

**SUMMARY OF U.S. NUCLEAR REGULATORY COMMISSION (NRC)/
U.S. DEPARTMENT OF ENERGY (DOE) QUARTERLY MANAGEMENT MEETING
NOVEMBER 13, 2003
LAS VEGAS, NEVADA**

Introduction

The U.S. Nuclear Regulatory Commission (NRC) and U.S. Department of Energy (DOE) held a public Quarterly Management Meeting for the Yucca Mountain Project (YMP) on November 13, 2003. The meeting was held at the Bechtel SAIC (BSC) offices in Las Vegas, Nevada. Video connections were established with the NRC offices in Rockville, Maryland and the Center for Nuclear Waste Regulatory Analysis (CNWRA) in San Antonio, Texas. Audio connections were also made available. Participants included representatives of the NRC, DOE, State of Nevada, Affected Units of Local Government, Native American Tribes, Nuclear Energy Institute, General Accounting Office in Denver, and members of the public.

NRC Opening Remarks

Mr. Martin Virgilio, Director, NRC's Office of Nuclear Materials Safety and Safeguards, began his opening remarks by thanking DOE for hosting the meeting and welcoming all stakeholders and members of the public in attendance. Mr. Virgilio introduced Dr. Carl Paperiello, NRC's Deputy Executive Director for Materials Research and State Programs, who was in attendance to become more familiar with DOE and BSC organizations.

Mr. Virgilio's remarks covered three major topics; (1) Key Technical Issue (KTI) Agreement Resolution, (2) Risk-informing the NRC Program, and (3) NRC's near-term effort to independently evaluate the DOE Program.

Mr. Virgilio stated that approximately six months ago, DOE provided NRC with its plans to address the remaining agreements by the time of license application (LA). Specifically, in June 2003, DOE forwarded to NRC its schedule for the remaining agreements and described its intent to "bundle" the agreements utilizing a systems approach which reflected the way information would be organized in the LA. He stated that in September 2003, NRC and DOE held a technical exchange in Rockville, Maryland, that enabled NRC to gain additional insights into the technical basis for the DOE bundled approach, the content of the bundles, traceability to and transparency of the original KTI agreements, the KTI agreement response submittal schedule and other related matters. He indicated that this technical exchange was very beneficial from NRC's perspective.

Mr. Virgilio indicated that the NRC's initial impressions from review of the bundled agreements were that bundling represents a technically sound and logical approach to providing the information requested. However, as part of its review, the NRC will confirm that the DOE bundled agreements provide sufficient information to satisfy the intent of the original agreements. He continued by stating that the NRC has received 4 KTI agreement bundles which contain more than 40 agreements and that the NRC has assembled teams of staff who represent the applicable scientific disciplines, including performance assessment experts, to help risk-inform NRC's review of the DOE submittals. He indicated that the initial feedback from the staff who are reviewing the bundles indicates that the technical basis document (TBD) submitted with each bundle is very well-written, informative, and insightful with regard to how

DOE intends to organize information for the LA. He also indicated that the NRC is reviewing the information submitted to determine the status of each agreement contained in the bundle and is developing a schedule for preparing its response to DOE on each bundle.

Mr. Virgilio stated that in September 2003, DOE reaffirmed its commitment to address all agreements before the LA is submitted and to provide specific plans for the closure of those few agreements that include post-LA deliverables. DOE plans are expected by mid-2004. Mr. Virgilio also indicated that NRC expects DOE to provide sufficient information in the LA to support NRC's review and that the information that DOE plans to submit after the submittal of the LA should be limited to confirmatory information and analysis.

Mr. Virgilio mentioned that using risk information to evaluate DOE's KTI responses is an important aspect of the NRC review of the submittals. While NRC recognizes that DOE did not have the opportunity to consider the results of NRC's risk-ranking of the agreements in formulating its earlier schedule, NRC encouraged DOE to now consider the risk-ranking results and make adjustments to its schedule to ensure that high priority KTI agreements are addressed as early as possible to allow adequate time for NRC review and response.

Regarding risk-informing the NRC program, Mr. Virgilio stated that the risk-insights are already helping NRC to prioritize staff's pre-licensing and potential licensing activities, focus staff resources on those aspects of the HLW program that have the greatest potential impact on repository performance, and further support risk-informed decision making in the program. He also indicated that NRC is using risk information in conducting independent evaluations of certain high-priority DOE program areas and related documents, developing an inspection program that would be implemented if the LA is docketed, and developing an updated version of the Integrated Issue Resolution Status Report (IIRSR) which was first issued in July 2002. He continued by stating that the NRC's risk-insight initiative is not static and that the NRC expects its thinking and approach to the use of risk information will evolve based on new information and continued dialogue with DOE and NRC's Advisory Committee on Nuclear Waste (ACNW). He emphasized, however, that risk information is not the sole basis for NRC's decision making and that NRC will use risk information in conjunction with analyses, test and experiment results, information from the international and academic communities, and detailed process models. He also indicated that the staff is completing a report to provide the technical basis for its earlier risk-ranking of the agreements which will be available to the public next year, and will make a presentation to ACNW in February 2004.

