



Department of Energy
Washington, DC 20585

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Mr. John Linehan, Director
Repository Licensing and Quality
Assurance Project Directorate
Division of High-Level
Waste Management
Office of Nuclear Material
Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Linehan:

Enclosed is a copy of question 63, with response, from the Record of Memorandum that documents the results of the Calico Hills Risk Benefit Analysis. This is provided to correct a typographical error which was transmitted to you previously by our letter of January 25, 1991. We regret any inconvenience caused by this error.

If you have any questions regarding the enclosure, please contact Linda Desell of my staff at (202) 586-1462.

Sincerely,

Dwight Shelor
Acting Associate Director for
Systems and Compliance
Office of Civilian Radioactive
Waste Management

Enclosure:

1) Question 63 and response, Calico Hills Risk/Benefit Analysis
Record of Memorandum

cc: w/enclosures
K. Stablein, NRC
R. Loux, State of Nevada
C. Gertz, DOE/YMPO/NV
M. Baughman, Lincoln County, NV
D. Bechtel, Clark County, NV
S. Bradhurst, Nye County, NV
P. Niedzielski-Eichner, Nye County, NV

QUESTION 63

What is the justification for certifying (Appendix C.3 of DAA) that all TAR reviewers were not principal contributors to ESF Title I Design or to the Subsystem Design Requirements Document (SDRD) which was used for ESF Title I Design in view of the documentation in the DAA showing that some of the TAR reviewers worked on the ESF Title I Design and/or SDRD?

BASIS

o Documentation in the ESF Title I Design Acceptability Analysis (DAA) indicates that some of the same people participated in both Exploratory Shaft Facility (ESF) Title I Design and the DAA process. This raises concerns of conflict of interest, where reviewers may not be independent of the design report preparation.

o There are five (5) individuals listed on both Table 5 of the ESF Title I Design Control Process Review Report and on pages C.2-1 or C.2-2 of DAA Vol. 1. Some of the individuals are given different titles in each of the two documents (e.g., geotechnical engineer vs. mechanical engineer).

The following listing provides a summary of what each individual is credited for on the ESF Title I Design.

One Hydrologist

- prepared "Subsystem Design Requirements Document (SDRD)"
- prepared and reviewed "Test Requirements"
- prepared and reviewed "Identification of Interfaces Among Different Aspects of the ESF Program"

One Civil Engineer

- prepared "ES Location and Diameter"
- provided analysis and consultation on "second shaft need"

Note: The individual is listed as mining engineer on C.2, DAA Vol. 1, but his questionnaire does not appear in C.5 of DAA Vol. 1.

One Mechanical Engineer

- prepared and reviewed "Shaft Separation"
- Prepared and reviewed "Identification of Interfaces Among Different Aspects of the ESF Program"

Note: The individual is listed as Performance Assessment Specialist and Geotechnical Engineer in C.2. of DAA Vol. 1.

In addition, he reviewed the following principal support documents.

Costin, L.S. and E.P Chen, 1988. An Analysis of the G-Tunnel Heated

Block Thermomechanical Response Using a Compliance-Joint Rock-Mass Model, SAND87-2699, Sandia National Laboratories, Albuquerque, NM.

Bauer, S.J., L.S. Costin, and J.F. Holland, 1988. Preliminary Analysis in Support of In Situ Thermomechanical Investigations, SAND88-2785, Sandia National Laboratories, Albuquerque, NM.

Costin, L.S. and S.J. Bauer, 1988. Preliminary Analysis of the Excavation Investigation Experiments Proposed for the Exploratory Shaft at Yucca Mountain, Nevada Test Site, SAND87-1575, Sandia National Laboratories, Albuquerque, NM.

Hill, J. 1985. Structural Analysis of the NNWSI Exploratory Shaft, SAND84-2354, Sandia National Laboratories, Albuquerque, NM.

