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MAR 19 1993

Mr. Leif G. Eriksson  
3080 Pillement Place  
Alpharetta, GA 30202

Dear Mr. Eriksson:

SUBJECT: BIENNIAL REPORT ON GEOLOGICAL DISPOSAL OF RADIOACTIVE WASTES

The purpose of this letter is to respond to your letter, dated December 21, 1992, to Robert M. Bernero requesting review and input to the subject report for presentation to Commission 14 of the International Association of Engineering Geology. It is the Nuclear Regulatory Commission staff's view that the aforementioned report contains numerous inaccuracies that should be addressed. Although the staff has reviewed your report and highly recommends revising many sections, it is unable to provide specific comments on those portions due to resource and time constraints. However, highlighted below are some of the major concerns which the staff believes need to be addressed.

The first concern deals with your statement concerning the current role of quality assurance (QA) procedures and regulatory requirements in the licensing process of a geologic repository for high-level nuclear waste. In the report you state, "Unless the current maze of some 1,000 management, technical, and QA procedures is strictly complied with, the license application(s) for a geologic repository might be rejected or successfully opposed ..." You further suggest that these procedures act as an impediment to the U. S. Department of Energy (DOE) Office of Civilian Radioactive Waste Management (OCRWM) Program's success, and that they inhibit the "scientific freedom and vitality" of the OCRWM staff. Additionally, you highlight the point that "inconsistent, extremely conservative, and possibly unattainable licensing requirements" by NRC pose a deleterious effect on the OCRWM program.

Based on its work with DOE in the area of QA, the staff believes that these statements are without merit. Although some concern was raised by earth scientists early in the application of QA to the program, DOE took actions to change its own internal requirements, which successfully addressed these concerns. As a result, the staff knows of no instances where its QA requirements are requiring thousands of procedures, and has found that DOE actions have acceptably resolved the concerns expressed by some program participants about the burden of QA. Enclosed are several NRC Quarterly Progress Reports from 1990 for your reference on this issue. I strongly suggest that you contact Mr. Donald Horton, who is the Director, Office of Quality Assurance for OCRWM, to update your positions in this area.

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You further state that NRC, as well as other promulgating Federal Agencies, are "reluctant to revise current licensing requirements" because of the potential for misinterpretation of being in favor of relaxed public and environmental safety standards, as perceived by the public, the State of Nevada, and other interested organizations. Although the NRC staff would agree that rulemaking has a role in addressing issues that might unnecessarily delay repository development, it believes that the existing regulations are not overly prescriptive. Because of this, it is the staff's position that rulemakings should be used only where authoritative and binding clarification or elaboration is needed on the meaning of requirements or definitions in 10 CFR Part 60. Application of any such methods at a particular site, or to a particular situation, would still be an issue that could be raised during the hearing process. Therefore, rulemaking will be pursued only where practicable.

Also, I would bring to your attention NRC Chairman Ivan Selin's letter to the Honorable John Dingell, Chairman of the Committee on Energy and Commerce in the U. S. House of Representatives, dated August 18, 1992 (see Enclosure). In this letter, the Chairman explicitly states that the NRC "stands ready to meet and discuss any specific proposal that would allow DOE to run a more efficient and effective repository program consistent with ensuring the protection of public health and safety." Additionally, by letter dated November 18, 1992, the staff strongly urged DOE to identify any specific areas where DOE believed NRC needed to conduct additional rulemakings or to provide guidance (see Enclosure). To date, DOE has not identified any needs beyond the work presently being undertaken by the staff.

Another concern with this report is that you paraphrase NRC employee Dr. John Trapp, where he allegedly expresses concern that the seismotectonic regime of the Yucca Mountain Site might impose significant licensing constraints on DOE, in reference to the Szymanski Report findings. In your report, this paraphrasing of an NRC employee's personal position on a particular issue is presented as the NRC staff's view on this subject. Official NRC staff positions, or concerns on site characterization issues and licensing aspects of Yucca Mountain, are only those documented in formal correspondence from NRC. Therefore, you should ensure that the update to your report does not represent personal opinions as those of official NRC staff positions.

Based on the concerns discussed above, it appears that substantial revisions to this report are needed to accurately reflect the issues presently facing the program. Furthermore, in order to lend more credibility to this report, care should be taken in stating personal opinions, making judgmental types of comments, and presenting subjective opinions.

I hope these brief comments and enclosures will be helpful as you pursue an update of your report.

Sincerely,

JS

Joseph J. Holonich, Director  
Repository Licensing and Quality Assurance  
Project Directorate  
Division of High-Level Waste Management  
Office of Nuclear Material Safety  
and Safeguards

Enclosures: As stated

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JHolonich, HLPD	On-Site Reps	CAbrams, HLPD	KMcConnell, HLGE	

\* See previous concurrence

OFC	HLPD	E	HLPD*	E	HLPD	M	
NAME	RJohnson/wd		RJohnson		JHolonich		
DATE	03/18/93		03/12/93		03/16/93		

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delay repository development, it believes that the existing regulations are not overly prescriptive. Because of this, it is the staff's position that rulemakings should be used only where authoritative and binding clarification or elaboration is needed on the meaning of requirements or definitions in 10 CFR Part 60. Application of any such methods at a particular site, or to a particular situation, would still be an issue that could be raised during the hearing process. Therefore, rulemaking will be pursued only where practicable.

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Based on the concerns discussed above, it is recommended that you make substantial revisions to this report in order to accurately reflect the issues presently facing the program. Furthermore, in order to lend more credibility to this report, you should refrain from stating personal opinions, making judgmental types of comments, and presenting subjective opinions.

Sincerely,

Joseph J. Holonich, Director  
Repository Licensing and Quality Assurance  
Project Directorate  
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NAME	RJohnson/wd		RJohnson		JHolonich		
DATE	03/8/93		03/12/93		03/ /93		

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

November 18, 1992

Dr. John W. Bartlett, Director  
Office of Civilian Radioactive Waste Management  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585

Dear Dr. Bartlett:

Several events have occurred in the past year that directly affect the progress of the high-level waste repository program. These events include the acquisition of permits from the State of Nevada needed by the U.S. Department of Energy (DOE) to initiate various site characterization activities, the lifting of the Nuclear Regulatory Commission's objections to DOE's Site Characterization Plan related to the Exploratory Studies Facility (ESF) and quality assurance (QA), and the enactment of the Energy Policy Act of 1992. At the same time there have been issues on which progress has been slow such as the Licensing Support System (LSS) and promulgation of a final U.S. Environmental Protection Agency (EPA) standard. In light of these events and the issues before us, I believe that there is a need to take stock of the interaction between our two agencies to ensure the continuation of an effective pre-licensing consultation program that focuses on resolution of issues in an open and timely manner.