Regarding NRC's near term effort to evaluate the DOE program, Mr. Virgilio indicated that, as the NRC had indicated in July 2003 management meeting, NRC plans to conduct independent evaluations of certain DOE program activities this fall. The purpose of these activities is to develop information to assist NRC in making an independent judgement about the adequacy of technical information in certain documents supporting DOE's LA, effectiveness of DOE's document development and control processes, and the effectiveness of DOE's corrective action program in certain quality-affecting activities. These activities include checking to make sure that the data in a report can be tracked back to its source and that software is being controlled and appropriately used for its intended purpose. He explained that the NRC's evaluation consists of a three-part series of one-week team evaluations of documents, data, software, and models; and interviews with DOE and BSC staff and management. The State of Nevada and Clark County requested that they be allowed to observe the evaluation. As a result of that request, NRC delayed its first evaluation which was scheduled for October 6, 2003, to consider this request. NRC then decided to proceed with its planned evaluations using a "no observers" approach at this time. As such, the first part of the three-part evaluation will begin on the week

of November 17, 2003. He emphasized that the NRC is working in parallel to identify and fully consider various options and develop an agency position on the "observer" question raised by the State of Nevada and Clark County.

Mr. Virgilio concluded his remarks by thanking DOE for hosting this meeting and looking forward to a productive meeting.

NRC Program Update

Ms. Janet Schlueter, Chief of the NRC's High-Level Waste (HLW) Branch, provided NRC program updates since the July 2003 Quarterly Management Meeting. Ms. Schlueter stated that NRC/DOE held a Technical Exchange (TE) on the DOE bundled KTI agreement approach on September 23, and a TE on aircraft crash hazards on September 30. Additionally, Ms. Schlueter announced a plan to hold a TE with DOE on the level of design detail and related licensing matters in January 2004.

Ms. Schlueter thanked the State of Nevada for allowing NRC staff to visit Catholic University (CU) in early October to review ongoing corrosion research being conducted at CU and funded by the State. The NRC staff found the trip informative. In addition, NRC is currently entertaining a second request from the State of Nevada to provide further information with regard to specific hydrological aspects of NRC's Total Performance Assessment code. This is a follow-up to a June public meeting with the State. She continued by indicating that on October 23, Mr. Jack Parrott, an NRC On-site Representative (OR), represented NRC at a Sun City, NV community meeting where NRC and DOE officials, among others, discussed their roles and responsibilities with respect to YMP. NRC received favorable feedback from the presentation and the question and answer session that followed.

On October 28-29, NRC's HLW program staff and representatives from the Offices of State and Tribal Programs, NRC's Spent Fuel Project Office, and the General Counsel conducted a HLW workshop for about 20 Tribal government representatives in Las Vegas. This workshop was held at the request of Tribal representatives as a result of a September 2001 workshop. The staff was encouraged by the level of participation and information that was exchanged by all individuals involved. DOE-OCWRM might be interested to know that certain Tribes (in Arizona) with experience in Waste Isolation Pilot Project (WIPP) transportation matters spoke favorably of DOE's coordination and communication with those Tribes and were hopeful that such "best practices" would be followed if the repository program proceeds.

Ms. Schlueter also indicated that the staff continues to respond to requests from NRC's independent ACNW for briefings on various HLW program activities. For example, in recent months briefings have been provided on NRC's performance confirmation program, the TPA code, and PCSA code. Also, NRC is preparing for an ACNW workshop in February on the biosphere. The ACNW continues to provide useful insights on various aspects of NRC's HLW program. She also noted that ACNW is conducting its November 18-20 meeting in Las Vegas and that DOE is coordinating a trip to Yucca Mountain and Amargosa Valley for the ACNW members, some NRC staff, and representatives from the State of Nevada, as well as other parties.