Johnson, R.L. and S.J. Bauer, 1987. Unit Evaluation at Yucca Mountain Nevada Test Site: Near-Field Thermal and Mechanical Calculations Using the SANDIA-ADINA Code, SAND83-0030, Sandia National Laboratories, Albuquerque, NM.

Johnstone, J.K., R.R. Peters, and P.F. Gnirk, 1984. Unit Evaluation at Yucca Mountain Nevada Test Site: Summary Report and Recommendation, SAND83-0372, Sandia National Laboratories, Albuquerque, NM.

St. John, C.M., 1987. Interaction of Nuclear Waste Panels with Shafts and Access Ramps for a Potential Repository at Yucca Mountain, SAND84-7213, Sandia National Laboratories, Albuquerque, NM.

He had previously reviewed these same documents in his capacity as supervisor of the underground design activities for the repository. (See p. C.5-43 and C.5-45 of the DAA).

Another Mechanical Engineer

- prepared and reviewed "Shaft Separation"
- prepared and reviewed "Identification of Interfaces Among Different Aspects of the ESF Program"

Note: This individual is listed as Geotechnical Engineer in C.2 and states that he authored Sections 8.4.2.3.1 and 8.4.2.3.6 of the Site Characterization Plan (SCP).

One Geotechnical Engineer

- reviewed "Title I Design"

Note: This individual is listed as Mining Engineer in C.2 and claims review of the following:

Technical Assessment Review (TAR), of ESF Title I Design (50%)

Technical Assessment Review (TAR), of ESF Title I Design (100%)

ESF-SDRD Licensing Review

RECOMMENDATION

For ESF Title II design, DOE should ensure that there is no conflict of interest for the development and review process. The NRC staff recommend that DOE should make arrangements to reach mutual agreement with the NRC staff on mutually acceptable standards that establish criteria for no conflict of interest and for independence.

RESPONSE

The overall Exploratory Shaft Facility (ESF) design is currently being reviewed through efforts on the ESF Alternatives Study. This study is being performed at the Yucca Mountain Site Characterization Project Office and would comply with 10 CFR 60 Subpart G QA requirements. The study would consider all relevant U.S. Nuclear Regulatory Commission (NRC) requirements and concerns raised by NRC and others in arriving at an optimum layout for the ESF which could be integrated with the future repository. Based on the results of this study and depending on how significant the changes proposed, the decision on whether to continue with ESF Title II design or update the Title I design (especially for those items impacting future repository design) would be made. It is expected that all necessary design control measures would be satisfied. See also the response to Comment 1.

The U.S. Department of Energy (DOE) believes that the standard of independence for Technical Assessment Review (TAR) team members that was established for the review of ESF Title I design was appropriate and that the standard was met.

The final decision regarding standards for conflict of interest and independence of DOE reviewers must remain the prerogative of DOE, and that different standards may be appropriate for different types of reviews and review topics. DOE agrees that, for major review efforts, it is highly desirable to reach prior agreement on review standards whenever possible.

The procedure that governs the TAR process, QMP-02-08, specifies that it is the responsibility of the TAR chairperson to establish minimum qualifications for review team members, including independence, to accomplish the scope and purpose of the review. In this case, the standard for sufficient independence that was established by the chairperson was that review team members must not have been principal contributors to the ESF Title I design or the Exploratory Shaft Design Requirements document that was used as the basis for the ESF Title I design.

The intent of the TAR chairperson in establishing this standard was to exclude from the review any persons whose contribution to the Title I design was substantial enough to create a sense of ownership of the design and, hence, a temptation to defend it, while not excluding from the review persons who were knowledgeable of the Title I design history, assumptions, and requirements, simply because they had some peripheral or minor involvement with the design effort. In the judgment of the TAR chairperson, none of the review team members had sufficient prior involvement with the Title I design to feel that they were reviewing their own work. Furthermore, the Department believes that the quality of the review would have suffered had the team only been comprised of people who had no prior connection with, and knowledge of, the ESF Title I design.