On December 28, 1988, the DOE issued the Site Characterization Plan (SCP) for conducting site characterization work at the Yucca Mountain, Nevada site. The NRC staff reviewed the SCP and, on July 31, 1989, issued its Site Characterization Analysis (SCA; see transmittal letter, enclosed), wherein it identified 198 concerns, two of which were objections that DOE agreed to resolve before site characterization work related to those objections began. The two objections dealt with DOE's need to implement a baselined QA program before beginning site characterization, and the need for DOE to demonstrate the adequacy of both the ESF design and the design control process. The objection related to DOE's quality assurance (QA) program was lifted in March 1992, based on DOE's demonstration that those organizations involved in site characterization have developed and are implementing programs which meet NRC requirements. The objection related to DOE's ESF design control process and the ESF design was lifted in October 1992, based on DOE's demonstration of effective implementation of a design control process for design of the ESF.

In its July 1989 letter transmitting the SCA, the NRC also highlighted four issues believed to be of particular importance in site characterization. These issues highlighted DOE's need to

- 1) conduct periodic total system performance assessments to

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provide early and ongoing evaluation of the adequacy of data being gathered and the ability of the site to meet the 10 CFR Part 60 performance objectives; 2) direct early attention to investigations related to the understanding of tectonic phenomena and consideration of a full range of appropriate tectonic models; 3) improve technical integration of the overall site characterization program and 4) systematically integrate all studies to ensure that results will provide the data necessary to differentiate among the various models under consideration. The staff believes that DOE has made progress toward resolving some of these important issues, and encourages DOE to continue its progress in this area.

Since issuance of the SCA, DOE has provided additional information such that the NRC staff now considers 68 of the 196 SCA concerns resolved. The status of the remaining 128 concerns was reported in my letters to you dated July 31, 1991, March 2, 1992, and November 2, 1992. However in an August 4, 1992, letter to me, the Advisory Committee on Nuclear Waste (ACNW) noted a lack of progress toward resolution of many of the remaining SCA concerns. Now that activities at the site have increased and work has begun on a number of new studies, the ACNW believes, and we agree, that NRC staff SCA concerns need to be resolved in a more timely manner. As indicated in my July 31, 1989, letter to S. Rousso, transmitting the SCA, DOE should consider all SCA concerns as "serious" and "give full attention to each in an attempt to resolve them early during site characterization."

In the past year our staffs, along with representatives of the State of Nevada and affected units of local government, have held pre-licensing consultations on varied topics related to site characterization activities. Although the staff believes these interactions have produced some effective discussions of issues, we also believe that they need to be more focused on resolving existing issues such as those in the SCA at the staff level. Although issue resolution at the staff level will not be binding on the licensing board or the Commission at the time of adjudication of the license, the role of the NRC staff during the pre-licensing period is to conduct an ongoing review of activities to identify and to facilitate timely resolution of potential licensing issues. As DOE's data gathering and assessment activities expand, it is imperative that we maximize the effectiveness of these interactions. In addition, we believe that more communication by DOE concerning the planning process for programmatic and technical activities would allow the NRC staff to provide more timely and meaningful guidance. As has always been the practice, all interactions would of course provide an opportunity for participation by representatives of the State of Nevada and affected units of local government.

As indicated in its reviews of DOE Site Characterization Progress Reports, the NRC staff has stated that it regards these reports as the mechanism by which DOE is to report and update activities and changes to its program. As required by 10 CFR Part 60.18(g), these reports should include information such as the identification of new issues, status of studies, and modifications to activities and schedules. Timely submittal of these reports is important so that the NRC staff can continue to provide DOE with early identification of potential licensing concerns.

DOE has also proposed its Annotated Outline (AO) Skeleton Text for the Preparation of a License Application as a mechanism for providing the NRC with notification of progress and changes in DOE's program. Although the semi-annual progress reports are identified by the regulations as the statutory mechanism for reporting changes and progress in the site characterization program, the iterative development of DOE's AO also provides an important mechanism for the staff to provide DOE guidance on the interpretation and implementation of NRC regulations. We would strongly encourage DOE to identify, through the AO or other means, any specific areas where DOE believes NRC needs to provide guidance or modify existing regulations for purposes of clarity or completeness. Such information would assist the staff to allocate finite resources to the most pressing regulatory tasks affecting this program.

Another area where the NRC staff believes attention is needed is in the development of the LSS. The NRC staff is counting on the LSS to be able to conduct a timely review of DOE's application for authorization to construct the repository. The LSS is equally important to the Commission and its adjudicatory board's ability to reach a licensing decision within three years after submission of the application. Although NRC does not have budgetary responsibility for development of the LSS, it is important that we continue to work together to ensure timely development of the system. As you know, NRC and DOE staffs have had several interactions with regard to LSS development and the potential advantages to be gained by using DOE's INFOSTREAMS as a basis for the LSS. The NRC is reviewing various alternatives whereby development and implementation of the LSS may proceed in a more timely and cost effective manner. We are prepared to work with the DOE in the future to ensure that issues involving the LSS will be resolved, and its development and implementation will be completed as early as practical.

Finally, the recent Energy Policy Act establishes a process for dealing with some of the more contentious issues related to development of the EPA standard. Although, based on the schedules in the Act, it will be two years before the EPA standard is promulgated, the NRC staff does not believe that this schedule should cause any delays in DOE's near-term site

Dr. John W. Bartlett

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characterization program, because DOE would have to collect much of the same basic site data regardless of the form of the final standard.

I believe, based on progress in specific areas to date, such as the lifting of the SCA objections, that we can work towards addressing the issues discussed in this letter. As you know, I have directed Mr. B.J. Youngblood, Director, Division of High-Level Waste Management, to work with your staff to explore ways to improve our interface to better focus our activities on these issues. If you have any questions about the items discussed in this letter, please feel free to contact me at (301) 504-3352.