Ms. Schlueter mentioned that the NRC staff continues to look for ways to integrate the results from its risk insights initiative into the program, to help ensure that NRC is focusing its resources on those program areas that represent the most significant from a risk perspective. Specifically, the NRC staff has begun to work on an updated version of the IIRSR issued in July

2002. In developing the IIRSR, staff will transfer the knowledge, experience, and information from the current review process for the agreement bundles so that the IIRSR reflects the NRC thinking from a risk perspective. Among other efforts, NRC staff is using its risk insights to develop an inspection program that would become effective if the LA is docketed. Specifically, the inspection program is envisioned to have three components: (1) review of DOE program information for inputs to the LA review process; (2) traditional design and pre-construction inspection; and (3) allegation follow-up. NRC staff is using its current risk insights in developing guidance to focus inspections based on risk significance, developing an assessment process to determine safety significance, and developing an oversight process to trend DOE performance while focusing on the most risk significant issues.

Finally, Ms. Schlueter stated that NRC staff has designed and implemented a more risk-informed approach for the review of the agreement responses, now submitted by DOE in bundles. Specifically, based on the contents of the bundles received, NRC assembles a team of individuals with the appropriate technical discipline, including performance assessment experts, to review the agreements from a systems approach, and by using risks insights to ensure that NRC is prioritizing its resources on the highest priority technical issues. Once team discussions occur, and determinations are made regarding the sufficiency of the agreement responses, NRC will further apply risk insights to inform the development of the NRC response to DOE. As a result, NRC expects to appropriately prioritize any additional information needs during pre-licensing based on the original agreement request.

Ms. Schlueter indicated that, to date, NRC has received four bundles which contain more than 40 agreement responses. Generally, NRC staff feedback indicates that the Technical Basis Documents (TBD), which are provided with the bundled agreement responses, are considered to be well written, comprehensive, and insightful in that they provide a glimpse at how DOE might organize information in the potential LA. The TBDs provide a comprehensive description of the repository from a systems approach.

With regard to the agreement responses, which are contained in the Appendices to the TBD, NRC staff finds that the completeness of the information submitted varies and falls into 3 distinct categories: (1) not enough information is provided in the package for NRC to make a decision; (2) there is clearly enough information to make a decision (<25%); and (3) for several agreements, the TBD refers the reader back to non-publicly available documents which are said to contain the technical bases for the results or the findings that are relied upon in the TBD as the bases for closing an agreement. This "information cascade" approach is not consistent with NRC's long-established expectation that all information which DOE relies on to close agreements would be publicly available to ensure transparency in the agreement resolution process. As a result of NRC expressing its concern to DOE on these matters, DOE is working to make certain documents publicly available on its Website.

DOE Program Update

Dr. Margaret Chu, Director of DOE's Office of Civilian Radioactive Waste Management, provided an update from the DOE Program perspective. Dr. Chu opened by introducing new members of her senior management team: Ted Garrish, the new Deputy Director for the Office of Strategy and Program Development; and Jim Owendoff, the Associate Deputy Director for Integration.

Dr. Chu discussed the Nuclear Waste Technical Review Board's letter of October 21, 2003, and her response of October 27, 2003. She stated that she does not agree that

data cited by the board support such definitive conclusions. Moreover, she is in serious disagreement with the way in which this issue was presented in the letter. Conclusions that corrosion is “likely to initiate” assume the existence of extreme and unlikely environmental conditions. Based on the information currently available, DOE continues to believe that calculations of repository performance are conservative and that the repository design can meet environmental and safety standards.

With respect to FY2004 budget, Dr. Chu noted that the Energy and Water conferees have reached an agreement that provides a total of \$580 million for nuclear waste disposal, \$11 million below the budget request, and \$123 million more than fiscal year 2003. She explained that while DOE’s funding has fallen short of the higher mark that had been passed by the House in July, she appreciates the acknowledgment by Congress of the importance of this Program and the need for resources to sustain DOE’s progress toward a high-quality LA.

Dr. Chu emphasized that although adequate appropriations will help, DOE must manage its work to meet NRC expectations, and stated that schedule will not take precedence over quality and safety. Dr. Chu closed by saying that although DOE has a long way to go, it is focusing on results and emphasizing accountability for achieving these results.

Mr. Garrish introduced himself and outlined the activities on which he is currently focusing. These include the DOE senior management decision resolution process, interface with the Congressional appropriations committees, the process to initiate a transportation program, and legal issues.

DOE Yucca Mountain Project Update

John Arthur, Deputy Director for the Office of Repository Development (ORD), and John Mitchell, President of BSC, provided the YMP Update. Mr. Arthur began by introducing Mr. Ken Powers as his new Associate Deputy Director and Dr. Russ Dyer in his new position as Assistant to the Deputy Director on Technical and Regulatory Programs.

Mr. Arthur provided an overview of the status of actions from DOE’s letter of May 29, 2003. As reported in a letter from DOE to NRC on October 29, 7 of the 13 actions have been closed. In particular, he discussed DOE’s new Corrective Action Program (CAP), the status of major corrective actions underway, and personnel changes in the Employee Concerns Program.

