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Mr. Joe Letourneau  
c/o Risk Team  
U.S. Department of Energy  
955 L'Enfant Plaza North, Suite 1207  
Washington D.C. 20024

August 11, 1995

Dear Mr. Letourneau,

The Environmental Restoration Committee (ER) of the Hanford Advisory Board (HAB) has reviewed the report "Risks and the Risk Debate: Searching for the Common Ground". The HAB has several concerns about the content of the document and its future use. We recognize the need to take "The First Step" in this area and we want to insure that future steps will indeed be headed towards common ground.

The painfully obvious opening "What Did We Learn" statements of this document demonstrate that we have a long way to go:

- "Without containment and limited public access to the Department's inventory of hazardous and radioactive materials, the Department's sites and facilities would pose much greater risks.
- It is difficult to integrate risk assessment methods and cultural and social values so as to produce meaningful priorities.
- The regulatory process and compliance agreements have had uneven results in how they have addressed categories of risks across the Department's hazardous material inventories, and sites and facilities."

Our first and foremost concern is that the final conclusions presented in the report do NOT reflect the extensive list of concerns repeated (several times) in the body of the document. In particular, the report emphasizes that:

- "Problems with the site-specific assumptions may have prevented a consistent evaluation of risks complex-wide. It is for this uncertainty that the direct comparison of risks from one site to another cannot be made with a great degree of confidence."
- "Currently, detailed risk information may exist at the facility or site level, but is not readily available or comparable across a site or from site to site."
- "... risk assessments generally do not incorporate risks to workers and the environment during remediation"
- "Though this was not explicitly addressed by most sites, future land use is a key issue."
- "It is difficult to integrate risk assessment methods and cultural and social values so as to produce meaningful priorities"
- "The evaluation of risk made in this report is dependent on a number of assumptions,... Many of these assumptions will change over time."

Despite these strong cautionary statements, a very subjective, complex-wide evaluation of the DOE/EM

priorities - as reflected in the FY96 budget - was made. This was based on information provided by the Field Office Managers in the Environment Management Activity Data Sheets. Analysis of this data was used to conclude (in part):

- "The Department explored the use of a qualitative evaluation of Environmental Management's activities in the context of the Department's Risk Principles and found it to be a useful tool for decision-making."
- "88% of the [FY96] budget evaluated addresses high and medium risks to the public, workers or environment [complex-wide]."

Although the initial emphasis for the preparation of this report was to respond to a Congressional request, the HAB is concerned that the stated limitations of performing a qualitative, complex-wide risk assessment have been ignored in order to justify the FY96 budget and potentially all future budget scenarios. By grouping high and medium risks together in the analysis, the reviewers reach the conclusion: "The qualitative evaluation data indicate that the greatest majority of activities focused on achieving compliance do, in fact, address significant risks to the public, workers, or the environment."

The definitions of "high", "medium" and "low" risks are:

**High Risk** - High risks to the public, workers, and the environment represent major impacts (death; permanent total disability; or widespread, irreversible damage to the environment) that are expected to occur within one to ten years, or intermediate impacts (significant exposures, injuries, or environmental damage) that are expected to occur at least yearly.

**Medium Risk** - Medium risks to the public, workers, and the environment represent either major impacts that are expected to occur once a century or less, intermediate impacts that are expected to occur within 10 to 100 years, or moderate impacts (no hospitalization required, or localized short-term environmental damage) that are expected to occur within one to ten years.

**Low Risk** - Low risks to the public, workers, and the environment represent either intermediate impacts that are expected to occur once a century or less, or moderate impacts that are expected within 10 to 100 years.

These broad definitions contain arbitrarily chosen time scales that cause the site evaluations to be subjective and inconsistent - "It is unclear at this time if the variability [in their characterization of inherent worker risk] is a result of the true nature of inherent risk or is due to differences in field office-specific application of their assumptions."

We find it very inappropriate that according to these definitions, contamination that could have a major impact on the public, workers and the environment beyond the 10 year time frame would not be considered high risk. It is also not obvious that sources of contamination that may have a low probability of causing catastrophic effects would be considered high risk. The resulting ambiguities from these classifications are illustrated by the discussion of the case study of the classification of the High-Level Waste Underground Storage Tanks at Hanford. The tanks are classified as High Risk without any clear reference to potential major impacts in less than 10 years. "Under the current operating conditions, long-term risks to the public are very low."

Correlation between the above definitions and the standard risk assessment process is not clear. The established four-steps of risk assessment:

1. Hazard identification
2. Dose-response assessment
3. Exposure assessment
4. Risk Characterization

were outlined by the National Academy of Sciences ["Risk Assessment in the Federal Government: Managing the Process. National Academy Press, Washington D.C. (1983)] and are used extensively in the field ["The Risk Assessment of Environmental Hazards, Ed. D.J. Paustenbach, John Wiley, New York (1989)].

