OVERVIEW OF THE CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM

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ABSTRACT

This paper discusses the Department of Energy's Civilian Radioactive Waste Management Program. program has undergone some significant changes since Waste Management '89.

CHALLENGES

The law of the land gives DOE responsibility for developing the national waste management system leading to permanent disposal of high-level waste. Those who follow this program know the path has been rocky. Much excellent work has been done. There were some changes in direction, the program has been the subject of much criticism, and there have been many challenges. Looking ahead, challenges remain, not the least of which is, simply stated: the law gives DOE the responsibility but not the necessary authority. This is not a criticism of Congress or previous administrations. It is a statement of fact.

Other significant challenges include:

- The scientific program designed to assess the suitability of Yucca Mountain is believed to be one of the most complex geotechnical evaluations ever undertaken by mankind.
- DOE needs to develop models and tools that stretch current science and technology.
- DOE is faced with the need to demonstrate the viability of waste isolation for 10,000 years--double man's written history.
- The Nuclear Regulatory Commission (the NRC) has never licensed a geologic repository--regulations are evolving and are untested in a licensing proceeding.
- DOE has never filed a license application for any facility.
- DOE is implementing for the first time an NRC-regulated QA program.
- There exists heightened public awareness and concern about the safety and environmental risk of anything *nuclear*, and frankly, concern about DOE's credibility in the waste management arena.
- There does not exist consensus about the scope or pace of the program.
  - The Secretary wishes to implement the law and put the program on a sound footing.
  - Industry supports his position and says move faster.
  - NRC says move ahead but with extreme caution.
  - Nevada says stop.

SECRETARY'S INITIATIVE

Facing up to these challenges, late last year Secretary Watkins completed an extensive review of the program as it had been established by the Nuclear Waste Policy Act of 1982, as amended. In a report for the Congress delivered in November 1989, he concluded that the program was not executable in its current form.

The Secretary's comprehensive review yielded the following conclusions:

- The program needed a permanent Director.
- It needed to establish realistic and achievable goals and schedules.
- It needed to be organized so that program goals and schedules have a reasonable chance of success.
- Resources must be properly directed and allocated.

Public understanding and confidence in the program are needed to support informed decisions regarding the protection of the public's health and safety and the environment.

On the basis of these conclusions, Admiral Watkins directed a number of far-ranging initiatives.

The first set of initiatives addressed leadership for the program--obtaining a permanent Director and acquiring additional personnel with relevant technical management and licensing experience for this major, first-of-a-kind program. As a result, Dr. John Wesley Bartlett has been nominated by the President to fill the critical post of Director, and his confirmation by the U. S. Senate is expected shortly. His nomination cleared committee last week.

The second set of initiatives addressed management issues. The Secretary directed a review of the program in order to restructure its management. DOE is also streamlining and enhancing our interactions with the NRC.

A third major initiative reassessed program goals, plans, and activities in order to formulate a realistic pro-

gram schedule based on sound scientific principles and real world uncertainties and constraints.

A fourth initiative reprioritized scientific investigations at the Yucca Mountain site to evaluate key suitability issues early. This initiative responds directly to comments received from the State of Nevada, the Nuclear Regulatory Commission, and the Edison Electric Institute. The Department is also refocusing the scientific program so that early results will guide the scope of later investigations in response to National Academy of Sciences' concerns.

The Secretary also asked the Department of Justice to sue the State of Nevada in order to enable us to carry out the Federal law requiring us to investigate the site.

With respect to a monitored retrievable storage facility, the Secretary called for an accelerated review of the report submitted to Congress by the MRS Review Commission--an independent Commission established by Congress to examine the feasibility and desirability of an MRS.

In a related initiative, the Secretary is seeking timely Presidential appointment and Senate confirmation of a Nuclear Waste Negotiator. The Negotiator--required by the 1987 amendments to the Nuclear Waste Policy Act--is to seek a proposed agreement with a State or Indian Tribe willing to host a repository or an MRS.

To ensure that the transportation system is ready to support the MRS and is fully integrated with all elements of the Federal waste-management system, the Secretary directed a reassessment of the objectives and pace of transportation activities.

Another vitally important initiative calls for a strong public involvement and education program designed to promote public understanding and public confidence in our efforts.

In carrying out Secretary Watkins' initiatives, DOE is consulting with experts from academia, government, and industry; the National Academy of Sciences; the State of Nevada; the Nuclear Waste Technical Review Board--which exercises independent oversight of our technical activities; the Nuclear Regulatory Commission; the Environmental Protection Agency; the U. S. Geological Survey; and other affected and interested parties.

PROGRAM MANAGEMENT REVIEW

Several of the Secretary's initiatives are discussed in more detail below, starting with the management review. This review is examining management structure and systems, and contractual arrangements.

A management consulting firm conducted an independent review of the program organization structure. The review has been completed and the Secretary has received their report and recommendations. Some interim realignments have been made. A decision will be made soon about the final organizational realignment of the program and the potential for a management and operating contractor. Because the new Director will participate in these organizational decisions, they have been deferred until he has been confirmed.

In the meantime, one major organizational change has been effected. Previously, the Yucca Mountain Project Office reported to the DOE Nevada Operations Office Manager, who reported independently to the Under Secretary. Now, the Project Office reports directly to the program. This direct line reporting is consistent with other departmental changes the Secretary has made.

PROGRAM SCHEDULE

The program clearly needed to establish a schedule that is achievable but takes into account scientific needs, external decisions, and obstacles, as well as contingencies based on uncertainties.