Mr. Arthur updated NRC on DOE’s development of performance metrics and the current YMP Annunciator Panel for tracking primary and secondary performance indicators.

In discussing the several recent independent assessments, Mr. Arthur outlined his initiative to integrate and prioritize the various recommendations in the Performance Management Assessment, the Organizational Assessment, and the Quality Assurance Management Assessment (QAMA). He also summarized the results of the QAMA as an area of particular interest to NRC.

Mr. Mitchell discussed the events and process changes that have affected the production of analysis and model reports (AMRs) and the resulting management challenges presented.

Mr. Arthur closed with a description of his new Office of Repository Development (ORD) Leadership Council, including its membership, purpose, functions, and an overview of recent discussion topics.

Mr. Virgilio remarked, in reference to the DOE exhibit showing 190 KTI agreements complete by submittal of the LA, that all agreements need to be addressed by that time, and that NRC would only accept a "complete" LA. In response, Mr. Ziegler, DOE, stated that DOE will address all KTI agreements and will submit a complete LA that is in compliance with requirements of 10 CFR Part 63. Mr. Virgilio also stated that NRC's risk ranking of the agreements should be considered in any new DOE schedule for responding to the agreements. DOE agreed.

Mr. Virgilio observed that the CAP performance indicators shown should include the quantity of items and the effectiveness and quality of the corrective actions and that NRC needs to understand the thresholds for the colors of the performance indicators (PIs) and the definition of the indicators. DOE agreed to provide NRC an explanation of how the PI colors are defined and developed.

Mr. Reamer, NRC, remarked that DOE needs to provide visibility to the NRC of the verification of models and qualification of software.

Safety Conscious Work Environment

John Arthur opened a discussion of the status of DOE safety conscious work environment (SCWE) and introduced Dr. Leo Brajkovich of International Survey Research (ISR), the firm that conducted DOE's Program-wide external SCWE survey.

Dr. Brajkovich then described and presented the results of the survey. The survey showed OCRWM results to compare favorably with the norms for both the U.S. National and the U.S. Government Research and Technology organizations. The survey also showed improvements in most areas covered in the pulse survey conducted in June 2003.

Mr. Virgilio remarked that NRC found cuts of its SCWE survey data by organizational units informative and asked if DOE had such data. Dr. Brajkovich responded that these data exist for the OCRWM survey and are in the report, but significant variations in OCRWM units were not found for an organization of OCRWM's type and size. Mr. Arthur stated that DOE planned to examine these data for specific organizational insights. He also stated that DOE was trying to get comparative data from nuclear utilities for comparison, but finding such data was difficult.

Mr. Tabatabai, NRC, asked how DOE plans to use the results of this recent survey, as well as previous SCWE surveys, in the future. Mr. Arthur responded that DOE plans to conduct annual SCWE surveys and results will be provided to the Leadership Council for appropriate action.

Quality Assurance Program Update

Denny Brown, OCRWM Director of the Office of Quality Assurance (OQA), reviewed the highlights of the previous day's DOE-NRC Quarterly QA Meeting. Mr. Brown stated that the meeting provided a valuable interaction on a working level.

Ms. Schlueter provided NRC views on major issues of the Quarterly QA meeting. She indicated that the NRC is encouraged by DOE's progress to date in developing a single point CAP and by the increased emphasis management has placed on the timeliness of condition report

resolution. However, the staff is concerned with the lack of progress in addressing the continuing problems with the development of technically adequate and defensible models, software, and data supporting the LA. Specifically, the previously identified issues related to CARs BSC-01-C-001& 002 (Models & Software) and the deficiencies identified during recent Office of Quality Assurance (OQA) audits indicate repetitive conditions and appear to represent inadequate corrective actions. Although the Project's efforts to implement an enhanced trending program and effective performance indicators are important measures, these activities have not yet demonstrated improved performance. Additionally, the Project's lack of progress in addressing the documented use of unqualified software represents a concern since it was identified over four months ago, and it appears to be a procedural non-compliance issue.

Ms. Schlueter stated that the NRC is also concerned with the lack of progress in establishing adequate oversight of EM and the National Spent Fuel Program. The timely completion of these verification activities represents an important aspect of the QA program. Therefore, NRC recommends that DOE expedite the resolution of this issue.

Ms. Schlueter stated that NRC views the continued performance of effective audits and surveillances by DOE's OQA and the identification of areas for improvement as an organizational strength, and the increased involvement of project management in the resolution of conditions adverse to quality is encouraging. Finally, the NRC encouraged DOE to continue its emphasis on resolving ineffective corrective actions related to models, software, and data and to resolve human performance issues related to inadequate implementation of procedural controls.

