



POLICY ISSUE **(Information)**

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SECY-91-125

For: The Commissioners

From: James M. Taylor
Executive Director
for Operations

Subject: QUARTERLY PROGRESS REPORT ON THE PRE-LICENSING PHASE OF
THE U.S. DEPARTMENT OF ENERGY'S (DOE'S) CIVILIAN HIGH-LEVEL
RADIOACTIVE WASTE MANAGEMENT PROGRAM

Purpose: To provide the Commission with a Quarterly Progress Report
(January 1991 through March 1991) on the pre-licensing
phase of DOE's civilian high-level radioactive waste (HLW)
management program.

Background: In the Quarterly Progress Reports on the pre-licensing
phase of DOE's program, the U.S. Nuclear Regulatory
Commission (NRC) staff discusses the key aspects of the
NRC/DOE pre-licensing consultation program, that deserve
Commission attention. The previous Quarterly Progress
Report, SECY-91-058, discussed activities that occurred
from October through December 1990. A new section has been
added to this report to discuss the Nuclear Waste
Negotiator's activities.

Executive
Summary: The most significant activities during this period
were in two areas of the repository pre-licensing
consultation program: DOE Implementation of Scheduled and
Systematic Consultations; and Early Implementation of a
Quality Assurance (QA) Program.

Contact:
Ken Kalman, NMSS
492-0428

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DOE Implementation of Scheduled and Systematic Consultations

In January 1991, the staff met with DOE to discuss several concerns related to its objection, in the Site Characterization Analysis (SCA), regarding DOE's design control process for the Exploratory Shaft Facility (ESF). Although it appears that DOE is addressing the staff's concerns, the staff will have to review DOE's formal submittals before it can make any final determinations.

Early Implementation of a QA Program

In January 1991, the staff issued a letter to DOE accepting the QA programs for the Office of Civilian Radioactive Waste Management (OCRWM) and the Yucca Mountain Site Characterization Project Office (YMPO) for new site characterization activities associated with Midway Valley Trenching and Calcite/Silica activities.

Discussion:

1. DOE Implementation of Scheduled and Systematic Consultations

The last two Quarterly Progress Reports noted significant improvement in the timeliness and effectiveness of scheduled NRC/DOE formal interactions. During this reporting period, this trend continued; all three technical interactions slated for this quarter were held as scheduled. These interactions covered:

- (1) results of DOE's Calico Hills Risk/Benefit Analysis and its ESF Alternatives Study;
- (2) NRC's draft staff technical position on investigations to identify fault displacement and seismic hazards at a geologic repository; and
- (3) DOE's geochemical studies in the areas of mineral stability and radionuclide transport and retardation.

The staff considered these interactions to have been substantive and meaningful.

In particular, the first of these three interactions, which was held in January 1991, represented a significant DOE effort to address the NRC staff's concerns about penetration of the Calico Hills unit, a potential barrier to radionuclide migration, during site characterization. Also, during this interaction, the staff and DOE discussed a number of issues related to the second objection in the SCA, regarding DOE's design control process for the ESF. Although it appears that DOE is considering the staff's concern in its alternatives study, before the staff can make a final determination, it will have to review DOE's formal submittals.

In addition to these interactions, in March 1991, the staff attended an orientation meeting that DOE's Office of Environmental Restoration and Waste Management's Technical Support Group (EM-35) held on its forthcoming greater-than-Class-C low-level waste characterization report. DOE's invitation to the staff to attend this meeting exemplifies DOE efforts on keeping the staff apprised of its activities.

A meeting had been scheduled for March 1991, to discuss revisions to the NRC/DOE procedural agreement. However, this meeting was not held because both the staff and DOE needed more time to prepare for it. This meeting will be rescheduled at the next interactions scheduling meeting.

In January 1991, DOE's YMPO Readiness Review Board completed its Readiness Review of those prerequisites necessary to initiate trench construction and to conduct subsequent geologic studies in Midway Valley. The NRC staff participated, as observers, in this review. On January 21, 1991, the Readiness Review Board determined that all prerequisites had been successfully completed to start the Midway Valley trenching activities, with the exception of the air-quality and water-appropriation permits. The State of Nevada has not processed DOE applications for these permits. Therefore, work covered by these permits cannot begin at the site until this issue is resolved.