Sincerely,

**ORIGINAL SIGNED BY:**

Robert M. Bernero, Director  
Office of Nuclear Material Safety  
and Safeguards

Enclosure:

As stated

cc: R. Loux, State of Nevada  
T. J. Hickey, Nevada Legislative Committee  
C. Gertz, DOE/NV  
M. Murphy, Nye County, NV  
M. Baughman, Lincoln County, NV  
D. Bechtel, Clark County, NV  
D. Weigel, GAO  
P. Niedzielski-Eichner, Nye County, NV  
B. Mettam, Inyo County, CA  
V. Poe, Mineral County, NV  
F. Sperry, White Pine County, NV  
R. Williams, Lander County, NV  
P. Goicoechea, Eureka County, NV  
L. Vaughan II, Esmeralda County, NV  
C. Shank, Churchill County, NV  
E. Holstein, Nye County, NV  
W. Barnard, NWTRB



CHAIRMAN

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

August 18, 1992

DISTRIBUTION:  
See attached page

The Honorable John D. Dingell, Chairman  
Committee on Energy and Commerce  
U.S. House of Representatives  
Washington, D.C. 20515-6115

Dear Mr. Chairman:

I am responding to your July 24, 1992 letter requesting my comments on the June 25, 1992 Las Vegas Review-Journal article on the possibility of reducing costs of high-level waste repository program activities at Yucca Mountain. I believe that the article generally reflects the discussions that took place during the June 24, 1992 briefing by Dr. John Bartlett, Director of the Department of Energy's (DOE's) Office of Civilian Radioactive Waste Management. As an independent regulatory agency, the NRC is committed to ensuring the protection of public health and safety while avoiding new and eliminating existing requirements that may be either unnecessary or unnecessarily burdensome. As NRC has developed and is implementing Part 60 of Title 10 of the Code of Federal Regulations: "Disposal of Radioactive Wastes in Geologic Repositories" (10 CFR Part 60), we have continued to strive to meet these objectives and to identify ambiguities and uncertainties in these regulations that need to be clarified. DOE has not identified any regulatory requirements which have imposed an unnecessary cost burden.

During the June 24 briefing, the Commission encouraged Dr. Bartlett to bring to our attention proposals for cost cutting. Since the briefing, Dr. Bartlett has not brought to our attention any proposal for cutting costs at the Yucca Mountain project. NRC stands ready to meet and discuss any specific proposal that would allow DOE to run a more efficient and effective repository program consistent with ensuring the protection of public health and safety.

I trust that this reply responds to your concerns. If I can be of further assistance, please let me know.

Sincerely,

Ivan Selin

cc: Representative Norman F. Lent  
Dr. John Bartlett, DOE

Originated by: MDelligatti, NMSS

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## **POLICY ISSUE** **(Information)**

**April 27, 1990**

**SECY-90-032A**

**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 1990 through March 1990) on the pre-licensing  
phase of DOE's Civilian High-Level Radioactive Waste  
Management Program.

**Background:** In the Quarterly Progress Reports on the pre-licensing  
phase of DOE's Civilian High-Level Radioactive Waste  
Management Program, the U.S. Nuclear Regulatory Commission  
(NRC) staff discusses items that cover key aspects of the  
pre-licensing consultation program between NRC and DOE.  
These items focus on key issues that deserve Commission  
attention. The previous Quarterly Progress Report,  
SECY-90-032, discusses activities that occurred between  
August and December 1989.

**Executive Summary:** The most significant activities during this period  
pertained to three areas of the pre-licensing consultation  
program: DOE Implementation of Scheduled and Systematic  
Consultations; Early Implementation of a Quality Assurance  
(QA) Program; and Early Resolution of State and Tribal  
Concerns.

**NOTE:** TO BE MADE PUBLICLY AVAILABLE  
IN 10 WORKING DAYS FROM THE  
DATE OF THIS PAPER

Contact: Ken Kalman, NMSS  
492-0428

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DOE Implementation of Scheduled and Systematic Consultations

- DOE provided the staff with its "Draft Project Decision Schedule Revision 1" on March 1, 1990. On April 9, 1990, the staff provided DOE with two major comments on the Draft, along with its other comments. The first was that the milestone given for accepting the QA program could be misinterpreted as the point when NRC will lift its QA objection. The second was that the Project Decision Schedule (PDS) should indicate milestones for design and development of the Licensing Support System (LSS).
- The staff met with DOE on March 20, 1990, to discuss and schedule interactions through the rest of Fiscal Year (FY) 1990. Emphasis was placed on those interactions having to do with site characterization activities. There was also an agreement to schedule a management meeting to review specific DOE concerns or suggestions regarding the potential rulemakings identified in SECY-88-285, "Regulatory Strategy and Schedules for the High-Level Waste Repository Program."

Early Implementation of a QA Program

- The staff, DOE, and the State of Nevada met on February 15, 1990, and March 21, 1990, to discuss QA. Discussions at both meetings focused on the September 1990 date identified by DOE as a milestone in its PDS for "NRC acceptance" of its QA program. The staff believed that at the February 15, 1990, meeting, it had reached agreement with DOE that September 1990 was the date by which the NRC staff could accept all of the DOE QA program plans for further implementation, and that it was not the date by which the staff would lift its QA objection in the Site Characterization Analysis (SCA) for the start of new site characterization activities. However, in a March 12, 1990, letter and at the March 21, 1990, meeting, DOE was interpreting the September 1990 milestone to mean that time by which the staff would resolve its SCA objection. Consequently, the staff is continuing to work with DOE to ensure that DOE understands NRC's position on the definition of the September 1990 milestone.

- There is a perception by some DOE contractor personnel and some observers, such as the National Research Council, that the NRC QA criteria are inappropriate for scientific investigations, particularly in the earth sciences area. As part of the ongoing NRC-DOE effort to ensure proper and adequate implementation of QA requirements, the NRC staff is planning a workshop with DOE and its contractors to identify and resolve specific concerns with the QA requirements and to highlight the flexibility allowed by them. The workshop is expected to be held this summer.

#### Early Resolution of State and Tribal Concerns

- The Department of Justice filed suit on behalf of DOE on January 25, 1990, in the U.S. District Court, Las Vegas, Nevada. The suit was filed in an effort to require the State's Division of Environmental Protection to act within 30 days on DOE's applications for the air and water permits that would allow DOE to proceed with its scientific investigations at Yucca Mountain. Nevada officials, claiming that the State had vetoed the repository in Nevada, had returned the unprocessed applications to DOE on December 26, 1989.

