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ADVISORY COMMITTEE ON NUCLEAR WASTE WORKING GROUP MEETING
ON THE NRC STAFF'S REVIEW OF THE YUCCA MOUNTAIN EARLY SITE
SUITABILITY EVALUATION
JUNE 17, 1992
BETHESDA, MARYLAND

Introduction:

A meeting of the Advisory Committee on Nuclear Waste's (ACNW's) Working Group on the NRC Staff's Review of the Early Site Suitability Evaluation (ESSE) was held on June 17, 1992 in Room P-110, 7920 Norfolk Avenue, Bethesda, Maryland. The purpose of this meeting was to review NRC staff comments on the U.S. Department of Energy (DOE) contractor report titled "Early Site Suitability Evaluation." The purposes of the NRC staff's review were limited to determining:

1. Whether the application and interpretation of the DOE siting guidelines (10 CFR Part 960) were consistent with the Commission's understanding, as published in 49 FR 9650.
2. Whether the peer-review process for the ESSE was consistent with NRC's generic technical position on peer-review for high-level nuclear waste (HLW) repositories (NUREG-1297).
3. Whether the technical evaluations were free of any major concerns; whether there were any inconsistencies in the data or the use of the data; whether all available data were considered; or whether there were concerns related to interpretations of the data.

It was clearly stated that the NRC staff's review was not directed to independently determine the adequacy of the Yucca Mountain site with respect to the DOE's siting guidelines.

The entire meeting was open to public attendance. Mr. Giorgio Gnugnoli was the designated federal official for this meeting.

Line editorial comments of the NRC staff's review will not be explicitly addressed in these minutes. For detailed line-item, suggested changes, the reader is directed to the transcript of the meeting, which is available from Ann Riley & Associates, Ltd., 1612 K Street, N.W., Suite 300, Washington, D.C. 20006 (202) 243-3950 or from the NRC Public Document Room, Gelman Building, 2120 L Street, N.W., Washington, D.C. 20036. A copy of the annotated agenda is included as Attachment A.

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Early Site Suitability
Evaluation, June 17, 1992
ACNW Working Group Meeting

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Attendees:

ACNW

P. Pomeroy, ACNW¹
W. Hinze, ACNW
D. Moeller, ACNW
R. Budnitz, Consultant
R. Hatcher, Consultant

Others

S. Brocoum, DOE
L. Rickertsen, TRW
J. York, Weston
E. Ott, DOE
R. Wallace, USGS/HQ
J. Docka, Weston
T. Geer, M&O/Duke Engineering
S. Skuchko, DOE/RW-331
D. Bechtel, Clark Co., Nevada
G. Roseboom, USGS
R. Callen, NARUC
D. Fenster, M&O/Woodward-Clyde
B. Barnard, NWTRB
Y. C. Yeh, Taiwan/AEC
S. Frishman, Nevada
D. Corson, ICF
R. E. Adler, OCNWRA
J. L. Tinney, ETM
J. Treichel, NV Nuclear Waste Task Force

NRC

B. J. Youngblood, NMSS
P. Brooks, NMSS
J. Park, NMSS
J. Trapp, NMSS
D. Brooks, NMSS
M. Federline, NMSS
M. R. Byrne, NMSS
D. Terao, NRR
C. McCracken, NRR
K. McConnell, NMSS
J. Lee, NRR
T. Polich, NRR
G. Schwenk, NRR

1. Opening Remarks

Dr. Pomeroy convened the Working Group meeting at 8:33 a.m. He introduced Drs. Dade Moeller, ACNW Chairman, and William Hinze of the Advisory Committee on Nuclear Waste (ACNW). He also acknowledged Drs. Robert Budnitz and Robert Hatcher, who participated as consultants. He specifically noted two points. The first was the limited scope of the NRC staff's review on the ESSE; this is discussed in the introduction section above. The second dealt with the separate NRC review of the application and use of expert judgment in the ESSE. He expressed the opinion that DOE's methods for procuring expert judgment would need to be reviewed to determine potential problems, if these same methods were to be used in supporting a license application.

