



UNITED STATES
NUCLEAR REGULATORY COMMISSION
 ADVISORY COMMITTEE ON NUCLEAR WASTE
 WASHINGTON, D.C. 20555

July 31, 1991

MEMORANDUM FOR: Eric S. Beckjord, Director
 Office of Nuclear Regulatory Research

Robert M. Bernero, Director
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 and Safeguards

FROM: *Dade W. Moeller*
 Dade W. Moeller, Chairman
 Advisory Committee on Nuclear Waste

SUBJECT: VISIT TO THE CENTER FOR NUCLEAR WASTE
 REGULATORY ANALYSES

On June 26 - 28, 1991, members of the Advisory Committee on Nuclear Waste, supported by three consultants, journeyed to San Antonio, Texas, to review the programs of the Center for Nuclear Waste Regulatory Analyses (Center). Also participating in this visit were members of the staffs from, and consultants to, each of your offices as well as a representative from the Nuclear Safety Research Review Committee. Through this memorandum, the Committee wants to share with you its comments and observations.

Before we list our specific comments, however, we want to emphasize that our overall impressions of the activities of the Center were favorable. An enthusiastic team of professionals has been recruited, communications among the several groups within the Center appeared to be good (with a resultant integration of the various programs being pursued), adequate office and laboratory space has been provided, and the necessary analytical instrumentation is being assembled. Plans for the construction of a new building to provide dedicated office space for the Center staff demonstrate the full commitment of the Southwest Research Institute to this endeavor.

We are pleased to note that the Center staff members are participating more frequently in national and international scientific meetings. They are publishing in refereed journals and are providing leadership in organizing meetings on key topics such as "Natural Analogs" (held on July 23-25, 1991). Also of note is the fact that exchanges of personnel through rotational assignments between the Center and NRC headquarters are now taking place.

Our comments on specific technical aspects of the Center's programs are summarized below:

1. Assignment of Priorities

Although the Center staff is engaged in a variety of projects, it is not clear to us how these projects are identified and, more importantly, whether the most important subjects are being addressed. We believe that it would be useful to outline the methodology for establishing priorities for work at the Center. Specific questions to be addressed include: Who sets priorities? What criteria are used? How often are the priorities reviewed?

2. Performance Assessment and Model Validation

We are pleased to note that increasing attention by the Center staff is being directed to performance assessment. This, in our opinion, is a high priority item that should receive focused and increasing attention and be supported by a vigorous effort to recruit additional people who are competent in this subject. There is a need for ongoing external peer review of the total (Center and NRC staff) performance assessment program. This requires more than the reviews provided through working group meetings of the Advisory Committee on Nuclear Waste.

To support the performance assessment program, there is a need to validate the various computer models being used to analyze the effects of various parameters on the performance of a high-level waste repository. Although the proposed studies at the Peña Blanca site in Mexico will assist in confirming certain aspects of these computer codes, efforts need to be directed to confirming the validity of the codes being applied to other aspects of repository performance. Without such confirmation, the usefulness and application of these codes will be questioned.

3. Systematic Regulatory Analysis

During the past several years, the staff of the Center has conducted a careful analysis of 10 CFR Part 60 and the associated regulatory inconsistencies and uncertainties. We were informed that this effort has provided a framework for planning much of the work of the Center, including the iterative performance assessments that will be used to determine relevant data needs and to identify the key parameters affecting the performance of the proposed Yucca Mountain repository.

There is a need to bring to closure the issues that have been raised and to factor the results of this effort more directly into the research and technical assistance activities of the Center. We look forward to receiving more information on this subject during the scheduled upcoming briefing by the staff of the Division of High Level Waste Management.

4. Timeliness of Studies and Results

We believe it is important for the Center staff to realize that timeliness is a key factor in developing necessary experimental and computational techniques, in generating data through the application of these techniques, and in issuing reports summarizing the related information. An example of timeliness is the need for the Center staff to develop a capability to conduct evaluations of the long-term resistance of various waste canister materials to corrosion under relevant repository conditions. This work should progress even though the U.S. Department of Energy has not yet identified the specific canister material to be used. Otherwise the required testing capabilities may not be ready when needed. Tests also need to be developed for predicting repository behavior under the dry-wet-moist cycle that will exist within an unsaturated environment. Also important in meeting this goal is a requirement on the NRC staff to rapidly review Center reports submitted to it.

5. Technical Assistance and Research

It was not clear from our review how projects being conducted by the Center in providing technical assistance are coordinated with those pertaining to research. There appears to be a need for relevant program managers within the Office of Nuclear Material Safety and Safeguards and the Office of Nuclear Regulatory Research to ensure that the demands being placed on the Center are well coordinated, and that these demands fit into the overall agreed upon priorities. A major goal of such coordination should be to minimize the number of conflicting and competing demands being placed on the Center staff.

6. Laboratory Equipment and Computer Support

Many of the studies underway (or being planned) at the Center require sophisticated laboratory equipment and supporting computer capabilities. To the extent practicable, we recommend that capital funds, beyond the current operating budget, be provided to the Center for the acquisition of laboratory facilities and equipment. We also understand that there is a need at NRC headquarters for computer hardware, software, and the leased lines necessary to facilitate

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electronic communications between personnel at the Center and NRC headquarters. We urge that these problems be resolved.

We recognize that these comments are based on a very limited review of the programs of the Center, but we hope that you will find them helpful. Should you desire to discuss any of our comments in more detail, we would be pleased to meet with you and/or members of your staffs.

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