



## Department of Energy

Washington, DC 20585

**JAN 23 1992**

Mr. Joseph J. Holonich, Director  
Licensing and Quality Assurance  
Project Directorate  
Division of Nuclear Material Safety  
and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Holonich:

Enclosed is a copy of the Test Prioritization Task Force Report. Although staff members from the U.S. Nuclear Regulatory Commission (NRC) and the Advisory Committee on Nuclear Waste (ACNW) have both informally received copies of this report, the enclosed report culminates Phase I of the Test Prioritization Task Force. It must be emphasized that this report is not "final," in the sense that it is merely the first of a series of iterative evaluations that could examine this issue. Future evaluations will be required as testing progresses, data are acquired, and our understanding matures.

This task was initiated in order to help DOE focus the near-term testing program on early detection of any conditions at Yucca Mountain, Nevada, that would make it unsuitable as a potential repository site. The focusing of the near-term site testing program is in direct response to a directive from Secretary of Energy James D. Watkins and consistent with the November 1989 Report to Congress on Reassessment of the Civilian Radioactive Waste Management Program, wherein DOE stated:

"DOE has decided to focus its near-term scientific investigations... specifically at evaluating whether the site has any feature that would indicate that it is not suitable as a potential repository site."

The Test Prioritization Task Force had two main objectives: (1) to develop an explicit decision analysis method to prioritize testing in the initial phase of site investigation, in order to ensure early investigations of significant, potentially adverse conditions and other concerns; and (2) to recommend methods that could be employed to reprioritize testing at any point during the site characterization, including a method for deciding when to stop testing. Of necessity, this task will be long term, iterative and evolutionary and, therefore, the approach was broken into phases. Phase I consisted of the development and relatively simple "spreadsheet" model, which is based on available information and expert assessments regarding performance, reliability of various tests, and impacts. Phase II

9201300269 920123  
PDR WASTE  
WM-11 PDR

102.8  
WM-11  
NH83

will involve the development and application of a "simple" total system performance model, as well as involving a larger sampling of experts for assessment input. In addition, we are currently in the process of integrating aspects of the Phase I effort into the ongoing Early Site Suitability Evaluation effort.

The results of the enclosed study will be considered during allocation of budget and definition of the scope work in the coming years. The study reaches several important conclusions:

1. At this time, the highest ranked test packages are those that address:

a. Potential for the movement of gaseous radionuclides through the unsaturated geologic medium to the accessible environment.

b. Reduction in modeling uncertainty regarding features and processes that control the gas phase and aqueous phase transport of radionuclides at Yucca Mountain.

2. The accuracy of testing must be considered before making decisions on test prioritization, and consideration of the potential for finding a condition exists when, in fact, it does not (false positive).

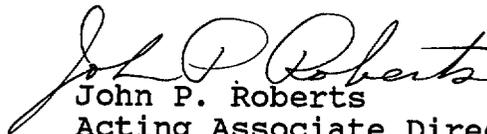
3. Because of the limited scope of this initial study, only a single performance measure (postclosure radionuclide release to the accessible environment over the next 10,000 years) was used for determining test priorities. We recognize that there are many other reasons for conducting tests, including: building scientific consensus about the evaluation of site suitability, gathering information for repository design and construction, providing ancillary information required for a license application, and providing baseline data for long-duration performance-confirmation tests during and following repository construction. The other uses of tests results will also be considered when allocating resources.

The report identified one area in which a gap exists in the current testing program. There is currently no specific testing program or a program strategy directed at investigating or mitigating  $^{14}\text{C}$  release and transport from the repository. Various strategies are currently being evaluated to address this issue.

The method applied in this report is a valuable tool that provides a logical and defensible basis for allocating resources. It is DOE's intent to continue development of this tool, and to apply it iteratively throughout site characterization and site suitability determination at appropriate points.

If you have any questions about the content of the enclosed report, please contact either Chris Einberg at (202) 586-8869 or FTS 896-8869, or Steven R. Mattson of Science Applications International Corporation at (702) 794-7615 or FTS 544-7615.

Sincerely,



John P. Roberts  
Acting Associate Director for  
Systems and Compliance  
Office of Civilian Radioactive  
Waste Management

Enclosure: *on the shelf*  
Report of Test Prioritization  
Task Force, Phase I (2 volumes)

cc w/o encl:

R. Loux, State of Nevada  
M. Baughman, Lincoln County, NV  
D. Bechtel, Clark County, NV  
S. Bradhurst, Nye County, NV  
P. Niedzielski-Eichner, Nye County, NV  
R. Campbell, Inyo County, CA  
R. Michener, Inyo County, CA  
G. Derby, Lander County, NV  
P. Goicoechea, Eureka County, NV  
C. Schank, Churchill County, NV  
C. Jackson, Mineral County, NV  
K. Wipple, Lincoln County, NV  
F. Sperry, White Pine County, NV  
J. Bingham, Clark County, NV  
L. Vaughan, Esmeralda County, NV  
B. Raper, Nye County, NV