

# **INTEGRATION PROJECT EXPERT PANEL**

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## **PEER REVIEW PROCESSES SUBPANEL**

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### **CLOSEOUT REPORT FOR SUBPANEL MEETING OF MARCH 24, 1999**

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Prepared under the auspices of the Groundwater/Vadose Zone Integration Project  
For the U.S. Department of Energy, Richland Operations Office  
Richland, Washington 99352

## **FOREWORD**

**The Integration Project Expert Panel (IPEP) was formed in 1998 under the auspices of the Groundwater/Vadose Zone Integration Project at the Hanford Site of the U.S. Department of Energy (DOE). This Project is funded by DOE Richland Operations and managed by Bechtel Hanford, Inc.**

**The purpose of the IPEP is to provide the Integration Project with independent advice and recommendations on key programmatic, technical, and administrative issues affecting the success of the Project.**

**The IPEP is composed of eight individuals, independent of DOE, having a diverse set of technical backgrounds and experience relevant to the clean up of the Hanford Site.**

**This document is a product of IPEP member efforts working through an officially constituted Subpanel. The views expressed in the document represent a consensus of all eight Panel members, except where specifically noted.**

**INTEGRATION PROJECT EXPERT PANEL**  
**Peer Review Processes Subpanel**

**Closeout Report for Subpanel Meeting of March 24, 1999**

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**Peer Review Processes Subpanel membership:** John G. Conaway

This Closeout Report for the 3/24/99 meeting of the Peer Review Processes Subpanel has been reviewed and approved by the Integration Project Expert Panel (IPEP) and represents the consensus view of the IPEP members on all significant points.

### **Introduction**

Undersecretary of Energy Moniz has directed the Integration Project to develop and incorporate a multi-level peer review system (USDOE, 1998). To achieve success, the Project must ensure that effective peer review processes are implemented.

The primary purpose of the Peer Review Subpanel meeting held on 24 March 1999 was to begin a dialog on peer review in the Integration Project with the goal of gathering information on peer review processes for the Project as they are currently implemented or planned. It was assumed that in some areas peer review processes may not have been in place or planned, and in those cases the goal was to solicit ideas and opinions as to what would be useful.

The deliverable from the Peer Review Subpanel meeting was a report to the Expert Panel, which was submitted on 3 May 1999. The Subpanel report as modified by the panel was to have been included in the Panel Closeout Report for the May 1999 Panel meeting but was delayed somewhat due to more pressing Panel business. This is that report.

### **What is peer review?**

Peer review means different things to different people. A working definition of peer review was adopted by the Subpanel, as given in "*Peer review in environmental technology development programs*," prepared and published by the National Research Council for the DOE Office of Science and Technology. According to the NRC report, peer review is an in-depth critique of assumptions, calculations, extrapolations, alternate interpretations, methodology, acceptance criteria employed, and conclusions drawn in the original work.

To be effective, peer review must be documented, expert, independent, external, and technical. By definition, internal reviews are not peer reviews because they are not independent. Finally, the NRC reference distinguishes between peer reviews, which are entirely technical, and merit reviews, which often include programmatic and other non-technical aspects of projects. Undersecretary Moniz has stated that he views the

GW/VZ Expert Panel as primarily a merit review panel (personal communication, E. J. Moniz to E. Berkey, January 1999).

The primary benefits of peer review are to enhance technical quality and credibility of the work. Technical quality is enhanced by identifying projects that lack technical merit or are technically inferior to other feasible alternatives, and identifying specific ways to improve proposed or ongoing projects. Credibility is enhanced because the evaluation is external and independent, avoiding both the reality and the appearance of conflict of interest.

The Integration Project is not an academic process, nor is it primarily involved in selecting, funding, and monitoring research and development activities. To be successful, the Project must maintain a pragmatic, results-oriented approach to managing efficiently certain aspects of the Hanford site environmental work. Peer review systems supporting the Project must reflect this reality.

High-level peer review structures, including the GW/VZ Expert Panel, have already been imposed on the Project from the outside. However, these alone will not provide the detailed scrutiny of technical issues that is necessary for Project success. The Expert Panel, for example, does not have the time or resources to perform many technical reviews. The role of the Panel must necessarily be to assess the Project's own procedures for ensuring adequate detailed technical review rather than to provide such detailed review.

