

**Internal Report
Sandia National Laboratories
Division 6431**

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**Letter Report: BWIP Hydrologic Workshop of
June 11, 1984 to June 13, 1984**

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Date: June 11, 1984 to June 13, 1984

Location: Gaithersburg, Maryland

Purpose: The purpose of this trip was to participate in the NRC/DOE workshop on the Basalt Waste Isolation Project hydrologic characterization plans

Background: The NRC has organized and directed a team of hydrologists to review the BWIP hydrologic program. This trip was part of their continuing review process.

NRC PRE-WORKSHOP MEETING

On June 11, 1984, I attended a meeting involving the NRC and its contractors at the Willste Building in Silver Spring, Maryland. The purpose of the meeting was to bring each of the participants up to date on the other's efforts and prepare for the NRC/DOE workshop. Personnel from the NRC, Williams and Associates, and Golder Associates were in attendance.

Each of the participating groups presented the work they had done since the last BWIP workshop. In addition, the NRC staff made presentations on quality assurance and their computerized data base system. They were interested in whether or not their contractors felt the data base should be maintained. I believe it should not be, as DOE is building its own data base. The DOE's should be more up to date and, therefore, preferable to use.

DOE/NRC WORKSHOP

The BWIP hydrologic workshop was held from June 12th to June 13 at the Climat de France hotel in Gaithersburg, Maryland. Participants include the DOE, NRC, U.S. Geological Survey, Rockwell Hanford Operations (DOE) Pacific Northwest Laboratories (DOE), Williams and Associates (NRC), Oregon State University (DOE), Golder Associates (NRC), Weston (DOE), Geotrans (Yakima Indian Tribe), Washington State Department of Ecology, and Sandia National Labs (NRC). The purpose of the workshop was to provide a forum for DOE and NRC to discuss DOE's hydrologic site characterization work at BWIP.

As members of NRC staff were present, there is no need to summarize the proceedings. Instead, this trip report contains my views on several of the topics discussed and questions that arose.

1) There seemed to be some confusion over the purpose of the workshop. DOE seemed to believe the purpose was to present a general overview of their work and plans. On the other hand, some members of the NRC team felt that there would be detailed technical discussion on past and future testing. This difference was emphasized by DOE not being prepared to discuss technical review letters sent to them by NRC. In fact, some of the letters had not yet been forwarded to the technical personnel responsible for testing.

2) The DOE mentioned that they have begun monitoring the water levels of the unconfined aquifer. I believe NRC should pay particular attention to this new data and its use by DOE. Hopefully, this new data will shed light on the effects of stress in the unconfined-aquifer on the underlying basalts.

3) Unfortunately, there is little that can be said concerning the adequacy of planned hydrologic tests at BWIP. This is because very few technical details were provided. For example,

RHO personnel mentioned that both analytical and numerical techniques would be used to analyze the large scale tests. However, they did not mention which techniques will be used and how they will be applied. The same is true of the sensitivity analysis that is supposed to be used in determining when to stop observation well monitoring and begin the large scale tests.

4) The DOE mentioned that the calibration of their regional ground-water flow model will take at least three to four more years. I believe NRC should keep this in mind in reviewing any DOE calculations which are dependent on the regional model. For example, DOE has previously made calculations of ground-water travel time. These calculations are dependent on boundary conditions which should be derived from the regional model. Therefore, these calculations are suspect because the model had not yet been calibrated.

Another problem with this modeling is that no details about it are available to NRC. It will be very difficult for NRC to evaluate the whole hydrologic program without this information. Hopefully, DOE will publish progress reports so that NRC will not have to wait until final calibration to begin reviewing the modeling effort.

Last of all, the amount of time required for model calibration of this system is not unreasonably long. Thus, if the NRC decides to build its own real-site model of BWIP, they should be aware of the level of effort required and start at the earliest possible time.

5) A question that came up mainly within the NRC group, was whether or not DOE should be requested to establish a monitoring point within the confining units during large scale testing. The DOE position appeared to be that they would derive properties of the confining units via the response of the units over and under them. Although there is no guarantee that a well in the confining units would respond to the imposed stresses, I recommend that the confining units be monitored. This would allow for the determination of both the hydraulic conductivity and storage coefficient whereas the method to be employed by DOE would allow only for the combination of these parameters to be obtained. In the event that the response in the confining units is not detectable, nothing would be lost and DOE could still apply their original method of analysis.