

April 10, 2004

Dr. Margaret Chu
Office of Civilian Radioactive Waste Management
U.S. Department of Energy
Forrestal Building
1000 Independence Avenue, SW
Washington, DC 20585

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION STAFF EVALUATION OF
U.S. DEPARTMENT OF ENERGY ANALYSIS MODEL REPORTS, PROCESS
CONTROLS, AND CORRECTIVE ACTIONS

Dear Dr. Chu:

At the Quarterly Management Meeting held on July 16, 2003, U.S. Nuclear Regulatory Commission (NRC) staff stated its intent to independently evaluate certain U.S. Department of Energy (DOE) technical documents and supporting activities. An Evaluation Team of staff from NRC headquarters, NRC's Region IV office, and the Center for Nuclear Waste Regulatory Analyses performed three targeted audits to evaluate the technical information in selected Analysis Model Reports (AMRs) and supporting information that were considered to be of high or medium significance to repository performance. The team also evaluated the processes for developing and controlling AMRs, and the effectiveness of recent corrective actions in the areas of models, software, and data. These audits occurred at the DOE Management and Operating Contractor, Bechtel SAIC Company, LLC (BSC), facility in Las Vegas, Nevada.

The team's report of the results of this evaluation is enclosed with this letter. The Executive Summary gives an overview of the scope, evaluation results, and the team's conclusions. Following the Executive Summary is a detailed discussion of the conduct and results of this evaluation.

The team found several good practices during the evaluation. The DOE and BSC staff provided exceptional support throughout the planning and performance of this evaluation. Technical information provided in the AMRs was considered to be much improved over what was presented in the Total System Performance Assessment for Site Recommendation. The team also found that current AMRs are up to date, more comprehensive, and contained more data.

That said, the team identified some concerns with both the clarity of the technical bases presented in the three AMRs evaluated and the sufficiency of technical information used to support DOE's explanation of the technical bases, which could reasonably have been identified and corrected during the AMR checking and review process. The team also found concerns in the effectiveness of DOE's corrective actions. The number and similar pattern of concerns found in all three AMRs suggests that other AMRs may have similar limitations. If DOE continues to use their existing policies, procedures, methods, and practices at the same level of implementation and rigor, the staff's review of the License Application (LA) could be significantly

extended because of the need for a large volume of requests for additional information in some areas. This could, as a consequence, prevent NRC from making a timely decision regarding issuance of a construction authorization.

The NRC staff bases these conclusions on a focused review of three AMRs and their supporting references. More information may well exist in other DOE documents and DOE may be able to use alternative approaches, outside these AMRs, to address the identified concerns. However, DOE did not provide or reference this information in the AMRs evaluated by the team. Nonetheless, DOE could improve the defensibility and transparency of its technical bases significantly if it explained: (a) why selected information is appropriate for expected repository conditions; (b) how it selected certain data and why it believes they are representative; (c) how it treats specific uncertainties; (d) how it justifies extrapolation or interpolation of data; and (e) how it has taken alternative conceptual models into account. Proper documentation of such information could lessen the quantity and complexity of concerns that the NRC staff may find during the review of the LA.

Please note that this evaluation neither duplicates nor replaces the licensing review that the NRC staff will conduct after DOE's submittal of its LA. Conclusions drawn from the results of this evaluation indicate neither NRC acceptance nor NRC rejection of any DOE documents.

We request that DOE staff participate with NRC staff in a public Technical Exchange on May 5, 2004. During this meeting, the NRC staff will explain, in detail, the results of its evaluation. DOE staff and members of the public will have an opportunity to ask questions regarding the evaluation and the staff's findings. We also request that DOE provide a written response to this letter within 30 days from the date of the Technical Exchange. In your response, please describe the actions that DOE intends to take regarding the concerns identified by the team and include the associated implementation plans and schedules, as appropriate.

If you have any questions about this evaluation, please feel free to contact me.

Sincerely,

/RA/

Martin J. Virgilio, Director
Office of Nuclear Material Safety
and Safeguards

Enclosure:

U.S. Nuclear Regulatory Commission Staff Evaluation of U.S. Department of Energy Analysis Model Reports, Process Controls and Corrective Actions

cc: See Attached List

Letter to Dr. M. Chu from M. Virgilio, dated: April 10, 2004

cc:

| | |
|---|---------------------------------------|
| A. Kalt, Churchill County, NV | A. Elzeftawy, Las Vegas Paiute Tribe |
| R. Massey, Churchill/Lander County, NV | J. Treichel, Nuclear Waste Task Force |
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| E. von Tiesenhausen, Clark County, NV | M. Chu, DOE/Washington, D.C. |
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| L. Fiorenzi, Eureka County, NV | C. Einberg, DOE/Washington, D.C. |
| A. Johnson, Eureka County, NV | S. Gomberg, DOE/Washington, D.C. |
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cc: (Continued)

R. Clark, EPA

R. Anderson, NEI

R. McCullum, NEI

S. Kraft, NEI

J. Kessler, EPRI

D. Duncan, USGS

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W. Booth, Engineering Svcs, LTD

L. Lehman, T-Reg, Inc.

S. Echols, Esq

C. Marden, BNFL, Inc.

J. Bacoeh, Big Pine Paiute Tribe of the Owens Valley

P. Thompson, Duckwater Shoshone Tribe

T. Kingham, GAO

D. Feehan, GAO

E. Hiruo, Platts Nuclear Publications

G. Hernandez, Las Vegas Paiute Tribe

K. Finrock, NV Congressional Delegation

P. Johnson, Citizen Alert

C. Meyers, Moapa Paiute Indian Tribe

R. Wilder, Fort Independence Indian Tribe

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J. Leeds, Las Vegas Indian Center

J. C. Saulque, Benton Paiute Indian Tribe

C. Bradley, Kaibab Band of Southern Paiutes

R. Joseph, Lone Pine Paiute-Shoshone Tribe

L. Tom, Paiute Indian Tribes of Utah

E. Smith, Chemehuevi Indian Tribe

D. Buckner, Ely Shoshone Tribe

V. Guzman, Walker River Paiute

D. Eddy, Jr., Colorado River Indian Tribes

H. Jackson, Public Citizen

J. Wells, Western Shoshone National Council

D. Crawford, Inter-Tribal Council of NV

I. Zabarte, Western Shoshone National Council

S. Devlin

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