In order to clarify the risk categorization, we recommend that:

1. The definitions of "high", "medium" and "low" risk be expanded to refer explicitly to:
  - a. hazard type and concentration - (e.g. radiation, chemical, concentration)
  - b. potential adverse human health and ecosystem impact - (e.g. acute, chronic, developmental, reproductive, species loss)
  - c. probable exposure scenarios - (e.g. inhalation, ingestion, epidermal, with considerations of the dietary, social and cultural practices of the exposed populations)
2. A clearer distinction be made regarding the potential impact on workers, the public and the environment based on realistic exposure scenarios for each group separately.
3. Future land use plans be included in all long-term risk assessments.
4. More specific discussion be given to the duration and level of required institutional controls.
5. This construct must address the complex additive or synergistic health risks common to DOE sites.

Given that a major finding of this report is that without continuing maintenance and isolation, the Department's sites and facilities would pose much greater risks to the public and the environment, the importance and costs of institutional controls must be a key element in the budget. It should be recognized that deferral of appropriate corrective programs in the short-term will likely produce substantial increases in total life cycle costs. These factors need to be treated explicitly in the yearly budget analyses. Effective remediation that reduces the need for strict institutional controls will reduce costs; while failure to pursue remediation strategies in the short-term will increase the overall financial burden.

The HAB is also disturbed by the limited amount of public involvement that was sought for the preparation of this report. This is clearly illustrated by the statements:

- "The Qualitative Evaluation process has received only cursory review by national stakeholders, and limited review at sites where the process was used."
- "...the incompleteness of the data is underscored by the limited opportunity to discuss issues with stakeholders and Tribal representatives and incorporate their views into the report."

The reference material pertaining to Stakeholders and Tribal Concerns was limited to only one written report. No formal consultation was made with HAB on this report and the very limited comment period precluded the HAB from formally responding before the final report was submitted to Congress. We recognize and regret that our present remarks may not be included in the final draft document.

We are also concerned about the extensive referencing and use of the CERE report. The HAB has expressed concerns about the technical content and role of public involvement reported in that document. These views are shared by the Department of Ecology and the Department of Health of the

State of Washington. Copies of correspondences on this subject have been enclosed for your review.

We are particularly concerned about the limitations and short comings that will result from using inconsistent complex-wide risk assessment methods to prioritize clean-up. We certainly agree that further public involvement is required if we are really *searching for common ground*. We encourage you to involve the Site-Specific Advisory Boards (SSAB) the evaluation of site-specific risk-based priorities. The role of the SSABs was clearly stated in the National Academy of Sciences Building Consensus report ["Building Consensus Through Risk Assessment and Management of the Department of Energy's Environmental Remediation Program", National Academy Press, Washington D.C. (1994)].

"An SSAB not only can help in the initial scoping activity, but can help to ensure that the entire facility remediation process - including risk assessment, public participation, risk management, and decision making - proceeds effectively with the concurrence and understanding of the stakeholders.

In conclusion, the HAB recognizes the need for efficient and cost-effective environmental remediation and waste management at DOE sites. To that end, we strongly encourage more technically sound and consistent risk evaluations be made at the individual sites before complex-wide priorities are finalized. It is imperative that budget decisions be made based on credible evaluations, not on limited and inherently flawed sources of information.

This report defines the challenges and difficulties of providing a thorough application of risk assessment to the Environmental Management Program for DOE's sites. While we agree with this goal, the HAB believes that future action items need to be clarified and well-defined goals, schedules and objectives identified. It is apparent that significant progress can (and should) be made now on setting site-specific priorities. The SSABs should actively participate in that process. A national forum of representatives from SSABs should be involved in defining cross-cutting issues that will make intersite comparisons more meaningful and realistic.

We endorse the search for common ground in the prioritization of the cleanup of DOE sites. This can only be achieved by merging quantitative scientific information with the needs, concerns and goals of the affected communities. Meaningful dialogue with stakeholders and tribal governments is essential to guarantee this process is successful.

Very truly yours,

Merilyn B. Reeves, Chair  
Hanford Advisory Board

cc: Chuck Clarke, U.S. Environmental Protection Agency  
Mary Riveland, Washington Department of Ecology  
John Wagoner, Department of Energy, Richland Operations  
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For questions or comments, please send [email](mailto:Hanford_Advisory_Board@rl.gov) to [Hanford\\_Advisory\\_Board@rl.gov](mailto:Hanford_Advisory_Board@rl.gov)

*HAB Consensus Advice #28*

*Subject: Risk Initiative Report (Environmental Restoration Committee)*

*Adopted: August 3-4, 1995*