



Department of Energy
Washington, DC 20585

October 5, 1994

The Honorable Ivan Selin
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Chairman:

In accordance with Section 113(b)(3) of the Nuclear Waste Policy Act of 1982, as amended, the Department has prepared the tenth in a series of progress reports focused on site characterization at the Yucca Mountain candidate site in Nevada. The document is entitled, "Site Characterization Progress Report: Yucca Mountain, Nevada" and covers the period from October 1, 1993, through March 31, 1994.

The Civilian Radioactive Waste Management Program made significant progress during the reporting period. The Exploratory Studies Facility design and construction activities progressed significantly during this reporting period. The design change for the enhancement to the configuration reported in Progress Report 9 is being implemented. This change reduces the grades in the initial loop formed by the North Ramp, main drift, and South Ramp and reorients the main drift to be parallel and adjacent to the Ghost Dance fault along much of its length.

Delivery of the tunnel boring machine began during the reporting period. Significant progress was made in the Exploratory Studies Facility design activities that are required to support operation of the tunnel boring machine. After approximately 6 months of testing, full tunnel boring machine operations are scheduled to begin in the second quarter of fiscal year 1995.

The first test alcove in the Exploratory Studies Facility was excavated during the reporting period for purposes of conducting radial borehole and hydrochemistry tests. Both tests are aimed at detecting vertical movement of water in the liquid or vapor phase. The radial borehole test will also provide information on the effects of excavation on hydrologic properties.

During the reporting period, the Director of the Office of Civilian Radioactive Waste Management approved a change to the Civilian Radioactive Waste Management System Program Baseline to incorporate the multipurpose canister concept and directed that it proceed through the design and certification phase. The multipurpose canister, combined with appropriate outer containers or overpacks, will provide a standard package for storage, transportation, and disposal of spent nuclear fuel. It is intended to reduce

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the number of spent-fuel-handling operations and associated occupational exposures, standardize storage technologies, reduce total Program costs, and simplify repository operations.


Advanced Conceptual Design for the repository and waste package continued during the reporting period. A new approach called focused Advanced Conceptual Design was initiated late in the reporting period to focus and integrate design activities and avoid unnecessary duplication of efforts. This approach to Advanced Conceptual Design relies on identifying assumptions to be verified as site characterization progresses. Key assumptions identified during the reporting period include horizontal in-drift emplacement of multipurpose canister-based waste packages, integrated rail transport for subsurface transport of waste packages, use of burnup credit and partial neutron absorber for nuclear criticality control, 100-year retrievability period, and a subsurface standoff distance of 60 meters from the main trace of a fault at the repository level.

Another major iteration of Total System Performance Assessment was completed during this reporting period. Results of the total system studies show that aqueous releases for 10,000-year predictions are likely to be well below the remanded Environmental Protection Agency's standards, while gaseous releases (carbon-14) generally exceed the standards.

The Office of Civilian Radioactive Waste Management has initiated changes to the Program to bring the planned activities at Yucca Mountain into conformity with the fiscal year 1995 budget request and out-year funding expectations and to develop realistic estimates of schedules and costs. This revised program approach also addresses the issues of waste acceptance, interim storage, and transportation, although these topics are not covered in this Progress Report.

The Department will continue to issue progress reports on a semi-annual basis, as specified in the Nuclear Waste Policy Act.

Sincerely,



Daniel A. Dreyfus, Director
Office of Civilian Radioactive
Waste Management

Enclosure