



U.S. Department of Energy
Office of River Protection

P.O. Box 450
Richland, Washington 99352

03-ORP-006

FEB 03 2003

Mr. Todd Martin, Chair
Hanford Advisory Board
1933 Jadwin Avenue, Suite 135
Richland, Washington 99352

Dear Mr. Martin:

HANFORD ADVISORY BOARD (HAB) CONSENSUS ADVICE #139: WASTE TREATMENT AND IMMOBILIZATION PLANT (WTP) AND SUPPLEMENTAL TECHNOLOGIES

The purpose of this letter is to provide U.S. Department of Energy, Office of River Protection's (ORP) response to the HAB's Consensus Advice regarding the WTP and Supplemental Technologies. I would like to thank the HAB for recognizing that including a second High-Level Waste (HLW) melter in the WTP accelerates risk reduction. This is a positive and necessary step to provide treatment capability for the highest risk waste, and to ensure we can meet the 2028 Tri-Party Agreement milestone for completing this job.

The Tri-Party Agreement calls for using vitrification to treat all 53 million gallons of tank waste. Vitrification is a proven technology, and is well-suited for Hanford's highest risk HLW, which is why we have decided to add the second HLW melter. The HLW must be safely isolated from the environment for thousands of years.

ORP is committed to meeting or exceeding Tri-Party Agreement milestones and I believe we can do just that because of our plan to retrieve tank waste, treat that waste with the appropriate combination of technologies, and close Hanford's tanks. This work will always be done with safety as our top priority and within regulatory guidelines.

For the Low-Activity Waste (LAW) fraction, we are working on a number of fronts to ensure we can handle this component, which constitutes the majority of the Hanford tank waste. As I indicated during my discussions with the HAB subcommittee on January 9, 2003, we believe that two LAW melters provide sufficient net treatment capacity (approximately 30 metric tons of LAW glass per day) to thermally treat approximately 36 percent of the LAW. That is adequate to treat the LAW fraction most likely to require thermal treatment due to contained organic Resource Conservation and Recovery Act of 1976 waste constituents (approximately 20 percent of the LAW) and to also treat the LAW fraction that is lowest in sulfates¹ and will therefore make the best LAW glass (also approximately 20 percent of the LAW). Due to some overlap

¹ As we have discussed, sulfates attack the WTP LAW melter components so we need to maintain relatively low sulfate concentrations in the melter feed to prolong the life of the melter. This results in lower waste loadings, more LAW being produced, and more time required to process the waste.

FEB 03 2003

between the high organic LAW and the low sulfate LAW, two LAW melters are sufficient to treat both waste streams. If our ongoing tank characterization activities indicate that additional thermal capacity is required, two of the three supplemental technologies under investigation could also provide thermal treatment and should be much less susceptible to sulfate impacts. Accordingly, I believe the most prudent path forward is to install two LAW melters and retain the flexibility to install either a third LAW melter or the most suitable supplemental technology based on the outcome of our supplemental technology tests and characterization activities.

We are currently working to determine if supplemental technologies will produce a satisfactory waste form. The three technologies we are evaluating are: Bulk Vitrification; Containerized Grout; and Steam Reforming. These technologies have been successfully used to treat radioactive and chemical waste, but have not yet been tested at Hanford. That work is under way.

We are working with the State of Washington Department of Ecology (Ecology) to develop plans for approximately 1.3 million gallons of waste that did not come from separations defense production. Rather, we believe this waste is Transuranic Waste (TRU) and should be treated and disposed of as TRU waste and shipped off-site to the Waste Isolation Pilot Plant.

You asked about the offsetting costs of the HLW and LAW melters. We are essentially trading the third LAW melter for the second HLW melter. Of course, we would face some penalty if we decided to add the third LAW melter later. However, we could face a greater penalty over the operating life if we deployed a technology that resulted in low waste loadings and/or shortened melter lifetimes due to incompatibility with certain tank wastes. I see no reason to accept the operating penalty prior to exploring alternatives that are already being readied for testing with Hanford tank wastes.

Why are we looking at these technologies now? The simplest answer is, as noted above: Vitrification may not be the best solution for all of Hanford's tank waste. Some of the LAW chemicals are difficult to mix with glass. We have looked at blending them, but that simply spreads the problem, creating even more glass and taking more time. We need solutions that closely match the differing characteristics of LAW. Rather than relying on a one-size-fits-all solution, a combination of technologies is more appropriate. Any technology or combination of technologies considered must ultimately be evaluated to be safe, regulatory compliant, protective of the environment, and cost-effective. If these technologies prove to be effective, we will work with Ecology and the U.S. Environmental Protection Agency to renegotiate the Tri-Party Agreement on the treatment of LAW that will not be vitrified through the WTP.

While changes in plans for a project as large as this are inevitable, the commitment of ORP to complete tank waste cleanup, and do it in a way that protects workers and the environment, will not change.

Another thing that has not changed is our commitment to build and operate the WTP. The funding for the WTP remains as planned and has not been reduced to fund other acceleration initiatives.

Mr. Todd Martin
03-ORP-006

- 3 -

FEB 03 2003

If you have additional questions or comments, please feel free to contact me, or your staff may contact Greg Jones, of my staff, (509) 373-4183.

Sincerely,


Roy J. Schepens
Manager

ORP:GJ

cc: See page 4.

Mr. Todd Martin
03-ORP-006

- 4 -

February 3, 2003

cc: M. S. Crosland, EM-11
W. W. Ballard, RL
K. A. Klein, RL
M. K. Marvin, RL
Tom Fitzsimmons, Ecology
Michael Wilson, Ecology
R. E. Siguenza, EnviroIssues
Michael Gearheard, EPA
John Iani, US EPA, Region 10

U.S. Senators (OR)

Gordon H. Smith
Ron Wyden

U.S. Senators (WA)

Maria Cantwell
Patty Murray

U.S. Representatives (OR)

Earl Blumenauer
Peter DeFazio
Darlene Hooley
Greg Walden
David Wu

U.S. Representatives (WA)

Brian Baird
Norm Dicks
Jennifer Dunn
Jay Inslee
Richard Hastings
Rick Larsen
Jim McDermott
George Nethercutt
Adam Smith

State Senators (WA)

Pat Hale
Mike Hewitt

State Representatives (WA)

Jerome Delvin
Shirley Hankins