. In addition, the PHMC is a supporting contractor in the Hanford site-wide vadose zone and groundwater integration being led by Bechtel Hanford, Inc.

3. "...there should be continued consultation with the independent expert panel already established. A steering panel should also be formed to advise on the components of the vadose zone characterization program in a manner compatible with the work of the Columbia River Comprehensive Impact Assessment team."

Members of the SX Tank Farm Vadose Zone Expert Panel have been contacted about RL's desire to reconvene the panel to review results from implementation of recommendations the panel made in its April 1997 report. This review is scheduled for the week of March 9, 1998. RL will ask the panel to review results of sediment, groundwater, moisture, borehole logging measurements from the extension borehole 41-09-39 to groundwater in the SX Tank Farm, the results of further baseline spectral gamma borehole logging in the SST farms, and the implementation of shape factor analysis in the logging project. Continued use of peer review is a prudent tool for RL to gain additional input and credibility for its Vadose Zone and Groundwater Programs.

The TWRS Vadose Zone Program Plan proposes extensive use of analytical methods developed by the Columbia River Comprehensive Impact Assessment Team, including the use of sensitivity analyses to focus data collection in those areas where there is the greatest uncertainty and potential influence on

predicting impacts of vadose zone contamination to groundwater and the Columbia River. Although a steering panel is not planned, stakeholder involvement is planned for the integrated Vadose Zone and Groundwater Program.

4. "Coordination is needed with the STCG regarding which subgroup (tanks or plumes and landfills) is responsible for identifying technology needs and evaluating innovative technology for vadose zone characterization."

Since March 1997, the TWRS Vadose Zone Program has been working with the Subsurface Contamination Focus Area of the Site Technology Coordination Group regarding technology needs for vadose zone. Several joint proposals between Environmental Restoration and TWRS were submitted in FY 1997 through this group. In addition, the Assistant Manager for Technology at RL recently designated a point-ofcontact to filrther efforts to address vadose zone technology and science needs site-wide at Hanford. TWRS Vadose Zone personnel are currently working with personnel from Pacific Northwest National Laboratory on proposals for the FY 1998 Environmental Management Science Program call for proposals to study other geochemical interactions between tank waste and soil.

If you have any questions, please contact me, or your staffmay contact David Shafer, Waste Storage Division, on (509) 376-9255 or Carolyn Haass, Management Systems Division, on (509) 372-2731.

Sincerely,

/s/

John D. Wagoner
Manager

cc: R. Smith, EPA
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*For questions or comments, please send [email](mailto:Hanford_Advisory_Board@rl.gov) to Hanford_Advisory_Board@rl.gov
Response to HAB Consensus Advice #83 (December 4-5, 1997) on TWRS Vadose Zone Characterization &
HAB Advice #54 (November 7-8, 1996) on FY1997 Budget Allocation Letter from John Wagoner. dated March 3, 1998
Letter from John Wagoner, dated March 3, 1998
URL: <http://www.hanford.gov/boards/hab/response/083.htm>
Last Updated: 08/04/2003 14:43:38*