Department of Energy

Oak Ridge Operations Office
P.O. Box 2001
Oak Ridge, Tennessee 37831—

January 27, 1998

Mr. William Pardue
Oak Ridge Reservation Environmental Management
Site Specific Advisory Board
222 Connors Circle
Oak Ridge, Tennessee 37830

Dear Mr. Pardue:

BEAR CREEK VALLEY FEASIBILITY STUDY COMMENTS

The Department of Energy (DOE) appreciates the comments received from the Oak Ridge Reservation Environmental Management Site Specific Advisory Board (SSAB) on the D1 *Feasibility Study for Bear Creek Valley at the Oak Ridge Y-12 Plant, Oak Ridge, Tennessee.* Several of the issues raised in these comments have been addressed by revisions recently made to the feasibility study (FS). Below is a discussion of the revisions made to the FS relative to the comments provided by the SSAB.

To address the comment regarding the need to evaluate excavation of contaminated areas, two new alternatives have been added to the FS. These two alternatives, 5b and 5c, evaluate excavation of depleted uranium and uranium-contaminated waste in the Bear Creek Burial Grounds (BCBG), in addition to excavation in the Boneyard/Burnyard. These new alternatives, modifications of Alternative 5 (now known as 5a with issuance of the revised FS), are intended to meet the same objectives, i.e., DOE controlled use of the current disposal areas, restricted use (such as recreational) of the approximately one mile west of the BCBG and unrestricted use of the far west portion of the valley. Note that excavation was added to the FS in separate alternatives rather than replacing other actions such as in situ stabilization or capping, both of which are considered effective base actions (though with varying degrees of effectiveness) to meet the specific goals of individual alternatives. Alternative 5b, involves excavation of waste sites that received depleted uranium machine turnings in waste sites D-East, D-West, D-South, E, and J (note that all other actions are the same as the original Alternative 5, now Alternative 5a). This limited uranium excavation alternative seeks to excavate depleted uranium that is currently accessible without excessive risks to remediation workers. Excavation of these waste pits would occur in combination with in situ stabilization and capping of other waste areas containing uranium-contaminated material. The second new alternative, 5c, involves excavation of all of the uranium and uranium-contaminated material in the burial grounds, including machine turnings, debris and sludge, as well as the entire Boneyard/Burnyard. This excavation would take place

regardless of the presence of current caps which have effectively "closed" some units and have been shown to be effective in limiting infiltration and mitigating contaminant migration. Note that multilayer caps currently in place and proposed are designed to achieve an extremely low infiltration rate, mostly due to the use of natural components such as compacted clay; therefore, the caps are expected to remain effective in limiting infiltration indefinitely, if properly maintained. With the addition of these two alternatives, DOE presents a detailed evaluation of the merits of partial or complete excavation of the uranium contamination from Bear Creek Valley as compared to multilayer caps and/or in situ stabilization, including a comprehensive +50/-30 cost estimate.

Because of the intrusive nature of the new alternatives, both are associated with potentially high risks to remediation workers, with Alternative 5c having the greatest risks, due to the unique situation of the Walk-In Pits. All other alternatives include less intrusive or non-intrusive ways to isolate contamination in Beak Creek Valley in place, thereby preventing further migration. These methods include surface water diversion trenches, in situ stabilization, shallow groundwater collection and treatment, in place tributary treatment trenches, and capping of the wastes that are to remain in place. Managing the waste in place is associated with considerably less risks to remediation workers and represents a strategy that is both effective in terms of reducing short-term and long-term risks to human health. DOE believes that the combination of actions included in all alternatives presented in the D1 FS will adequately isolate the waste from further migration and meet the remediation goals of each particular alternative.

A concern was raised with regard to in situ stabilization proposed for waste pits in the BCBG (i.e., D-West, D-East, D-South, E, and J). Because in situ stabilization is considered to have a high degree of permanence and achieves essentially the same level of effectiveness in terms of long-term risk reduction, no additional actions are necessary after stabilization, particularly ones which involve intrusion into unknown buried waste units. The specific technology employed for stabilization will be based on all available information on site conditions and the availability of emerging technologies proved to be applicable to the waste. While in situ vitrification is suggested for the accessible buried uranium trenches, the actual technology used may change either before or after the final Record of Decision (ROD), if the alternative involving in situ stabilization is chosen as the preferred alternative.

It should be noted that because contamination will be left on site, 5-year reviews will be conducted for Bear Creek Valley, per the Comprehensive Environmental Response, Compensation and Liability Act, which will include review of data to determine if actions implemented are attenuating contaminant migration as predicted. Periodic review of data collected as part of alternative-specific monitoring plans, will be evaluated in order to determine if the implemented actions collectively result in achieving the goals of the alternative. In addition, the data will be evaluated to determine if site conditions change to the extent that contingent actions, those designed for changed conditions, will be required. The specific data to be collected and the frequency of collection to be used to determine the effectiveness of the chosen alternative, will be presented in the ROD.

I hope that the SSAB will find that the revisions made to the FS address the concerns reflected in the comments and that the document is more comprehensive following addition of the two new alternatives.

For your information, a copy of the D2 version of the FS is enclosed. If you have any questions or would like additional information, please contact Karen Catlett at 241-2224.

Sincerely,

David G. Adler, Team Leader
Bear Creek Valley Team

Margaret Wilson
Federal Facility Agreement
Project Manager
ORR Remediation Management Group

Enclosure

cc w/o enclosure:
Sheree Black, JEG