¹ Working Group Chairman

2. NMSS Introductory Remarks

B. J. Youngblood, Director of the Division of High-Level Waste Management (HLWM), briefly pointed out the ESSE was not a statutory document, such as the Site Characterization Plan (SCP). He indicated that the ESSE was developed in response to the local and regional stakeholders, who wanted DOE to determine whether any disqualifying conditions existed at the Yucca Mountain site, prior to proceeding with any further site characterization efforts.

Mr. Youngblood and Dr. Brocoum (DOE) discussed the format, the frequency of interactions (18-24 month intervals) and the use of the ESSE. The ESSE will influence testing prioritization in characterizing the site, but Dr. Brocoum indicated that the degree of the ESSE's influence has not yet been determined.

Both NRC and DOE participants pointed out that the ESSE was a contractor report, which has not yet been endorsed by DOE. NRC participants indicated that this premature status of the ESSE influenced the scope and extent of the NRC review and comments. Furthermore, the NRC staff was reluctant to transmit a detailed and extensive review, because such a review might divert DOE from addressing the NRC's Site Characterization Analysis (SCA) of the SCP. In response to Dr. Budnitz's question, Dr. Brocoum indicated that the ESSE was performed assuming that the 40 CFR Part 191 Standards were in place (even though they are presently remanded).

3. NMSS Staff Presentation

C. Abrams (HLWM) addressed the major points of the NRC staff's review of the ESSE. Observations raised during this presentation included:

- DOE has indicated that the ESSE may be used to assist in establishing task and test prioritization for site characterization; for this reason, the NRC staff considered it essential to review and comment on the ESSE.
- In response to questions regarding generating an NRC review plan for a contractor document, the NMSS/HLW Internal Quality Assurance Plan (IQA) requires development of review plans for any significant document reviews.

- A concern was raised that the NRC staff's relative silence on the adequacy of low-level findings, such as in the areas of climatology and methods used for expert judgment, would convey to DOE a degree of tacit NRC approval. NRC staff indicated that some form of disclaimer would be included in the transmittal letter to DOE.
- Consultants and ACNW members raised the concern that engineering design features could be used to "disguise" site disqualifying features. Ms. Abrams pointed out that the ESSE and its review by the NRC staff were both limited in scope to the site's geological system.
- The NRC staff's review was dictated by the Commission's 1984 concurrence with DOE's siting guidelines in 10 CFR Part 960. The NRC staff also reviewed the DOE's use of alternative conceptual models for consistency and appropriateness.
- In response to questions regarding the small number of comments and questions in the proposed NRC response document, Ms. Abrams explained that the staff analysis concluded that all of the ESSE high-level findings had inadequate data and/or inadequate rationale. There was also insufficient basis for terminating the collection of data in these areas.
- DOE and NRC participants pointed out that many of the perceived technical inadequacies were topics being addressed in other parts of the HLW program. Examples were carbon-14 and climatology; these topics are being addressed in the SCP and SCA. The living and interactive nature of the ESSE (and subsequent SEs) was stressed....
- Participants discussed the applicability of the present version of 10 CFR Part 960, as well as the present need to revise it, since its original purpose for screening multiple sites is no longer relevant.
- Questions regarding the validity and completeness of data and of the peer reviewers' conclusions regarding the data were not intensively pursued by the NRC staff in their review; 10 CFR Part 960 stipulates that the evaluation of site suitability be done with existing, available data.

- Dr. Hinze questioned whether the role of expert judgment in the ESSE had been adequately evaluated -- specifically with respect to the collection of data and the need for, or termination of data collection -- with respect to its adequacy in a license application support rationale. NRC staff indicated that they would consider raising this issue to DOE with respect to the higher-level findings.
- NRC staff indicated that data collected since the 1986 DOE Environmental Assessment did not warrant changing the designation of any site condition from a lower- to a higher-level finding.
- In response to criticism that engineering designs precede or proceed concurrently with site suitability/characterization, Dr. Brocoum indicated that aspects of the design needed to be known before site conditions and natural processes could be determined to be deleterious to design performance.
- Dr. Pomeroy raised the issue of independence and diversity of the ESSE peer review panel; NUREG-1297 requires that these factors be considered in the selection of people to serve on the panels; some conflict of interest may be at issue. NRC staff indicated that the peer review was at a broader level and more "process" oriented; however, in a license application arena, the peer review would have been suspect.
- Dr. Budnitz characterized the whole ESSE process, including the NRC review, as "potentially flawed." He indicated that significant issues were "missed" by the DOE contractor, the DOE, the review panel and the NRC reviewers; e.g., carbon-14 (C-14). The implication being that there could be other significant issues missed in the ESSE. NRC reiterated that since C-14 was in the lower finding category (i.e., more data and study were needed), they did not deem it necessary that this matter be elevated to the level of a comment.
- NRC and DOE representatives reiterated that significant factors such as C-14 and climate change were addressed in the SCP, SCA or FEA, especially in the content of 10 CFR Part 60's potentially adverse conditions.
- It was noted that in past presentations on the ESSE effort, DOE contractors had been more explicit regarding DOE's intended use of expert judgment. ACNW