Mr. Paperiello, NRC, emphasized the importance of line management in improving quality and that the details of QA activities should not distract from a focus on overall trends and the acceptability of total activity outcomes.

License Application Status

Joe Ziegler, Director of ORD's Office of License Application and Strategy, discussed the scheduled status of DOE's LA development, presented the status of LA data, codes, and models, provided feedback to NRC on NRC's risk-ranking of the KTI agreements, and updated the status of DOE's responses to the KTI agreements.

DOE estimates that 42 percent of the work needed for submittal of an LA has been completed, an improvement from the 25 percent reported at the July 2003, Quarterly Management Meeting. Notably, DOE has made significant progress in Total System Performance Analysis (TSPA)-LA and design work. The qualification and verification of data and codes has also been an area of improvement for DOE.

DOE's schedule for LA submittal remains aggressive, but Mr. Ziegler described DOE's goals and strategies for completing the LA for submittal in December 2004.

In providing feedback on risk-ranking of KTI agreements to NRC, Mr. Ziegler explained that DOE believes that the risk associated with geologic disposal at Yucca Mountain is not high in an absolute sense. DOE prefers characterizing risks in terms of "significant" and "minimal" as opposed to NRC's use of "high," "medium," and "low." DOE has evaluated as "minimal" the relative risks of several subjects that NRC deems "high."

DOE has made significant advances in responding to KTI agreements using the new bundling approach. DOE delivered three groups of bundled KTI agreement responses by or very close to their scheduled due dates of September 2003. With the planned near-term delivery of the remaining packages that were scheduled for October 2003, DOE will be ahead of the current schedule for KTI agreement responses. Mr. Ziegler stated that DOE is looking to accelerate all responses to late summer or early fall of 2004, including those ranked high-risk by NRC that are currently scheduled for submittal after the LA. He also stated that most of the responses to other high-risk ranked agreements scheduled for fall 2004 were tied to TSPA results and therefore could not be submitted earlier. The new DOE KTI agreement response schedule will be available and shared with NRC by the end of CY2003.

Mr. Virgilio emphasized the need for the qualification, verification, and completion processes for codes, data, and models to be fully defensible and transparent and noted that NRC will do its own assessments in these areas. He also stated that the differences between the DOE and NRC on the NRC risk-ranking of KTI agreements need to be explored. DOE agreed.

Mr. Reamer asked if models were called complete only when all associated software was verified and data were qualified. DOE replied that software needed to be verified but unqualified data could be used if the uses of these data were meticulously tracked. These data must be qualified before LA submittal, but the target data for completion of qualification is earlier. Mr. Paperiello emphasized that final documentation is needed to support any licensing action.

Larry Campbell, NRC, stated that the Technical Basis Documents in the recent KTI agreement group responses are a good roadmap, but some of the references in the specific agreement responses are difficult for NRC staff to obtain for its review. DOE stated it would work with NRC staff to make the needed references available.

Public Comments

Ms. Judy Treichel, Nevada Nuclear Waste Task Force, and Steve Frishman, State of Nevada, expressed significant concerns with the exclusion of observers from the NRC technical evaluation planned to start November 17, 2003. Mr. Frishman indicated the State's view was that NRC ignored the existing program protocols in making this decision. Ms. Treichel also remarked that the NRC is helping DOE create a high-quality license application but not helping the State prepare high-quality contentions. She also expressed concern with the apparent lack of openness and fairness.

Ms. Sally Devlin noted the availability of the Federal Facility Agreement and Consent Order between the State of Nevada, DOE, and the Department of Defense and recommended that DOE review it. She also noted that the NRC does not have accurate information regarding the flow of water at the Nevada Test Site.

Closing Remarks

Mr. Paperiello provided the following overall process reminders:

- The LA must meet 10 CFR Part 63 and 10 CFR Part 2.
- NRC will review the LA in accordance with the Yucca Mountain Review Plan (YMRP), although the YMRP could be changed by the NRC.
- The KTIs are only pieces of the technical issues covered by 10 CFR Part 63 and the YMRP.

- The LA must be complete and will be a public document when docketed by NRC.
- The reference material supporting the LA must be generally available to the public
- NRC's review of the LA will be public.

Mr. Virgilio expressed appreciation for the attendance of representatives of the State of Nevada, local governments, Tribes, and the public. He stated NRC's expectation for DOE to continue to make improvements in performance, and the NRC's intention to continue to monitor DOE and to continue NRC independent assessments of DOE.

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