



Idaho National Laboratory Site Environmental Management
Citizens Advisory Board

**Options for Disposition of Buried Waste
from the Idaho Site**

The Idaho National Laboratory (INL) Site Environmental Management Citizens Advisory Board (CAB) appreciates having had the opportunity to review the *Preliminary Risk Evaluation of Options for Buried Waste Disposition at the Idaho Site* prepared by the Consortium for Risk Evaluation with Stakeholder Participation (CRESP). In addition to its review of the CRESP document, the CAB has reviewed the related “Risk and Decision” document prepared by the National Research Council of the National Academy of Sciences (2005), received presentations from two CRESP researchers, and participated in teleconferences with those researchers.

The CRESP report on buried waste contains a great deal of information about risk evaluation, management practices, public involvement, hazards, and gaps in knowledge. **Based on this foundation of knowledge about buried waste disposition at Idaho, the CAB endorses the CRESP document and strongly recommends that the U.S. Department of Energy Idaho Operations Office (DOE-ID) follow its provisions.**

Management and Public Communication Practices

The CAB found that Table 2 presents the rather complex human health risks in a manner that is understandable to the public. The CAB also found that in Figures 9, 11, 12, and 13, CRESP laid out detailed hazard and risk analysis flow diagrams for the two alternatives. This framework for organizing life-cycle risk evaluation of the two alternative options, coupled with the risk flow diagrams and conceptual site models, allows the public to readily view the complexities of the evaluation of the options. **The CAB recommends that DOE-ID utilize such a framework when presenting information to the public.**

The CRESP report states that the best risk-informed decisions for the Subsurface Disposal Area (SDA) will likely not include a single remedial action for the entire site. It notes the possibility of encountering high level waste, spent nuclear fuel, or similar wastes, as well as the presence of “hot spots.” **The CAB recommends that remedial action plans recognize the differences within the SDA and adopt a differentiated (or “graded”) approach to remediation based on the details of the waste distribution throughout the SDA.**

In Figures 6, 7, and 8, CRESP has laid out detailed management flow diagrams for the two alternatives. These diagrams identify dozens of points in the remediation process where stakeholder input is required or warranted. **The CAB recommends that DOE-ID take advantage of this management information when formulating its final management plans and use this flow chart format as an effective way to communicate its plans to the public. The CAB further recommends that even after the Record of Decision (ROD) for the final SDA remedy is issued, stakeholder participation as recommended by CRESP be pursued.**

CRESP groups the various alternatives into two broad alternatives: contain the waste in place and retrieve, treat, and dispose. At this time, the CAB has not taken a position on either alternative, but the CAB notes that excavation activities at Pit 9 (Glovebox Excavator Method project, completed), Pit 4 (in process) and Pit 6 (planned) are more aligned with the second alternative than with the first. **The CAB recommends that DOE-ID fully explore the two alternatives taking into account that the final remedy may necessitate incorporation of elements from both alternatives.**

Hazard Analysis

CRESP has done a good job in section 7.4 of analyzing the major hazards and communicating this information in the text and in Table 4. Based on this information, the CAB makes the following recommendations regarding potential hazards.

- The CAB agrees with CRESP that in-situ vitrification is very hazardous and that there is no way to significantly reduce this hazard as it depends on the details and characteristics of the buried waste. **The CAB recommends that in-situ vitrification be removed as a potential remedial action.**
- CRESP also notes that in-situ grouting is also very hazardous. Despite this, grouting may be a useful technique as part of the remedial action. **The CAB recommends that DOE-ID continue to investigate in-situ grouting, with special consideration given to minimizing or eliminating the hazards to the workers.**
- CRESP has identified significant hazards to workers as part of the process of locating, retrieving, and segregating buried waste. These hazards do not depend on the detailed characteristics of the buried waste and are largely under the control of DOE-ID. **To protect workers to the greatest extent possible as waste is retrieved and segregated, the CAB recommends that DOE-ID continue to apply stringent safety practices and good engineering design to minimize these identified hazards.**
- CRESP expresses concern over the effectiveness of long-term stewardship (LTS). This is largely a management and funding question rather than one of engineering. **The CAB recommends that DOE-ID and DOE-Headquarters demonstrate their commitment to long-term stewardship by maintaining a monitoring program at INL and by devoting adequate attention to planning LTS for areas that are to be remediated.**

Knowledge Gap Analysis

CRESP has done an excellent job of identifying gaps in knowledge relevant to the various alternatives, and to the various processes involved. The CAB makes the following recommendations regarding these knowledge gaps.

- **The CAB recommends that DOE-ID use Table 4 (pages 56-57) as a model for explaining to the public the knowledge gaps, priorities, and contribution to risk.**
- **The CAB recommends that DOE-ID investigate the possibility of and prepare for encountering high level waste, spent nuclear fuel, or similar wastes.**

- CRESP states that up to 75 kilograms of plutonium buried in the SDA may be of the size that could form colloids, which could move at the same velocity of water, thus presenting a major threat to the aquifer. **The CAB recommends that the possible transport of colloidal plutonium to the aquifer be investigated and considered in any remediation plan.**

The CAB recommends that DOE-ID pursue resolution of critical knowledge gaps identified by CRESP and not develop final remediation plans until they are adequately resolved.