The last Quarterly Progress Report noted that DOE had asked to visit the Center for Nuclear Waste Regulatory Analyses (CNWRA), to discuss systems engineering, and that a meeting had been scheduled for February 1991. However, because of its ongoing work in systems engineering, DOE chose to postpone this meeting until it completes enough work to make such a meeting more useful. The last Quarterly

Progress Report had also noted that by letter dated December 14, 1990, DOE submitted its response to the staff's SCA. The staff is presently evaluating the DOE responses to determine which NRC concerns can be closed, and, for those that remain open, what actions are needed to address them. The staff anticipates meeting its current schedule to issue the final results of its review by October 1991.

During this reporting period, there were no interactions between DOE and the U.S. Environmental Protection Agency (EPA) on issues concerning high-level radioactive mixed waste and the Resource Conservation and Recovery Act.

2. Early Implementation of a QA Program

During this reporting period the staff observed DOE QA audits of the OCRWM Headquarters, Reynolds Electric and Engineering Company, and Los Alamos National Laboratory. It also observed surveillances of OCRWM Headquarters, Los Alamos National Laboratory, and Raytheon Services Nuclear. No findings were identified during these audits or surveillances that would preclude DOE from starting site characterization in specific, limited areas.

On January 18, 1991, the staff issued a letter to DOE accepting the OCRWM Headquarters and YMPO QA programs for new site characterization activities associated with Midway Valley Trenching and Calcite/Silica activities. On January 22, 1991, DOE sent a letter requesting NRC acceptance of the QA programs for Los Alamos National Laboratory and Science Applications International Corporation. This request is currently under review. To date, this review has not identified any issues that would preclude acceptance of the QA programs.

DOE has continued its work to resolve the Privacy Act problem regarding the QA auditor access to personnel qualification records. As noticed in the August 8, 1990, Federal Register (55 FR 32288 - 32290), DOE established a new system for QA training and qualification records, effective October 8, 1990. With the establishment of this system, all Yucca Mountain Project participant records, except for those of the U.S. Geologic Survey (USGS), are available for review by NRC staff, representatives of the State of Nevada, and affected units of local government.

USGS records are presently available only to employees of the Federal Government, but resolution of this problem is expected shortly.

Overall, DOE has continued to make considerable progress in resolving the staff's SCA QA objection. However, the objection in the SCA cannot be completely removed until NRC accepts all QA programs, without exceptions. At present, only the Lawrence Livermore National Laboratory's and Sandia National Laboratories' QA programs have been accepted without any exceptions. Although the exceptions in the other programs have not yet been removed, they are not related to the portions of the QA programs that need to be in place to start site characterization work.

3. Iterative Performance Assessment

One purpose of the staff's efforts in iterative performance assessment is to develop the capability to review ongoing revisions to the EPA standard for the containment of HLW. The last Quarterly Progress Report noted that EPA was placing a contract with the Conservation Foundation to investigate the possibility of conducting a negotiated rulemaking process for the revision to its standard. During this reporting period, the contract was placed with the Foundation. The Foundation will begin interviewing potential participants for the negotiated rulemaking shortly.

As noted in previous Quarterly Progress Reports, the SCA had identified the need for DOE to be sufficiently conservative in its approaches to treating uncertainty in its investigations and analyses. During this reporting period, there were no new issues regarding conservatism, deserving Commission attention.

4. Early Resolution of State and Tribal Concerns

The last Quarterly Progress Report noted that on December 19, 1990, the State of Nevada petitioned the U.S. Supreme Court to review the Ninth Circuit Court decision rejecting Nevada's purported veto of Yucca Mountain as a potential repository site. Nevada's case had also challenged the constitutionality of the Nuclear Waste Policy Act, as amended. On March 4, 1991, the Supreme Court denied Nevada's petition. With this Supreme Court action, the Federal District Court in Las Vegas will now proceed to rule on DOE's motion for summary judgment

in DOE v. Nevada. DOE brought this action to compel Nevada to process the environmental permits needed to proceed with scientific investigations at Yucca Mountain.