#### Discussion:

##### 1. DOE Implementation of Scheduled and Systematic Consultations

On March 1, 1990, DOE provided the staff with its "Draft Project Decision Schedule Revision 1," for review and comment. Under the Nuclear Waste Policy Act (NWPA) of 1982, as amended, DOE is required to prepare a PDS that includes "...a sequence of deadlines for all Federal agencies required to take action, including an identification of the activities in which a delay in the start, or completion, of such activities will cause a delay in beginning repository operation." Any agency that cannot comply with a PDS deadline must submit to Congress a written report explaining the reason for the failure to comply.

This is the first Draft Revision since the original PDS was issued in March 1986. The Draft Revision reflects DOE's restructured repository program schedule as originally presented in the November 1989 "Report to Congress on Reassessment of the Civilian Radioactive Waste Management Program." In a major departure from the 1986 PDS, which

required the agencies to report failure to comply with any future PDS deadline, the Draft Revision only requires reporting of failure to comply with those critical milestones that occur within three years of issuance of a PDS.

On April 9, 1990, the staff provided comments to DOE on the Draft Revision. The staff had two major comments. First, the staff was concerned that Milestone (19c), "Accept Office of Civilian Radioactive Waste Management (OCRWM) QA Program," could be mistakenly interpreted as the point when NRC will lift the QA objection noted in its SCA. The staff believes that NRC will be able to accept DOE's QA program plans for implementation by September 1990. But until DOE demonstrates its ability to implement its QA program, the SCA objection cannot be lifted. The staff expects, however, that by January 1991, DOE should be able to demonstrate acceptable implementation for those portions of the QA programs needed to begin surface-based testing. NRC's lifting of its QA objection for any part of the program will be contingent on DOE's further demonstration of QA program implementation. The staff's second major comment on the Draft Revision was that the PDS should indicate milestones related to the design and development schedule for the LSS.

During this reporting period, the staff continued its efforts to establish, schedule, and hold systematic consultations with DOE. NRC-DOE technical interactions took place at the rate of one per month during this reporting period, in accordance with the schedule agreed to during the November 8, 1989, NRC-DOE scheduling meeting. One of the more important interactions was a March 6, 1990, NRC-DOE technical exchange on DOE's evaluation of a geophysical test indication that there could be a fault near the site proposed in the Site Characterization Plan (SCP) for the exploratory shaft facility. This interaction established DOE's basis for possible resolution of a major NRC comment on DOE's SCP for the Yucca Mountain site. During this reporting period, there were no interactions between DOE and the U.S. Environmental Protection Agency (EPA) that addressed mixed waste issues.

As part of its continuing effort to hold interactions with DOE in areas where work is ongoing, the staff met with DOE on March 20, 1990, to discuss and schedule interactions through the rest of FY90. Priority was given to those interactions dealing with site characterization activities.

There was also an agreement to schedule a management meeting to review specific DOE concerns or suggestions regarding the potential rulemakings identified in SECY-88-285. This was in response to DOE's December 20, 1989, Commission briefing and pursuant to the staff's February 26, 1990, letter to Mr. Leo Duffy, proposing to meet. A second interaction topic discussed in the December 20, 1989, Commission briefing was the volume of greater-than-class-C (GTCC) wastes. In response to the DOE briefing, the staff, by letter of February 16, 1990, requested that DOE transmit all available information on the projected sources, characterization, and volumes of GTCC waste and identified the need to hold an interaction on this subject. As of April 1990, DOE has not submitted the requested information.

This interaction would help the staff gain background for developing its rulemaking on GTCC waste. At the March 20, 1990, meeting, the DOE representatives present were not in a position to agree to a date for a meeting on GTCC waste, to discuss the volumes and types of wastes. However, they did commit to such a meeting in the next few months. As a result of the March 20, 1990, meeting DOE and the staff scheduled nine interactions through September 1990, in addition to the management meeting on SECY-88-285. It was agreed that the next scheduling meeting will be held July 31, 1990, to establish the interactions for FY91.

The subject of one-on-one scientific discussions between the Center for Nuclear Waste Regulatory Analyses (CNWRA) staff and DOE researchers, held under Appendix 7, On-site Representative Activities, of the NRC-DOE Procedural Agreement, was also discussed at the March 20, 1990, meeting. The first of these scientific interactions, focusing on investigation of thermohydrologic phenomena, were held at Lawrence Berkeley Laboratory on March 12, 1990, and Lawrence Livermore National Laboratories on April 3, 1990. NRC and DOE both considered the interactions worthwhile, and DOE agreed that similar interactions could be scheduled as needed.

## 2. Early Implementation of a QA Program

### Repository QA Program

During this reporting period, the staff, DOE, and the State of Nevada held two meetings on QA. The first was on February 15, 1990, and the second on March 21, 1990. One topic that was discussed at both meetings was the September 1990 date identified by DOE as a milestone in its PDS. At

the February 15, 1990, meeting, the staff understood that it and DOE had reached agreement that September 1990 was the date by which the NRC staff could accept all of the DOE QA programs for further implementation. However, until DOE demonstrated its ability to implement its QA program plans, for all program areas, through development of study plans and technical procedures, the staff would not lift its SCA objection. As discussed earlier in this report, the staff's lifting of its QA objection for any part of the program is contingent upon DOE's further demonstration of QA program implementation.

Contrary to the staff's previous understanding of its agreement with DOE regarding the September 1990 "NRC acceptance" milestone, in a March 12, 1990, letter to NRC, DOE implied that the September 1990 milestone meant that point at which the staff would resolve its SCA objection. At the March 21, 1990, meeting, the staff reiterated the steps necessary for it to lift its SCA QA objection. In that meeting, the staff maintained that the September 1990 acceptance has a much narrower definition, and that additional confidence in the implementation of the DOE program will be needed before the objection can be resolved. The staff is continuing to work with DOE to ensure that DOE understands NRC's position on the definition of the September 1990 milestone.

