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MAY 22 1984

Mr. O. L. Olson, Project Manager  
Basalt Waste Isolation  
Project Office  
U. S. Department of Energy  
P. O. Box 550  
Richland, WA 99352

- MRP r/f
  - NMSS r/f
  - CF
  - REBrowning
  - MJBell
  - PAI tomare
  - LBHigginbotham
  - JKennedy
  - HJMiller
  - SMCoplan
  - RRBoyle
  - RJWright & r/f
  - PDR
  - LPDR
- MRKnapp
  - JBuckley
  - JGreeves
  - JGORN

Dear Mr. Olson:

During January 23-27, 1984, members of the NRC technical staff, and consultants, undertook a review of rock mechanics testing and rock mechanics test data at the BWIP. The visit was part of the ongoing technical precicensing interaction between the NRC staff and the Basalt Waste Isolation Project. The purpose is to identify, early on, potential licensing issues and to reach agreement on approaches for their resolution during site characterization.

Based on this review, we have prepared a group of comments on the methods of rock mechanics testing, the test analyses and the test results. Several copies of these comments (memorandum to Wright from Nataraja and Buckley, 4/19/84) form Enclosure 1 of this letter.

Enclosure 2 (memorandum to Wright from Nataraja and Buckley, 2/27/84) describes the review procedures of the NRC group. It also tabulates the materials collected by the review team. Copies of these materials have been placed in NRC's public document room in Washington, D.C. and in the licensing public document room at the Richland Public Library.

If you have any questions about the enclosed material please telephone me (FTS 427-4674) or Dr. M. Nataraja (FTS 427-4678). Dr. Nataraja led the review team.

I wish to call your attention in particular to two comments.

One. Our review of borehole video pictures showing extensive spalling of the borehole walls has increased our concern on (a) the constructibility of emplacement holes for waste the packages and (b) the contingency plans for the retrieval of the canisters from these holes. Given the inherent limitations of the hydrofracture method to assess in situ rock stress, the application of the stress data to repository design criteria and the characterization program involves substantial judgement. Consistent with our comments in NUREG-0960 (Chapter 10, Figure 10.1) on quality assurance and our review plan on quality assurance programs, we consider that this is a good example of a situation where a peer review of test results is appropriate. The review would be conducted to critically examine the existing data on in situ stress field and

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| NAME | :RJWright | :JGreeves | :JBuckley | :HJMiller | : | : | LPDR | <input checked="" type="checkbox"/> |
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in situ strength and determine whether the stress field is adequately accommodated in the repository design criteria.

Two. It is not uncommon for test procedures to change, due to improvement in techniques, during a series of tests. Hydrofracture testing is an example at the BWIP. The NRC review suggests that this test technique has gone through a process of development, and improvements in the test procedures have been incorporated while the testing was under way. However, the recording of the changes in procedures appears incomplete, and the particular procedures by which certain test results were obtained is only partly available. We believe it essential that the test results be traceable to the procedure in effect at the time of testing. Otherwise, these test results can be subject to disqualification or can be of limited use during the licensing process. Test data that is to be used in licensing should be tied to the approved and documented procedures under which each test was run.

On behalf of the review team, I wish to thank you and the responsible Rockwell officials for making the arrangements for the visit and for the cooperation shown by the DOE and Rockwell staff members.

Sincerely,

~~ORIGINAL SIGNED BY~~

Robert J. Wright  
Senior Technical Advisor  
Repository Projects Branch  
Division of Waste Management  
Office of Nuclear Material  
Safety and Safeguards

Enclosures: - *already in POR*

1. Memorandum to Wright from Nataraja and Buckley, 4/19/84
2. Memorandum to Wright from Nataraja and Buckley, 2/27/84 (840227)

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