5. Early Resolution of Issues

The last Quarterly Progress Report noted that the draft regulatory guide, DG-3003, "Format and Content for the License Application for the High-Level Waste Repository," was made available for public comment, and that the public comment period would end on March 15, 1991. However, during this reporting period, DOE requested, and was granted, a 120-day extension, to allow its new management and operations contractor, TRW, an opportunity to review the document. This is the first time where the acquisition of a new contractor has affected the HLW program scheduling. However, this extension has no adverse effect on the staff's schedule because the final regulatory guide is not scheduled for completion until Fiscal Year 1994.

6. Monitored Retrievable Storage (MRS)

During this reporting period, the staff reviewed several documents regarding DOE's QA requirements and program description applicable to the storage of HLW at an MRS. Comments are currently being coordinated among the staff and will be transmitted to DOE.

7. Transportation

The last Quarterly Progress Report noted that the staff had met with DOE, Nuclear Assurance Corporation, and Babcock and Wilcox, on the development of each contractor's spent fuel shipping casks. The casks require NRC certification, under the Nuclear Waste Policy Act. During this reporting period, the staff met with DOE and General Atomics on the design of legal weight truck casks; Model No. GA-4 (capacity of 4 pressurized water reactor assemblies) and Model No. GA-9 (capacity of 9 boiling water reactor assemblies). Applications for the GA-4 and GA-9 casks are expected in January 1992.

8. Research

During this reporting period, the Office of Nuclear Regulatory Research and the Office of Nuclear Material Safety and Safeguards (NMSS) met with representatives of

Sweden's Nuclear Power Inspectorate (SKI) to discuss HLW activities under the NRC/SKI bilateral technical information exchange agreement, and held a workshop on groundwater flow and radionuclide transport in unsaturated fractured rocks.

Participants in the NRC/SKI meetings, held at NRC headquarters on February 11-12, 1991, discussed HLW research and several aspects of HLW performance assessment. SKI provided NRC with its review of NRC's Phase 1 report on iterative performance assessment and agreed to provide NRC with its final report on Project 90, an SKI HLW performance-assessment exercise. SKI and NRC agreed to form a team to prepare a strategy for validating mathematical models used in HLW performance assessment, from a regulatory perspective.

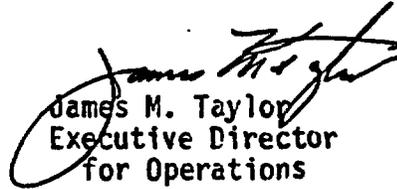
The unsaturated-zone workshop, organized jointly by NRC, CNWRA, and the University of Arizona, was held in Tucson, Arizona, on January 7-10, 1991. NRC, DOE, USGS, State of Nevada staff and contractors, along with attendees from other organizations, participated in the workshop and discussed technical issues related to flow and transport in unsaturated fractured rocks. NRC and University of Arizona personnel also held a special session to solicit comments on a planned NRC-supported field heater (simulated HLW) test at the University of Arizona's Apache Leap Test Site. On January 11, 1991, NRC, CNWRA, and University personnel met to coordinate NRC-supported unsaturated-zone hydrological research being done at the CNWRA and the University of Arizona.

9. Nuclear Waste Negotiator

On February 8, 1991, the Nuclear Waste Negotiator sent a letter to the Chairman suggesting the development of a Memorandum of Understanding (MOU) between NRC and the Office of the U.S. Nuclear Waste Negotiator, similar to the MOU between DOE and the Negotiator. On March 12, 1991, the Chairman wrote back to the Negotiator agreeing with the recommendation to enter into an MOU and noted that the Director of NMSS is prepared to develop the details of the MOU. The Negotiator sent a note to the Chairman on March 13, 1991, stating that a member of his staff had been assigned to confer with the NRC staff to develop the MOU.

Conclusion:

The staff and DOE are continuing to make progress in addressing and resolving issues. During this reporting period, there were positive indicators that DOE is considering NRC concerns in its program. There were no issues that required Commission action.



James M. Taylor
Executive Director
for Operations

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