Also discussed in the March 21, 1990, meeting was DOE's progress in resolving the Privacy Act issue. Privacy Act restrictions prevented QA auditors and observers from viewing the training records of personnel working on the repository program. Consequently, the auditors and observers were unable to independently evaluate the qualification of the repository personnel. As reported in the last Quarterly Progress Report, a Federal Register notice describing a new system for maintaining records for the high-level waste repository program was in the DOE concurrence process. This new record system will be accessible to NRC, DOE and the State of Nevada. At the March 21, 1990, meeting DOE stated that the Federal Register notice would be published on April 9, 1990, with a 60-day public comment period. However, subsequent internal problems have caused DOE to further delay publication of the notice by two more months. A system that allows DOE and NRC staff review of certain training and qualification records is being implemented in the interim. The staff, DOE, and the State of Nevada agreed to hold the next monthly QA meeting on April 27, 1990.

Another major area of staff concern regarding the repository QA program is the criticism regarding QA practices. There is a perception by some DOE contractor personnel and some observers, such as the National Research Council, that NRC QA requirements are hardware-oriented and inappropriate for scientific investigations, particularly in the earth sciences area. The staff believes that the NRC regulations on QA for the repository have sufficient flexibility to enable scientists to maintain their freedom to be creative and to address the unexpected in the laboratory or field, while at the same time providing the documentation needed for licensing.

On an ongoing basis, the NRC staff has been interacting with DOE and has commented on areas where DOE requirements appear to be in excess of those required by NRC regulations and guidance. In addition to the bi-monthly NRC-DOE meetings to discuss the status of QA program implementation, the staff expects to hold a workshop with DOE and its contractors, this summer, to identify and resolve specific concerns with the QA requirements and to highlight the flexibility allowed by them. The staff plans to discuss specific examples where QA practices have been implemented by geoscientists and geoenvironmental engineers.

#### Waste Form Producers QA Program

The staff remains concerned about the lack of a fully developed and implemented QA program for the DOE glass producers. The staff still has not received QA program documents to review for the West Valley Demonstration Project (WVDP) or the Defense Waste Production Facility (DWPF). The last Quarterly Progress Report noted that no later than February 1990, DOE would be submitting schedules and milestones regarding the development of QA programs for the waste glass producers. Due to the current reorganization at DOE, the planned date for submittal has been moved back to April 1990. As noted in the last Quarterly Progress Report, although the glass producers have been performing pre-production work under a QA program, the program has neither been accepted by DOE's OCRWM nor reviewed by the NRC staff. Without an accepted QA program in place, OCRWM may be unable to ensure that WVDP and DWPF activities that need to be conducted under 10 CFR Part 60, Subpart G, "QA Programs," are properly controlled.

3. Early Establishment of Repository Design Parameters

As noted in previous Quarterly Progress Reports, the NRC staff's SCA documented significant performance assessment concerns in this area. Two technical exchanges on integrating performance assessment into site characterization and scenario development are planned for later this year and will provide a forum for discussing the staff's performance assessment concerns and DOE's action to resolve them. Any problems identified in these technical exchanges will be noted in future Quarterly Progress Reports.

4. Early Resolution of State and Tribal Concerns

As discussed in the last Quarterly Progress Report, on December 27, 1989, the State of Nevada filed a suit in the Ninth Circuit seeking a declaratory judgment that its legislative actions with respect to the Yucca Mountain site constituted an effective "Notice of Disapproval" under NWPA. On December 26, 1989, the State, claiming to have adopted an effective veto under the NWPA, had returned DOE's applications for environmental permits without having processed them. The permits would allow DOE to proceed with the necessary scientific investigations at Yucca Mountain, in order to determine the site's suitability. Subsequently, the Department of Justice filed suit on behalf of DOE on January 25, 1990, in U.S. District Court, Las Vegas, Nevada. The suit was brought against the State of Nevada in an effort to require the State's Division of Environmental Protection to act within 30 days on DOE's applications for air and water permits.

It should also be noted that on February 2, 1990, a group of 21 electric utilities filed motions to intervene in the DOE suit against Nevada. The utilities contribute to the Nuclear Waste Fund, which was established by the 1982 Act, as a means to provide funding for construction of a high-level waste (HLW) repository. They allege that continued delays in DOE's commercial HLW repository program would increase their Waste Fund contributions and would also force them to build interim storage capacity at significant additional expense.

Nevada filed a motion on February 20, 1990, asking the U.S. District Court in Las Vegas to defer action on the DOE

lawsuit on the grounds that the NWPA gives the Courts of Appeals exclusive jurisdiction and further that the issues raised by DOE are the same as those presented in the suit it filed against DOE in the 9th Circuit on December 27, 1989. DOE claims, however, that the issues are not entirely the same, particularly in that only its complaint addresses Nevada's refusal to process the DOE application for environmental permits.

Representatives of Nevada participated in most of the technical exchanges and meetings between NRC and DOE during this quarter. There have been no significant interactions with Indian tribes to report during this quarter. Representatives of the Western Shoshone Nation and the National Congress of American Indians continue to receive notification of upcoming meetings, as well as Advisory Committee on Nuclear Waste meeting transcripts and letter reports relative to the program.

#### 5. Adoption of the Policy of Conservatism

As noted in previous Quarterly Progress Reports, the SCA identified the issue of conservatism. DOE is still developing its response to the concerns expressed in the SCA. During this reporting period, there were no conservatism issues deserving Commission attention.

#### 6. Early Resolution of Issues

As noted previously in this report, during the December 20, 1989, briefing to the Commission on the status of the OCRWM program, DOE raised its concerns related to the management of GTCC. DOE noted that, based on its current calculations of the volume of GTCC waste, which is much greater than was previously estimated, disposal may be a significant problem that could require a second repository for its resolution. Although the staff had reviewed the most current information that DOE had published on GTCC waste (DOE/RW-0006, Rev. 5, Integrated Data Base for 1989: Spent Fuel and Radioactive Waste Inventories, Projections, and Characteristics), and had recognized that there are uncertainties associated with the volume estimates and characteristics of GTCC waste, it was unclear about the basis for DOE's revised estimates. In response to the briefing and a request from Chairman Carr, the staff, by letter dated February 16, 1990, has requested from DOE all information pertaining to the sources, characteristics, and volumes of GTCC waste. As of April 1990, none of this requested information has been submitted.

Subsequent to its receipt and review of the information, the staff will interact with DOE to develop an adequate technical basis for DOE's concerns, and, possibly, to resolve those concerns before taking any further staff action on its rulemaking on criteria for GTCC waste.

