



*Many Voices Working for the Community*

# Oak Ridge Site Specific Advisory Board

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January 15, 2004

Mr. Steve McCracken  
Assistant Manager for Environmental Management  
DOE-Oak Ridge Operations  
P.O. Box 2001, EM-90  
Oak Ridge, TN 37831

Dear Mr. McCracken:

## **Recommendations on Oak Ridge Reservation Groundwater Strategy**

At our January 14, 2004, meeting, the Oak Ridge Site Specific Advisory Board approved the enclosed recommendations.

We appreciate your consideration of our recommendations and look forward to receiving your written response.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Mosby".

David N. Mosby, Chair

cc/enc: Dave Adler, DOE-ORO  
Jason Darby, DOE-ORO  
Pat Halsey, DOE-ORO  
Connie Jones, EPA Region 4  
John Owsley, TDEC  
Sandra Waisley, DOE-HQ



## Oak Ridge Site Specific Advisory Board Recommendations on Oak Ridge Reservation Groundwater Strategy

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### BACKGROUND

The U.S. Department of Energy has developed a strategy to make Comprehensive Environmental Response, Compensation, and Liability Act of 1980 decisions for contaminated groundwater on the Oak Ridge Reservation (ORR). According to the *Oak Ridge Reservation Groundwater Strategy* (DOE/OR/01-2069&D2), contaminated groundwater exists under roughly 1,500 acres of the more than 34,000-acre reservation. The groundwater is contaminated with organics, radionuclides, and other inorganic contaminants from sources of historical and potentially continuing releases, including burial grounds, ponds, subsurface pipelines and tanks, and miscellaneous leaks and spills. Much of the contamination is present in the form of dense non-aqueous phase liquids (DNAPLs) or tightly bound to the subsurface matrix. The plumes tend to be stable and generally cover short distances before discharging to surface water. The exceptions are where contamination has migrated with depth to aquifers as a result of the presence of DNAPLs. Surface water bodies have been negatively impacted and have become a source of off-site releases of contamination.

The proposed strategy attempts to construct a framework to consider all aspects of the problem, including source, migration pathway, and receptor, and includes a three-phased approach. Watershed boundaries are used for decision-making, although some traditional boundaries have been modified to take into account source locations, similar future land use, and cost-effective consideration of various technologies. The first phase involves early actions for protection of existing resources or receptors from a single component of the problem. The second phase involves more effective risk control by considering all problem components and making source-control decisions. The third phase is groundwater remediation, based on a final decision once source actions have been assessed.

### DISCUSSION

The *Oak Ridge Reservation Groundwater Strategy* is informative. The document provides an overview of site and contaminant conditions on the ORR and a description of the phased process being followed for decisions regarding remediation of groundwater.

There are some shortcomings to the document, however, that should be addressed. One shortcoming is a lack of defined timelines for cleanup of groundwater. Another shortcoming is an apparent emphasis on explaining alternatives to the preferred goal of meeting applicable or relevant and appropriate requirements (ARARs), or appropriate risk-based levels, for the cleanup of groundwater. A third shortcoming is a lack of discussion on how groundwater remediation relates to other issues. These shortcomings are discussed in the following paragraphs.

The document fails to address a time frame for implementation of the groundwater cleanup strategy. In particular, delaying decisions on the implementation of Phase 3 activities until a decision is made on whether “restoration is practical” at a site suggests that restoration activities may never be completed. Without a timeline for completing the cleanup of groundwater, the document lacks creditability. A timeline showing a schedule for completion of all phases of groundwater activities would add to the completeness of the document.

The document goes into some detail to explain possible alternatives to the complete cleanup of groundwater on the ORR. This emphasis detracts from the preferred goal of cleanup of groundwater to ARARs or risked-based levels. At a minimum, it should be noted in the document that alternatives to the complete cleanup of groundwater at a site would be proposed only after all avenues for complete restoration of groundwater at the site have been exhausted. A level of residual risk can be expected along with the need for continued monitoring beyond the “final” decision.

Lastly, the document does not discuss the impact of the cleanup of groundwater on other efforts being undertaken. The relationship between environmental management issues at the ORR and groundwater cleanup could be included in the document if a timeline for cleanup of groundwater is introduced into the document. Few examples are cited to convey evidence that completed early actions and source-control actions have had the anticipated impact. There is no clear reason why this document was created.

## **RECOMMENDATIONS**

1. We recommend that a timeline showing a schedule for completion of all phases of groundwater activities be created and included in this document.
2. We recommend that any reference to alternatives be tempered with a statement that they will be considered only after all avenues for complete restoration of groundwater at the site have been exhausted.
3. We recommend that the impact of the cleanup of groundwater on other remediation efforts be clearly stated.
4. We recommend that the reason for the generation of this groundwater strategy be stated and precisely explained, replacing the existing Introduction in the current version of the *Oak Ridge Reservation Groundwater Strategy* (DOE/OR/01-2069&D2).