Department of Energy
Washington, DC 20585

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Mr. John J. Linehan, Acting 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, DC 20555

Dear Mr. Linehan:

Enclosed for your information are pre-meeting materials for the NRC/DOE Interactions Meeting on November 20, 1991. These materials propose topics, dates, objectives and scope for technical exchanges and meetings for the January through July 1992 timeframe.

We look forward to meeting with you and your staff to discuss the scheduling of these interactions. If you have any questions, please contact Linda Desell of my staff at 202-586-1462.

Sincerely,

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

Enclosure:
List of proposed interactions

109
WM-1
NH01

cc: w/ enclosure:
C. Gertz, YMPO
R. Loux, State of Nevada
K. Whipple, Lincoln County, NV
M. Baughman, Lincoln County, NV
J. Bingham, Clark County, NV
D. Bechtel, Clark County, NV
S. Bradhurst, Nye County, NV
B. Raper, 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, NV
C. Schank, Churchill County, NV
C. Jackson, Mineral County, NV
F. Sperry, White Pine County, NV
L. Vaughan, Esmeralda County, NV
K. Hooks, NRC

NRC/DOE TECHNICAL EXCHANGES PROPOSED FOR 1992

Topic: The NRC "Three Bucket Approach" for demonstrating compliance with 40 CFR 191

I. Date: January, 1992

II. Objective: The NRC's approach appears promising as their changes proposed for 40 CFR 191 would relieve DOE from having to accurately estimate the probability of highly unlikely events but still likely enough to be regulated. Before DOE can endorse the proposal, however, some clarifications are needed.

III. Scope: The NRC staff should clarify the wording of their proposed "three bucket approach". For example, the staff should clarify whether human intrusions are excluded from the bucket that holds likely events. Also, the staff should more sharply distinguish the types of processes and events that would fall into each bucket. As it stands, the buckets are not mutually exclusive.

NRC/DOE TECHNICAL EXCHANGES PROPOSED FOR 1992

Topic: Thermal gradients and loads

I. Date: February, 1992

II. Objective: The NRC staff and DOE will present their approaches for assessing thermal gradients and loads. Each will then comment on the other's approach.

III. Scope: Prior to the meeting, NRC and DOE will exchange a list of references relevant to their presentations. The NRC staff should include their draft technical position on thermal loads (June, 1991). The DOE will present its approaches to model gas transport and moisture redistribution due to man-induced thermal gradients within Yucca Mountain. The NRC staff will present its approach for developing a fully coupled model of thermal, mechanical, hydrological and chemical processes.

NRC/DOE TECHNICAL EXCHANGES PROPOSED FOR 1992

Topic: Scenario development and screening and the construction of a complementary cumulative distribution function (CCDF) (postponed from October 29-30, 1991)

I. Date: March, 1992

II. Objective: The NRC staff and DOE will discuss the technical and regulatory issues related to the construction of a CCDF. Each will discuss progress made in their iterative performance assessments.

III. Scope: The NRC staff and DOE will discuss and hopefully agree to a definition of "scenarios" that is consistent with the logic needed to construct a CCDF. Both will also discuss how to treat human intrusion separately from the processes and events that are included in a CCDF. The NRC will discuss the next phase of its performance assessment and DOE will discuss its use of expected partial performance measures to guide site characterization.

NRC/DOE TECHNICAL EXCHANGES PROPOSED FOR 1992

Topic: The NRC draft "Format and Content Guide for the License Application" (August, 1990), the DOE draft "License Application Annotated Outline", and the Southwest Research Institute's (SWRI) Requirements Data Base.

I. Date: April, 1992

II. Objective: Discuss the development of the format and content guide and the annotated outline for a potential license application. NRC and DOE staff each will present his/her concerns with the other's document. The SWRI or the NRC staff will discuss how the NRC requirements data base may assist the preparation and review of a license application.

III. Scope: The NRC staff and DOE will present schedules for completing their documents. The NRC staff will present their concerns with the DOE outline, and the DOE will present its concerns with the NRC guide (see September 6, 1991 letter from John Bartlett to the NRC). Each will strive to resolve the other's concerns before proceeding to the documents' next phase. Discussion of a "standardized" format for a license application that would be compatible with the regulatory requirements data base.

NRC/DOE TECHNICAL EXCHANGES PROPOSED FOR 1992

Topic: DOE licensing topical report on erosion

I. Date: May, 1992

II. Objective: Throughout site characterization, a series of Licensing Topical Reports will be developed to support the early resolution of potential licensing issues prior to submittal of the license application. As a relatively non-controversial topic, the issue of erosion at Yucca Mountain could be resolved quickly and easily. By May, 1992, DOE will have an outline for the topical report which would be given to the NRC staff before the exchange. During the exchange the NRC staff would comment on the outline. By previewing the licensing topical report at it inception, this exchange is intended to facilitate the NRC's review and acceptance of the final report.

III. Scope: The current understanding of erosional processes that have operated in the Yucca Mountain area together with the expected climatological and geomorphic conditions support the position that erosion will not adversely affect Yucca Mountain's capabilities to contain and isolate radioactive wastes. The DOE hopes to eliminate erosion from further characterization by demonstrating that 10 CFR 60.122(c)(16), Evidence on extreme erosion during the Quaternary Period, is not a potentially adverse condition at the Yucca Mountain site.

NRC/DOE TECHNICAL EXCHANGES PROPOSED FOR 1992

Topic: DOE licensing topical report on the origin on calcite-silica deposits in trench 14.

I. Date: July, 1992

II. Objective: Throughout site characterization, a series of Licensing Topical Reports will be developed to support the early resolution of potential licensing issues prior to submittal of the license application. As a specific technical topic for closure with the NRC, the calcite-silica deposits have been highly publicized. By July, 1992, new data from trench 14 will support an outline for a topical report which would be given to the NRC staff before the exchange. During the exchange the NRC staff would comment on the outline. By previewing the licensing topical report at it inception, this exchange is intended to facilitate the NRC's review and acceptance of the final report.

III. Scope: This topical report will confirm that the calicite-silica deposits in trench 14 resulted from surface water (i.e., rain water) percolating through Yucca Mountain. Another theory is that the deposits resulted from an upwelling of hot groundwater, thus suggesting that groundwater eruptions to the surface may flood the repository horizon. In either case, the report will fully assess a potentially adverse condition specified at 10 CFR 60.122(c)(22): "Potential for the water table to rise sufficiently so as to cause saturation of an underground facility located in the unsaturated zone."

NRC/DOE TECHNICAL EXCHANGES PROPOSED FOR 1992

Topic: Saturated Zone and Unsaturated Zone Testing and Modeling

I. Date: Late 1992

II. Objective: The DOE will discuss its characterization and modeling activities of the groundwater flow system and the saturated zone, tracer testing and assessment of the C-hole complex, and saturated zone groundwater travel time (GWTT) calculations and modeling. The NRC staff will discuss how its performance objective for GWTT should be applied to the unsaturated zone.

III. Scope: The DOE will present "Characterization of the Site Saturated Zone Ground-Water Flow System" (Study Plan 8.3.1.2.3.1-6) and will discuss the portions of the study that have been completed. The NRC staff will discuss its performance objective for the geologic setting which states,

"The geologic repository shall be located so that pre-waste-emplacement groundwater travel time along the fastest path of likely radionuclide travel from the disturbed zone to the accessible environment shall be at least 1,000 years or such other travel time as may be approved or specified by the Commission." (emphasis added) (10 CFR 60.113(a)(2)).

Discussion of what constitutes the "fastest path of likely radionuclide travel" in fractured unsaturated rock.