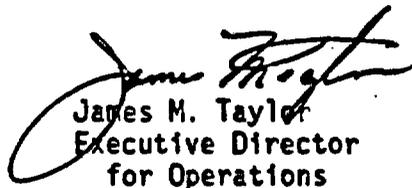
Previous Quarterly Progress Reports discussed staff efforts toward developing a proposed rule to clarify the meaning of "anticipated processes and events and unanticipated process and events" (APEs and UPEs). The staff has determined that the prudent approach to clarifying the meaning of APEs and UPEs would be to combine this action with the rulemaking conforming 10 CFR Part 60 to the EPA standard. The staff will be working with EPA as EPA rewrites its standard to address the issues that were to be covered in the APEs and UPEs rulemaking.

The staff noted in the last Quarterly Progress Report that it had begun work on a proposed rulemaking on "Design Basis Accident Dose Limit." The rulemaking approach was to make 10 CFR Part 60 the same as 10 CFR Part 72, in areas related to the mitigation of accident consequences, and the definition of items important to safety. The staff had completed its work in these two areas and was beginning to prepare a draft rule for Commission consideration. However, in its efforts to develop the rule, the staff identified an issue that could have major impact on the rulemaking approach. Because the surface facilities for the repository and for a monitored retrievable storage facility are similar, 10 CFR Part 60 and 10 CFR Part 72 should offer equivalent protection for these similar facilities. However, the staff found that the criteria in 10 CFR Part 72 were more detailed than those in 10 CFR Part 60. Consequently, the staff is systematically analyzing 10 CFR Part 60 and 10 CFR Part 72, and will consider whether any further changes to 10 CFR Part 60 should be recommended.

During this reporting period, the staff made substantial progress on the draft Format and Content Regulatory Guide (FCRG) for the License Application for the High-Level Waste Repository. The draft FCRG was sent to RES on February 23, 1990, for preparation for publication in the Federal Register. It is anticipated that the draft guide will be published for public comment by May 1990.

The staff has also undertaken, with the Office of the General Counsel (OGC), an effort to review and recommend revisions to the Topical Guidelines, for inclusion of

information in the LSS. Interim Topical Guidelines were included in the Federal Register, when the negotiated rule on the LSS was published, with the understanding that the staff and OGC would revisit them. In a January 12, 1990, memorandum responding to the August 1, 1989, staff requirements memorandum on SECY-89-186, entitled, "Considerations of Revisions to the Commission's Rules of Practice in Order to Further Streamline the High-Level Waste Licensing Process," the Executive Director for Operations and the General Counsel informed the Commission of their plan to review and revise the Topical Guidelines. The staff and OGC will provide a paper to the Commission on their recommendations in May 1990.

  
James M. Taylor  
Executive Director  
for Operations

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## **POLICY ISSUE** **(Information)**

**SECY-90-032B**

**August 3, 1990**

**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 CIVILIAN HIGH-LEVEL  
RADIOACTIVE WASTE MANAGEMENT PROGRAM

**Purpose:** To provide the Commission with a Quarterly Progress Report  
(April 1990 through June 1990) on the pre-licensing phase  
of the U.S. Department of Energy's (DOE's) Civilian High-  
Level Radioactive Waste Management Program.

**Background:** In the Quarterly Progress Reports on the pre-licensing  
phase of DOE's Civilian High-Level Radioactive Waste  
Management Program, the U.S. Nuclear Regulatory Commission  
(NRC) staff discusses key aspects of the pre-licensing  
consultation program between NRC and DOE that deserve  
Commission attention. The previous Quarterly  
Progress Report, SECY-90-032A, discussed activities that  
occurred between January and March 1990.

**Executive Summary:** The most significant activity during this reporting period  
pertained to DOE Implementation of Scheduled and Systematic  
Consultations. Mainly because of problems related to DOE's  
readiness to participate in particular meetings or  
technical exchanges, only two of the seven NRC-DOE formal  
interactions scheduled for this reporting period took place.

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DATE OF THIS PAPER

Contact: Ken Kalman, NMSS  
492-0428

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Discussion:

1. DOE Implementation of Scheduled and Systematic Consultations

Although the staff has continued to establish, schedule, and hold formal technical interactions with DOE to resolve issues raised in the staff's Site Characterization Analysis (SCA), little progress has been made in resolving issues, other than the two staff SCA objections (QA and the Exploratory Shaft Facility design and design process).

Because of problems mainly related to DOE's readiness to participate in particular meetings or technical exchanges, only two of the seven NRC-DOE formal interactions scheduled for this reporting period at the March 20, 1990, NRC-DOE scheduling meeting actually took place. The problems that prevented some of the scheduled interactions from being held will be discussed at a forthcoming NRC-DOE management meeting. The staff believes that this discussion will help identify ways to more effectively use future interactions to facilitate the pre-license application consultation process for the early identification and resolution of potential licensing issues.

In addition to the formal interactions, informal one-on-one scientific discussions among the NRC Office of Nuclear Regulatory Research (RES) staff, Center for Nuclear Waste Regulatory Analyses (CNWRA) staff, and DOE investigators continued during this reporting period under the auspices of the Office of Nuclear Material Safety and Safeguards (NMSS) On-Site Representatives, who also participated in the discussions. The third and fourth in a series of scientific interactions focusing on laboratory investigations of thermohydrologic phenomena were held at Los Alamos National Laboratory on May 21, 1990, and at Sandia National Laboratory (SNL) on May 22, 1990. NRC and DOE both considered the interactions worthwhile for facilitating timely, direct, and open communication between NRC researchers and DOE investigators. Similar interactions in other scientific areas are being planned.

An informal information exchange in the area of performance assessment was also held at SNL on June 25 and 26, 1990 under the auspices of the NMSS On-Site Representatives. This information exchange is further discussed in this report under Early Establishment of Repository Design Parameters.

During this reporting period, DOE and EPA did not conduct any interactions that addressed issues about high-level radioactive mixed waste and the Resource Conservation and Recovery Act.