The Secretary's evaluation of the overall program schedule--including the schedule for scientific investigations at the Yucca Mountain site, the development of an MRS facility, and activities associated with the transportation system--was published in November 1989, along with a statement of his initiatives.

The repository schedule shows a significant delay from 2003 to 2010 for the start of repository operations. However, the new date is less a delay than a realistic reappraisal by Secretary Watkins. As Deputy Secretary Henson Moore told the American Nuclear Society in November, the 2003 date was driven more by political desire than by science or engineering.

The good people who crafted the Nuclear Waste Policy Act of 1982 felt it important for DOE to site, design, construct, secure a license for, and accept waste in a repository within 16 years. At that time 16 years seemed like plenty of time.

With 20-20 hindsight, it is clear that a 16-year schedule simply did not reflect reality. Even after siting, constructing, licensing and starting up over 100 power reactors, the next one could easily take 16 years from conception to hot start. The Department was asked to have a first-of-a-kind in the world repository on stream in the same amount of time as the next power reactor. It simply was not possible.

The Secretary's schedule, for the first time, recognizes the real world. The clear message is DOE will do it, but will take the time necessary to do it right.

Since certain activities are beyond DOE's control, assumptions for schedule milestones were required. For example, a primary assumption was the date for obtaining

permits from Nevada to begin scientific investigations at the Yucca Mountain site.

Nevada has obstructed the Department's efforts to begin new site characterization activity by refusing to grant necessary permits. For example, one such permit application is normally processed within 75 days under State regulations. The State held the application for 2 years and returned it to us unprocessed.

To ensure that DOE can obtain the required permits and can proceed with the site investigations mandated by law, the Department of Justice, on the Department's behalf, has filed a suit against the State of Nevada which asks for a court order that would stop the State from impeding statutorily mandated work.

A potential delay was averted recently when the U. S. Fish and Wildlife Service agreed that the proposed Yucca Mountain site studies are not likely to jeopardize the endangered desert tortoise.

The new schedule for the MRS facility assumes that a site will be obtained by identifying a volunteer host, preferably through the efforts of the Nuclear Waste Negotiator. In addition, the schedule assumes that the linkages between the MRS facility and the repository that are specified by the 1987 amendments would be modified--either independent of, or as a result of, initiatives proposed by the Negotiator.

Under these assumptions, it is estimated that spent-fuel acceptance could begin at an MRS site, on a limited basis, as early as January 1998; and that full operations would begin in the year 2000.

If a volunteer host for an MRS facility is not identified and a site must be selected by DOE, it is estimated that at least 2 more years would be added to the schedule--resulting in a 2002 start-up date for the basic MRS facility. Even this later date assumes that linkages would be modified. If linkages defined in the Amendments Act are not modified, it is estimated that the earliest an MRS facility could begin basic operations would be 2007.

SCIENTIFIC INVESTIGATIONS AT THE YUCCA MOUNTAIN SITE

Another initiative is the work of refocusing the scientific studies at the Yucca Mountain site. Surface-based tests are planned as a first step. Using boreholes and trenches, DOE's scientists will focus on identifying potentially adverse site conditions as early as possible. The Department is also evaluating the suggestions of the Nuclear Waste Technical Review Board and the NRC concerning thedesign of the exploratory shaft facility from which underground investigations will be conducted.

Surface-based tests are scheduled to begin in January 1991, some work may begin earlier if permits are granted earlier. Construction of the exploratory shaft for in-situ testing is scheduled to begin in late 1992. It is important to remember that surface-based tests alone may not confirm suitability, but could determine unsuitability. It is important to learn at the earliest possible date if the site is unsuitable.

The Department believes that information provided by both surface-based and underground tests will be necessary to demonstrate the overall performance of the repository, and whether the site is suitable or unsuitable. Underground tests will be used in large measure to confirm surface-based test results.

For each test that will be conducted on-site, a study plan is being developed by the Departments' scientists. These study plans are approved by DOE and reviewed by the NRC, and a qualified QA program will be in place for each effort before any new site work is initiated. In total, more than 100 study plans will be needed to guide our scientific investigations in accordance with the Yucca Mountain site characterization plan published in December 1988. Along with the preparation of study plans, the Department is developing and implementing a rigorous quality assurance program.

PROGRAM OVERSIGHT

One of the most important features of the program is that it is subject to an extraordinary degree of oversight--some is mandated by law, much is being done at DOE's request. We encourage this oversight. It can only make us better.

Facilitating this oversight requires extensive consultations and interactions between DOE and other parties. Toward this end, the Secretary is committed to conducting this program openly, in full public view.

This conference is an important forum for that scrutiny; the Department welcome your contributions to its work.

CONCLUSION

In closing, the law says that DOE is responsible for developing the nation's high-level waste management system. The Department is committed to doing this in a manner to ensure protection of the public's health and safety and the environment.

But in the final analysis DOE is not simply doing and building things. DOE is also preserving options for the nation's energy future. The Department's waste management programs are truly the gates through which the future nuclear option of the nation must pass.

Secretary Watkins has charted a new course. It will continue to take dedication and backbone to move successfully on that course. The Department is bringing to bear an

exceptionally competent and committed team of government, national laboratory, and private sector experts, under the leadership of Secretary Watkins and Dr. Bartlett. It will also take your help to ensure that the nuclear option is not foreclosed for future generations.