members questioned NRC's silence on its application in the ESSE. NRC staff noted that resource and schedule limitations -- as well as tacit agreement to limit the review to the ESSE only -- affected the detail of its comments and recommendations.

- ACNW members pointed out that if the NRC staff did not raise issues, such as the use of expert judgment in the ESSE, there would be no incentive for DOE to address these issues in subsequent iterations of the SE.
- Dr. Moeller voiced his opinion that the DOE had not made an adequate effort to consult with State, local and Indian Tribe representatives, as required by the siting guidelines.

4. S. Frishman, State of Nevada

Mr. Frishman criticized the ESSE effort as having excluded the affected parties and as not having enough disqualifiers. He also indicted that NRC had exceeded its role in the review of the ESSE; there might be a perception that the ESSE should be treated as a statutorily-required document. Mr. Frishman recommended that NRC transmit its ESSE comments in a less formal manner. Other comments raised during Mr. Frishman's discussion include:

- DOE has been inconsistent, in various public fora regarding its intended use of the ESSE.
- He cited GAO concerns that, as a contractor document, the DOE is trying to avoid legal liabilities that would be associated with a DOE-endorsed document.
- He was concerned that even with an NRC disclaimer, the DOE would interpret NRC silence on numerous areas addressed in the ESSE as approval. He also indicated concern with DOE's characterizations that other agencies' feedback on DOE compliance with various regulations (10 CFR 2, 60, 960) has had undesirable and unnecessary impacts on costs for regulatory compliance.

5. Round Table Discussion

Many of the concerns raised above were reiterated and underscored during this discussion. For the sake of brevity, many of these observations will not be repeated. Detailed discussions may be found in the meeting transcript. Some of the participants' summary conclusions follow:

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- Dr. Budnitz thought that the proposed NRC staff report transmittal portrayed a lack of thoroughness. The scope should have been broader.
- Dr. Pomeroy similarly supported this impression of a lack of thoroughness in the NRC staff proposed transmittal; he suggested that more staff resources should have been assigned to the review. NRC staff indicated that the NRC transmittal letter could be revised to highlight the need for additional data for the lower-level findings.
- Comment #3 regarding the higher-level finding in tectonics should be recast as an example, because there may be confusion regarding the NRC's staff's position that all of the ESSE higher-level findings were unsubstantiated (e.g., natural resources and erosion).
- Dr. Budnitz pointed out there was no distinction between lower-level findings on the verge of disqualification and those where additional data were expected to confirm them as favorable conditions. Moreover, he offered the opinion that the NRC staff did little to resolve this obscurity in their review.
- Comments were raised regarding the ambiguity between terms, such as likely, unlikely and extremely unlikely.
- The NRC staff indicated that the Commission had required the NRC to review the ESSE for implementation purposes. The staff may reconfigure the letter to formally address the implementation feasibility and to express the technical and QA concerns less formally.
- Dr. Hinze endorsed the review panels' observation that ~~more~~ and better quantified information is needed before real decisions can be made regarding site suitability (e.g., numerical equivalents for likely, unlikely and extremely unlikely).
- Dr. Brocoun stressed that the DOE letter transmitting the ESSE for review and comment also asked for input and recommendations on how the ESSE should be used. He cautioned the meeting participants and attendees that, in lieu of such feedback, the DOE would determine on its own the role and extent of the use of the ESSE in the HLW management and disposal program.