## 2. Early Implementation of a QA Program

The staff has noted some progress by DOE in program implementation: During the past several months, DOE has performed audits and surveillances that have verified that DOE contractors have improved in the development and implementation of the QA programs. However, DOE has cancelled both of the scheduled audits of the QA programs at DOE's Office of Civilian Radioactive Waste Management (OCRWM) and the Yucca Mountain Project Office (YMPO) and has not rescheduled them. Confidence in DOE's overall repository QA program is dependent upon the demonstration of successfully implemented QA programs at OCRWM and YMPO because these organizations represent the highest level of QA implementation and are responsible for the qualification of the DOE contractor's QA programs.

As discussed in the previous Quarterly Progress Report, the staff continued to express the need for a workshop among NRC, DOE, and DOE contractors to address frequently expressed concerns, whether real or perceived, about implementation of QA in the repository program. On May 22, 1990, the NRC staff held a meeting with DOE and the State of Nevada to begin to address a QA workshop. Although other attendees at the meeting discussed significant issues regarding QA implementation, DOE did not agree that such issues existed at the present time. However, both DOE and the industry representatives agreed that NRC's regulations and guidance are not an impediment to the successful implementation of a QA program. While DOE indicated it was unaware of the concerns related to QA, and did not necessarily agree with issues raised by other parties, it did agree to evaluate the concerns and to hold a workshop. The NRC staff will be invited to participate in the workshop. The staff will report on the results of the workshop in a future Quarterly Progress Report.

## 3. Early Establishment of Repository Design Parameters

As noted in previous Quarterly Progress Reports, the NRC staff documented significant concerns in the SCA

that relate to performance assessment. By letter dated June 11, 1990, the NRC staff forwarded DOE a copy of the report, "Phase 1 Demonstration of the Nuclear Regulatory Commission's Capability to Conduct a Performance Assessment for a High-Level Waste (HLW) Repository." The contents of this report, along with DOE's performance assessment program, will be discussed at a forthcoming technical exchange.

On June 25 and 26, 1990, an information exchange in the area of performance assessment was conducted at SNL under the auspices of the NMSS On-Site Representatives, who also participated in the exchange. This information exchange facilitated one-on-one informal scientific discussions of NRC's and DOE's current activities in the performance assessment area and information gathering among CNWRA, NRC, and SNL staff. This interaction was the first technical consultation concerning performance assessment in the last six years. All the participants found the interaction to be valuable. However, the exchange also emphasized the need for formal discussions in the performance assessment area.

#### 4. Early Resolution of State and Tribal Concerns

Since the last Quarterly Progress Report, the staff became aware that Senators Bryan and Reid, of Nevada proposed S.2258, "The Independent Spent Nuclear Fuel Storage Act." This Act would amend the Nuclear Waste Policy Act (NWPA) to allow commercial nuclear utilities that have contracts with the Secretary of Energy under Section 302 of the NWPA to receive credits to offset the cost of storing spent fuel that the Secretary is unable to accept for storage on and after January 31, 1998. The Act has been referred to the Committee on Energy and Natural Resources.

The State of Nevada and local representatives continue to participate in the technical exchanges and meetings between the NRC and DOE, including meetings of the Licensing Support System Advisory Review Panel. Representatives of the State of Nevada participated in the formal technical exchanges and QA meetings between NRC and DOE during this quarter. In conjunction with the June 13 and 14, 1990, NRC-DOE technical exchange on

significant faults, geoscientists for the State of Nevada, who are investigating field evidence related to faulting and structural control of volcanism in the vicinity of Yucca Mountain, led a 2½-day field trip to present the results of their recent work. Their work includes studies of the following topics: a study of the northwesterly trending faults on the western border of the proposed repository site, the rates of faulting in the vicinity of the site, and the levels of hazard posed on the proposed repository by volcanism.

#### 5. Adoption of the Policy of Conservatism

As noted in previous Quarterly Progress Reports, the SCA identified the need for DOE to be sufficiently conservative in its approaches to treating uncertainty in its investigations and analyses. DOE is still developing its response to the concerns expressed in the SCA, and has stated that its response will not be provided before December 1990. During this reporting period, there were no new issues related to the need for conservatism deserving Commission attention.

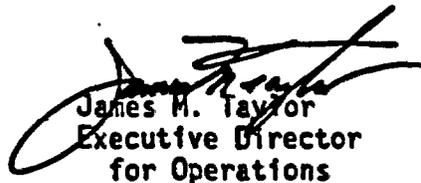
#### 6. Early Resolution of Issues

During this reporting period, RES completed its preparation of the draft "Format and Content Regulatory Guide (FCRG) for the License Application for the High-Level Waste Repository" for publication in the Federal Register. RES anticipates publication of the FCRG for public comment by the end of November 1990.

As part of its continuing effort to resolve issues, the staff is developing several Staff Positions. Staff Positions record the staff's interpretation of existing regulatory requirements. Staff Positions are different from Technical Positions (TPs) in that they offer interpretations of the regulations as opposed to TPs which provide guidance on acceptable methods for demonstrating compliance with the regulations. For example, one Staff Position currently under development addresses the clarification of the 300-to- 1,000-year period for substantially complete containment of high-level wastes within the waste packages under 10 CFR 60.113(a)(1)(11)(A).

Note:

Shortly after the end of this reporting period, DOE issued a press release announcing a reorganization of OCRWM, effective July 16, 1990. Although it is too early to determine the overall effects of the reorganization, the staff considers that DOE has made a positive step in appointing a permanent Quality Assurance (QA) Director who has a significant amount of QA experience with nuclear reactor technology. The staff will provide additional information on the OCRWM reorganization in the next Quarterly Progress Report.



James M. Taylor  
Executive Director  
for Operations

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## POLICY ISSUE

(Information)

SECY-90-032C

November 6, 1990

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  
(July 1990 through September 1990) on the pre-licensing  
phase of DOE's civilian high-level radioactive waste  
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 key aspects of the  
NRC-DOE pre-licensing consultation program that deserve  
Commission attention. The previous Quarterly Progress  
Report, SECY-90-032B, discussed activities that occurred  
between April and June 1990.

Discussion:

1. DOE Implementation of Scheduled and Systematic  
Consultations

A problem identified in the last Quarterly Progress  
Report was that most of the scheduled NRC-DOE formal  
interactions did not take place, mainly because of  
DOE's lack of readiness to participate in them. This  
problem was discussed in a July 19, 1990, NRC-DOE  
management meeting. Since that discussion, all the  
formal NRC-DOE technical interactions scheduled for this  
quarter did transpire. These interactions included  
technical exchanges in the areas of performance  
assessment, geochemistry, and hydrology. The quality of  
the interactions has been steadily improving as DOE has  
become more candid in discussing how it is addressing the  
challenges it faces in the site characterization program.