### **Overview of the 3/24/99 Peer Review Subpanel meeting.**

The day-long Peer Review Subpanel meeting held on 24 March 1999 included seven separate sessions ranging from roughly 45 minutes to 90 minutes in length. The three morning sessions dealt with peer review processes in three Integration Project areas: S&T, SAC, and "other." The latter session included Alliance Contracting (also known as the PHMC Turndown Process, whereby tasks are automatically offered to certain contractors without competition) and briefly touched on several other topics including the roles of the Expert Panel and other peer review teams such as National Academy of Sciences and Washington Advisory Group.

The afternoon sessions included peer review issues related to three of the Core Projects, TWRS, 200 Area Remedial Assessments, and Hanford Site Groundwater Monitoring/Modeling, along with a closeout session. For the most part, the sessions related to the Core Projects focused on review mechanisms that might help protect Integration Project interests in those projects.

The dialogue was free-ranging with questions and answers flowing both directions. A list of the participants who spoke (based on the meeting minutes) is given at the end of this report. The exchange of information and opinions seemed to be frank and open in every session. Many participants inside and outside the Integration Project were clearly enthusiastic about the Project, about existing levels of cooperation, and about the potential for success. Participants indicated that, in their view, cooperation was entirely adequate and interactions sufficiently flexible to ensure that the Integration Project and the Core Projects achieve success in their related endeavors.

## **Conclusions**

There are numerous review processes in place in various areas of the Integration Project and Core Projects. On the other hand, there is no formal mechanism for coordinating and evaluating these processes so there are almost certainly gaps, inefficiencies, and other areas that need to be addressed; that is not surprising at this stage of Project planning (i.e., April 1999). Some sort of mechanism to coordinate, and evaluate the effectiveness of peer review systems is needed.

It was stated above that true peer review must be external and independent. For the Integration Project, does “external” mean non-Hanford? Does “independent” mean non-DOE? Realistically, many qualified technical experts on matters related to the Project work at Hanford and the funding must necessarily come from DOE. Engaging local personnel in the review process may often be simplest from the standpoint of logistics, cost, and contracting. These practical matters must be balanced against technical quality and credibility, however. It would seem reasonable for the Project to rely primarily on qualified Hanford experts as the first level of a multi-level review process provided the resulting potential problems of conflict of interest and local point of view can be dealt with successfully. Use of internal Hanford personnel for peer review *without* appropriate, formal, checks and balances may impair technical quality and will likely damage Project credibility.

The IPEP is primarily a merit review panel operating at a fairly high level and it will generally not perform detailed technical reviews because of lack of time and resources. However, the members remain very concerned that the Integration Project ensure that high-quality external peer reviews are performed as necessary. In most cases, Panel members will not actively participate as members of peer review committees. Active participation could create a conflict of interest or an appearance of conflict of interest when the Panel later considers the results of the review. The Panel may appoint a Panel member to the role of Liaison between the peer review committee and the Panel. The role of the Panel Liaison is not to take part in the review but to provide information to the Panel and convey any Panel concerns to the peer review committee.

One role of the IPEP will be to assess the quality of detailed technical reviews with spot checks from time to time. An example of the sort of critical technical work where high quality reviews must be ensured is the groundwater modeling. DOE/RL has addressed this by appointing an external peer review committee with good credentials. A second example is the vadose zone contaminant transport modeling. The earlier Vadose Zone Expert Panel expressed great concern about the vadose zone modeling work presented to them and recommended that future modeling be put out for bids (VZEP, 1997; VZEP 1998). Only an external peer review process will ensure that this vital modeling is credible and technically defensible.

## **Recommendations**

Based on the results of the Peer Review Subpanel meeting and internal IPEP deliberations, the Panel recommends that Integration Project personnel evaluate existing technical review processes and develop a plan to establish a robust, coordinated, multi-level review system that meets Project needs yet is minimally

intrusive. We encourage the Project to use internal personnel for routine technical reviews to the extent that the technical quality and credibility of these internal reviews can be demonstrated. However, formal, external, independent peer reviews should be used for particularly costly or vital technical work including projects where credibility is a particular issue, such as the two examples in the *Conclusions* section above.

## References

USDOE, 1998. Groundwater/Vadose Zone Integration Project Specification, DOE/RL-98-48 Draft C.

VZEP (Vadose Zone Expert Panel), 1997. TWRS vadose zone contamination issue expert panel status report, May 1997, DOE/RL-97-49 UC-2000.

VZEP (Vadose Zone Expert Panel), 1998. Vadose Zone Expert Panel Meeting Closeout Report, June 23-25 1998, DOE/RL-98-67.

## List of participants in the 3/24/99 Peer Review Subpanel meeting

This list is based on the meeting minutes. Others may have been present but would not be listed if they did not enter the discussion.

JOHN CONAWAY  
BOB BRYCE  
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