Contact:

Ken Kalman, NMSS  
492-0428

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During this reporting period, DOE and the U.S. Environmental Protection Agency did not have any interactions on issues concerning high-level radioactive mixed waste and the Resource Conservation and Recovery Act.

2. Early Implementation of a Quality Assurance (QA) Program

In the last Quarterly Progress Report, the staff committed to report on DOE QA workshops on problems associated with the implementation of QA programs by the other participants in the DOE high-level waste repository program. To date, none of the problems identified are due to NRC QA requirements. On August 7, 1990, the staff observed the first of these workshops. The State of Nevada, Clark County, Nevada, and the Edison Electric Institute also sent observers. One significant concern that the DOE program participants raised had to do with DOE's excessive management and administrative requirements which had been mislabeled as QA requirements. There was also concern expressed about the difficulty in changing participant program QA procedures due to the need to obtain approvals for such changes from within DOE. A general need for better education in QA program development and successful methods of implementation was perceived by the NRC staff.

Following the workshop, DOE informed the NRC staff by letter dated September 24, 1990 that future workshops with program participants would cover four areas of concern. These areas dealt with: (1) a lack of flexibility in the application of the QA program during scientific research; (2) the complexity of the computer software QA program; (3) data submittal requirements; and (4) communication needs among DOE and the participants. The NRC staff has been requested to participate in these future interactions, and will continue to report to the Commission on them in future Quarterly Progress Reports.

On September 12, 1990, DOE sent a letter to the NRC staff stating that it had accepted the QA programs for six of its Office of Civilian Radioactive Waste Management (OCRWM) contractors and requesting that the NRC staff accept the programs. Of the six, DOE had accepted four of the

contractors programs with exceptions. The exceptions were based on open issues pertaining to procurement procedures, software QA, and objective verification of personnel qualifications.

The staff reviewed DOE's letter and enclosures and concluded that DOE had provided an adequately documented basis for NRC review and evaluation. The staff has determined it will be able to accept the six programs subject to satisfactory resolution of the exceptions noted by DOE. This action shows significant progress in resolving one of the NRC staff's objections to DOE's Site Characterization Plan. DOE has to accept two more participants' QA programs as well as the QA programs for OCRWM and the Yucca Mountain Project Office before the staff will lift its overall Site Characterization Analysis (SCA) objection.

### 3. Early Establishment of Repository Design Parameters

Previous Quarterly Progress Reports noted that the NRC staff had documented significant concerns, in the SCA, that relate to performance assessment. Although the staff has not met with DOE on the specific SCA performance assessment concerns, it has continued to interact with DOE in other areas related to performance assessment. These interactions help give DOE insight on what constitutes an acceptable approach for performing a performance assessment and, in turn, will help DOE address the SCA concerns.

The NRC staff developed a report entitled "Phase 1 Demonstration of the Nuclear Regulatory Commission's Capability to Conduct a Performance Assessment for a High-Level Waste (HLW) Repository," a copy of which was transmitted to DOE in June 1990. On July 30, 1990, the staff and DOE discussed this report in a technical exchange. Another technical exchange that will focus on DOE's performance assessment program and the integration of performance assessment into site characterization is scheduled for November 1990.

### 4. Early Resolution of State and Tribal Concerns

Previous Quarterly Progress Reports (SECY-90-032 and SECY-90-032A) have discussed the actions the State of Nevada has taken to disapprove Yucca Mountain as a potential repository site. One of these actions included filing a suit on December 27, 1989, in the Ninth Circuit seeking a declaratory judgment that its

actions constituted an effective "Notice of Disapproval," under the Nuclear Waste Policy Act (NWPA). However, on September 19, 1990, the Court rejected Nevada's challenge in a unanimous 3-0 ruling. The Court held that Nevada's attempted legislative veto of DOE's site characterization activities is preempted by the 1987 NWPA amendments.

#### 5. Adoption of the Policy of Conservatism

Previous Quarterly Progress Reports noted that 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, related to the need for conservatism, deserving Commission attention.

#### 6. Early Resolution of Issues

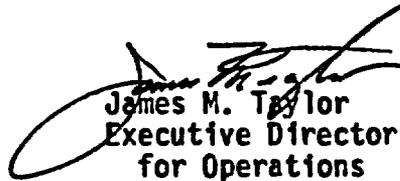
During this reporting period, the staff briefed the Advisory Committee on Nuclear Waste (ACNW) on the draft regulatory guide on "Format and Content for the License Application for the High-Level Waste Repository." The ACNW's comments were given to the staff after the briefing and have been addressed. Therefore, the staff still anticipates publishing a notice of availability of the draft, for public comment, in the Federal Register, by the end of November 1990.

#### 7. DOE Reorganization

The previous Quarterly Progress Report noted that DOE had announced a reorganization of OCRWM. The new OCRWM structure consists of five major offices and an independent QA office. The new organization is based on the two functions assigned to OCRWM, waste storage and transportation, and waste disposal at the Yucca Mountain site, rather than a matrix organization. Waste storage and transportation are assigned to one office, the Office of Storage and Transportation, and waste disposal at Yucca Mountain is assigned to a second office, the Office of Geologic Disposal. In addition, OCRWM will have a systems engineering and compliance office responsible for the overall OCRWM program. It will be responsible for developing the high-level strategy whereas the functional offices will be responsible for implementing the strategy. The QA office will consolidate all the QA functions presently assigned to OCRWM and the Nevada site, under one director reporting directly to the OCRWM Director.

The remaining major offices will handle the OCRWM administrative support. Besides the five major offices and the QA office, there are two support offices, for international activities and external relations.

As noted in the previous Quarterly Progress Report, under this reorganization, DOE was appointing a permanent QA Director who had a significant amount of QA experience with nuclear reactor technology. Since the reorganization, the staff has noted significant progress, on the part of DOE, in resolving QA related concerns. Furthermore, as noted elsewhere in this report, the past problem concerning missed interactions seems to have been resolved. During this reporting period, all interactions were held on schedule and DOE has been much more open in discussing how it is addressing its challenges.

  
James M. Taylor  
Executive Director  
for Operations

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